SWEET & ELLIOTT.

Machine for Making Cut Nails.

No. 85,145. Patented Dec. 22, 1868.

Fig. 1.

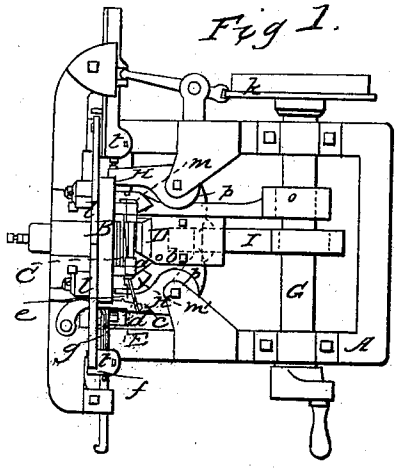


Fig. 2.

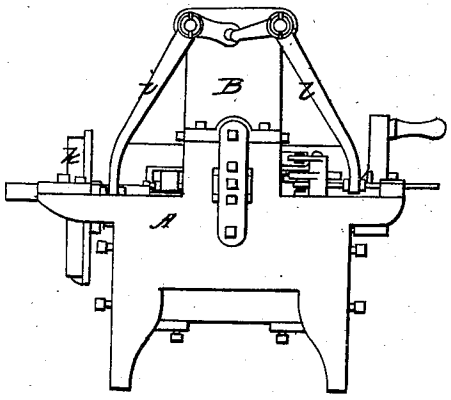


Fig. 3.

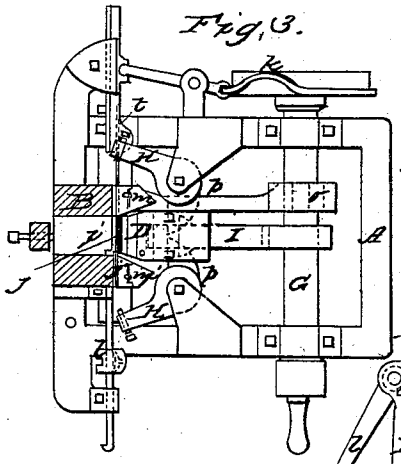


Fig. 4.

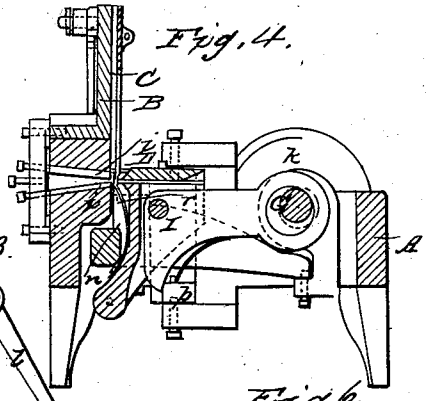


Fig. 3.

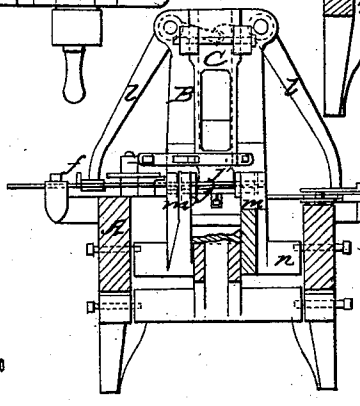


Fig. 6.

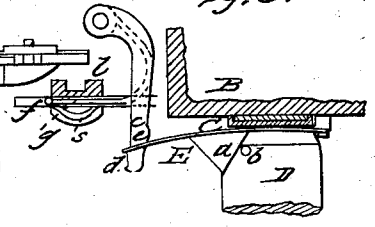
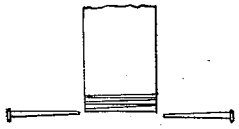


Fig. 7.



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N. PETERS. Photo-Lithographer. Washington, D. C.

United States Patent Office.

JOHN EDSON SWEET, OF SYRACUSE, AND J. BOYD ELLIOTT, OF NEW YORK, N. Y., ASSIGNORS TO OLANDER B. POTTER AND SOLOMON J. GORDON, OF NEW YORK CITY.

Letters Patent No. 85,145, *dated December* 22, 1868.

IMPROVED MACHINE FOR MAKING CUT 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 we, JOHN EDSON SWEET, of Syracuse, in the county of Onondaga, in the State of New York, and J. BOYD ELLIOTT, of the city, county, and State of New York, have invented a new and useful Improvement in Nail-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of this invention.

Figure 2 is an end view of the same.

Figure 3 is a horizontal section of the same.

Figure 4 is a longitudinal vertical section of the same.

Figure 5 is a transverse vertical section of the same.

Figure 6 is a detached plan of the mechanism for locking and releasing the nail-plate.

Figure 7 is a face view of the nail-plate, showing the blanks, and also the finished nails.

Similar letters indicate corresponding parts.

This invention relates to certain improvements on a nail-machine, on which Letters Patent were granted to William A. Sweet, November 3, 1863, and which is so constructed that two blanks are cut from the nail-plate at each stroke of the punch.

Our improvements consist in a self-acting spring-clamp, which is pressed against the nail-plate, or the guide thereof, by a stud, rising from the punch, or from the head which carries said punch, and which is released automatically in such a manner that the nail-plate is firmly clamped and held in position, while the punch is in action, and that said nail-plate is released and free to be fed up as soon as the punch recedes; further, in the arrangement of fingers, acting in opposite directions, in combination with the punch, in such a manner that the blanks, cut off by the action of said punch, are pushed out in opposite directions, and automatically delivered to the heading-mechanism; further, in the arrangement of grippers and headers, in combination with the fingers and punch, in such a manner that the blanks, on being pushed by the fingers between the grippers, are firmly retained and exposed to the action of the headers, and, after the headers have receded, the finished nails are pushed out from between the grippers by the action of the succeeding blanks.

A represents a frame, made of cast-iron, or any other suitable material, and of such a form or shape that it will conveniently support the working-parts of our machine.

From the back end of this frame rises the standard B, to the front side of which is hinged the feed or guide C.

This guide is so formed that the nail-plate can be conveniently fed through it to the punch D, and with said feed-channel we have combined a spring-clamp, E, from which projects a wedge-shaped or inclined tappet, *a*, so that, as the punch advances, a stud, *b*, which rises from said punch, or from the head carrying the same, will strike the inclined edge of the tappet, and press the spring-clamp up against the nail-plate, or against the feed-channel, and thereby the nail-plate is firmly retained in position while the punch is in action.

In this locking-position the spring-clamp is retained by a lever, *c*, which is provided with a nose, *d*, on one, and an inclined surface or cam, *e*, on its opposite edge, and the end of which passes through a slot in the loose end of the spring-clamp.

As the spring-clamp is pressed back by the action of the stud *b* on the tappet *a*, the end of the slot in the spring-clamp strikes the inclined surface *e* on the edge of the lever *c*, and thereby said lever is turned out in the direction of the arrow marked on it in fig. 6, and the nose *d* is caused to catch over the outer edge of the slot in the spring-clamp, and said spring-clamp is retained in its locking-position. It is released again at the proper interval by a stud, *f*, coming in contact with an arm, *g*, which connects with the lever *c*.

The nail-plate is fed down until its lower end projects below the punch the width of one blank, a stop or gauge, *j*, being provided, which prevents it dropping down beyond the desired point, and the punch acts in connection with two stationary cutters *i i'*, as fully described in the patent of William A. Sweet, heretofore mentioned.

As the punch advances, it cuts off from the nail-plate, simultaneously, two blanks, one below the stationary cutter *i'*, and one below the stationary cutter *i*, or between the two cutters *i i'*.

As the punch recedes, the lower blank is sustained by a spring, *r*, (see fig. 4,) which is secured to the tool-stock or arm that carries the punch. Without this spring, the blank would be liable to drop off as soon as the punch recedes.

The blanks thus cut off are exposed to the action of fingers *j j'*, which move in suitable bearings *t* on the frame A, and to which a reciprocating motion is imparted in opposite directions by the action of a cam, *k*, and elbow-levers *l*, (best seen in fig. 2,) or by any other suitable mechanism.

The bearings or boxes *t*, which carry the fingers, are provided with springs *s*, so that said fingers are not rigidly secured in the same, but if one of said fingers meets with an undue resistance, it is free to slide through its box, and injury to the mechanism is avoided.

One of the fingers forms the stops or gauge which prevents the nail-plate dropping down beyond the desired point, and said fingers also serve to push the blanks out between the grippers *m m'*, the movable

jaws of which are secured to a rock-shaft, *n*, to which an oscillating motion is imparted by the action of a cam or eccentric, *o*, on the main driving-shaft G, or by any other suitable mechanism.

Between the grippers, the blanks are held in such a position that their large ends project far enough for the formation of the heads, and the heads are formed by headers H, which are secured to upright shafts, and to which motion is imparted by the rod I, which also serves to produce the reciprocating motion of the punch, and which acts on toes *p*, projecting from the shafts, which carry the headers, or, if desired, any other suitable mechanism may be employed to produce the required motion of said headers.

After the heads have been formed, the grippers open, and the finished nails are pushed out of the grippers by the succeeding blanks being pushed along by the action of the fingers *j j'*.

The manner in which the blanks are cut off from the nail-plate, will be readily understood by referring to fig. 7, which also shows the form of the finished nails.

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

1. The spring E, and inclined block *a*, in combination with the punch D and guide C, constructed and operating substantially as and for the purpose described.

2. The locking-lever *c*, in combination with the spring E, inclined block *a*, punch D, and guide C, constructed and operating substantially as and for the purpose set forth.

3. The unlocking-mechanism, consisting of the arm *g* and reciprocating stud *f*, in combination with the locking-lever *c*, spring E, inclined block *a*, punch D, and guide C, all constructed and operating substantially as and for the purpose described.

4. The fingers *j j'*, acting in opposite directions, in combination with the punch D and stationary cutters *i i'*, constructed and operating substantially as and for the purpose set forth.

5. The grippers *m m'* and headers H, in combination with the fingers *j j'*, punch D, and stationary cutters *i i'*, constructed and operating substantially as and for the purpose described.

6. The safety-boxes *t*, in combination with the fingers *j j'*, punch D, and cutters *i i'*, constructed and operating substantially as and for the purpose set forth.

7. The combination, substantially as described, of the punch and cutters, (for cutting two nail-blanks at a time,) with two sets of grippers and headers, for heading the two blanks so cut, so that each operation of the mechanism produces two headed nails.

In testimony whereof, we have hereunto set our hands, this 28th day of February, A. D. 1867.

JOHN E. SWEET.
J. BOYD ELLIOTT.

Witnesses:

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W. L. BENNEM.