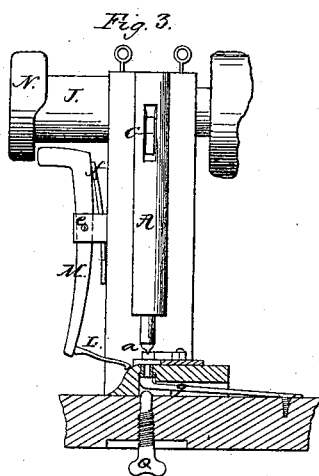
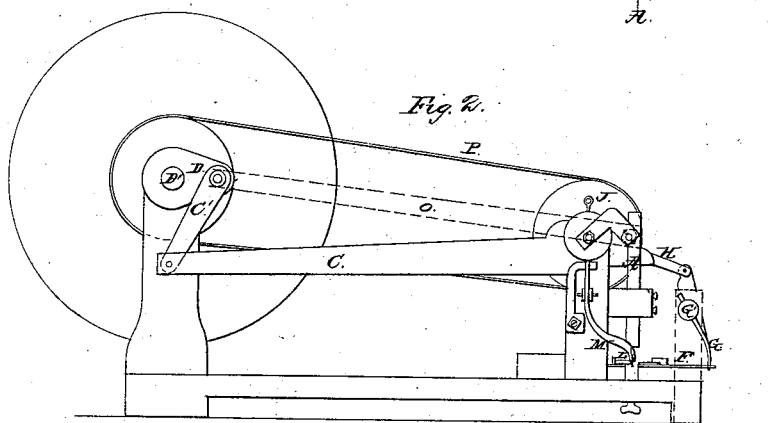
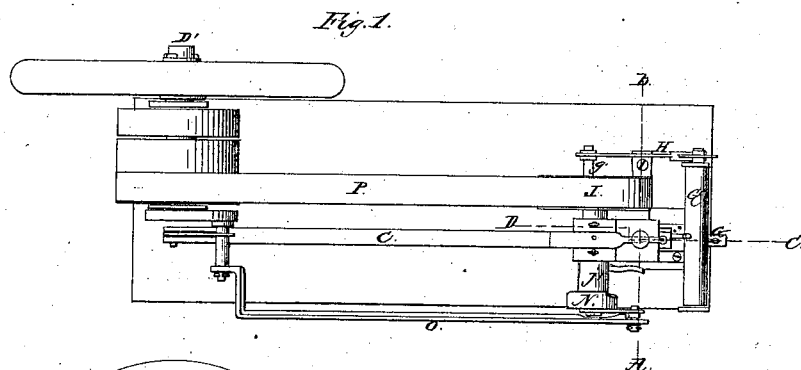
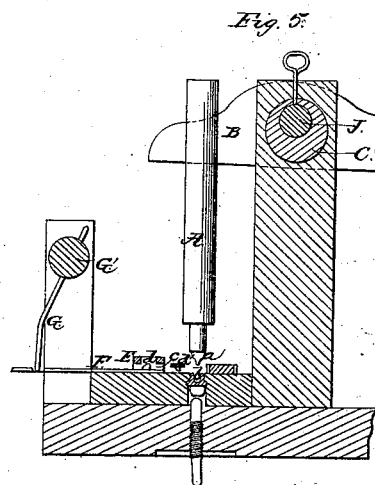
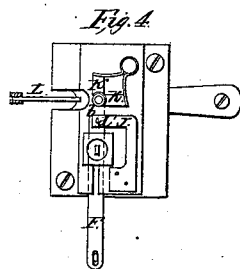


*P. S. Bishop,*  
*Making Ornamental Chains,*  
*N<sup>o</sup> 54,101.* *Patented Apr. 24, 1866.*



*Fig. 6. Fig. 7.*



*Witnesses:*  
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*John B. Thurston*

*Inventor:*  
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# UNITED STATES PATENT OFFICE.

PETER S. BISHOP, OF ATTLEBOROUGH, MASSACHUSETTS.

## IMPROVEMENT IN MACHINERY FOR STAMPING CHAIN-LINKS.

Specification forming part of Letters Patent No. 54,101, dated April 24, 1866.

*To all whom it may concern:*

Be it known that I, PETER S. BISHOP, of Attleborough, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Machines for Forming the Links of Ornamental Chains; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a plan. Fig. 2 is a side elevation. Fig. 3 is a section on the line A B. Fig. 4 is a view of the top of the die-plate. Fig. 5 is a section on the line C D. Fig. 6 is a view of a link before, and Fig. 7 is a view of the link after, it has been operated upon by the machine.

The links which are to be operated upon by this machine are prepared in advance from wire of the proper size, and may be, in their general form, circular, rectangular, elliptical, or of any other preferred figure. The purpose of the machine is to swage a quantity of such links, one by one, automatically, giving to them a more perfect outline, and also, if desired, impress their faces with an ornamental figure. Its value consists in its ability to economize greatly the manufacture of this variety of ornamental chain by dispensing with the necessity which has hitherto existed of manufacturing the links separately in performing the operation of swaging them preparatory to uniting them in a chain.

In the accompanying drawings, A, Fig. 5, is a plunger, suitably guided, which has a reciprocating motion given to it in a vertical direction by means of the lever B of the first order, whose fulcrum is at C, and the end of the long arm of which is connected by the link C' with the crank D, on the main shaft D', Fig. 2. Upon the end of the plunger A is a former, *a*, which, with the die *b* directly beneath it, operates to swage a chain-link or other object placed between the two in the well-known way. It is to this well-known "lever-press," as it is termed among jewelers, that the chain-links or other articles are to be presented, one by one, by the other devices employed in the machine.

It is to be supposed that a quantity of blanks are arranged in a stack, a fragment of which is shown at E, Fig. 5, and which may be a tube

with an opening, *c*, on the side toward the die only large enough for a single blank to pass at a time. The lowest link of the stack will rest upon the carrier-plate F, which has upon its face a raised tooth, *d*, not higher than the thickness of a blank, one face of which is perpendicular to the plane of the carrier, and the other is inclined thereto. As the blank is of the form, for example, shown in Fig. 6, it is evident that this tooth *d* will be surrounded by the rim of the blank.

Before the plunger A commences to descend toward the die the carrier-plate F receives a movement in a direction toward the die by means of the finger G projecting from the rock-shaft G', which derives its motion from the link H, Figs. 1 and 2, pivoted to a crank-pin on the pulley I, which, in its turn, is driven by a belt passing around it and a pulley on the main shaft. The pulley I has its shaft I', in this instance, arranged to pass through the fulcrum-pin of the lever B of the press, as shown at Fig. 5, so that no amount of strain which the lever B, when working, brings upon the fulcrum C will affect the free rotation of the shaft I'. As the carrier-plate is moved forward by the action of the finger G, as explained, the tooth *d* will take from the bottom of the stack a single blank, and, pushing it through the opening *c*, carry it to a point which will enable a similar tooth, *d'*, on the spring holder-plate J, Fig. 4, to act to prevent the blank from being carried back to the stack upon the return movement of the carrier. This spring-plate and second tooth *d'* is arranged so that the rim of the blank will come in contact with its beveled face and raise the bar until the rim has passed the straight face of the tooth, when the spring-plate will return to its first position, and the tooth *d'* will hold the blank in that place, while the carrier, whose tooth *d* has now, as it commences its return movement, its beveled face presented to the rim of the blank, slips away from the blank and retreats to its position at the bottom of the stack. We will suppose, now, that the carrier has brought forward a second blank. As the end of the plate approaches the blank, which was left at the previous operation of the machine under the spring-bar J, it will come in contact with such blank, and, pushing it before it, cause it

to drop into the die *b*, and as this happens the second link will have reached the point underneath the spring-plate *J* which the first blank had just before occupied. The plunger *A* now descends and the former *a* and die *b* strike up the blank, and at the same time impress upon its face any pattern to which the die is suited.

While the plunger *A* is rising the carrier *F* is preparing to bring forward a third blank in the manner described. It is necessary, however, before the second blank is brought up to the die, that the finished blank should be removed. In the first place the former *a* will bring up the link adhering to it, but it is immediately stripped therefrom by the spring-wipers *K*, Fig. 4, which project over the edge of the die, though not far enough to prevent the blank, before it has been flattened out and enlarged by swaging, from entering the die. These spring-wipers are spread apart by the former in its descent; but as it rises with the finished link adhering to it the wipers will strip it off and allow it to fall back, when the barbed hook *L*, Fig. 3, darts forward and removes it. This hook is operated as shown in Fig. 3. It is attached to the lever *M*, whose fulcrum is at *e*. A spring, *f*, causes its upper end to bear constantly against the face of the cam *N* on the shaft *I'*, which is so shaped that at the proper times the hook will be allowed to come forward by the spring to take hold of the link, and it is then, as the cam revolves, moved in the opposite direction, dragging the link with it.

Inasmuch as it is necessary that the several motions described should follow each other in regular order, I have in this instance connected the main shaft *D'* and the shaft *I* with a shackle-bar, *O*, Fig. 1, pivoted to cranks on each, respectively, which will serve to correct any inaccuracy of movement occasioned by the slip-

page of the driving-belt *P*. Instead, however, of this, a more convenient arrangement would be to connect the two shafts by driving-gears, to insure the proper movement of one relatively to the other.

It will be observed, also, that the die *b*, Fig. 3, is seated upon a spring, *g*, the extent of whose downward movement is regulated by a check-screw, *Q*, the advantage of which is that the machine can be readily adjusted to work blanks of different thicknesses, while the spring *g*, as soon as the plunger commences to rise, lifts the die *b* to a position which will be convenient for the withdrawing apparatus *L* to take off the finished link from its surface.

I wish it to be expressly understood that I do not limit myself to the precise construction and arrangement of the several parts as described, as it is evident that the same principles can be embodied in a variety of forms, exhibiting the same mode of operation by equivalent means.

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

1. Combining the carrier *F*, constructed substantially as described, with the yielding holder-plate *J*, provided with a projection, *d'*, or the equivalent thereof, substantially as described, for the purpose specified.

2. Combining such carrier *F* and yielding holder-plate *J* with a die and former, *a b*, for the purpose of transferring the blanks, one by one, to the latter, substantially as herein described.

3. Combining with the hooked finger *L* a spring-seated die, *b*, substantially as described, for the purpose specified.

PETER S. BISHOP.

Witnesses:

JOHN D. THURSTON,  
WILLIAM M. CONNELLY.