(No Model.)

W. C. BRAY.

MACHINE FOR SETTING LACING STUDS.

No. 261,527. Patented July 25, 1882.

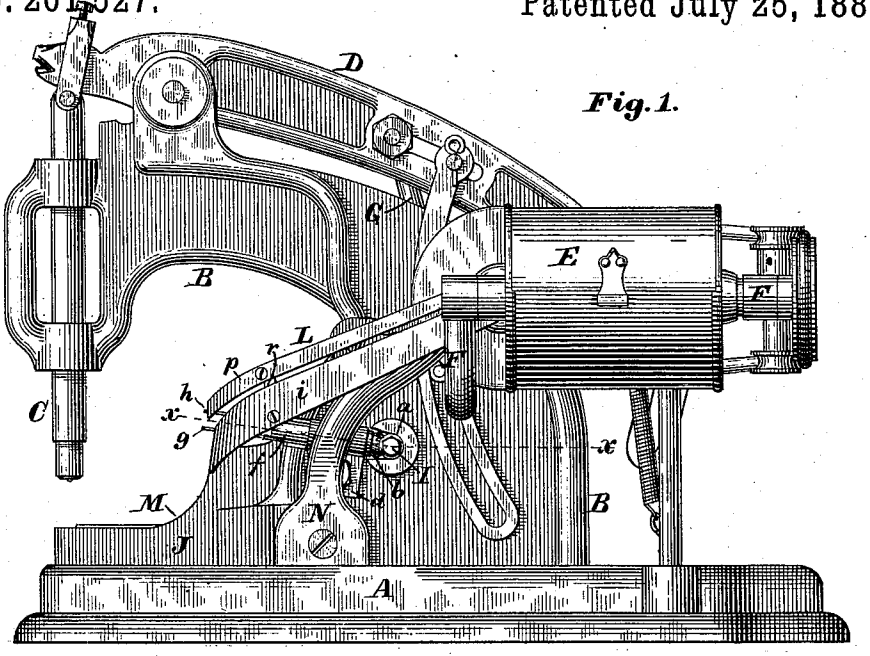


Fig. 1.

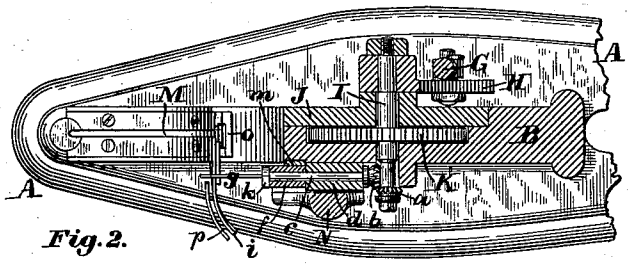


Fig. 2.

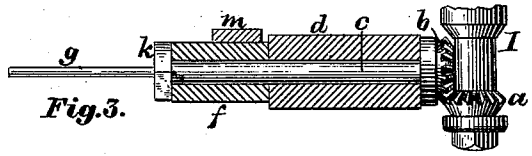


Fig. 3.

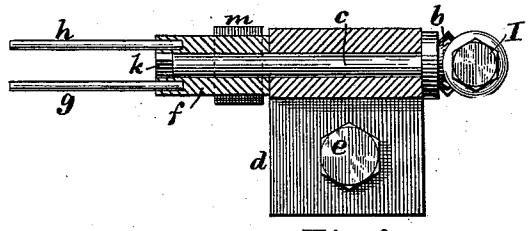


Fig. 4.

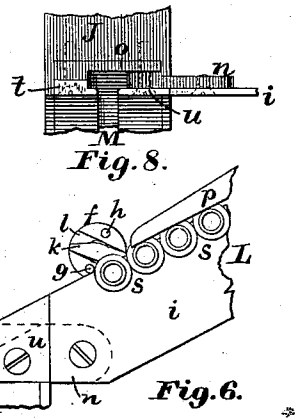


Fig. 6.

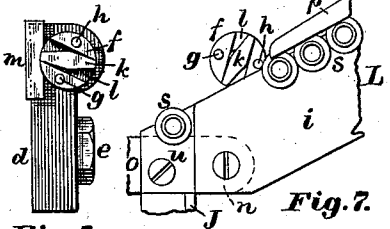


Fig. 5.

Fig. 7.

Fig. 8.

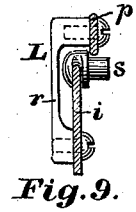


Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM CLAXTON BRAY, OF NEWTON, MASSACHUSETTS.

MACHINE FOR SETTING LACING-STUDS.

SPECIFICATION forming part of Letters Patent No. 261,527, dated July 25, 1882.

Application filed March 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLAXTON BRAY, of Newton, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Machines for Setting Lacing Studs or Hooks, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a machine for setting lacing studs or hooks; and it consists in a novel device for separating the studs during their passage down the inclined chute and insuring the delivery of one stud at a time to the action of the feed-plunger.

It also consists in a novel construction of the inclined chute down which the studs slide on leaving the hopper.

The features of my invention will be readily understood by reference to the following description of the drawings, in which—

Figure 1 is a side elevation of a machine embodying my present invention. Fig. 2 is a horizontal section on line *x x* on Fig. 1, looking downward. Fig. 3 is a horizontal section of the vibrating separator and its bearing on line *x x* on Fig. 1, and Figs. 4 and 5 are respectively a vertical section and an end view of the same. Figs. 6 and 7 are partial elevations, showing the lower end of the inclined chute, and illustrating the manner of separating the studs. Fig. 8 is a partial plan, showing the junction of the inclined chute with the curved roadway. Fig. 9 is a section of the inclined chute. Figs. 3 to 9, inclusive, are drawn to a scale about two and one-half times as large as the scale of Figs. 1 and 2.

A is the bed of the machine, from the rear portion of which rises the goose-neck B, extending forward over the bed A, and having mounted in its front end the setting-plunger C, connected by a link to the forward end of the lever D, pivoted to the upper side of the goose-neck B, as shown. E is the hopper, secured upon a shaft having its bearings in the forked frame F, all the above mechanism being arranged and adapted to operate substantially as shown and described in Letters Patent No. 212,124, granted to Mellen Bray February 11, 1879, and Letters Patent No. 244,738, granted to me July 26, 1881.

A short horizontal shaft, I, has its bearings in the goose-neck B and the detachable plate J, and has an oscillating motion imparted to it by means of the connecting rod or link G, attached at its upper end to the operating-lever D, and at its lower end to the lever H, made fast upon one end of the shaft I.

At or near the center of the shaft I is secured the gear-wheel K, the teeth of which engage with teeth upon the feed-plunger (not shown) and impart to said feed-plunger the proper reciprocating motion, all as shown and described in the last-mentioned Letters Patent before cited.

The mechanism pertaining to my present invention is not contained in the foregoing description, but will now be described.

Upon the end of the shaft I opposite to the lever H is secured a small bevel-gear wheel, *a*, the teeth of which engage with a similar bevel-gear wheel, *b*, secured upon one end of the shaft *c*, to which shaft an oscillating motion is imparted corresponding to that of the shaft I. The shaft *c* is shown with its axis at right angles to the axis of the shaft I, although the angle may be varied, and has its bearing in the stand *d*, secured by the bolt *e* to the side of the goose-neck B.

Upon the end of the shaft *c* opposite to the gear-wheel *b* is mounted the sleeve *f*, so fitted to the shaft *c* that it will turn freely thereon, said sleeve being provided with two pins or fingers, *g* and *h*, parallel, or nearly so, to each other and to the axis of the sleeve *f*, and projecting from the end thereof across the upper edge of the plate *i* of the chute L, near its lower end. The end of the shaft *c* is provided with a cross-piece, *k*, which lies in a slot, *l*, cut across the end of the sleeve *f*, between the pins *g* and *h*, said cross-piece being made narrower than the slot *l*, so that it may vibrate back and forth between the sides of said slot.

A piece of leather, *m*, or other suitable material is interposed between the sleeve *f* and the goose-neck B to produce friction on said sleeve and prevent it from being turned by the friction of the shaft *c*.

L is the inclined chute, adapted to receive the lacing-studs *s* from the hopper E and guide them to the curved roadway M, said chute being supported at or near its upper end by the stand N, attached to the goose-neck B, and attached at its lower end to an ear, *n*, projecting from the piece *o*. The chute L is curved at its

lower end into a direction at right angles to its upper end, and forms a vertical angle with the roadway M, which is made horizontal at its forward end and curved upward at its rear end to meet the chute L. This arrangement of the chute L and roadway M, whereby the necessity of a spiral twist in the chute L is avoided, I have described and claimed in another application of even date herewith.

The construction of the chute L includes a novel feature, as will be described. It is composed of two metal plates or strips, *i* and *p*, connected together by ties *r*, so arranged that the studs *s* will slide along the upper edge of the plate *i*, hanging by their hooked heads, as described in my application above referred to; but the plate *p*, instead of being fixed in a plane at right angles to the plate *i*, is secured in a plane parallel thereto, with its lower edge in such a position as to come in contact with the shoulders between the heads and shanks of the studs *s*, to prevent them from tumbling off from the plate *i*, and at the proper distance to allow of their free passage down the chute, all as shown in Figs. 6, 7, and 9.

The piece *o*, before referred to, is so constructed as to form both sides or edges of the roadway M at its upper end, the advantage being that said edges can thus be kept in line, the portion *t* extending upward higher than the part *u* to prevent the studs *s* from being displaced as they turn the angle and enter the roadway M.

The operation of my invention is as follows: With the parts in their normal position, the studs *s*, as they slide down the chute L, will be stopped by the first one coming in contact with the finger *g*, which will be in contact with the upper edge of the plate *i*, as shown in Fig. 6. If now the lever D is moved to bring the parts into operation, the shafts I and *c* will be partially rotated, the sleeve *f* will remain stationary by friction of the leather *m* until the cross-piece *k* comes in contact with the sides of the slot *l*, when the sleeve *f* will turn with the shaft *c*, carrying the finger *g* away from the plate *i*, and allowing the first of the studs *s* to slide down into the roadway M, thence in front of the feed-plunger into the proper position to be fed to the setting-tools. At the same time the finger *h* will be brought down to the edge of the plate *i* to prevent any more of the studs *s* from following the first one, as clearly shown in Fig. 7. By a reverse motion the parts assume their former positions, the finger *h* is carried away from the plate *i*, the finger *g* brought down to the edge thereof, and the next stud in the line allowed to slide down into contact with the finger *g*, ready for the operation to be repeated. If the first stud in the line should not move upon being released by the finger *g*, the finger *h* would strike it and start it down the chute.

The reason for interposing the sleeve *f* between the shaft *c* and fingers *g* and *h* is that with the parts proportioned as shown the angular movement of the shaft *c* would be too great were the fingers *g* and *h* attached directly thereto, but the bevel-gear *a* might be made smaller in proportion to the bevel-gear *b*, so as to give the shaft *c* the proper angular movement, the sleeve *f* and friction-piece *m* dispensed with, and the fingers *g* and *h* formed upon the shaft *c*, or attached thereto or to the cross-piece *k*, and still preserve the principle of my invention.

By this invention I produce an accurate separating device that will insure the feeding of one stud at a time to the setting-tools.

I am also enabled to facilitate the construction of the inclined chute, as by combining the parts, as described, it can be more readily bent to the desired curve.

What I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. The inclined chute L, composed of the metal strips or plates *i* and *p*, connected together by the ties *r*, with the plate *p* in a vertical plane parallel to the plate *i*, and arranged with its lower edge in position to guide the stud by the upper portions of the shoulders between the heads and shanks of the studs when said studs hang by their hooked heads upon the edge of the plate *i*, substantially as and for the purpose described.

2. The combination of the inclined chute L, the shaft I, provided with the bevel-gear wheel *a*, the shaft *c*, provided with the bevel-gear wheel *b*, the fingers *g* and *h*, connected to the shaft *c*, and means of imparting to the shaft I an oscillating motion about its axis, substantially as and for the purposes described.

3. The combination of the shaft I, provided with the bevel-gear wheel *a*, the shaft *c*, provided with the bevel-gear wheel *b* and cross-piece *k*, the sleeve *f*, provided with the slot *l* and mounted upon the shaft *c*, a friction-pad adapted to bear against the sleeve *c*, the fingers *g* and *h*, carried by said sleeve, the inclined chute L, and means of imparting to the shaft I an oscillating motion about its axis, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 11th day of March, A. D. 1882.

WM. CLAXTON BRAY.

Witnesses:
N. C. LOMBARD,
W. E. LOMBARD.