The Totoket Historical Society, Inc.

Local Patentees
1843 - 1867

by

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LOCAL PATENTEES
1843-1867

The United States Patent and Trademark Office issued nineteen patents to our local entrepreneurs between 1843 and 1867. They are:

NUMBER	PATENTEE	DATE	ITEM	LOCATION
?	James Maltby	Dec 5, 1843	Horse Rake	Northford
No. 11781	Thaddeus Fowler	Oct 10, 1854	(Sewing Pin) Work Holder	Waterbury
No. 12312	George Fowler	Jan 30, 1855	Double Acting Force Pump	Northford
*No. 12723	DeGrasse & George Fowler	Apr 17, 1855	Machine for Punching Metal	Wallingford
No. 13785	Thaddeus Fowler	Nov 13, 1855	Separating (imperfect) Pins	Waterbury
No. 14234	Thaddeus Fowler	Feb 12, 1856	Sticking Pins in Paper	Waterbury
No. 18043	Thaddeus Fowler	Aug 25, 1857	Pin-Sticking Machine	Waterbury
No. 18831	Thaddeus Fowler	Dec 8, 1857	Mach. for Sticking Pins on Paper	Waterbury
No. 19556	Thaddeus Fowler	Mar 9 , 1858	Pin-Sticking Machine	Waterbury
No. 26874	DeGrasse & Thaddeus Fowler	Jan 17, 1860	Making Coated Iron Pins	North Branford
No. 29431	Thaddeus & DeGrasse Fowler	July 31, 1860	Mach. for the Manufacture of Pins	Northford
No. 31708	Thaddeus Fowler	Mar. 19, 1861	Improved Device for Coating Pins	Seymour
No. 2263	Edward Smith			
No. 33267	Sidney Cowles	Sept 10, 1861	Improvement in Horse Rakes	Northford
No. 64963	Thaddeus Fowler Assignor to Fowler Nail Co of New Haven	May 10, 1867	Improvement for Making (Horse Shoe) Nails	Seymour
No. 64964	Thaddeus Fowler	May 21, 1867	Improvement for Making Horse Shoe Nails	Seymour
No. 66158	E.C. Maltby & Edward Smith	June 25, 1867	Improved Confection	Northford
No. 68429	Thaddeus Fowler	Sept 3, 1867	Mach. for Making Sewing Mach. Needles	Seymour
No. 68430	Thaddeus Fowler	Sept 3, 1867	Mach. for Reducing Wires for Needle Blanks	Seymour
No. 70190	Maltby Fowler (1832-1902)	Oct 29, 1867	Cards for Hooks & Eyes	Northford

*Reissued Aug. 24, 1869 as Patent No. 3617.

Copies of each patent beginning with No. 11781 are attached.

Members of the Fowler family are named on sixteen patents, with eleven being issued to one man - Thaddeus Fowler. He, also, shared two additional patents with his brother DeGrasse, And DeGrasse was associated with a third brother, George, on yet another patent, while George was the sole patentee for a pump.

"The inventiveness of the Fowler family, marked through several generations is noteworthy." (1) The first of these was William Fowler (1572-1660) who arrived in New Haven from Boston along with John Davenport and Theophilus Eaton in 1638. William promptly migrated to Milford where "a privilege of a mill (grist?) was given him on March 9, 1640 -- the first in the colony (New Haven) --- to which he afterwards added a saw mill - - - - It is now acknowledged to be the oldest business establishment of its kind in the country." (2)

Closer to home Maltby Fowler (1780-1855) was credited with making in about 1812 " - - - the first four-wheel carriage in Connecticut - - - - The axles were of hard wood but it had steel end springs." (3) Chandler, also, noted that Maltby Fowler's children demonstrated mechanical ingenuity by producing astonishingly varied inventions among which he lists as " - - - a press for perforating tin, a machine for drawing out brass tubing, a screw machine which turned out 6,000 screws per minute, cigar and cigarette making machines which are still in use, a washing machine, and a power press which was manufactured for many years in Middletown, the Fowler horse-nail machinery, a reaper and binder and other less successful inventions - - - -".

"But the most important in this connection, however, are the contributions to pin machinery." (4)

There were others besides the Fowlers who participated in this industrial maelstrom. The 1843 issue of the patent office book lists James Maltby of Northford as patentee of Dec. 5, 1843 for a Horse Rake. Unhappily no patent number is provided and other and earlier reference material in Yale's Mudd Library seems to be missing. To date this is the earliest reference to a local patentee.

Edward Smith and Sidney Cowles were issued a patent on Sept. 10, 1861, also, for a horse rake. Oddly enough the diagrams are labelled as No. 2263 & 33267

while the description refers only to "Letters Patent No. 33267." Tracking down Patent No. 2263 with the Patent Office turned up an item totally unrelated to horse rakes, or Northford's Smith & Cowles.

On June 25, 1867 E. C. Maltby and Edward Smith were issued Patent No. 66158 for "Improved Confection", or desicated cocoanut.

A reading of historical records clearly indicate that the development of the machinery to make the common pin, horse shoe nails and desicated cocoanut made significant contributions to our country's 19th century culture.

G. S. Miller
August 1997

I. Fowler.

Work Holder.

No. 11781. Patented Oct. 10. 1854

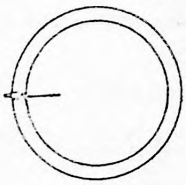


Fig 1

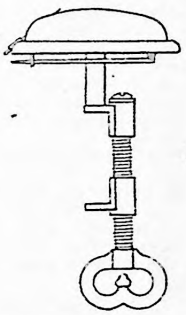


Fig. 2.

UNITED STATES PATENT OFFICE.

THADDEUS FOWLER. OF WATERBURY, CONNECTICUT.

SEWING-PIN.

Specification of Letters Patent No. 11,781, dated October 10, 1854.

To all whom it may concern:

Be it known that I. THADDEUS FOWLER, of the town of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Instrument or Combination which I call the "Sewing-Pin."

The nature of my invention consists in an emery ball, constructed with a metal rim and back, in this rim a pin or needle is firmly fixed, and also another pin is attached to the back of said ball, for the purpose of fastening the same to the dress of the person or other thing; and the whole is used to hold cloth while it is being sewed.

I first construct an emery ball of any suitable form and finish, with a metal rim and back, a top view of which is seen at Figure 1 in the accompanying drawing, and upon the back of the ball I attach another pin with a hinge and hook as seen at Fig. 2 in the accompanying drawing, for the purpose of fastening the ball upon the dress or other cloth, at the option of the person using the same. I also fix, or fasten the ball upon the edge of the table or work stand, by inserting in the metal back of the ball, a thumb screw, upon which are two jaws, the one stationary and the other moving upon said screw, as seen at Fig. 2 in the accompanying drawing.

I will now point out what I claim as my invention, and desire to secure by Letters Patent.

I do not claim the emery ball, neither do I claim the screw and jaws or the pin attached to the back of the ball separate and alone; but

What I do claim as a new article of manufacture, is—

The emery ball, with the pin point fixed in its metallic rim, and provided with the hinged pin and hook by which it is attached to the dress of the user, or to a table cloth, for the purposes above set forth and described.

THADDEUS FOWLER.

Witnesses:

JOHN W. WELSH,
JOHN J. JACQUES,
S. H. PRITCHARD.

G. Fowler.

Force Pump.

No 12,312. Patented Jan 30, 1855.

Fig. 1.

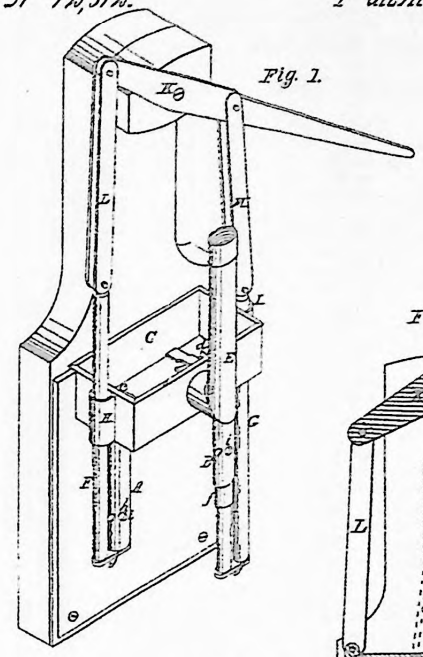


Fig. 2.

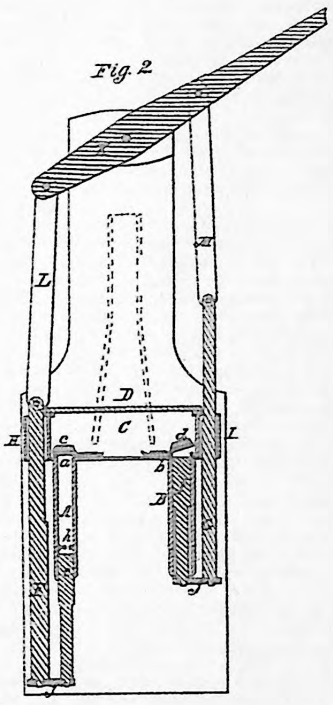
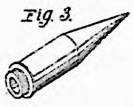


Fig. 3.



UNITED STATES PATENT OFFICE.

GEORGE FOWLER, OF NORTHFORD, CONNECTICUT.

DOUBLE-ACTING FORCE-PUMP.

Specification of Letters Patent No. 12,312, dated January 30, 1855.

To all whom it may concern:

Be it known that I. GEORGE FOWLER, of Northford, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Lifting-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1 is a perspective view of a double acting lifting pump, showing all its external parts, as ready for use. Fig. 2, is a vertical section of the same, cut through its center, showing all the internal structures in their proper positions. Fig. 3, is a perspective view of the end, or mouth piece of the water pipe E, Fig. 1.

My improvement consists in so constructing the pump, (either single, or double, acting) that the water will be let into the pump stock, or cylinder, above the piston, so that the piston will not need any valve, it being worked, to lift the water, by a rod, or shaft, outside of the pump stock, leaving the whole space in the cylinder to be filled with water, thereby raising a greater quantity of water in proportion to the size of the cylinder and the piston being solid will be much less liable to get out of order, while the only valve, which is used, is in the upper reservoir, where it can be readily examined by simply unscrewing the lid.

I make the pump stock, A, B, Fig. 1, of a hollow cylinder, of any suitable material, open at both ends, as shown, in section at A, B, Fig. 2, and secure the upper end, *a*, *b*, in the bottom of a suitable reservoir, C (which serves both as water vessel, and air vessel,) the upper end of the cylinder passing completely through the bottom, as seen at *a*, *b*, Fig. 2. And the lower part perforated with holes, as seen at *h*, *i*, Fig. 1. In the bottom of the reservoir, C, I fit a suitable valve, as seen at *c*, *d*, Fig. 2, to close the upper end of the cylinder, the valve opening upward to admit the water into the reservoir, and closing by its own gravity, or the pressure of the water in the reservoir.

I make the reservoir of cast iron, or any other suitable material, and render it air tight by screwing down the lid, D, Fig. 2, with suitable packing. And, to the side of this reservoir, C, I fit a suitable pipe, as E, Fig. 1, to which may be attached any desired length of pipe, or hose, to convey the water to the desired locality. Or, this pipe may be attached to the lid, and be extended down to near the bottom of the reservoir, (leaving sufficient space for air,) as indicated by dots, at D, Fig. 2.

I make the piston, *e*, *f*, of solid cast iron, or any other suitable material, (without boxes or valves,) to accurately fit the inside of the cylinder, as seen at *e*. *f*, Fig. 2, so that no packing will, ordinarily, be necessary, (but they may be packed in any of the ordinary ways, if thought necessary). The rod and piston, together, should be about the length of the cylinder, as shown at *f*, Fig. 2.

I connect the lower end of the piston, (by means of a cross bar *j*,) with the side rod, or shaft, F, G. This side rod, F, G, is caused to work parallel with the piston rod, *h*, *i*, by means of the guide, H, I, attached to the reservoir C. I connect the upper end of the parallel side rod, F, G, with the lever, or brake, K, by means of the connecting rod, or bar, L, M.

Having constructed the parts as above described, I connect the lower ends of the piston, and side, rods, insert the piston into the lower end of the cylinder, and the side rod through the guide, and connect its upper end with the lever, or brake, when the pump is ready for use. The lower end of the cylinder, &c., is put into the water to a depth greater than to the holes, *h*, *i*, so that when the piston is forced down to the position seen at *e*, Fig. 2, the water will rush into the holes, at *h*, and when the piston is forced up, it will lift the water upon its upper end, force open the valve, as at *d*, Fig. 2, and force the whole column of water into the reservoir, C, when the pressure of the air (in the reservoir,) upon the water will force it out through the pipe, E, and convey it to any desired place, by means of additional pipe, or hose, to the extreme end of which, should be attached the pipe, or mouth piece, Fig. 3, or some other suitable termination.

This pump can, very advantageously, be made double acting, as shown in Figs. 1 and 2. And, when set very deep in the water, there may be valves opening inward, near the top of the water, to prevent the resistance of the vacuum while the piston is de-

scending. This pump will be equally suitable for fire-engines, or, in any situation where lifting or forcing pumps are required.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the solid piston with the cylinder, and reservoir, when the piston is inserted from the lower end of the cylinder, and worked by a parallel side, rod, or shaft, outside of the cylinder, (whether for single, or double, acting pumps,) so as to constitute it an efficient lifting pump, (without suction valves,) and the whole is constructed, combined, and arranged, substantially, as herein set forth.

GEORGE FOWLER.

Witnesses:
SAMUEL THOMPSON,
R. FITZGERALD.

G. & De Grasse Fowler.

Metal Punching Mach.

No 12,713. Patented Nov. 17, 1855.

Fig. 1.

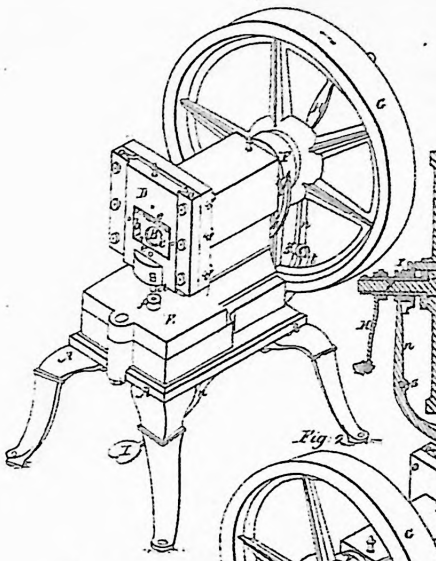


Fig. 3.

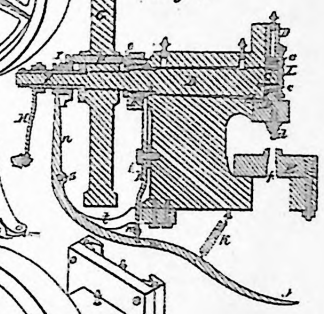


Fig. 2.

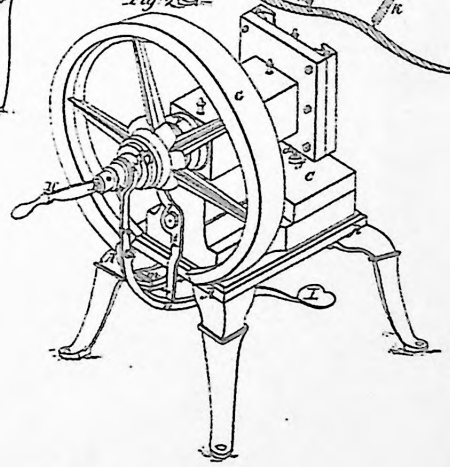


Fig 4.

UNITED STATES PATENT OFFICE.

DE GRASSE FOWLER AND GEORGE FOWLER, OF WALLINGFORD, CONNECTICUT.

MACHINE FOR PUNCHING METAL.

Specification forming part of Letters Patent No. 12,723, dated April 17, 1855; Reissued August 24, 1869, No. 3,617.

To all whom it may concern:

Be it known that we, DE GRASSE FOWLER and GEORGE FOWLER, both of the town of Wallingford, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machines for Punching Metal, &c.; and we do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings which make a part of this specification, in which—

Figure 1 is a perspective view of the whole machine, taken from the front end, showing the movement of the punch, its adjustment, &c. Fig. 2 is a perspective view of the same, taken from the rear end, showing the apparatus for putting the punch in and out of gear, &c. Fig. 3 is a view of a longitudinal section, cut vertically through the center, showing a section of all the essential parts. Fig. 4 is a cross section of the eccentric or crank pin, (seen at B, Fig. 1) with an eccentric circle, or case, around it, to vary the eccentricity of the motion.

Our improvement consists in the peculiar manner of connecting the operation of the two levers to throw the machine out of gear at the precise time when the punch is at its greatest elevation, which is the position for putting in, or taking out, the work.

We make the main frame, or body A, A, &c., of the machine, of cast iron or any other suitable material, in the usual way, substantially, of the form shown in Figs. 1 and 2. We ream the hole for the main shaft, tapering, as shown in section in Fig. 3, so as to receive the main shaft, B, with its several off-sets, as shown in section in Fig. 3. We make this main shaft, B, large at the front end to enable us, by the eccentric journal on its end, (as seen at C, Fig. 3) to give sufficient vertical motion to the punch, (which may be assisted by the eccentric circle, *e*, Fig. 4); and the other parts smaller, to lessen friction, weight, &c., while it retains sufficient strength to prevent trembling.

We make the slide, or gate, D, Figs. 1 and 3, of cast iron or other suitable material, and have it slide in ways, *a*, and *a*, in the usual way, as shown in Fig. 1. In the central part of this slide we make an oblong mortise, *b*, with parallel sides, in which we place the sliding square block, *c*, with a round hole to receive the eccentric circle, *e*, Fig. 4, and eccentric journal, C, Fig. 3, as shown at B, Fig. 1.

We make the sliding block, *c*, so much shorter than the mortise, as to allow it to have sufficient longitudinal motion to accommodate the eccentricity of the journal, even when enlarged by the eccentric circle, *e*, while it has no room to move in a vertical direction, so that the motion of the eccentric journal will give a reciprocating motion to the slide, D, which corries the punch, *d*, Figs. 1, 2, and 3.

To graduate the motion of the punch, so that it may come down, at all times, to the exact point desired, we use thin plates, of different thicknesses, which may be placed over, or under, the block *c*, and changed at pleasure, as seen at *e*, and *e*, Figs. 1, and 3. We inclose this block, plates, &c., with a plate, as indicated, in section, at L, Fig. 3.

We fix the female die, *f*, in a suitable bed, in the usual way, as seen at E, Figs. 1, 2, and 3. The dies may be changed, or varied, at pleasure, to suit any kind of punching, or forming, of metal plates. The main shaft, B, is supported in bearings at *g*, and *h*, Fig. 3.

Back of the bearing, *h*, we fix a permanent collet, F, which always revolves with the shaft, B. In the front side of this collet, we fix a stud, or projection, as seen at *i*, Fig. 1, which acts upon the upper end, *j*, of the lever, *k*, to throw the wheel out of gear. This lever, *k*, works on a fulcrum screw, *l*, Figs. 2 and 3, and is held to its place by a spiral spring, *m*, when the machine is in gear, while its lower end rests on the clutch lever, *n*, *n*, as seen in Fig. 2. And in the back, or rear side, of this collet, F, we fix a stud, or projection, *o*, Fig. 3, against the side of which the sliding rod, *p*, strikes, or presses, when the machine is in gear.

We place the fly-wheel, G, with the loose socket, *q*, on the rear part of the shaft, B, so as to be turned freely upon it while the machine is out of gear. And, on this socket, *q*, we place the crank, H, (when a crank is used). Between this wheel, G, and the crank, H, and loose upon the socket, *q*, we place the clutch, *r*, which governs the sliding, or connecting, rod, *p*, as shown in Figs. 2 and 3. This clutch, *r*, is moved by the

clutch lever, *n*, *n*, by means of pins or projections, working in a groove, at *r*, Figs. 2 and 3. The clutch lever, *n*, *n*, works on a fulcrum pin, *s*, in an inflexible arm, *t*, attached to the main bed of the frame, as shown in section in Fig. 3, and is worked by the foot applied to the front end, at I, to put the machine in gear: and this front end, I, is drawn up by the spiral spring, K, Fig. 3, to throw the machine out of gear.

Having made and arranged the several parts of the machine, as before described, we apply the power to the crank, H, (or, a band on the wheel, G, or otherwise,) and revolve the wheel, G, in the direction indicated by the dart, when it will revolve freely on the shaft, B, without moving it: (the clutch, *r*, being in the position indicated in Fig. 3). The workman then places his foot on the end, I, of the clutch lever, *n*, *n*, when the upper end of the lever will force the clutch, *r*, up against the nave of the wheel, G, as seen in Fig. 2, and the sliding rod, *p*, will be protruded so as to come against the side of the stud, *o*, in the collet, F, and thereby revolve the shaft, B, which by means of the eccentric journal, C, Fig. 3, (with the eccentric circle, *e*, arranged as desired, to increase, or diminish, the eccentricity,) will depress, and elevate the punch, *d*.

When the lower end of the lever, *n*, *n*, is depressed so as to put the machine in gear, the lower end of the lever, *k*, by the action of the spiral spring, *m*, Fig. 2, will be drawn over and upon the lever, *n*, *n*, so as to rest upon it, as shown in Fig. 2, and thus keep the machine in gear until the punch has operated on the material to be punched, &c. and has been again elevated to its highest position, when the stud, or projection, *i*, Fig. 1, acting on the upper end of the lever, *k*, will force the lower end off of the lever, *n*, *n*, and the spiral spring K, Fig. 3, will draw up the end, I, of the lever, *n*, *n*, and force back the clutch, *r*, to the position shown in Fig. 3, when the rod, *p*, will not reach the stud, *o*, and therefore the machine will be out of gear, the punch resting at its highest elevation, and the lower end of the lever, *k*, resting against the side of the lever, *n*, *n*, as shown in section in Fig. 3.

Should it be desired to keep the machine in gear for a number of operations in succession, the end, I, of the lever, *n*, *n*, may be held down by the foot, or any other power, greater than that of the spiral spring, K.

What we claim as our invention, and desire to secure by Letters Patent, is—

The peculiar manner of connecting the operation of the two levers, (*n*, *n*, and *k*,) to throw the machine out of gear at the time when the punch is at its greatest elevation, when constructed, arranged, and made to operate, substantially, in the manner herein described.

DE GRASSE FOWLER.
GEORGE FOWLER.

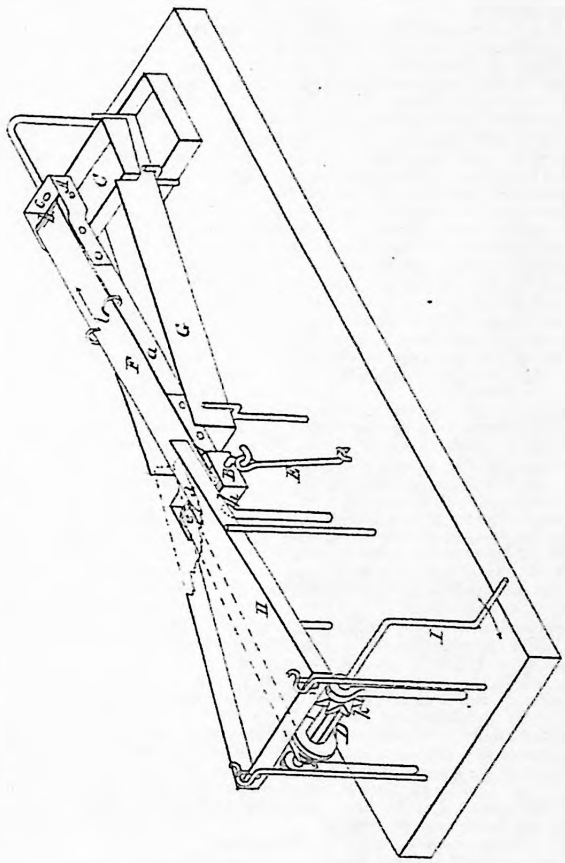
Witnesses:
SAMUEL THOMPSON,
R. FITSGERALD.

[FIRST PRINTED 1913.]

I. Fowler.

Papering Pins.

No. 13,785. Patented Nov. 13, 1855.



THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

T. FOWLER, OF WATERBURY, CONNECTICUT.

SEPARATING PINS.

Specification of Letters Patent No. 13,785, dated November 13, 1855.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of the city of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Separating Imperfect from Perfect Pins; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawing, which makes a part of this specification, in which the drawing represents the whole machine ready for use.

My improvement consists in the use of an endless apron, having a lateral oscillating, or rocking, motion, to cause the perfect, or straight, pins to roll off into a proper receptacle, (ready for sticking,) while all imperfect, or crooked, pins will pass down, by the longitudinal motion of the upper surface of the endless apron into a separate receptacle, to be worked over, or otherwise.

I make a frame to contain the rollers of the endless apron, F, substantially as represented at A, and B, by attaching straps of metal to a wooden bar, or slat, as seen at *a*, or in any other convenient way. In the end, A, I fit a plain roller, around which the endless apron passes, as indicated at *b*, leaving sufficient room for the crooked pins to pass over endwise, and fall between the roller at *b*, and the end of the metal strap, *c*, into a proper receptacle, as into the box, C. In the upper end, B, which I make broader, I fit a longer roller, sufficient to carry the endless apron, as at *a*, and a driving belt, as *e*, (which is worked by a pulley, *g*, on the main, or driving, shaft, D,) and on the journal of the roller, *d*, as seen near B, I have a crank on which the connecting rod, E, works, to give the lateral oscillating, or rocking, motion to the endless apron. I suspend this frame, A, *a*, B, on a pivot at each end, as shown at *c*, and *h*, so as to allow it to rock freely, by the operation of the connecting rod, E, on the crank near B, when the roller, *d*, of the endless apron is revolving. On the central part of this frame for the endless apron, I fit two points, as at *i*, which are so near the apron that a pin cannot pass under them, and so near to each other that a pin lying crosswise of the apron, must come in contact with one of the points and thereby be turned lengthwise of the apron, so that if it is straight, it will roll off, but if crooked it will pass down to the box, C. Under this endless apron, F, I fit a spout, or conductor, G, or other suitable receptacle, to receive the perfect pins as they fall from the endless apron.

I feed the pins from a common pan, H, hanging inclined, and shaken by the revolving of the teeth, at *k*, or otherwise.

Having constructed, and arranged the parts, substantially as represented, I throw the pins into the pan, H, and revolve the crank, I, in the direction indicated by the dart, when the teeth, at *k*, will shake the pan, H, and cause the pins to slide down into the endless apron, F, and by revolving the crank, I, the belt, *g*, *e*, will revolve the roller, *d*, which will not only give the endless apron, F, a longitudinal motion, in the direction indicated by the dart, but, by the effect of the crank, near B, and the connecting rod, E, the apron, F, will also receive an oscillating, or rocking, motion, which will cause all the straight pins to roll off into the conductor, G, (or other receptacle,) while the imperfect, or crooked, pins will pass down on the apron, F, and fall into the pan, C. These motions may be effected by any of the well known methods for giving a longitudinal, and an oscillating, or rocking, motion to the apron, as convenience may direct.

What I claim as my invention and desire to secure by Letters Patent, is—

The method of separating the imperfect from the perfect pins by the use of an endless apron, having both a longitudinal, and a lateral oscillating, or rocking, motion, when constructed, and made to operate, substantially, as herein described.

THADDEUS FOWLER.

Witnesses:

JAMES B. REDDIE,

R. FITZGERALD.

T. Fowler.

Papering Pins.

No. 14,234. Patented Feb. 12, 1856.

Fig. 1.

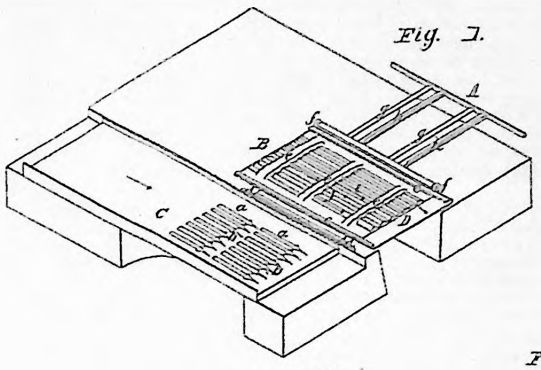


Fig. 3.

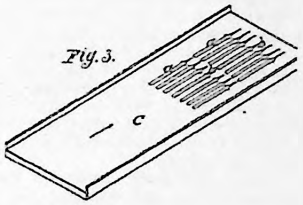


Fig. 2.

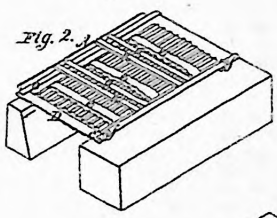
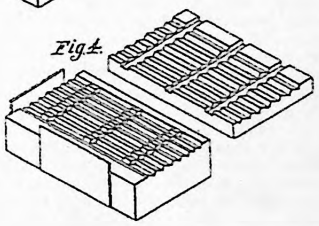


Fig. 4.



THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF WATERBURY, CONNECTICUT.

STICKING PINS IN PAPER.

Specification of Letters Patent No. 14,224, dated February 12, 1856.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of the city of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Sticking Pins on Paper; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1, is a perspective view of the parts of the apparatus as arranged for placing the pins on the embossed paper, preparatory to inserting them into the paper. Fig. 2, is a perspective view of the paper holder, with the embossed paper in it, and the frame of bars turned over it to hold the pins in position to be inserted into the paper by drawing the paper holder forward. Fig. 3, is a perspective view of the plate, or form, on which the pins are arranged, and spaced, preparatory to their being placed on the paper. Fig. 4, is a perspective view of the two parts of a die for embossing, or crimping, the paper.

My improvement consists in the manner of arranging, and spacing, the pins, by means of a plate, or form with depressions to receive the pins, (as seen in Fig. 3); and in the method of transferring them to the prepared paper; and in the method of inserting the pins into the paper, that is, a whole paper at one motion of the slide.

I make the plate, or form, for arranging, and spacing the pins, substantially, in the shape shown in Fig. 3, of sufficient size to receive the quantity of pins desired to be stuck on paper, (usually 14 rows with 20 pins in a row, or 280 pins.)

I make the depressions, *a*, *a*, of a size, and shape, suited to receive the pins, and so that the heads will not be above the ordinary surface of the plate; (to allow other pins to pass freely over them:) and I scarf out the lower ends of the depressions, as shown at *b*, *b*, so that any pins that pass down point foremost, even though they fall into the recesses, will readily pass out again, so that no pins will be retained but such as fall in with their heads downward. I place this plate, Fig. 3, in a suitably inclined position, and give to it an oscillating, rocking, or jarring, motion, to cause the pins to descend, (in the direction indicated by the dart,) when, from the largeness of the heads, they will roll around so as to pass foremost into the depressions, *a*, *a*, where they will be held secured, while other pins, if need be, will pass freely over them, and so on until the plate is full. And should any pins pass down point foremost, or a headless, or crooked, pin, it will pass off, and thus be separated; and the body of pins, (one resting in each space,) will be ready to be transferred to the prepared paper to be stuck.

I prepare the paper by embossing, or crimping it by the use of any suitable dies, or machinery, as the dies represented in Fig. 4, (which shows the internal surface of the dies.) But for general practice I would recommend the use of rollers, with the form displayed on their surfaces in such a manner that one revolution of them will just complete one paper of the width and length required by the size of the pins and the number to make a full "paper of pins."

To hold the prepared paper, I make a form of sheet metal, or any other suitable material, with the edges turned over, as shown at *c*, and *c*, Figs. 1 and 2, or, with any other suitable means to hold the paper steady while inserting the pins. I hang this holder to a suitable base, or platform, by a long, or sliding, hinge, or joint, as shown at *d*, *d*, Fig. 1.

To hold the pins steady in their position, and to cause them to penetrate the raised transverse bars, or embossed prominences, *e*, *e*, *e*, &c. in the prepared paper, I use a frame, or skeleton cap, A, Figs. 1 and 2, which I hang with hinges, or joints, as shown at *f*, *f*, Figs. 1 and 2.

Having made the several parts as above described, and attached the paper holder D, and frame, A, as represented in Fig. 1, and having embossed, or crimped, the paper, and placed it in the holder, D, as represented in Fig. 1, so that it is prepared to receive the pins, I place the form, Fig. 3, in a suitably inclined position, connected with any suitable means for giving an oscillating, or shaking, motion to cause the pins to fall into the recesses, or depressions, *a*, *a*, with their heads downward as before described. When the recesses are all filled, I remove the form, Fig. 3, to the main bed, or platform, B, Fig. 1, and place it as shown at C. I then turn over the paper holder, D, Fig. 1, (revolving it on its hinge, *d*, *d*,) so as to rest flat on the form, C; I then, (holding them

firmly together,) turn it back to the position shown in Fig. 1, when all the pins will rest in the depressions in the embossed paper, as seen at *i*, Fig. 1. I then remove the form, C, and turn over the frame, A, (revolving it on its hinge *f*, *f*,) to the position shown in Fig. 2. In this position the bars, *g*, *g*, will rest on the barrels of the pins to hold them steady, while the bars, *h*, *h*, will rest against the heads of the pins to prevent their moving in that direction. I then draw the paper holder, D, Figs. 1 and 2, forward, (in the direction indicated by the dart,) until the pins are inserted into the paper to the proper extent, as shown at *j*, Fig. 1, when I turn back the frame, A, to the position shown in Fig. 1, remove the stuck paper of pins from the holder, D, and insert another paper; and so proceed as before described. But it will readily be perceived that the frame, A, may have the sliding motion instead of the paper holder, D, as the motion of either, in the proper direction, will produce the same result in sticking the pins.

The advantages of my improvement consist in the use of the form, (Fig. 3,) placed in an inclined position, and oscillated in a suitable manner, to, not only, arrange the pins with all their heads in the same direction, and space them ready to be inserted in the paper, (which has heretofore been effected by two operations, or two sets of machinery combined,) but also to separate the headless, and crooked, pins from the perfect pins, so that none will be inserted in the paper but such as are fit for use. And, in that it is the first method ever devised for sticking a whole paper of pins by one motion.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The use of the form, (Fig. 3,) for separating, arranging, and spacing, the pins, when combined with the paper holder, (D,) for the purpose of transferring the pins to the prepared paper ready for sticking, when both are constructed, used, and made to produce the result, substantially, as herein described.

2. I also claim the combination of the paper holder, (D,) with the frame, (A,) when constructed, arranged, and used, for inserting the pins into the prepared paper, substantially in the manner herein described.

THADDEUS FOWLER.

Witnesses:
HENRY S. BIDWELL,
R. FITZGERALD.

I. Fowler.

Papering Pins.

No 18,043. Patented Aug. 25, 1857.

Fig. 1.

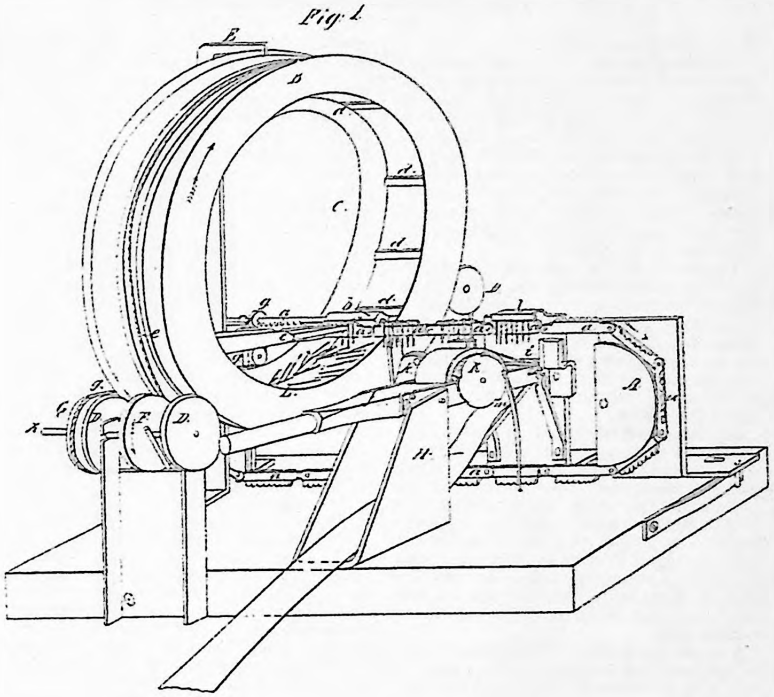


Fig. 2.

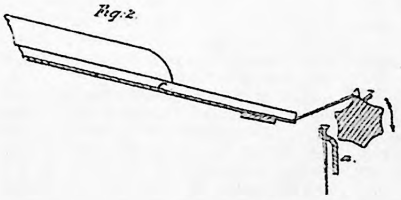
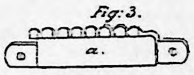


Fig. 3.



UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF WATERBURY, CONNECTICUT.

PIN-STICKING MACHINE.

Specification of Letters Patent No. 18,043, dated August 25, 1857.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of the city of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machinery for Sticking Pins on Paper; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1, is a perspective view of the whole apparatus, showing the endless chain, flanged cylinder, &c. Fig. 2 is a section of the inclined plane, flanged cylinder, endless chain, &c., showing how the pins fall into the racks or spacers of the endless chain as they descend the inclined plane. Fig. 3, is a perspective view of one of the links of the endless chain.

My improvement consists in the use of an endless chain, composed of a series of racks which serve to separate the pins, space them, arrange them with their heads all in the same direction, (with the assistance of a longitudinally flanged cylinder,) and carry them to the proper place for being inserted into the paper, in rows, or otherwise. And a revolving hopper to receive the pins and deposit them on an inclined plane so that they may pass down to the racks of the endless chain.

I make the endless chain of sheet brass, or any other suitable metal, with a rack on each link, as shown at *a*, &c., Fig. 1 and Fig. 3, of sufficient extent to contain the number of pins desired to be inserted at one operation of the sticker. I suspend this endless chain in proper grooves as shown at A, Fig. 1, (using grooved rollers when deemed necessary,) or any other means found most convenient to keep it extended and allow it to travel freely in passing around. I move this endless chain to the extent of one link at a time, by a lever connected with the sticking apparatus, the fulcrum of which is seen at *k*, Fig. 1, or by any other convenient means, so that a link of the endless chain will always exactly correspond with the sticker.

I make the longitudinally flanged cylinder of cast iron, or any other suitable material, substantially, in the shape shown at *b*, Fig. 1, and in cross section in Fig. 2, and of a length, at least, equal to the length of the rack on the link of the endless chain.

I fit a trough, or shoe, on an inclined plane, as shown at *c*, Fig. 1, and in section at *c*, Fig. 2, of a width suited the length of the rack on the endless chain, down which inclined plane the pins pass to the flanged cylinder, *b*, and fall into the rack *a*, where they are caught by the heads, and remain suspended until carried by the operation of the endless chain to the place of being inserted into the crimped paper.

I use a wheel, or revolving hopper, or reservoir, as B, having raised edges on the inner, or concave, surface, as shown at C, Fig. 1, and cross ledges on the inside, as shown at *d*, *d*, &c., to carry up the pins, as the wheel, or circle, revolves, (in the direction indicated by the dart,) and drops them on the inclined plane, *c*, Figs. 1, and 2. I sustain this revolving hopper, B, on four grooved rollers, at D, D, D, (the other not seen,) and steady the top part by an elbow shaped stud, E, or by any other convenient means; and I revolve it by a crossed band, at *e*, working on the pulley, F. And I revolve the flanged cylinder, *b*, Figs. 1, and 2, by a crossed band, as *g*, worked by the pulley, G, on the same shaft, or arbor, with the pulley, F. This arbor, with its pulleys, may be put in motion by a crank, as *h*, or by any other means, and any convenient power may be applied to it, to revolve the wheel, or revolving hopper, B, and the flanged cylinder, *b*,—and gear wheels may be used instead of pulleys and bands, if thought best.

For crimping, and clamping, the paper, H, I use what is commonly called, "Howe's crimping jaws" attached to a brake, or lever, I, as seen at *i*, or any other convenient method of crimping the paper, and holding it while the pins are being inserted. And I carry the paper away, as fast as it is filled with pins, by the operation of a roller, as K, or by any other means.

Having constructed the several parts of the machine, and arranged them, substantially, as described, and shown in the drawings, I pour, or shovel, the pins into the revolving hopper, B, as shown at L, Fig. 1, pass the paper, H, through the crimpers, as at *i*, and attach the end to the roller, K. I revolve the revolving hopper, B, (in the direction indicated by the dart,) by power applied to the crank, *h*, (or otherwise,) when

the ledges *d*, *d*, &c., will carry up the pins, I, and allow them to fall onto the inclined plane *c*, Figs. 1 and 2, down which they will slide until their heads are caught by the flanges on the flanged cylinder, *b*, Figs. 1 and 2, which by its revolution will carry up the heads, as represented in Fig. 2, until the point falls from the inclined plane, *c*, when the pins will drop into the rack, and be sustained, or suspended, by the heads, as shown at *a*, &c., Figs. 1 and 2, until the rack on that link is completely filled. I then, by pressing down the outer end of the lever, I, bring the end of the lever which moves the endless chain, (the fulcrum of which is seen at *k*,) to take hold of the chain, between the links so that when the outer end of the lever, I, is again elevated the chain will be carried forward, or around, to the extent of one link, so as to bring the next link opposite the lower end of the inclined plane, *c*, when the rack of that will be filled as before, and so on, as shown at *a*, &c., Fig. 1.

When the pins have been carried to the place for inserting them into the paper, the rack passes under a cap, *l*, which prevent the pins from being thrown out of the rack, by the operation of inserting them into the paper. I then depress the outer end of the lever, I, when, by the operation of inclined planes, the crimping bars are closed to crimp, and hold the paper while it is forced against the points of the pins to insert them into the crimps of the paper. And when they are thus inserted, the crimping bars, or jaws, will be thrown open, (by a spring), to release the paper; and as the outer end of the lever, I, is again elevated, the hand, or dog *m*, will revolve the roller K, and remove the paper already filled; and the proper lever, (the fulcrum of which is at *k*,) will again move the endless chain the extent of one link, and thus bring another tier of pins to the position of being inserted into the paper, and so on to any desired extent. Should any other form of crimper, &c., be used, the whole must be so arranged, as to correspond with the racks on the endless chain.

The advantages of my improvement consist in that the endless chain, with the assistance of the flanged cylinder, *b*, serves to separate, space, arrange, and convey, the pins to the place of being inserted into the paper, and with the assistance of the cap, *l*, hold them while being inserted. And in that the revolving hopper will again receive all the pins which pass over the flanged cylinder point foremost, or otherwise, or fall before or behind the rack, on account of its being full, or for any other cause, and will carry them up again as in the first instance. If any other kind of hopper be used, as may be, this last advantage will not be realized.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The endless chain, with its racks, in combination with the flanged cylinder, (whether with, or without, the revolving hopper,) when constructed, arranged, and made to produce the result, substantially, as herein described.

2. I also claim the combination of the endless chain with the revolving hopper, when the whole is constructed, and combined, substantially, as herein described.

THADDEUS FOWLER.

Witnesses:

A. L. KINSTON,

R. FITZGERALD.

T. Fowler

Papering Pins

No. 18,331. Patented Dec. 8. 1857.

Fig 1

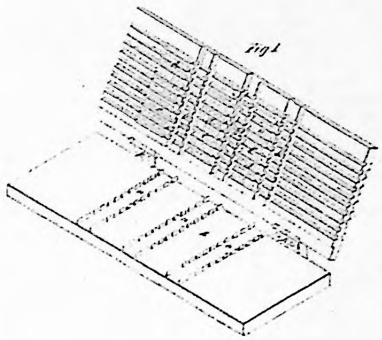
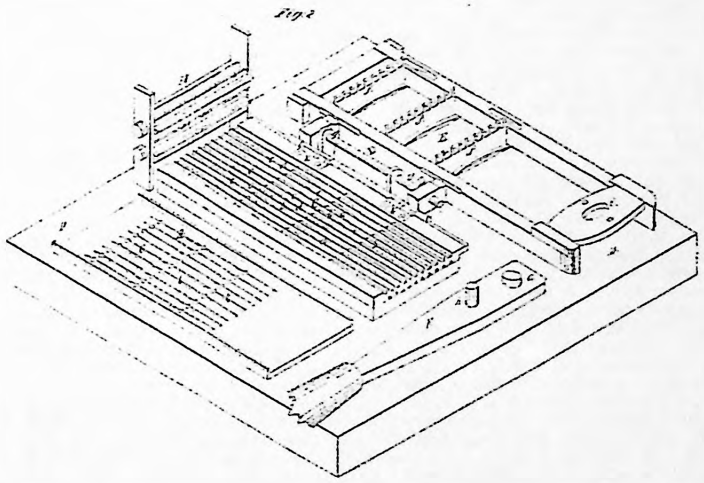


Fig 2



UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE AMERICAN PIN COMPANY, OF SAME PLACE.

MACHINE FOR STICKING PINS ON PAPER.

Specification of Letters Patent No. 18,831, dated December 8, 1857.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of the city of Waterbury, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Sticking Pins on Paper; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1, is a perspective view of the crimping and clamping part of the apparatus (for three rows) wherein the pins are inserted into the paper. Fig. 2, is a perspective view of the pin receiver, and of the sliding form which inserts the pins, together with the plate for separating, arranging, and spacing the pins, and the fluted rollers for corrugating the paper.

My improvement consists in the method of crimping and clamping the paper (sufficient for a whole paper of pins), the manner of passing the pins through the slotted form, and the mode of inserting them into crimped paper (while it is clamped in the crimper) by the sliding form: thus sticking a whole paper (14 rows, or any other number) at one operation of the machine.

I make the plate A, Fig. 2, for separating, arranging, and spacing the pins in every particular, precisely as described in my patent dated Feb. 12, 1856, (marked Fig. 3, in those drawings), except that I extend it sufficiently to arrange, &c., a whole paper of pins at one operation. I make the crimpings bars, or jaws, with notches, or spaces, for the pins to pass through the crimps of the paper while it is held in the crimpers, similar to what are called "Howe's crimping jaws," as shown at *a*, and *b*, Fig. 1. I make the upper portion, C, of this crimper with transverse bars, as shown at *b*, and *c*, Figs. 1 and 2, on which bars I make inclined planes, as shown at *c*, &c., Fig. 2, and longitudinal ribs, *d*, &c., Figs. 1 and 2, so as to leave spaces or slots for the pins to pass through to the crimped paper, as shown at *e*, &c., Figs. 1 and 2, but of less length than the pins, so that the head of the pins will rest on the incline planes, *c*, &c., while the points drop through the slots or spaces, *e*, &c., onto the crimped paper on the lower part B, of the crimper, where the points will rest against the crimps of the paper. I attach this form, B, to the bed plate, D, by suitable hinges (not seen), so as to allow it to be turned over onto the plate, A, Fig. 2, and I hang the slotted post, C, with suitable hinges, as *k* and *k*, so that it may be readily opened to receive the paper, &c.

I make the sliding frame, E, Fig. 2, with transverse bars, on which I have teeth, or projections, as seen at *f*, &c., Fig. 2. This frame, E, I also attach to the bed plate, D, by a suitable sliding hinge, as shown at *g*, *g*, Fig. 2, and to slide it longitudinally, I use a lever, as F, working on a fulcrum pin, as G, and the pin, or stud, *h*, passing through the hole or opening *i* in the end bar of the frame, E, all as shown in Fig. 2 (or any other suitable means may be used). I use a pair of fluted rollers, as shown at H, to corrugate the paper before it goes to the crimpers, so that the crimpers will receive a sufficient length of paper to compensate for the crimps, to prevent breaking the paper by strain.

Having made the several parts of the apparatus, and secured them to the bed plate, as before described, I pass the slip of paper through the fluted rollers, H, to corrugate it, and then onto the lower part, B, of the crimper (while it is open, as in Fig. 1) and turn the other part, C, over it, as shown in Fig. 2, and press it down (by any convenient clamp, or otherwise), so as to completely crimp and clamp the paper ready to receive the pins. I plan the arranging and spacing plate, A, Fig. 2, in a longitudinally inclined position, and give it a lateral oscillating motion (by any convenient means) which will cause the perfect pins to pass down, head foremost, and lodge in the spaces, *b*, &c., while the imperfect pins will pass off (all precisely as described in my patent dated Feb. 12, 1856). When all the spaces in this plate, A, are filled, I place it on the bed plate in the position shown in Fig. 2, and turn over the crimping form (B, C,) onto it, and then turn them, both together, back to the position of the crimping form in Fig. 2, and remove the plate, A, when the pins will rest with their heads on the incline planes, *c*, &c., and their points (having passed through the spaces, *e*, &c.) will rest on the paper in the crimper, B, C. I then turn over the sliding frame, E, onto the slotted form, C, when the teeth, or pro-

jections, *f*, &c., will fall onto the inclined planes (*e*, &c.,) back of the heads of the pins; and the hole, or opening, *i*, will pass onto the stud, *h;* then by moving the outer end of the lever, F, in the direction indicated by the dart, the teeth, or projections, *f*, &c., will pass down the incline planes against the heads of the pins and force their points into the crimps of the paper, and as the projections, *f*, &c., pass off of the inclined planes they will descend (with the heads of the pins) through the slots, *e*, &c., and force the pins through the crimps of the paper to the extent which it is desired to insert them. I then turn back the frame, E, to the position shown in Fig. 2, open the crimping form to the position shown in Fig. 1, take out the paper of pins, and then proceed with another.—and so on.

The advantages of my improvement over my former patent consist in, that by the use of this method of crimping, and holding the paper I am able to dispense with the use of the embossing apparatus described in my former patent, and shown in that drawing (marked Fig. 4), and by means of the slots, *e*, &c., and the frame, E, I am able to dispense with the paper holder, D, and frame, A, in Figs. 1 and 2 of that drawing, and, also, in having a machine which works with more ease and perfection, as well as with greater rapidity.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the plate, or form, A, with the slotted form, C, when constructed and made to deposit the pins, substantially as herein described.

2. I also claim the combination of the sliding frame, E, with the slotted form, C, when constructed and used substantially as herein described.

THADDEUS FOWLER.

Witnesses:

S. THOMPSON,

R. FITZGERALD.

I. Fowler,

Powering Pins,

No. 19,556. Patented Mar. 9 1858.

Fig. 1.

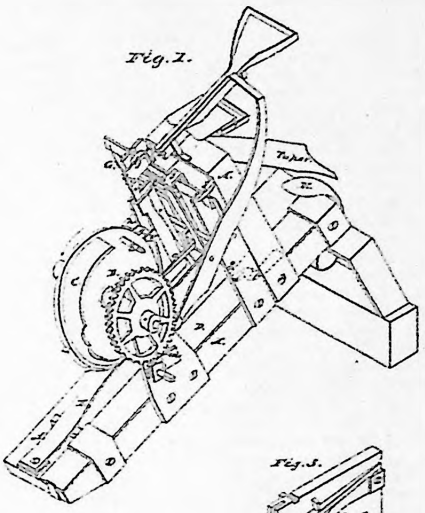


Fig. 3.

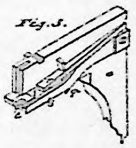
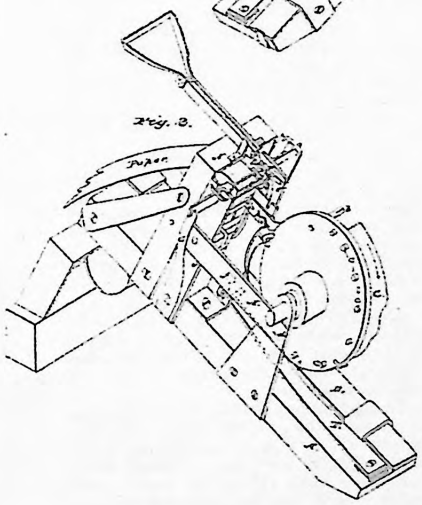


Fig. 2.



UNITED STATES PATENT OFFICE.

T. FOWLER, OF WATERBURY, CONNECTICUT.

PIN-STICKING MACHINE.

Specification of Letters Patent No. 19,556, dated March 9, 1858.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of the city of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machinery for Sticking Pins on Paper; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make a part of this specification, in which—

Figure 1, is a perspective view of the whole machine, taken from the front end, and right hand side. Fig. 2, is a perspective view of the same, taken from the left hand side. Fig. 3, is an enlarged, perspective view of a section of the moving work to receive the pin from the conductor, carry it to, and insert it into the crimped paper.

My improvement consists in the manner of receiving the pin from the lower end of the conductor, which is by an instrument worked by cams, &c., and carrying it away, and inserting it into the crimped paper, and in the manner of feeding the paper, both laterally, and longitudinally so as to stick one pin at a time, and yet give the paper, and the pins, (when run through,) the same appearance as if struck with a "broad-sheet sticker," and, in giving all the motions of receiving, conveying, and inserting the pins, as well as crimping, clamping, and giving both feeding motions, to the paper, by the operation of one cam wheel.

I make the frame, A, A, &c., of cast iron, or any other suitable material, substantially, in the form shown in Figs. 1 and 2, to support the several parts. I make the cam wheel, B, Figs. 1 and 2, of cast iron, or any other suitable materials of a size suited to the size of the machine, or general convenience, and suspend it on a suitable axis, or arbor, as shown in Figs. 1 and 2. On one side of this cam wheel, B, I fit a sectional, or a snail shaped cam, C, Figs. 1 and 2, which works against the bar, *a*, Fig. 1, to give the lateral feed motion to the paper, and, also, a stud, or projection, as *b*, Figs. 1 and 2, to work against a similar stud, or projection, *m*, in the plate, or slide, D, Figs. 1 and 2, to give the longitudinal feed motion to the paper. This slide, or plate, D, is thrown back to its place by the spring, E, Fig. 1, or by other means. And on the opposite side of this cam wheel, B, I insert the requisite number of pins, or projections, as *c*, *c*, &c., to act upon the cam, *d*, (shown in dotted line in Fig. 2,) on the spring lever, F, Figs. 1 and 2, to draw down the apparatus shown in Fig. 3, to force the pin into the crimped paper. This spring, F, is connected with the lower end of the slide, *e*, Figs. 1, 2, and 3, the motion of which is guided by the dotted stud, *f*, working in the slot, *g'*. On one side of the periphery of this cam wheel, B, I attach a cam like *g*, Figs. 1 and 2, to act on the end of the slide, *h*, to close the jaws, as at *i*, to crimp, and clamp, the paper, so that the crimping jaws may be firmly clasped from above by the clasp, *j* and *j*, while the paper is fed laterally.

To give the longitudinal feed motion, when the lateral feed motion has been completed, the slide, D, will carry the small cam or projection, *n*, under the bar, *o*, and unclasp, *j*, and *j*, so as to leave the paper free in the crimping jaws, *i*, and the hook, *p*, will act on the ratchet wheel which takes up the paper sufficiently for another row of pins, while the spring G, Figs. 1 and 2, will throw back the jaws to the commencement of another row.

For receiving a pin from the lower end of the conductor, I have an inclined plane, *q*, attached to the piece, *r*, so that when it is pressed down it will throw off the piece, *s*, so as to receive a pin, and when the extreme point of *r*, comes in contact with the end of the conductor it will be thrown out so that the point, or pin, *t*, will seize a pin and carry it away for sticking which it will do with the greatest accuracy. When the pins are put into the conductor, they should be sufficiently inclined, and be shaken by some suitable means to cause them to descend freely to the lower end of the conductor. The surplus pins are turned off into any suitable receptacle.

The cams, or projections, on the periphery of the cam wheel, B, are used to carry forward the part Fig. 3, in working on the cam, *v*, Fig. 1. And the gear wheels are to steady the work. There are several small springs, which may be supplied by any convenient equivalent, or used.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the lateral feeding

motion of the paper with the longitudinal feeding motion of the paper, when the two motions are effected, substantially as herein described.

2. I also claim the method of taking the pins from the conductor in combination with the method of inserting them, one at a time, into the crimped paper, when this is effected, substantially as herein described.

THADDEUS FOWLER.

Witnesses:
R. FITZGERALD,
R. A. GOODYEAR.

D. G. & I. Fowler,

Papering Pins,

No. 26874. Patented Jan. 17. 1860.

Fig. 2.

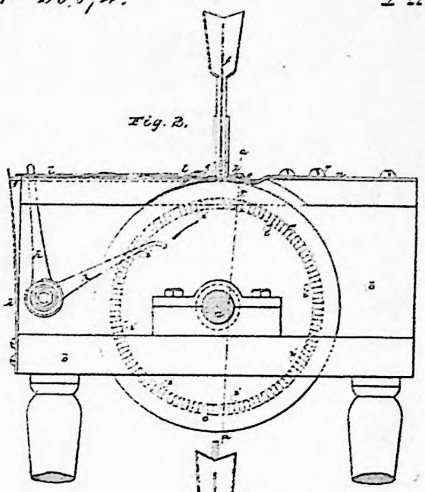


Fig. 3.

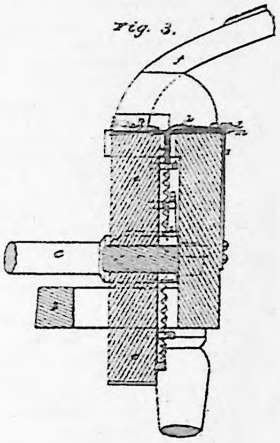


Fig. 1.

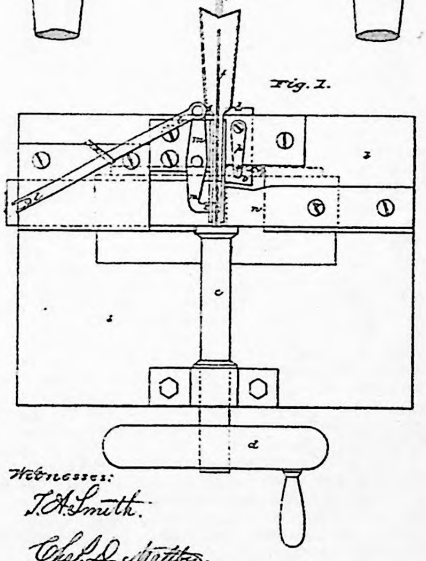
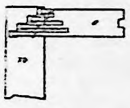


Fig. 4.



Witnesses:

T. A. Smith.

Chas. L. Mattby.

Inventors.

Daniel G. Fowler.

Ira Ingalls Fowler.

UNITED STATES PATENT OFFICE.

DE GRASSE FOWLER AND THADDEUS FOWLER, OF NORTH BRANFORD, CONNECTICUT, ASSIGNORS TO THEMSELVES, SAMUEL MALTBY, AND GUSTAVUS R. ELLIOTT, OF SAME PLACE.

MAKING COATED IRON PINS.

Specification of Letters Patent No. 26,874, dated January 17, 1860.

To all whom it may concern:

Be it known that we, DE GRASSE FOWLER and THADDEUS FOWLER, of North Branford, in the county of New Haven and State of Connecticut, have invented and made a certain new and useful Improvement in Coated Iron Pins; and we do hereby declare that the following is a full, clear, and exact description of the nature and operation of our said improvement, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1, is a plan of our machine for finishing the pins. Fig. 2, is an elevation of the same. Fig. 3, is a vertical section at the line *a*, *a*, Fig. 2, and Fig. 4, is a plan of a slight variation in the burnishing device.

Similar marks of reference indicate the same parts.

Pins have heretofore been formed of iron by the ordinary cutting heading and pointing machinery, and have afterward been coated by boiling in tin similar to the brass pins, but the coating put on is so thin that the iron is liable to discolor and rust. When a thicker coating of tin is put on the pins by dipping the pins, or by any ordinary process for depositing such coating metal on the pins, they become very rough on their surface so that they will not pass into or through any fabric with ease, because such coating metal exists on the surface in minute granules: If the pins after being thus coated are subjected to any of the known polishing operations, such as the revolving or shaking box, the inequalities of surface are not removed, and considerable power is required to stick the pin in the fabric, as well as giving an unpleasant sensation to the hand.

Our invention does not relate to any particular mode of coating the iron pins, but our said invention does consist in finishing such coated iron pins by a rolling and compressing operation whereby the granules are crushed down to a perfect level and the pin rendered smooth and uniform throughout its entire length. To accomplish this operation we make use of a wheel *e*, mounted on a shaft *c*, that is sustained on a frame *b*, and rotated by the fly wheel *d* or otherwise.

f is the conductor onto which the pins are placed and pass down the curved end of the conductor and lie horizontally as seen in Fig. 3. From the conductor the pins are separated one at a time by the slide *g* that is moved by the lever *h*, which is acted on by the pins *i*, *i*, at the back of the wheel *e*.

k, is a spring to keep the lever *h*, toward the pins *i*.

l, is a slide acting on the lever *m*, that is set on the fulcrum 1, and formed with a chisel shaped separator 2.

6, is a spring acting against the end of lever *m*. The operation of this is, that the slide *g* presses a pin along from beneath the end of the conductor to be acted on as hereafter described, at which moment the separator 2 is drawn back and the line of pins rests on the slide *g*, now as the slide *g* draws back the separator 2, passes above the lowest pin sustaining the others above, while this lowest pin falls on the wheel *e*, as slide *g*, draws from under it.

n, is a spring compressing plate coinciding near its end with the shape of the edge of the wheel *e*.

7 is a screw by which the spring compressing plate is kept toward *e*, with more or less power. The end of this plate *n*, is slightly beveled so that each pin is pressed in between the wheel *e*, and plate *n*. The revolution of the wheel *e*, rolls the pin around and both surfaces being very smooth bring down, by a rolling compression, all the inequalities and roughnesses consequent on the tinning operation, and produces a perfectly smooth and highly finished pin; and the finished pin passes away from beneath the plate *n*, before another is entered so that any slight inequality in size will not affect the perfect operation and uniformity of pressure on the pin. To finish up the point we make use of the vibrating polisher *o*, kept onto the point by the spring *p*, and vibrated by the joint operation of the spring 3, and a series of teeth 5, around the back of the wheel *e*, acting on a stud 4, from the slide *o*. When desired this vibrating plate *o*, may extend in the form of burnishing fingers 7, see Fig. 4, the ends of which act through openings in the compressing plate *n*, to burnish the pin as it rolls beneath said plate *n*, between that and the wheel *e*.

It will now be apparent that by the rolling and compressing operation herein set forth, an iron pin can be made in as perfect and salable form as the brass pins, because the pins heretofore made either had not sufficient coating material to be protected from rust or else were rough and uneven on their

surface; we are enabled to apply the necessary amount of coating material and then bring the surface to a perfect finish.

What we claim and desire to secure by Letters Patent is—

Finishing coated iron pins by the rolling and compressing operation substantially as specified.

In witness whereof we have hereunto set our signatures this fifteenth day of December 1859.

DE GRASSE FOWLER.
THADDEUS FOWLER.

Witnesses:
T. A. SMITH,
C. D. MALTBY.

2 Sheets—Sheet 1.

T. & D. G. FOWLER

PIN MACHINE.

No. 29,431. Patented July 31, 1860.

Fig. 2.

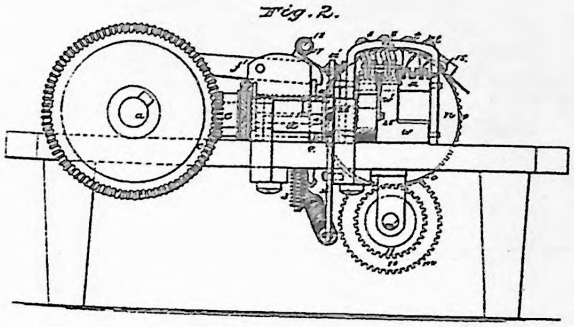
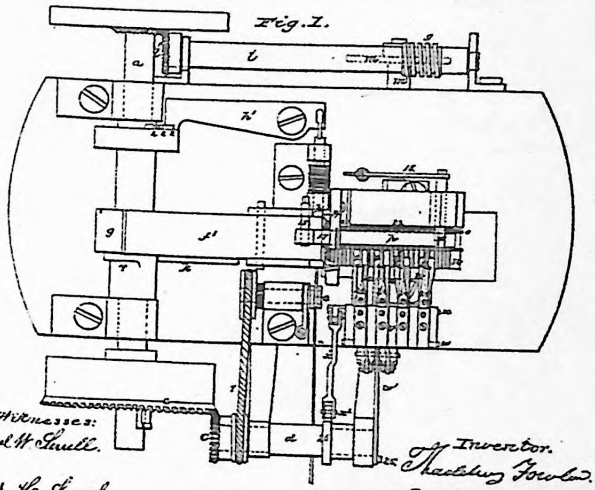


Fig. 1.



Witnesses:
Samuel M. Smith.
Chas. H. Smith

Inventor.
Thaddeus Fowler.
D. Draper Fowler.

2 Sheets—Sheet 2.

T. & D. G. FOWLER.

PIN MACHINE.

No. 29,431. Patented July 31, 1860.

Fig. 3.

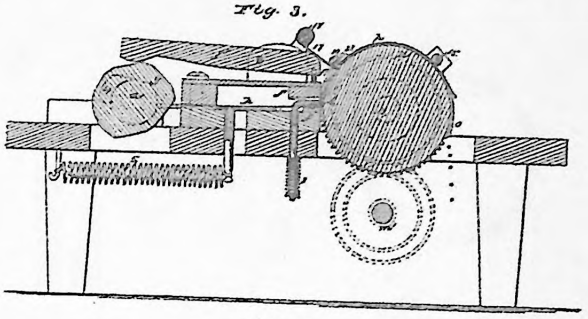


Fig. 5.

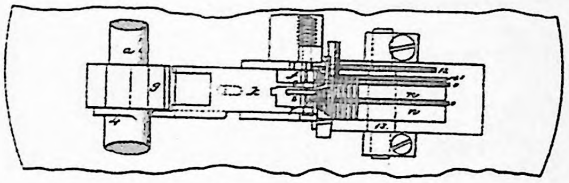
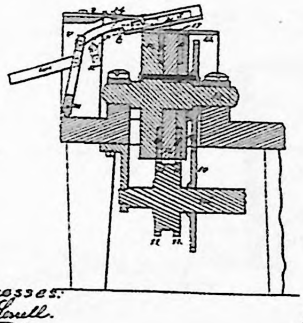


Fig 4.



Witnesses:
Samuel W. Small.
Chas. H. Smith.

Inventor.
Theodore G. Fowler
D. Gaylor Fowler.

UNITED STATES PATENT OFFICE.

THADDEUS FOWLER AND DE GRASSE FOWLER, OF NORTHFORD, CONNECTICUT, ASSIGNORS TO UNITED STATES PIN COMPANY, OF SEYMOUR, CONNECTICUT.

MACHINE FOR THE MANUFACTURE OF PINS.

Specification of Letters Patent No. 29,431, dated July 31, 1860.

To all whom it may concern:

Be it known that we, THADDEUS FOWLER and DE GRASSE FOWLER, of Northford, in the county of New Haven and State of Connecticut, have invented, made, and applied to use certain new and useful Improvements in Pin Machinery; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1, is a plan of our said machine. Fig. 2 is a side elevation. Fig. 3 is a vertical longitudinal section. Fig. 4 is a cross section through the rolling bed and cutters, and Fig. 5 is a plan of the heading and cutting die and the rolling bed.

Similar marks of reference indicate the same parts.

Our invention relates to the means for conveying the pin from the heading die to the pointing cutters and performing the operation of pointing. In all machines heretofore constructed with which we are acquainted more or less difficulty arises in revolving the pins while being pointed, and in consequence the points are apt to be imperfect and flat on one side, this arises principally from the device employed to roll the pins around, acting on the same side of the body of the pins as the files or cutters, in other words, as a general thing the pins have been rolled over a stationary surface by a belt or other device acting on the upper side of said pins and the cutters also acted on the upper side at the end to point the pins, therefore the action of the cutters was to detain the pins against the progressive and rolling motion from the belt. In our invention we apply the files or cutters on the same side as the stationary belt or resisting surface and apply the rolling bed on other side of the pins, thereby the files or cutters assist in insuring the revolution of the pins. We also make our stationary belt or resisting surface in the arc of a circle corresponding to the rolling bed which is itself of cylindrical form, by which means we are enabled to obtain a resisting surface on which the pins roll that will give the pressure on the pin necessary for revolving the same and even straightening it if slightly crooked and at the same time give opportunity for a long sweep or vibration of the file or cutter over the pin, which prevents the cutters clogging and gives a better shape to the pin point.

In the drawing *a*, is a shaft revolved by competent power and sustained on the bed *b*, of the machine; *c*, *c*, are bevel gears driving the second shaft *d*, from which a belt 1, passes to the rollers; *e*, *e*, that feed in the wire these rollers are pressed together onto the wire by suitable springs and continue to project the wire into the machine whenever opportunity is given for so doing by the heading jaws opening; when these jaws are closed the rollers either slip on the wire or the belt slips on the pulleys.

The heading jaw *f*, *f'*, is operated by the cam *g* on the main shaft *a*, and *h*, is the heading die actuated by the lever *h'*, and cams 2, 2, 2. The wire passes into grooves between the jaws *f*, *f'*, and is by them clamped at each blow of the header *h*, the jaws releasing the wire slightly between each blow in consequence of the flat places in the cam *g*, so that the feed rollers can move the wire slightly endwise as the head is formed by the successive blows as now practiced. It has been usual however heretofore to open the jaws and cut off the pin and force it out, the act however of so doing often causes the pin to jump out suddenly and hence it does not pass properly into the next part of the machine; we therefore provide the finger *i*, kept down by a slight spring 3, and occupying a cavity formed for that purpose in the upper jaw *f'*, and said finger has a notch with a flaring mouth so that the pin wire can pass along in the groove of the jaw *f* beneath said finger, and when the pin is cut off and passed out of the jaws this finger presses lightly on said pin and insures its proper delivery by the cutter *k*. This cutter *k* is actuated by the cam 4, drawn back by the spring 5, and has the cutting blade or end *i*, acting to separate the wire and with the projecting toe 8 carry the headed blank out of the jaws *f*, *f'*, and deliver it into the apparatus next set forth where the pointing is performed.

l, is a third shaft geared to *a*, by miter wheels *l'*, and 9 is a worm thereon driving the wheel *m*, on the cross shaft *m'*. This shaft *m'*, has on it gears 10, and 11, 11, the former connects to and drives the wheel 12, and rolling bed *n*, on the shaft 13. This rolling bed is composed of rings keyed or

secured onto the shaft and receiving between them the notched pin wheels *o*, *o*. see section Fig. 4, and these notched pin wheels are driven by the gears 11, 11, and the size of the wheels 10, 11, and 12, is such that the surface of the rolling bed *n*, travels twice as fast as the notches in the wheels *o*, *o*, so that each pin placed in the notches of *o*, by being delivered from the jaws as aforesaid, is rolled around constantly by the joint operation of the rolling bed *n*. notched pin wheels *o*, *o*, and a resisting stationary surface *p*. This resisting surface *p*, is formed by a strip of metal between two projecting arms 14, 15, the latter of which is fitted to turn and provided with a lever 16. and weight or spring whereby the metallic strip is kept toward the rolling bed with the power and tension necessary to cause the pins to roll.

17 is a thin leather belt between the strip *p* and the pins to make a better bearing surface for said pins to roll against, and this belt is wound on a stud 18, by the turning of which the belt can be drawn through under the strip *p* to bring a new piece of the belt to the proper place in case of one part thereof wearing out.

The pins as delivered from the cutting and heading jaws into the notched wheels *o*, *o*. are by them carried up. and a shield 19, see Fig. 5. prevents their falling out while an incline 20 slides them endways until the heads of said pins take the groove 21, in *n*. and shield 22, behind the heads prevents the pins being moved endways as pointed. A small grooved compression plate 23 extended from 22. presses on the pin heads as they roll beneath it and by joint action with the groove 21, compresses and rolls down any slight bur or inequality in the heads. The pins after being pointed as next described fall out into any suitable conductor or receptacle or are removed from the notched wheels *o*, *o*, by a small stationary tongue of metal and fall into a box or other receiver.

The device for pointing consists of several files or cutters. we have shown four, two of them have a long sweep or movement for taking off the metal and shaping the point, the other two have a less movement and are finer cutters to burnish and finish the points. Each of these cutters *s*. *s*. *t*. *t*. is formed with a slide on the upper part thereof working through an arm *u*, extending from the arch *v*, and 24, 24, are springs pressing the cutters down. The arms *u*, *u*, may be adjusted by set screws so as to prevent the cutters touching the edge of the rolling bed *n*, or removing too much of the pin point. The cutters *s*, *s*, are reciprocated by the rock shaft *w*, and connecting rod *w'*. to the crank pin 25, on the end of the shaft *d*, and the cutters *t*, *t*, are reciprocated by the rock shaft *x*, connecting rod *x'* and lever *x²* operated on by the cam 26, on the shaft *d*. This cam having three or more points gives a short quick movement to the finishing cutters *t*, *t*, while the roughing cutters *s*, *s*, receive a longer and slower movement.

The stationary resisting surface *p*, being curved to the rolling bed enables us to use only a thin plate under tension, and thereby but little space is occupied above the pin, we are therefore able to use cutters of any desired length and vibrate them freely over the points. This is of considerable importance, particularly in pointing iron pins because we can use cutters with a large extent of surface and a comparatively slow motion, so that neither the cutters or pins become heated: and the cutters will remain sharper longer than those now in use. and act to remove the metal in detail. The movement given to the cutters from the rock shaft *w*, dresses the points in a convex curved form that is the best shape for penetrating easily.

The advantages resulting from our machine as a whole will be apparent. and as before indicated it will be seen that the pins roll under the cutters. and that these cutters acting on the same side as the stationary resisting surface do not interfere in the least with the pin rolling freely and revolving as it rolls.

What we claim and desire to secure by Letters Patent is—

1. The spring finger *i*, within the clamping jaws for the purposes and as specified.

2. The combination of the cutter 7, and toe 8, with the finger *i*, for carrying the headed pin out of the clamping jaws and delivering the same into the notched pin wheels *o*, *o*, as set forth.

3. A rolling bed in combination with a stationary resisting surface and cutter or cutters, when said cutter or cutters act on the same side of the shaft of the pin as the stationary surface against which the pin rolls in being pointed, for the purposes and as set forth.

4. The notched pin wheels *o*, *o*, and revolving and rolling bed *n*, constructed and operating substantially as set forth.

5. The metallic strip *p*. kept at a proper tension by the lever 16, or its equivalent and pressing the belt 17, onto the pins in combination with the rolling bed and notched plates as and for the purposes specified.

6. The arrangement of the reciprocating cutters *s*, *s*, and *t*, *t*, combined with the rolling bed as described and shown.

In witness whereof we have hereunto set our signatures this twenty seventh day of June 1860.

THADDEUS FOWLER.
DE GRASSE FOWLER.

Witnesses:
SAMUEL W. SERRELL,
CHAS. H. SMITH.

T. Fowler.

Coating Pins.

No. 31,108. Patented Mar. 19, 1861.

Fig 2.

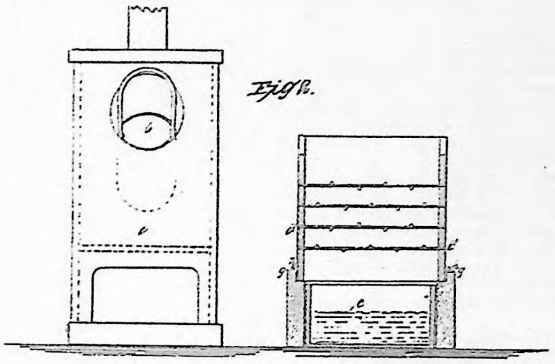
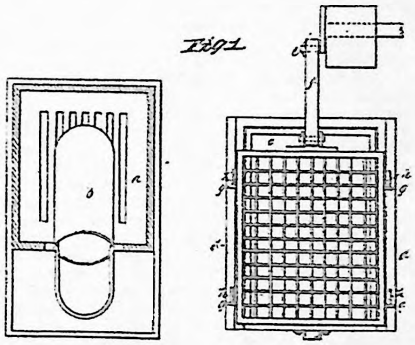


Fig 1



Witnesses.
Harris B. Munson
G. R. Elcock

Inventor.
Theddeus Fowler

UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF SEYMOUR, CONNECTICUT.

IMPROVED DEVICE FOR COATING PINS.

Specification forming part of Letters Patent No. **31,708**, dated March 19, 1861.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven and State of Connecticut, have invented, made, and applied to use a new and useful Method of Coating Pins and other Articles with Tin or other Ornamenting Metal; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of my apparatus used in coating said pins or other articles, and Fig. 2 is an elevation of the furnace with the separating apparatus in section.

Similar marks of reference denote the same parts.

Various articles—such as rivets, hooks, &c.—have heretofore been protected from rust by a coating of tin, zinc, or other metal. For this purpose it has been usual to dip them into the melted metal or cause the same to flow over their surface and then agitate the mass until gradually cooled. This operation could not be performed on pins or such light articles, because they would not have weight enough in themselves to fall apart when simply shaken, and, besides, the articles cooling when more or less in contact prevents them from being smooth and glossy, as would be the case if the coating-metal were flowed over the surface in a melted state; and another serious difficulty has heretofore arisen in consequence of the coating-metal becoming oxidized by contact with the air while gradually cooling.

The nature of my said invention consists in separating the coated pins or other articles while in the act of falling by agitation applied in such a manner that the pins or other articles are knocked or thrown apart while the coating-metal is in a melted state, so that the smoothness and gloss of the coating-metal is not injured by contact with the other pins or articles, and each one being detached cools much more readily than when in a mass, and for this purpose I allow said articles to fall into water or other fluid.

To accomplish the aforesaid result, I make use of any suitable fire or furnace, illustrated in the drawings at *a*, and *b* is a pot into which the pins are placed after having been dipped in muriate of zinc or similar flux, and the proper amount of granulated or ground tin or other coating-metal is introduced, and the kettle or pot *b* is agitated and heated until the coating-metal is melted and has flowed uniformly over all the pins or other articles. If preferred, the pins or other articles may be dipped into the melted metal while in a wire basket; but I prefer the manner before specified, because a regular and definite amount of metal can be apportioned to coat a certain weight of pins or other articles. So soon as coated, as aforesaid, I turn the mass of pins or other articles out of the kettle or receptacle, and while falling into the water-box *c*, I separate the pins by agitation, and for this purpose I have represented a box *d*, containing cross-wires or riddles, which box is rapidly vibrated by the crank *e* and pitman *f*, and by causing the pins *g g* to run over inclines *h h* the box *d* is further shaken. The mass of pins, being turned onto these vibrating riddles or wires while the coating-metal is in a melted state, is separated and the pins or other articles knocked apart while falling into the box *c* of water or other fluid, and the smoothness and brilliancy of the coating-metal is not impaired, as aforesaid.

It will be evident that the riddles or wires that come in contact with the coated pins or other articles as they fall might be fitted and vibrated in any desired manner to perform the aforesaid operation.

It will be seen that by increasing the number of riddles, wires, or rods the pins will be agitated to a greater extent and receive as they fall a greater number of concussions or blows, so that the smallest pins will be entirely separated before they reach the water.

I am aware that nails and other articles that have been coated with metal have been agitated by allowing the mass to fall in such a way that the articles scatter about and thus separate; and I am also aware that agitation has been applied to the mass while in a ladle or perforated receptacle; but

What I claim, and desire to secure by Letters Patent, is—

The method herein specified of separating

pins and other articles so soon as thoroughly covered with the coating-metal by the use of a series or riddles, wires, or rods to which a vibration or motion is communicated to produce a series of blows or concussions upon the articles as they fall from the successive riddles, wires, or rods, and thereby insure the entire separation of the articles while the coating-metal is in a melted state, as set forth.

In witness whereof I have hereunto set my signature this 8th day of December, 1860.

THADDEUS FOWLER.

Witnesses:

HARRIS B. MUNSON.

G. R. ELLIOT.

2 Sheets Sheet 1

Smith & Cowles.

Horse Rake.

No. 2263
" 33267

Patented Sep. 10, 1861.

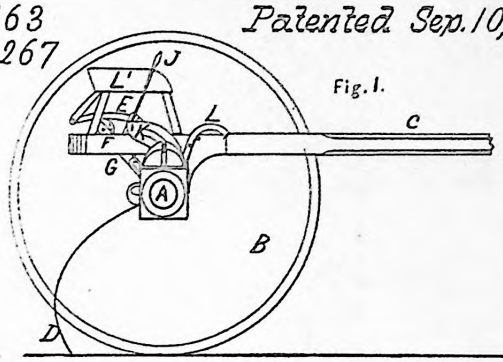


Fig. 1.

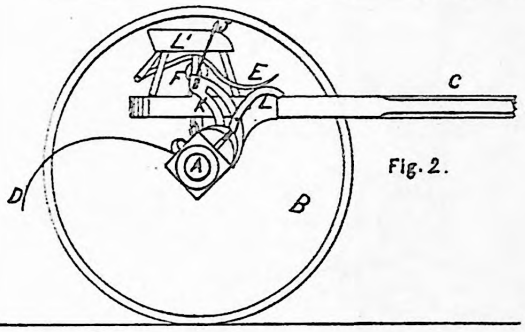


Fig. 2.

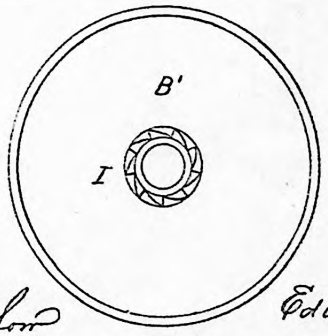


Fig. 4.

Witnesses.

Francis L. Lowe
M. Haskell

Inventor.

Edward Smith
Sidney Cowles

Sheet 2.

Smith & Cowles.

Horse Rake.

No. 2263
33267

Patented Sep. 10, 1861.

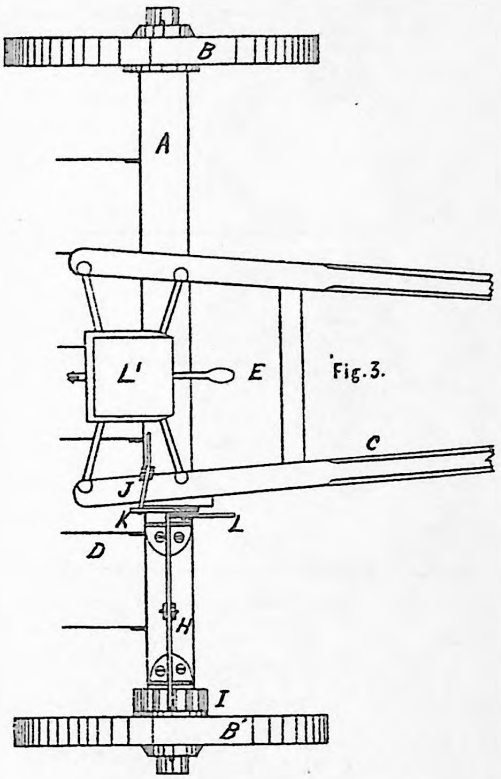


Fig. 3.

Witnesses.

Francis L. Low
M. Heskell

Inventor.

Edward Smith
Sidney Cowles

UNITED STATES PATENT OFFICE.

EDWARD SMITH AND SIDNEY COWLES, OF NORTHFORD, CONNECTICUT.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. 33,267, dated September 10, 1861.

To all whom it may concern:

Be it known that we, EDWARD SMITH and SIDNEY COWLES, both of Northford, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Horse-Rakes; and we do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is an end elevation of the machine or implement with the near wheel removed, showing the rake-teeth depressed, ready to gather its load of grass, hay, or other material. Fig. 2 is a similar view, showing the rake-teeth as elevated to drop their gathered load, or to permit the machine to be moved about without having the rake-teeth operate. Fig. 3 is a plan view of the machine; and Fig. 4 an elevation of the inside of the near wheel, showing the ratchet-wheel by which the rake-teeth are elevated.

A is the axle-tree of the machine, supported upon and by the truck-wheels B B′, which revolve upon it in the usual manner.

C are the shafts, to which the animal by which the machine is drawn is attached. They are secured to the axle-tree by a pivoted joint, so that the latter can turn a portion of a revolution to raise the rake-teeth from the ground, as hereinafter described.

D are the rake-teeth, secured to the axle-tree A in the ordinary manner, and so formed that they possess sufficient elasticity to permit them to raise or spring over stones and other obstacles of a small size that may lie in their track. They are kept in contact with the surface of the ground to gather up into heaps the hay, grass, or other material to be gathered by the curved lever E working upon and over the pulley F on the arm G, attached to the axle-tree, which lever is operated by the foot of the person who directs the operation of the machine. They are elevated from the ground to deliver their gathered load or to allow the machine to be moved about without having them operate by the operator forcing the outer end of the lever H into contact with the teeth of the ratchet-wheel I on the inside of the near wheel, B′, by pulling toward him the handle of the bell-crank lever J, the lower end of which lever is connected with the curved lever K, which has a curved groove formed in it in which the inner end of the lever H is placed and worked, by which the movement of that wheel of the machine is employed to raise the rake-teeth and their gathered load, instead of having that object effected by the strength of the operator. The rake-teeth, when thus raised, are kept up by the pawl L, which is pivoted to the lower end of the curved lever K, dropping upon and over the inner end of the lever H and holding it, and through it the axle-tree A, until the pawl is released and the axle-tree allowed to turn back and the rake-teeth to drop to the ground, to be operated in raking as before. The pawl is released from contact with the inner end of the lever H by the operator pulling toward him the handle of the bell-crank lever J, the front of the pawl resting against a pin on the side of one of the shafts C, elevating thereby the curved lever K and raising the pawl against the pin named, so that its lower end moves off from the lever H, releasing that lever and allowing the rake-teeth to drop to the ground by their weight, and, by the pressure of the foot of the operator upon the lever E, acting upon the axle-tree to turn it back to its first position. L′ is a seat for the person operating the machine, so placed upon the shafts C that the lever E shall be within reach of his foot and the handle of the bell-crank lever J in reach of his hand, so that they can both be readily operated at the proper time.

When the machine is to be moved about from place to place the rake-teeth are elevated and kept up from the ground, as shown in Fig. 2, and when it is to be operated the rake-teeth are depressed and brought in contact with the surface of the ground, as shown in Fig. 1, by releasing the pawl L from contact with the inner end of the lever H by the operator pulling the handle of the bell-crank lever J toward him and depressing the lever E by his foot to turn back the axle-tree, and with it the rake-teeth, as before noted. When the rake-teeth have gathered a sufficient load of material they are elevated from the position shown in Fig. 1 to the position shown in Fig. 2 by the operator pulling the handle of the lever J toward him, forcing the outer end of the lever H into contact with the teeth of the ratchet-wheel I and

causing the truck-wheel to perform the operation of turning the axle-tree and lifting the rake-teeth and their gathered load.

We do not claim the employment of a rake operated by horse or other animal power, nor elevating the rake-teeth by the movement of the truck-wheels of the machine; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the curved lever E, roller F, and arm G, with the axle-tree A, for the purpose of depressing and holding the rake-teeth B in contact with the surface of the ground, as herein set forth.

2. The combination of the bell-crank lever J with the levers K and H, pawl L, and ratchet-wheel I, for the purpose of elevating the rake-teeth from the ground and for holding them when so elevated, as herein described.

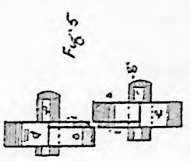
EDWARD SMITH.
SIDNEY COWLES.

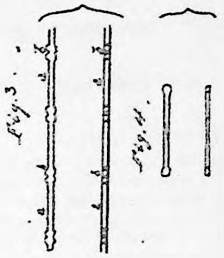
Witnesses:
F. C. BARTHOLOMEW.
E. CHAPMAN MALTBY.

T. Fowler.

Horse Shoe Nail Mach.

No 64963. Patented May 21. 1867.





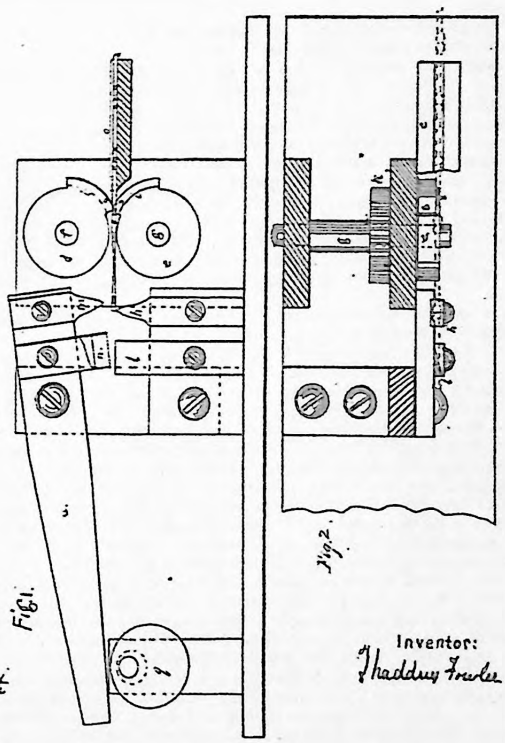


Fig 1.

Witnesses:

Chas H Smith

Geo E Waite

Inventor:

Thaddeus Fowler

United States Patent Office.

THADDEUS FOWLER, OF SEYMOUR, ASSIGNOR TO THE FOWLER NAIL COMPANY, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 64,963, dated May 21, 1867.

IMPROVEMENT IN MACHINERY FOR MAKING NAILS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven, and State of Connecticut, have invented and made a certain new and useful Improvement in Machinery for Making Horse-Shoe Nails; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a side view of my machine for rolling out the body of the nail and separating the nails from a bar.

Figure 2 is a sectional plan with the upper roller removed, and showing the mode in which the nails are separated at their points.

Figure 3 shows the bar in side and edge views in the condition in which it is prepared before presentation to this machine; and

Figure 4 is a side and edge view of the nail after being acted on by this machine.

Similar marks of reference denote the same parts.

Nails have heretofore been manufactured from rods by rollers acting on opposite sides to reduce the rod into the form of a nail. Difficulties have been experienced in this mode of manufacture, in consequence of the rollers not corresponding in their action, for if the nail blanks, in their first reduction, are too long or too short but a hair's breadth on each nail, the nails on the rod are spoiled by the impression of the second pair of rollers not coming upon the proper part of the nail-rod, especially towards the last end of the rod

The nature of my said invention consists in a pair of rollers that feeds the nail-rod along by taking against the sides of the heads formed in the first reduction; thereby each nail-blank is moved along the proper distance, and then the rollers cease their hold upon the rod, hence there is a progressive feed of the nail-rod, and the difficulty before mentioned is avoided, and all the reductions of the nail-rod subsequent to the first are determined in position by the feeding movement acting against the nail-heads successively. I make the horse-shoe nail in the required pointed form by dividing the reduced nail-blank by a diagonal cut that leaves the nail with the point on the line of one side, and I straighten the nail and finish it by mechanism forming the subject of a separate application.

In the drawing, *a* represents the shank portion, and *b* the heads in the nail-rod. These are formed by running a rod through a pair of rollers that acts upon the edges of the rod, leaving the same in about the shape represented in fig. 3. The nail-rod thus prepared is laid into a trough, *c*, in which it may be steadied by hand or a spring-clamp to keep it in place as drawn along progressively by the pair of rollers *d e*. These rollers *d e* are upon the shafts *f* and *g* that are geared together by the wheels *k*, and driven by competent power. Upon the edges of the rollers *d e* are cam-shaped reducing surfaces, *i i*, of a shape to reduce and extend the blank for two nails the proper extent between the heads, and adjacent to these cam surfaces *i* are sectional flanges *o s*, the sectional flange *o* on the roller *d* being towards one edge of that roller, while the sectional flange *s* on the roller *e* is toward the other edge, so that there is between the said flanges, when they come around opposite to each other, an opening of a width corresponding to the width of the shank *a* of the nail-blank, as seen in fig. 5, where the rollers are shown detached. When the advancing ends of the sectional flanges *o s* come around, one passes on one side, and the other on the other of the shank *a*, and come up against the head *b* of the nail-blank that has been standing between the rollers *d* and *e*, unacted upon by said rollers after the cam-shaped reducing surfaces left said nail-blank upon the previous revolution of the rollers *d e*. As soon as the ends of *o s* take the head of the nail-blank, the nail-rod is drawn along and reduced between one pair of heads and the next pair of heads, so as to form the shanks of the proper thickness and length. This movement passes the previously rolled pair of nails along to and between the cutting apparatus. *h* is a standing cutter, so placed that the same is below the point where the pairs of nail-heads have to be separated at the time the nail-rod is stationary, and *l* is a diagonal cutter, so placed as to be on the line where the respective nails are to be separated to form the points, by a diagonal cut, and *m* is a cutter on a lever, *u*, to come down over the cutter *h*, and *n* is a diagonal cutter on the same lever, matching the cutter *l*. This lever *u* is actuated by the cam *q*, that is revolved in unison with the rollers *d e*, and acts upon the lever *u* to separate the nails transversely between the pairs of heads, and diagonally, to form the points, in the manner shown in plan in fig. 2. The nails are to be straightened and finished by separate or after-acting mechanism.

What I claim, and desire to secure by Letters Patent, is—

1. Moving the rod of blanks forward, and adjusting successively each blank to its proper position, before the dies bite upon it, by means of the lateral flanges *o s*, arranged and operating in the manner herein described.

2. I claim combining with devices for feeding the nail-blank the two pairs of cutters *k* and *m* and *l* and *n*, arranged substantially as described.

3. I claim the combination of the cutters *k* and *m*, *l* and *n*, with the rollers *d* and *e*, formed with cam-shaped surfaces *i* and flanges *o* and *s*, as and for the purposes specified.

Dated October 17, 1866.

THADDEUS FOWLER.

Witnesses:

CHAS. H. SMITH,

GEO. D. WALKER.

T. FOWLER.

MACHINE FOR MAKING HORSESHOE NAILS.

No. 64,964. Patented May 21, 1867.

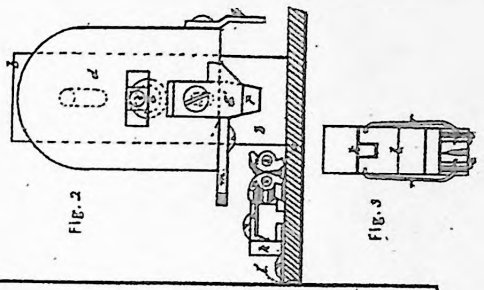


Fig. 2

Fig. 3

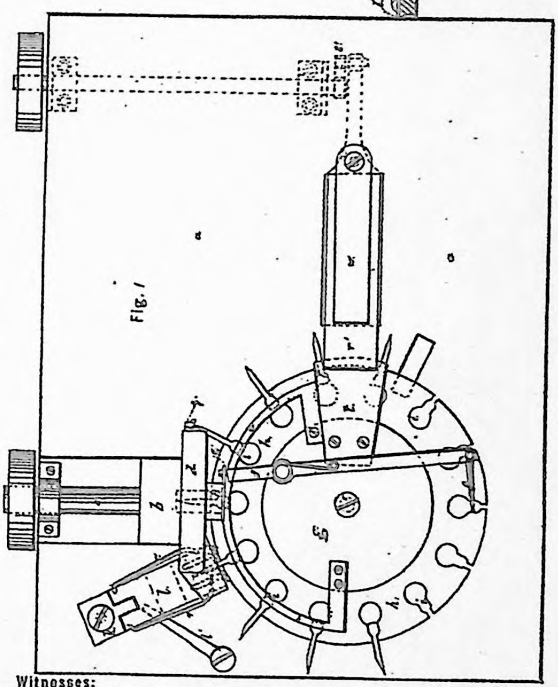


Fig. 1

Witnesses:

Geo. H. Walker

Chas. H. Smith

Inventor:

Hiram Fowler

United States Patent Office.

THADDEUS FOWLER, OF SEYMOUR, ASSIGNOR TO THE FOWLER NAIL COMPANY, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 64,964, *dated May* 21, 1867.

IMPROVEMENT IN MACHINES FOR MAKING HORSE-SHOE NAILS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven, and State of Connecticut, have invented, made, and applied to use a certain new and useful Improvement in Machinery for Making Horse-Shoe Nails; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a plan of my machine.

Figure 2 is an elevation of the straightening-jaws and compressing-dies, the bed being in section; and

Figure 3 is an inverted plan of the straightening-jaws.

Similar marks of reference denote the same parts.

My invention relates to mechanism for taking the nail, after it has been rolled down to form the shank, (leaving the head of the size of the nail-rod,) and straightening said nail by lateral pressure, and then stiffening the same, as well as straightening it in the other direction, by pressure on the side of the body or shank, and at its junction with the head. I also finish the point of the nail by removing the metal on one side.

In the drawing, *a* is a bed, carrying the parts of the machine. *b* is a head-block, carrying the actuating-shaft *c* and a sliding head *d*, that is moved up and down by a crank-pin, *c*, and block running in a slot transversely of the head *d*. Any other competent mechanism might be employed for giving a small but powerful movement to the head *d*. Upon the bed *a* is a circular carrier-plate, *h*, having notches around its edges, as at *i*, of a size and shape adapted to take in the head of the nail; and I move this plate around progressively and automatically by the pawl *f*, that is acted upon by the adjustable plate *g'*, on the head *d*. The pawl *f* has its fulcrum upon a stationary plate, *g*, that is attached to the centre stud, around which the carrier *h* revolves; and this plate *g* may be turned upon its attaching bolt *e* so as to adjust the pawl *f* to make it move the carrier *h* to the right place each time the head *d* commences to descend. The nails are laid into the notches *i* by hand or automatically, and are carried around to the successive operations. *k* is a joint upon the bed *a*, by which the jaw-block *l* is attached. *l'* is a spring just strong enough to turn up or lift this jaw-block *l*, and the parts it carries. *s s* are strong studs projecting horizontally from the block *l*, and carrying the lever jaws *n n*, (see figs. 2 and 3;) and springs *r* are employed to turn these jaws on their studs *s*, so that the jaws will be opened by their lower ends being separated. Upon the head *d* is a plate, *m*, controlling the motion of the jaws *n n*. As the nail is brought around by the carrier *h* it passes below the open jaws *n n*. As the head *d* descends those jaws are carried down until they rest upon the bed *a*. They are still open, because the spring *l'* yields much easier than the springs *r r*. The further descent of the head *d* closes these jaws by acting upon their bent or lower upper ends, and in so doing the nail is powerfully pressed on its edges by a lateral pressure between [illegible] and the opening between them being the shape required for the edges of the nail, said nail is [illegible] moves forward, bringing another nail beneath

64964

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United States Patent Office

E. C. MALTBY AND EDWARD SMITH, OF NORTHFORD, CONNECTICUT.

Letters Patent No. 66,158, dated June 25, 1867.

IMPROVED CONFECTION.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, E. C MALTBY and EDWARD SMITH, of Northford, in the county of New Haven, and State of Connecticut, have invented a new and improved Confection; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same.

This invention consists in preparing the meat of cocoa-nut so that the same may be preserved and kept an indefinite period and used at any time for pies, puddings, &c., &c.

At present, in order to prepare pies and puddings from cocoa-nut meat, the latter is grated while in a green state, and it is necessary to use it immediately, as it soon becomes acid and worthless. By our invention the cocoa-nuts may be purchased in large quantities, when there is an ample supply in the market, and consequently at a moderate cost, and the meat prepared so that it may be sold in quantities at a reasonable price and fair profit, and be fit for use at any time.

We prepare the cocoa-nut meat as follows: The meat is taken out of the shell, the rind or exterior surface removed, and then grated by means of a rotary or other grater. The grated meat has sugar added to it, about twenty pounds of sugar to sixty pounds of meat, and it is then spread out in pans about one inch thick, and the pans placed in a kiln or suitable oven, in order to evaporate the moisture contained in the meat. The pans in which the meat is dried should be of copper or galvanized iron; the latter material would be the cheapest, and probably will be used for the purpose.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

A new and useful confection composed of the meat of the cocoa-nut, prepared in the manner substantially as herein set forth.

The above specification of our invention signed by us this 13th day of May, 1867.

E. C. MALTBY,
EDWARD SMITH.

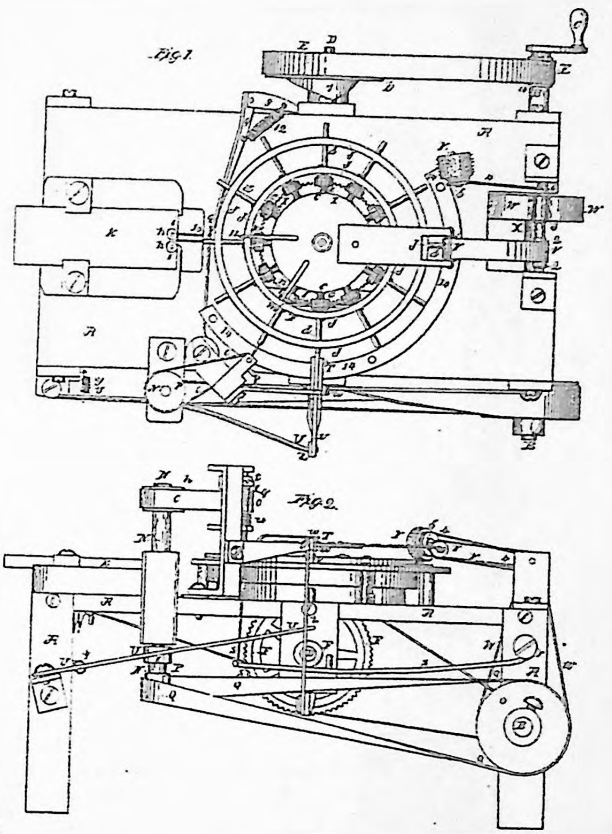
Witnesses:
GEO. E. TREADWELL,
GEO. H. WATROUS.

2 Sheets—Sheet 1.

T. FOWLER.

MACHINE FOR MAKING SEWING MACHINE NEEDLES.

No. 68,429. Patented Sept. 3, 1867.

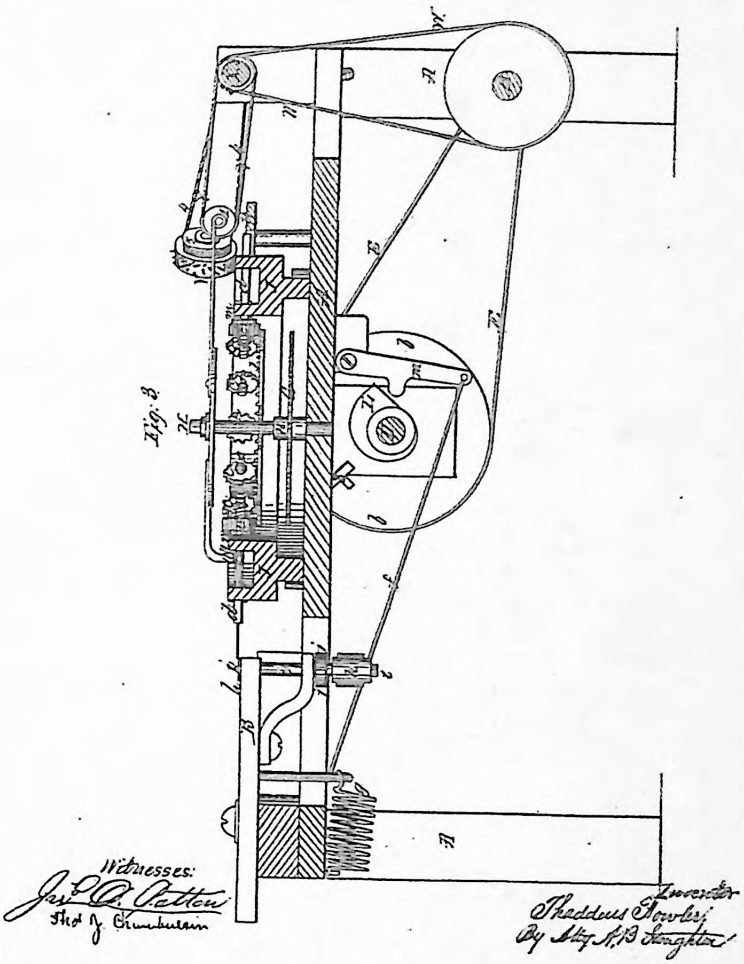


2 Sheets—Sheet 2.

T. FOWLER.

MACHINE FOR MAKING SEWING MACHINE NEEDLES.

No. 68,429. Patented Sept. 3, 1867.



Witnesses:
Jas. L. Patton
Thos. J. Chamberlain

Inventor
Theddeus Fowler
By Atty. A. B. Laughlin

United States Patent Office

THADDEUS FOWLER, OF SEYMOUR, CONNECTICUT.

Letters Patent No. 68,429, dated September 3, 1867.

IMPROVEMENT IN MACHINES FOR MAKING SEWING-MACHINE NEEDLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Machines for Making Sewing-Machine Needles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the machine.

Figure 2 represents an elevation of one of its sides.

Figure 3 represents a longitudinal central section through the same.

Similar letters of reference, where they occur in the separate figures, denote like parts in all the drawings.

My invention relates to a machine for making sewing-machine needles, wherein the blank is automatically fed up, turned, grooved, drilled, pointed, and polished, as will be explained in connection with the drawings.

A represents a substantial table and frame for containing all the operative parts of the machine. On the table or frame A there is a shaft, B, which may be driven by a crank, C, or by a pulley, by any first-moving power, and from this shaft is transmitted the power that operates the various devices for accomplishing the several successive operations in forming the needles. Around a small pulley, *a*, on one end of the shaft B, and around a larger pulley, *b*, on the end of a second shaft, D, there passes an endless belt or band, E, for giving motion to said shaft D, and upon this shaft, which is underneath the bed or table, there is a vertical cogged gear, F, that takes into and turns a horizontal gear, G, on a vertical shaft, H, and upon this shaft also, above the gear G, there is another gear, I, which has cogs on its rim projecting upward, and which take into and rotate a series of frictional spur-gears, *c*, arranged on a series of mandrels, *d*, that radiate from a common point, of which the shaft H is the centre. These mandrels *d*, with their spur-gears *c*, are arranged in a carrying and holding-wheel, J, that is intermittently moved, and then held whilst the series of operations is performed, as will be explained. The spur-gears *c* are not permanently fastened on their respective mandrels *d*, but are held thereto by springs *e* which cause sufficient friction to make the gears revolve the mandrels ordinarily, but so that when necessary any mandrel may remain stationary whilst its gear may move; and thus the machine may have a constant motion, while some of its parts remain fixed or in a fixed position. The blanks that are to be operated upon or converted into needles are placed in suitable holes or sockets in the outer ends of the mandrels, and are fed around and operated upon, as will be explained. A slide or carriage, K, is placed and guided on top of the table, and is moved up toward each blank, as it comes opposite to it, by means of a cam, L, on the shaft D, which takes against a pivoted arm or lever, M, and to which arm or lever the carriage is connected by a rod, *f*, and when the cam ceases to act upon the arm or lever, or runs out, a spring, *g*, which is expanded by the moving up of the carriage, by its contraction draws back the carriage for the next succeeding operation. Upon the carriage K are arranged two milling tools or burs *h h*, which are upon the upper ends of shafts *i i* that pass down through the carriage, and have upon them gears *j j*, by which they are rotated towards each other, and to or against the blank between them. The power to drive the mills or burs is taken from a vertical shaft, N, by means of an endless belt that passes around a pulley, *k*, on one of the shafts *i*, and this pulley-shaft, through its gear *j*, drives its mate or fellow. The object of the mills or burs *h* is to cut the grooves in the blank, and, when these grooves are cut diametrically opposite each other, the blank is moved along to the drill where the eye is drilled. The mills or burs being horizontal, they cut the grooves on the sides, as it were, of the blank. The drill is arranged vertically, as seen at *l*, and consequently the blank must be turned a quarter revolution, so that the eye may be drilled through from groove to groove. For this purpose there is a pin, *m*, passed through each mandrel *d*, which projects far enough to come against a stop, *n*, and when said pin is against said stop the mandrel cannot turn, though its pinion *c* may turn on it. These pins *m* are so arranged in the mandrels that when they come against the stop *n* the grooves will be in the proper position for the drill to properly drill the eye, and are so held until the eye is drilled through. The drill *l* is rotated by an endless belt, *o*, which passes around a pulley, *p*, on the vertical shaft N, and a pulley, *q*, on the drill-stock. The shaft N derives its motion from the main driving-shaft B, through the pulleys O P, and the band Q passing around them. In addition to the rotating motion of the drill *l* it must have a feeding motion to the blank, so as to drill clear through it, or from groove to groove. For this purpose I arrange as follows: On the shaft D

there is an eccentric, R, that works against a rod, S, fastened at one of its ends *r* to the main frame, and moves said rod downward. To the opposite or free end of said rod S a link, *s*, is connected, which extends upward, and is attached to an arm, *t*, connected to the drill-stock, and as the eccentric moves the rod S it draws the drill down far enough to feed it through the blank, which, of course, is a very short distance, and when the cam ceases to act on the rod the recoil of the spring *u* raises up the drill for the next operation.

The partially-formed needle is then moved along and stopped in its feeding-circuit under the pointing instrument T, but continues to revolve around its own axis, to be pointed. This pointing instrument is nicked like a fine file, and is hung upon an arm, *v*, that is reciprocated through or on a guide, *w*, to make its motions uniform and accurate. The arm *v* is operated as follows: On the vertical shaft N there is a cam, *x*, that works against a rod, U, that is fastened to the main frame, and controlled or held up against said cam by a spring, *y*. The free end of the rod U is connected to a pivoted arm or lever, *z*, on the upper end of which the arm *v*, that carries the pointing instrument T, is attached; said pointing instrument being inclined to give the proper taper to the needle. As the partially-made needle revolves rapidly under the pointing instrument, which moves back and forth, the pointing is soon done.

Next the partially-made needle is fed around and stopped under the polishing-belt V, which is an emery belt, passing over pulleys 1 2, and driven from the main driving-shaft B by an endless belt, W, passing around a pulley thereon, and around a small pulley, 3, on the shaft X that drives the polishing-belt. The needle is rapidly rotated around its own axis under the polishing-belt, and the latter having also a travelling motion, the polishing is quickly done.

Next the needle is fed along and momentarily stopped under the scratch-wheel Y, which cleans out the grooves where the polishing-belt will not reach, and the needle is completed. The scratch-wheel is driven by a belt, 4, passing around its pulley 5, and a pulley, 6, on the shaft X, and when the needle thus finished passes the scratch-wheel it can be drawn out from its mandrel and another blank inserted.

The intermittent motion given to the wheel J, that carries around the mandrels and blanks in them to the several devices that operate upon the blanks, and completes and forms it into a sewing-machine needle, is attained as follows: On the pulley-wheel *b* there is a cam, 7, that strikes against a pivoted arm, 8, and moves said arm on its pivot. To this arm 8 is pivoted a dog, 9, that takes against one of the mandrels (said series of mandrels forming a ratchet as it were,) and moves that mandrel into proper position, so that its blank will be operated upon by the mills or burs *h*. When the mandrel arrives at the exact point its pin 10 comes against the stop 11, and it is there held whilst the burs cut the grooves in it. The dog or pawl 9 is returned by the spring 12, or otherwise, for the next succeeding similar operation, and, that there may be no backward motion to the feed-wheel J, a spring-hook, 13, catches over or behind the mandrel and prevents any backward motion, whilst it does not interfere with the forward feeding of said carrying-wheel.

A circular rim or rest, 14, extends around far enough to support the projecting blank, or partially or completely made needles, whilst they are being acted upon by the drill, the pointer, the polisher, and the scratcher. The carriage K forms a rest or support for the projecting blank whilst the mills are cutting the grooves.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. In combination with an intermittently revolving feed-wheel, carrying a series of mandrels, a dog or pawl for moving said feed-wheel, when said dog or pawl takes against the mandrels themselves as a ratchet to turn the wheel by, substantially as described.

2. I also claim, in combination with a feed-wheel, and a series of mandrels therein, and with the milling and drilling mechanism, a mechanism for stopping and holding the blank under the drill at a quarter revolution from the position it occupied at the mills, substantially as and for the purpose set forth.

3. I also claim, in machine-drilled needles, the drilling of the hole through the blank, from the bottom of one groove to the bottom of the opposite groove, by a mechanism arranged and automatically operated, substantially as herein described and represented.

THADDEUS FOWLER.

Witnesses:
A. B. Stoughton,
R. C. Lambert.

T. FOWLER.

Making Needle Blanks.

No. 68,430. Patented Sept. 3, 1867.

Fig. 1

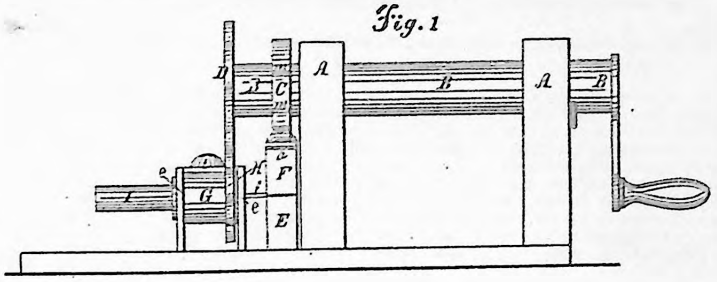


Fig. 2

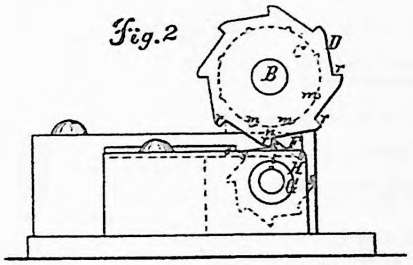


Fig. 3

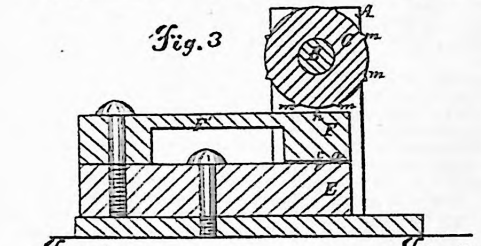


Fig. 4

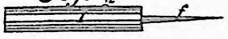
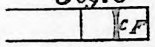


Fig. 5



Witnesses:

Jno. D. Patton

Thos. G. Chamberlain

Inventor:

Thaddeus Fowler

By atty. A. B. Stoughton

UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF SEYMOUR, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR REDUCING WIRES FOR NEEDLE-BLANKS.

Specification forming part of Letters Patent No. **68,430**, dated September 3, 1867.

To all whom it may concern:

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Machines for Reducing Wires for Needle-Blanks; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side elevation of the machine.

Figure 2 represents an end view of the same.

Figure 3 represents a vertical transverse section through the reducing-dies and cam or tappet-wheel.

Figure 4 represents a view of the blank-holder and blank; and

Figure 5 represents the shape of the groove in the die.

Similar letters of reference where they occur in the separate figures denote like parts in all the drawings.

My invention consists in reducing wires for needle-blanks by a machine wherein a peculiar turning motion is imparted to the blank whilst it is being acted upon by a series of blows between a stationary and a movable die, as will be explained.

In the pillar-blocks A is supported a shaft, B, to which motion is given in any usual well-known way. Upon this shaft there is a tappet-wheel, C, and a turning-ratch, D. On the bed or frame, and underneath the tappet-wheel C, there is a stationary anvil-block or die, E; and immediately over it, and between it and the tappet-wheel, there is a spring or yielding die, F, with a very small space between the dies, as seen at *a*, fig. 3. In each of these dies E F there is cut, so as to match each other, a groove, (*c*, fig. 5,) which is more contracted at its middle than at its ends, and so that anything passed between the dies would be more tightly griped at the centre than at the ends. G is a hollow mandrel, supported in the pieces *c e;* and upon this mandrel G there is a ratchet-wheel, H, which is actuated by the ratchet D on the shaft B, as will be hereafter explained. A holder, I, receives the blank *f* that is to be reduced, drawn down, or shaped between the dies. On this holder there is a "feather" or stud, *h;* and in the bore of the hollow mandrel G there is a groove, *i*, that will receive the feather or stud *h* when the holder is inserted therein, and which causes the mandrel and holder to revolve together when the machine is in operation. Upon the tappet-wheel C there is a series of tappets, *m m m*, or slight projections; and upon the upper side of the spring-die F there is a projection, *n*, against which the tappets *m* strike in succession, giving to said die F a chattering motion upon the under die E, or any substance between them, the shank F′ of the die F admitting of sufficient yield and reaction to allow the dies to come together, and then the upper one to rebound from the under one. The ratchet D has teeth *r* upon it, which are much farther apart than the teeth *s* on the ratchet H; and the tappets *m*, as seen in fig. 2, are arranged so as to be intermediate between the teeth *r*, the object of which is that, after a tooth *r* has moved a tooth *s* on the mandrel-ratchet, the latter may momentarily stand at rest until the next tooth on D comes up and strikes the next tooth on H; and during this momentary cessation of turning, the tappet strikes the projection *n*, and gives a blow and a rebound before the next turning motion takes place. Thus the turning takes place when there is no pressure upon the dies; and there are no rounded scratches upon the blank, because when turned there is no griping or striking of the dies. The contracted form of the grooves *c* in the dies at their centres is that the reducing of the wire may be mainly done at that point, and give the blank an opportunity to elongate, as it must do under the series of blows, and the transposition of the metal. There is a spring-plate, *l*, that presses upon the mandrel just sufficient to prevent it from moving when the ratchets are not feeding, or when the mandrel and blank are not to be turned. Any attempt to turn the blank when the dies are griping it would mar and injure it.

Having thus fully described my invention,

what I claim therein as new, and desire to secure by Letters Patent, is—

1. In combination with the turning-ratchets, mandrel, and blank-holder, the dies F and E for reducing and allowing the blanks to elongate under the reduction, substantially as described.

2. I also claim, in combination with the turning-ratchets, mandrel, blank-holder, and dies, the tappet-wheel C, with its tappets so arranged as to strike the die whilst the feed is at rest, substantially as described.

THADDEUS FOWLER.

Witnesses:
A. B. STOUGHTON,
R. C. LAMBERT.

M. Fowler.

Card for Hooks & Eyes.

No. 70190. Patented Oct. 29. 1867

Fig 1.

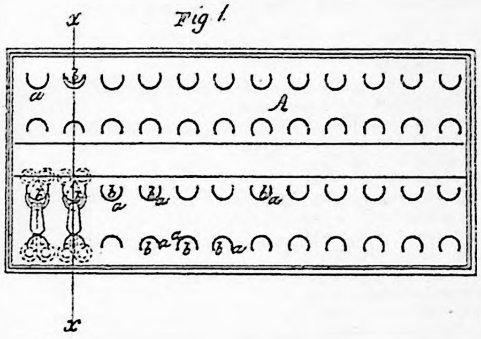


Fig. 2

Witnesses
Thos Fusche
Wm. Erwin

Inventor
M Fowler
Per Munn & Co
Attorneys

United States Patent Office.

MALTBY FOWLER, OF NORTHFORD, CONNECTICUT.

Letters Patent No. 70,190, *dated October* 29, 1867.

IMPROVEMENT IN CARDS FOR HOOKS AND EYES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, MALTBY FOWLER, of Northford, in the county of New Haven, and State of Connecticut, have invented a new and improved Card for Hooks and Eyes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to a card more especially intended for hooks and eyes, although it can be used for other and various articles; and the invention consists in so puncturing such cards for receiving the hooks and eyes that a tongue-piece will be left in such punctures, whereby the hooks and eyes, when passed through the said punctures, will be firmly, securely, and tightly held, as will be obvious from the following detail description of the card, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a plan or top view of the card, and

Figure 2 a transverse section, taken in the plane of the line *x x*, fig. 1.

Similar letters of reference indicate like parts.

A, in the drawings, represents a card, which is of the size and shape of an ordinary card for hooks and eyes, and is adapted to receive two rows of hooks and eyes each. In this card is a series of punctures, *a*, which are such as to leave a centre tongue-piece, *b*, to each one, by means of which, when the hooks or eyes (as the case may be) are forced or passed through the punctures, such tongue-pieces will so set over and interlock with them, as shown in fig. 1, as to firmly and securely hold them in place and position, as is obvious without any further explanation.

I claim as new, and desire to secure by Letters Patent—

The card A, provided with two or more series of punctures, *a*, the convex sides of each series facing each other, and provided with the tongue-pieces *b* fitting over the hooks and eyes, as herein set forth for the purpose specified.

MALTBY FOWLER.

Witnesses:

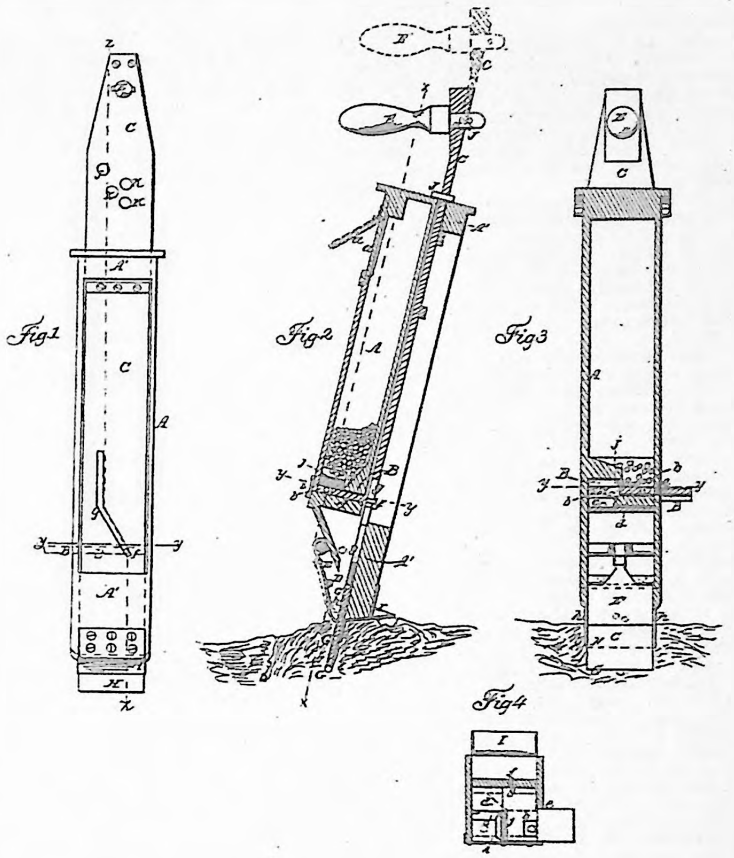
WM. F. MCNAMARA,

ALEX. F. ROBERTS.

C. A. WAKEFIELD.

Hand Seeder.

No. 11,395. Patented July 25, 1854.



UNITED STATES PATENT OFFICE.

CHARLES A. WAKEFIELD, OF PLAINFIELD, MASSACHUSETTS.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 11,395, dated July 25, 1854.

To all whom it may concern:

Be it known that I, CHARLES A. WAKEFIELD, of Plainfield, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in Hand Corn-Planters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation or external view of the corn-planter, the plunger or vertical valve being in. Fig. 2 is a vertical section of the planter through the line *z z* in Fig. 1, the plunger or vertical valve being out. Fig. 3 is a vertical section of the machine through the line *x x* in Fig. 2, the plunger being out. Fig. 4 is a horizontal section through the line *y y* in Figs. 1, 2, and 3.

Similar letters of reference in each of the several figures indicate corresponding parts.

In the "hand-planter" represented in the accompanying drawings, the corn is contained in a box or hopper, A, being fed therein through a lid, *a*, near the top. A guide-frame, A′, is arranged on front of the seed-box A to direct the up-and-down movement of an embedding-plunger, C, which, in its double movement, by means of a groove, *g*, and pin *f*, alternately opens and closes a delivery-slide, B, that works in a groove, *e*, in the seed-box at or near its bottom, and that has a seed-aperture, *b*, in it, that as the plunger C ascends conveys a suitable quantity of corn to be planted in a single hill over an aperture, *c*, in the corner of the bottom of the hopper, through which the corn, thus conveyed by the delivery-slide, drops into a receiving-chamber, D, beneath. In the descent of the plunger C, when planting, the delivery-slide B is drawn back to take in a fresh supply of corn from the hopper and hold it ready for another delivery, while the plunger C in its continued descent ejects the corn previously fed by the delivery-slide into the receiving-chamber through the bottom of the said receiving-chamber D, and embeds it to the proper depth in the ground, the plunger C opening the receiving-chamber by its pressure against the back plate thereof, which is made elastic or acted upon by a spring to admit of the corn being forced out of the receiving-chamber by the plunger passing therethrough, and to insure the receiving-chamber closing again when the plunger is drawn upward to hold the corn fed into it by the delivery-slide B. A lip or flange, G, projects from the plunger C at its bottom end on the rear side to hold and guide the corn when being embedded in between it and a short front plate, H, which enters the ground and projects from a broad front stop-plate, I, that bears down or rests upon the surface of the ground, as represented in Fig. 2, and prevent the machine entering the ground with the plunger C. Side flanges, *h h*, also project from the front stop-plate, I, and serve, in conjunction with the elastic back-plate of the receiving-chamber D and bottom projecting plate, H, to scrape off the dirt adhering to the sides and edges of the plunger C on the plunger being drawn out of the ground into the receiving-chamber D. Any suitable device may be employed for gaging the stroke of the plunger to vary its depth of entry into the soil, as circumstances require.

The plunger C is provided at its top, on the rear side or face of it, with a handle, E, by which the operator holds or carries the machine and operates the plunger. This handle E projects obliquely from the plunger in such a manner that when the said handle occupies a horizontal position the plunger is situated at a considerable inclination from the perpendicular, pointing backward downwardly; or the handle E may be otherwise equivalently arranged or set so that the same oblique direction will be given with certainty to the plunger in holding and operating it by the handle without any special effort on the part of the hand to give the plunger its specified oblique action or direction, and by the simple effort of bearing down or up on the handle necessary to give the plunger its reciprocating action, by which arrangement the embedding-plunger C is caused invariably to enter and leave the ground during all and every of its several operations in the same obliquity of direction automatically, as it were, or, in other words, without its requiring any special adjustment by the hand of the operator, and whereby he is enabled to operate the planter with greater facility and expedition, as clutching firmly the handle E of the plunger with his right hand, he, stepping from hill to hill, strikes the machine, as a man would a walking stick or cane, obliquely at his side against the ground slightly behind him, causing the short front plate, H, to enter the

ground and the stop-plate I to take its bearing on the earth, also the plunger C to eject the corn through the bottom of the receiving-chamber D, and carry or force it (the corn) to its required depth obliquely into the earth, after which the plunger C is raised or drawn in the same oblique direction out of the earth, the stop-plate I acting as a fulcrum during the lateral strain upon the plunger by the position of the handle in drawing out the plunger, which, in starting the plunger out of the earth, causes the earth slightly to yield under the stop-plate I, and the bottom end of the plunger on the rear side to be turned slightly up, so as to loosen the earth on the overhanging side of the oblique recess in the earth formed by the plunger, whereby the falling of the earth over the seed, in drawing out the plunger, is insured, though the narrowness and obliquity of the recess formed by the plunger would of themselves almost effectually prevent all possibility of the earth failing to cover the seed, especially as in drawing out the plunger C the springing side of the receiving-chamber D, projecting plate H, and side flanges, *h*, act as scrapers throughout the entire withdrawal of the plunger from the embedded seed, till its arrival at the top of the recess to detach and drop back into the recess over the seed all soil adhering to the plunger. These are points of great importance in the operation of my planter, and make its action greatly superior to the planter of Samuel Malone patented on the 3d of January, 1854, and other machines of a like character, in which the elastic or opening and closing receiving-chamber D is forced perpendicularly into the ground to form the recess, and is opened with great difficulty when in the ground to deposit the seed, the said receiving-chamber or depositing-tube, when thus operated, carrying up the adhering earth with it out of the ground, instead of dropping it behind to cover the seed, and the said receiving-chamber by opening when in the ground becoming clogged with dirt at its opening sides, so as materially to affect the operation of the machine, and the said receiving-chamber leaving, when withdrawn from the ground, a wide recess having no overhanging side, so that the earth frequently fails to cover the seed; nor in any such machines does the same facility exist for planting expeditiously as with mine, as distinct motions or actions have usually been requisite to insert the depositing-tube and drop or embed the seed, while the perpendicular action of such machines is less in accordance with the movement forward of the operator than the specified oblique action or cane motion of mine, which, as specified, involves no delay in directing it into or out of the ground, but is self-adjusting as regards direction, insuring the same obliquity of action both on entering and leaving the ground, and this set obliquity or angle, "naturally" as it were, assumed by the plunger is such that apart from the specified loosening of the earth by the plunger and the scraping of the adhering soil from the plunger, the certainty of the earth falling in to cover the seed in soils of ordinary stiffness is effected by the overhanging position of the one side of the recess.

I do not claim as new in hand seed-planters the mere use or arrangement of a seed hopper or box, delivery-slide, and elastic or opening and closing receiving-chamber with ejecting-plunger operating therein or through, as such arrangements, I am aware, have before been used; but in such arrangements the receiving-chamber has formed a depositing-tube entering the ground with the plunger, and served to form the hole or recess in the earth for reception of the seed; but I do claim as new and useful and desire to secure by Letters Patent so arranging and operating the plunger C, in connection with the receiving tube or chamber D and its delivery-slide B, or the equivalent thereof, that the plunger C, ejecting the corn deposited in the receiving-chamber, is made to embed the corn from the surface of the earth to its required depth obliquely into the ground, while the receiving tube or chamber D, resting by a front stop-plate, I, on or above the ground, is made to open and close clear of all surrounding dirt, and the sides of the said chamber D made to act as scrapers above the recess to clear the plunger of adhering soil, and cover the seed therewith throughout the entire withdrawal of the plunger, substantially as specified, whereby the receiving tube or chamber D is prevented clogging with dirt at its opening sides, the width of the opening made in the earth for the reception of the seed is diminished, and the corn covered with more certainty, as herein set forth.

Nor do I claim of itself as new planting obliquely; but I do further claim the method herein described of operating the planter by the hand at the side, in such a manner that the same force or pressure applied to working the plunger up and down gives to the planter automatically, as it were, one and the same obliquity of stroke in a backwardly direction downward, or in a forwardly direction upward throughout its several operations, both on entering and leaving the ground, by means of the obliquely-set handle E on the rear side of the plunger, or other equivalent arrangement of the handle producing the same action, substantially as specified, and whereby the planter may be used with greater facility and expedition, and the recess formed for the planting of the corn be made with certainty of the necessary obliquity without involving any delay in adjusting the direction or movement of the plunger to insure the earth on the overhanging side of the said recess falling in to cover the corn, as herein set forth.

CHAS. A. WAKEFIELD.

Witnesses:
GEO. VINING,
SUSAN VINING.

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(2) Maltby, George Ellsworth and Georgia Lord (Morehouse), Family Record of the Maltby-Morehouse Family. The Tuttle, Morehouse & Taylor Press, New Haven, Conn. 1897. P76 & 77.

(3) Chandler, Ibid. P203.

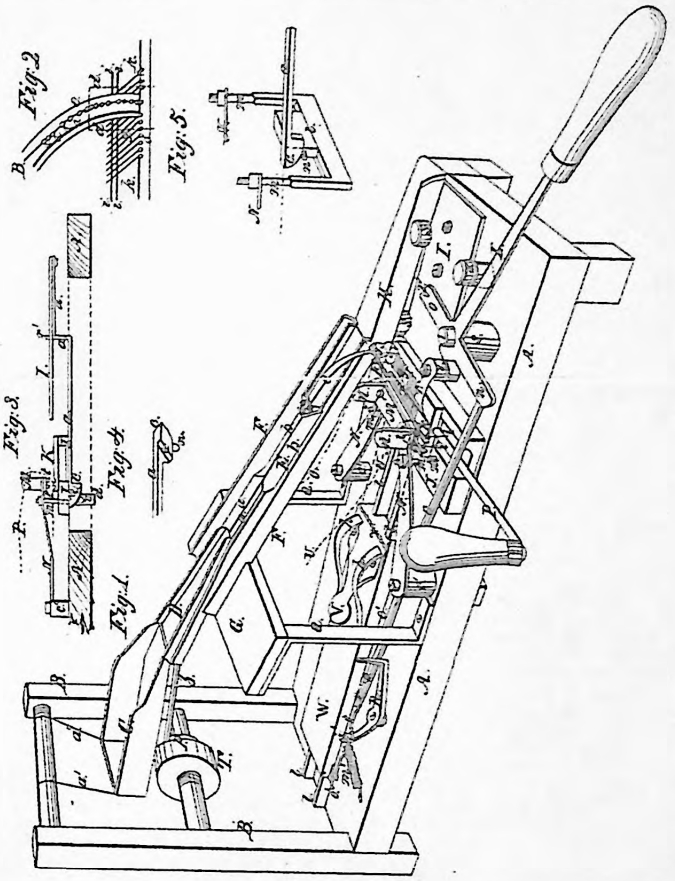
(4) Ibid. P84 & 85.

2003-010-001

D. Fowler.

Papering Pins.

No. 3,751. Patented Sept. 20, 1844.



UNITED STATES PATENT OFFICE.

DE GRASSE FOWLER, OF NORTH BRANFORD, CONNECTICUT.

MACHINE FOR ARRANGING AND STICKING PINS IN PAPERS.

Specification of Letters Patent No. 3,751, dated September 20, 1844.

To all whom it may concern:

Be it known that I, DE GRASSE FOWLER, of the town of North Branford, county of New Haven, and State of Connecticut, have invented a new and Improved Machine for Sticking Pins into Papers; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a perspective view of the complete machine; Fig. 2, a section showing the curved part of the conductor with a portion of the series of grooves; Fig. 3, a section showing the apparatus for working the crimper; Fig. 4, a section, showing the manner in which the piece *c*, Fig. 3, passes over the pin *n* and is drawn back again under it, and Fig. 5 is a section showing the manner of drawing down the crimping bars into the grooves.

The parts of the different figures are as follows:

Fig. 1, A, A, wooden platform: B, B, a wooden frame to which the hopper is suspended; C, the hopper; D, a broad tapering trough: E, E, conductor; F, F, two troughs, or gutters; G, a small platform supported by pieces Q, Q; H, inclined plane with a perpendicular side; I, a metal plate; J, a metal plate on which the plate K, slides; K, a metal plate with a series of grooves marked *g*; L, a lever with two arms *n o* at right angles; M M′ M crimper, the bars of which are marked *t*, *t*; N, N, two springs to throw the crimper up; O, O, a rod to move the slide W; P, a rod with a handle to move the slide K; R, a lever with two arms, working upon a joint rivet in the center; S, an upright piece to support the fulcrum of the lever L; T, a drum for a band from the motive power; U W U, dotted lines, showing the position of the paper; V, a piece of metal, kept down at the broad end by springs *h*, *h*, to hold the paper; W, a slide for moving the paper during the process of sticking; Z, a spring to give a jolting motion to the hopper. The minor parts will be hereafter described.

Fig. 2, C, the conductor; B, the narrow slit through the center in which the pins pass; *d d*, a plate to cause the pins to fall properly into the grooves *g*; K K, a plate with series of grooves; *i i i i*, longitudinal grooves used in crimping the paper; *a a a a*, &c., pins. Its operation will be hereafter described.

Fig. 3, A, A, section of the platform. I, a metal plate. *r* a pin by which the plate I is moved by the arm *o* of the lever L. *a*, *a*, *a*, a metalic bar attached to the plate I. C a thick end of the bar formed like the latch of a common knob-lock. *n* a pin over which C passes to bring down the crimper. N, a spring to throw the crimper up. M, *t t* the crimper: J, the plate on which the slide K moves: P, dotted lines showing position of the paper: *m* a rod attached to the piece L, and fastened to the spring N. Its operation will be hereafter described.

Fig. 4, *c* metal bar with a large end *c*. *n* a pin over which it passes. *e* an inclined plane for the pin *n* to back over the piece C

The construction and operation of the machine is as follows, reference being had to Fig. 1 in the drawings: Upon a strong wooden platform A, A, I place the whole machine. From the cross piece at the top of the uprights B, B, I suspend a tin hopper C between which and the conductor E, E, is a broad tapering trough D, to the under side of this a stiff spring Z is attached, having one end lying upon the octangular piece *p* which is made to revolve by a band passing over the drum T and connected with a motive power. When the pin *p* revolves, a jolting motion is communicated to the hopper trough, and the pins, (which are thrown into the hopper in any quantity,) and made to slide gradually down and fall into the ravine *a a* at the upper end of the conductor E, E. Through the whole length of this conductor is a slit, represented in the drawing by a heavy black line. When the pins fall into the ravine *a a* they roll to the center, the body passes through and they are suspended by the heads as seen in the section of the conductor, Fig. 2. The conductor is sufficiently inclined to cause the pins thus suspended to slide down the slit and fall into the grooves *g*, in the slide K. The conductor being stationary, the grooves are filled by passing the slide K along under the lower end of the conductor, by means of the rod with a handle, P. As more pins might fall into the ravine of the conductor, than sufficient to fill the slit, a portion of the conductor is beveled downward from the center, as seen at *b b* and the surplus pins slide over

into the gutters F, F, from thence fall upon the inclined plane H, and then into a reservoir from whence they are taken and thrown back again into the hopper. Thus the pins are prevented from being scattered about the machine and upon the floor. The triangular piece *e* is intended to ward off the pins and direct them into the gutters. A groove is cut in its lower side, large enough to allow the heads of the pins that are in the slit, to pass through. When the pins pass the curve of the conductor at C, they would be liable to fall out, or fall with the heads at irregular distances from the ends of the grooves. To prevent this, a flat upright plate shown by dotted lines and marked *f*, (or more clearly shown by the dotted lines *d*, *d*, Fig. 2,) is placed sufficiently near the conductor to have the heads of the pins strike it, and cause them to fall correctly into the grooves as they pass under the lower end of the conductor. The slide K with the grooves, having been passed along under the lower end of the conductor and the grooves filled, it is drawn back and arrested in a proper position by the pin *n'*.

A thin piece of metal *r r* keeps the pins in the grooves from being thrown out by the jarring of the machine in working. This piece is rounded on its lower edge, so that the plate I is allowed to easily pass under it.

This process completed, the pins are now ready to be stuck into the paper, which is performed thus. Upon the slide W is a metal plate V, the end at *x* being as broad as the slide. The other end is bent upward, so that, (as the plate works easily upon the screws) when pressed down by the thumb, the end at *x* rises. The sheet of paper to be filled with pins is placed under this broad end, the thumb taken off of the point V and the springs *h h* pressing upon the broad end, hold the paper securely to the slide W. The paper is then passed under the crimper M' and the end thrown over back as indicated by the dotted line *u u u;* or the dotted line P, Fig. 3. The paper being thus made ready and the grooves filled with pins, the lever L is moved by the handle in the direction of the arrow. By this movement, the plate I is carried toward the pins in the grooves, and the crimper is made to perform its office as follows: When the plate I is moved forward by the lever L, the bar *a a a*, Fig. 3, which is attached to it, also moves, and its thick end *c* sliding under the plate J, J, passes over the pin *n*, which, being attached to the piece *l* causes it to be drawn down a distance equal to the curve of the piece C. To each end of *l* (as best seen in Fig. 5) is attached two perpendicular rods *m m* (which are also seen at *m* Fig. 1). The upper ends of these rods are fastened by a nut to the springs N, N, and near to the crimper M. As the piece C passes over the pin *n* Fig. 3, *l* by means of its rods *m m* draws down the crimping bars *t, t,* into the longitudinal grooves in the slide K, and thus the operation of crimping the paper is performed. Grooves or holes or notches are made through the crimping bars *t t*, in positions to correspond with the grooves in the slide K, and large enough to allow the pins to pass easily through them when closed into the longitudinal grooves. The paper, by the action of the bars and grooves, is raised into two folds, at proper distances upon the sheets, and when the pins pass through the notches of the crimping bars, they penetrate these folds. At the moment the crimper completes the operation of crimping, the plate I, moved by the lever L, strikes the heads of the pins in the grooves, and forces them through the fold in the paper. At the same time the piece C Fig. 3, passes over the pin *n* which falls behind the perpendicular part, and allows the springs N, N, to throw the crimper up. When the bar *a a a* with the plate I is drawn back by reversing the motion of the lever L, the pin *n* passes up the inclined plane *c*, Fig. 4 and the piece C assumes its previous position as seen in Fig. 3. Thus the operation of crimping and sticking is performed, by a single motion of the lever L.

The movement of the slide W, to which the sheet of paper is attached, is performed as follows: Attached to the slide W, is a straight rack *e'* with the teeth some distance apart. Upon this rack, the rod O, O, operates thus. When the lever L is moved in the direction of the arrow, the rod O, O, is drawn forward, and the moment the plate I has performed the office of driving the pins into the paper, the flattened end *y* of the rod O, O, falls in front of one of the teeth of the ratchet *e'*. When the pins are "stuck" and the lever L is drawn back, the rod O, O, operating upon the ratchet, moves the slide W, back a given distance. This operation is repeated until the rod O, O, traverses the whole length of the ratchet, when, by a beveled piece of metal, the rod is thrown up, above the ratchet, and against the side of the slide W. The slide is then moved forward upon the rails *z z z z* and another sheet of paper inserted. When the slide W reaches the desired point forward the point of the rod O, O, strikes a bevel *o'* at the end of the ratchet, and is thrown again into its place in the ratchet. It is kept against the ratchet *e'* by one end of the lever R, which is made to press against it by the action of the spiral spring *m'* attached to the other end of the lever. This lever moves upon a hinge rivet in the center. The end of the lever to which the spring is fastened, is so formed as to fall behind the teeth of the ratchet, and prevent the slide W, from being thrown back beyond a given distance each

time. The plate I is supported by four upright pieces *s s s s* in which grooves are cut. In these grooves the plate I moves.

The form of the crimper and its mode of operation in the longitudinal grooves of the slide K, I do not claim as my invention. It is the same as one invented by John J. Howe, of Derby, Connecticut, for which Letters Patent were granted bearing date of Feb. 21, 1843. Also the series of grooves into which the pins fall, and the manner in which they are laid into the grooves at the lower end of the conductor, I do not claim as my invention, it being the same in form and operation, as a machine invented by Samuel Slocum of Poughkeepsie, New York—for which Letters Patent were granted bearing date of September 30, 1841.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of a sliding bed in which the grooves are cut for the reception of pins, with the stationary curved conductor, combined and arranged substantially in the manner and for the purpose herein set forth.

2. I claim the stationary conductors E, E, having two inclined bars with a downward curvature at the ends as described, and in combination therewith the gutters F, F, on each side into which the surplus pins pass, and are carried off—the triangular piece (*c*) aiding in the operation. In the above claim I wish it to be understood that I do not claim the inclined conductors when made straight but only with the curved terminations.

DE GRASSE FOWLER.

Witnesses:
JOEL HINMAN,
PHILO BROWN.