2 Sheets--Sheet 1.

R. THOMPSON.

Blank Feeding Attachment for Swaging Machine.

No. 167,630. Patented Sept. 14, 1875.

Fig. 1.

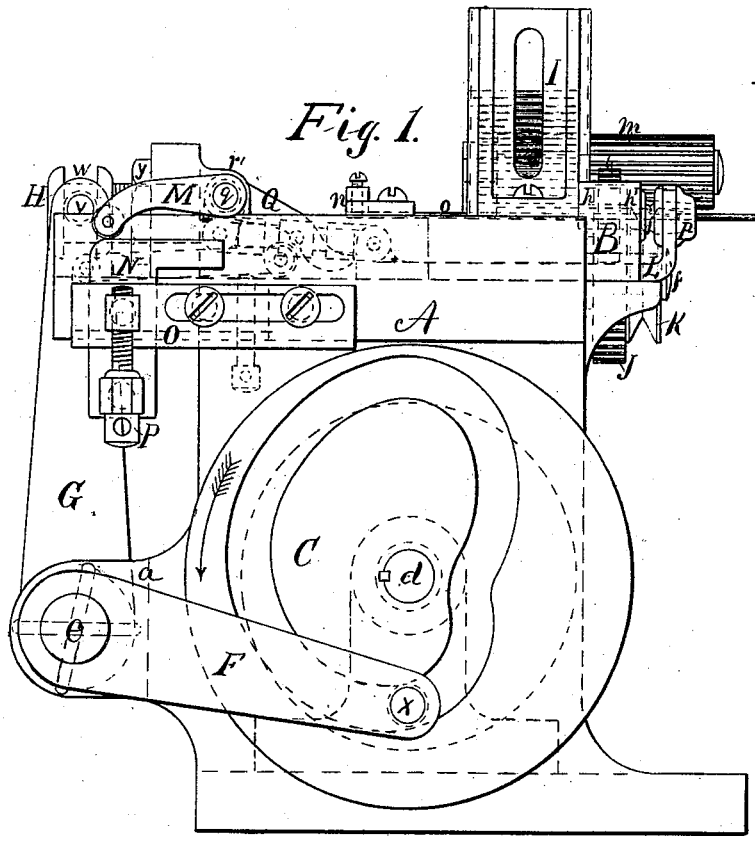
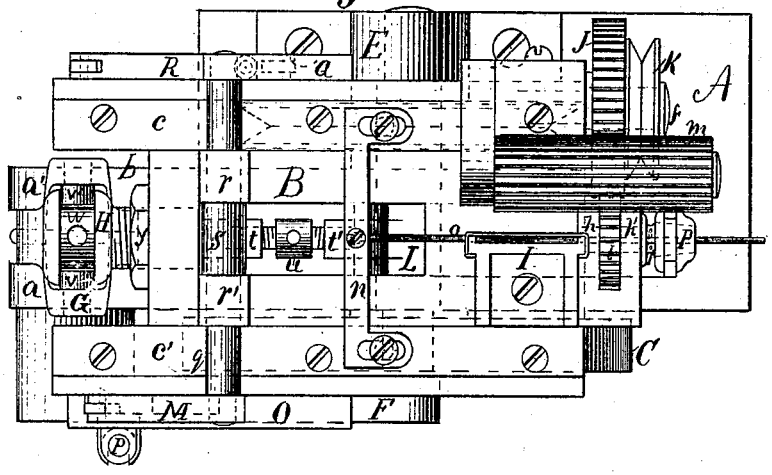


Fig. 6.

Fig. 2.



Witnesses;
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Orlando P. Kingman

Inventor;
Rosewell Thompson.

2 Sheets--Sheet 2.

R. THOMPSON.

Blank Feeding Attachment for Swaging Machine.

No. 167,630. Patented Sept. 14, 1875.

Fig. 3.

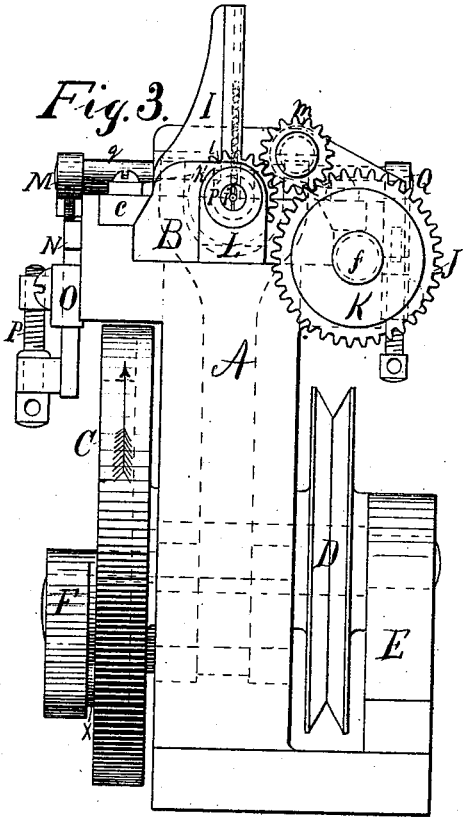


Fig. 4.

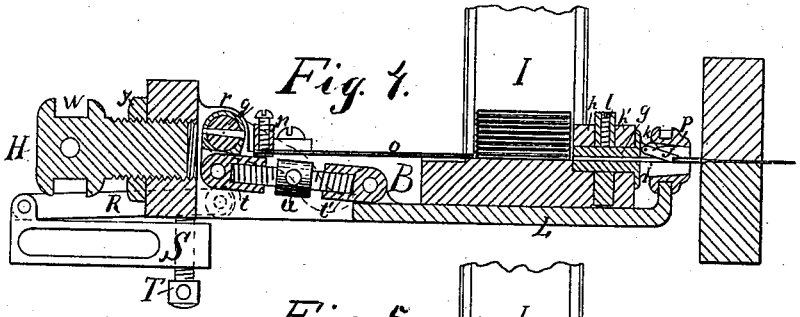
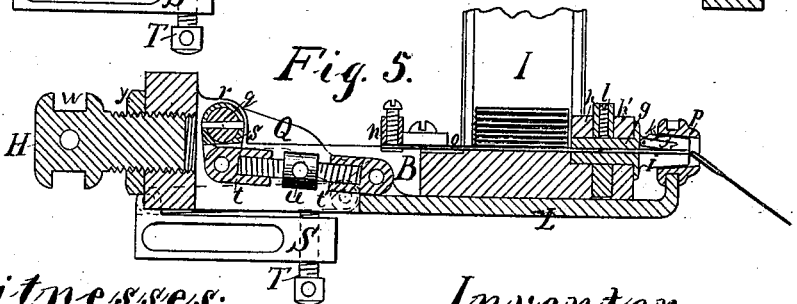


Fig. 5.



Witnesses;
Sam'l C Kingman
Orlando P. Kingman

Inventor;
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UNITED STATES PATENT OFFICE.

ROSEWELL THOMPSON, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO WHEELER & WILSON MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN BLANK-FEEDING ATTACHMENTS FOR SWAGING-MACHINES.

Specification forming part of Letters Patent No. **167,630**, dated September 14, 1875; application filed August 13, 1875.

To all whom it may concern:

Be it known that I, ROSEWELL THOMPSON, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and Improved Blank-Feeding Attachment to Swaging-Machines; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

The object of my invention is to feed the wire-blanks, to be swaged into the form and size required for the blades of sewing-machine needles, to the dies of a swaging-machine in such a manner as to cause said blanks to be operated upon by said dies with accuracy and uniformity, and to follow each other in rapid succession; and my improvement consists in applying and combining certain mechanical devices and movements in such a manner as to control, supply, and feed said blanks automatically during said swaging operation, and thus accomplish the desired result.

To enable others skilled in the art to make and use my improved machine, I will now proceed to describe the construction and operation of the same, with reference to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

Figure 1 is a side elevation of my improved automatic attachment. Fig. 2 is a plan, and Fig. 3 is a left end elevation of the same. Fig. 4 is a longitudinal section of the slide and working parts connected therewith, together with the dies of a swaging-machine, showing the relative positions of said devices during the swaging operation. Fig. 5 is also a sectional view of the slide and working parts, showing the positions of said parts while forcing an unswaged blank into the griping-chuck, and removing a swaged blank therefrom during the backward movement of said slide and parts. Fig. 6 is a sectional view of a pair of swaging-dies, of which it has not been deemed necessary to show the driving mechanism.

A is the frame of the attachment constructed with ears *a a'* upon the end, and a wide groove, *b*, upon the top side of the same. B is the slide fitted to the groove *b*. *c c'* are gibs attached to the frame A upon the sides of the groove *b*, to secure the slide B in its position in said groove. *d* is a shaft fitted to a bearing in the frame A. C is a cam secured to the shaft *d*. D is a pulley also secured to the shaft *d*. E is a bearing secured to the base of the frame A for receiving the end of the shaft *d*. *e* is a shaft fitted to bearings in the ears *a a'*. F is the cam-lever rigidly secured to one end of the shaft *e*. G is the slide-lever, also secured to the shaft *e*. H is an adjustable screw connecting the slide B with the fork of the slide-lever G. I is a hopper secured to the top of the slide B for receiving the unswaged needle-blanks. J is a gear running freely upon the stud *f* upon the end of the frame A. K is a pulley rigidly secured to the side of the gear J. *g* is a spindle fitted to revolve freely in bearings *h h'* upon the end of the slide B. *i* is the griping-chuck upon the end of the spindle *g*. J is a stop fitted to swing freely between the jaws of the griping-chuck *i* upon a pin at one end of said stop. *k* is a spring for operating said stop. *l* is a gear secured to the spindle *g*. *m* is an intermediate gear connecting gears J and *l*. *n* is a bridge passing over the top of the slide B, and secured to the top of the frame A. *o* is a wire-plunger secured at one end to the center of the bridge *n*, the free end of said plunger passing under the hopper I. *p* is a thimble fitted to the tapering jaws of the griping-chuck *i*. L is a bar fitted to slide in a groove on the under side of the slide B, the forked end of said bar being fitted to a groove in the thimble *p*. *q* is a rock-shaft fitted to bearings *r r'* on the top of the slide B. S is a lever rigidly recured to the center of the rock-shaft *q*, between the bearings *r r'*. *t* is a bar fitted to swing upon the free end of the lever S. *t'* is a similar bar fitted to swing freely upon the end of the sliding bar L. *u* is a double adjusting-screw connecting bars *t* and *t'*. M is a lever rigidly secured to one end of the rock-shaft *q*. N is an adjustable bar for operating the lever M. O is an adjustable bearing secured to the side of the frame A for the purpose of receiving the adjustable bar N. P is

a screw for regulating the position of the bar N. Q is a lever rigidly secured to one end of the rock-shaft *q*. R is an adjustable bar for operating the lever Q. S is an adjustable bearing secured to the side of the frame A for the purpose of receiving the adjustable bar R. T is a screw for regulating the position of the bar R. V V′ are studs secured to the forked end of the slide-lever G, and fitted loosely to the groove *w*, in the head of the adjusting-screw H. *x* is a stud secured to the end of the cam-lever F, and made to slide freely in the groove in the cam C. *y* is a nut fitted to the adjusting-screw H for the purpose of securing said screw in its proper position.

I will now describe the practical operation of my improved attachment, with reference to the accompanying drawings. It is to be understood that this attachment is to be secured at the base of the same to the bed or other portion of a needle-swaging machine, in such a position, with respect to the swaging-dies of said machine, as to cause the free end of the blank, which extends from the griping-chuck, to pass between said dies during the forward movement of said blank, the relative position of said attachment, with respect to said swaging-dies, being clearly shown in Figs. 1 and 6.

A quantity of wire blanks of the required diameter for the shanks of the needles to be swaged, and of sufficient length to supply the amount of stock for the blades of said needles, are now placed in the vertical opening of the hopper I, as shown in the drawings. Motion being now communicated to the cam C, in the direction of the arrow drawn upon the same, by means of the pulley D, gearing, or equivalent device, and to the pulley K and gearing connected therewith, in either direction, a reciprocating motion will be imparted to the slide B by means of said cam and levers F and G, and a revolving motion imparted to the spindle *g* and griping-chuck *i*, the free end of the blank which extends from said griping-chuck being in the meantime forced into the grooves, which are between the swaging-dies during the forward movement of the slide, causing said blank to be reduced to the size of the groove by the rapid vibrating motion of said dies upon said blank, the extreme stroke of the slide being regulated so as to leave a portion of the blank unswaged for the shank of the needle, as shown in the drawings, Fig. 4.

When the slide B reaches the extreme stroke, above described, the wire plunger *o* is in such a position with respect to the blanks in hopper I as to allow the bottom blank in said hopper to fall just in front of the end of said plunger, as shown in the sectional drawing of the slide, Fig. 4.

The blank secured by the griping-chuck *i* being now swaged into its required size and form, in the manner above described, a backward movement of the slide and parts now takes place and removes the swaged blank from between the swaging-dies, after which the thimble *p* is forced from the jaws of the griping-chuck by means of the forked bar L, bars *t* and *t′*, double screw *u*, lever *s*, rock-shaft *q*, and lever Q, the bar S being so adjusted with respect to the lever Q as to come in contact with said lever immediately after the removal of the swaged blank from the dies, and force the thimble from the jaws of the griping-chuck by means of the oscillating motion of said lever and rock-shaft *q*, thus freeing the swaged blank from the jaws of said chuck, and allowing said swaged blank to be removed therefrom while the plunger *o* is forcing a new unswaged blank into its position in said chuck, during the remaining portion of the backward movement of the slide, as shown in the sectional drawing of the same Fig. 5; and when the slide has reached its extreme backward stroke, the plunger has forced the new unswaged blank just in front of the stop *j*, which falls behind said blank by the force of the spring *k*, in the manner shown in the sectional drawing, Fig. 4, to prevent said blank from being forced from its proper position in the griping-chuck during the operation of swaging the same.

The unswaged blank being now in its position in the griping-chuck at the extreme backward movement of the slide B, a forward movement of said slide now takes place, soon after which the lever M comes in contact with the bar N, before said blank has reached the swaging-dies, as shown in the drawings, Fig. 1, and forces the thimble *p* back upon the jaws of the griping-chuck by the action of the lever M, rock-shaft *q*, and mechanism connected therewith, in a similar manner as before described for removing the thimble, but in an opposite direction, thus securely holding the blank in the jaws of the griping-chuck during the remaining portion of the forward movement of the slide, while the swaging-dies are in contact with said blank.

It should be noted that the gearing connected with the spindle and griping-chuck need not be applied to the latter for revolving the same when this attachment is applied to that class of swaging-machines which employ revolving swaging-dies. The above-described mechanism is adopted when this attachment is applied to that class using stationary dies, as it is necessary to revolve the blank during the swaging operation when applied to the latter class of swaging-machines. Thus, with the hereinbefore-described attachment, I make all the necessary changes and movements required to control, supply, and feed the wire-blanks to the dies of a needle-swaging machine in such a manner as to cause said blanks to be operated upon by said dies with accuracy and uniformity, and follow each other in rapid succession during said swaging operation.

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

1. In an attachment for feeding wire-blanks

to the dies of a needle-swaging machine, the plunger *o*, in combination with the slide B, hopper I, spindle *g*, and griping-chuck *i*, arranged substantially as shown, for the purpose of forcing an unswaged blank from said hopper through said spindle into its proper position in said griping-chuck, and removing a swaged blank therefrom during the backward movement of said slide, substantially as and for the object set forth.

2. In combination with the griping-chuck *i*, the stop *j*, and spring *k*, arranged between the jaws of said griping-chuck, substantially as shown, for the purpose of preventing the unswaged blank from being forced from its proper position in said griping-chuck back into the spindle *g* during the swaging operation upon said blank, as specified.

3. In combination with the griping-chuck *i* and thimble *p*, the forked bar L, bars *t* and *t'*, double adjusting-screw *u*, lever *s*, rock-shaft *q*, and levers M and Q, for the purpose of forcing said thimble upon the jaws of said chuck, or removing the same therefrom, substantially as shown and described, and for the object set forth.

4. In combination with the lever M, the adjustable bar N, and adjustable bearing O, arranged substantially as shown and specified, for the purpose of operating said lever and parts connected therewith during the forward movement of the slide B, at the time and for the object set forth.

5. In combination with the slide B and lever G, the adjusting-screw H, connecting said slide and lever, and arranged substantially as shown and specified, for the purpose of regulating the extreme forward stroke of said slide and griping-chuck attached thereto to a proper position with respect to the dies of the swaging-machine, for the object set forth.

ROSEWELL THOMPSON.

Witnesses:
SAML. C. KINGMAN,
ORLANDO P. KINGMAN.