(No Model.)

W. G. ALLEN.

PUNCH OR HEADING DEVICE.

No. 578,437. Patented Mar. 9, 1897.

Fig. 1.

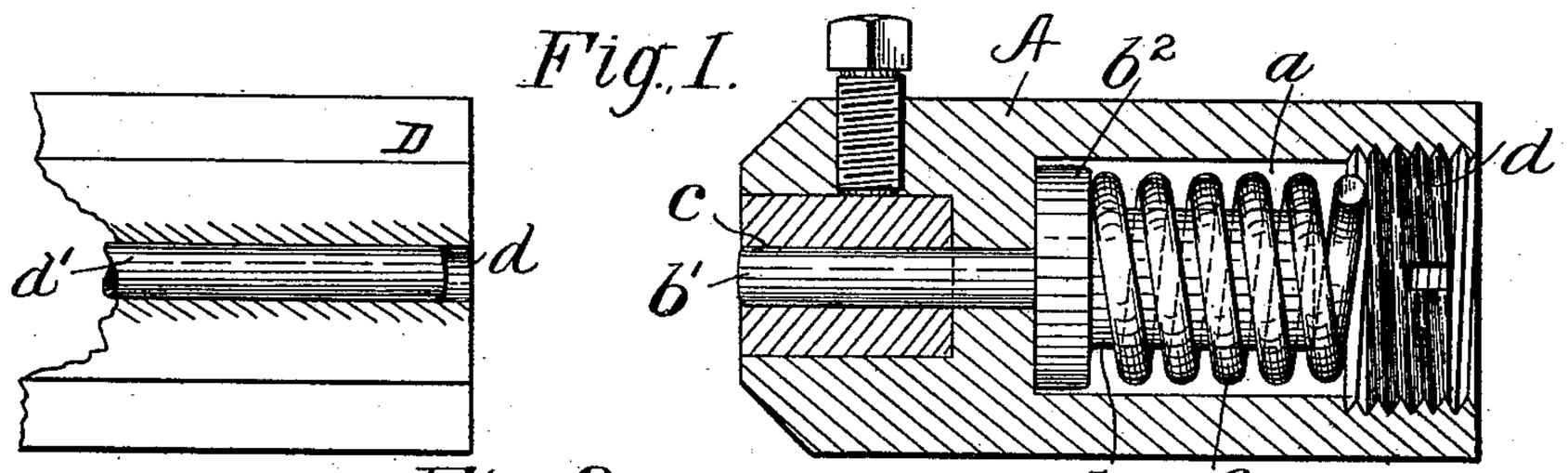


Fig. 2.

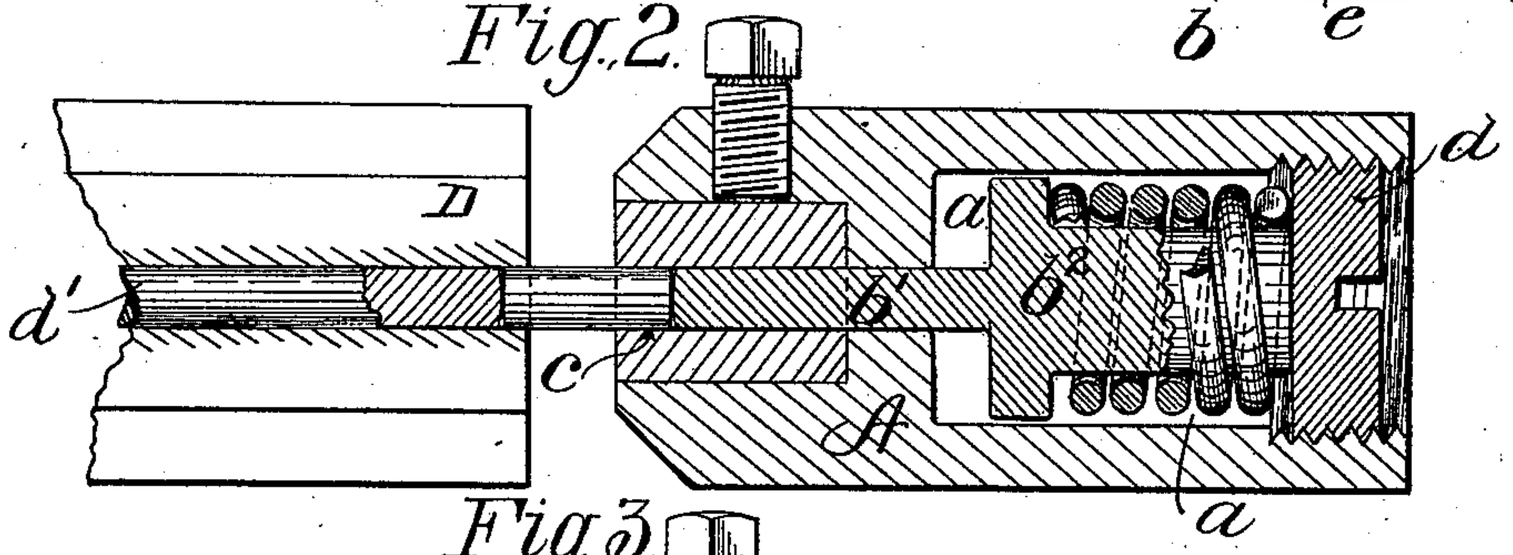


Fig. 3.

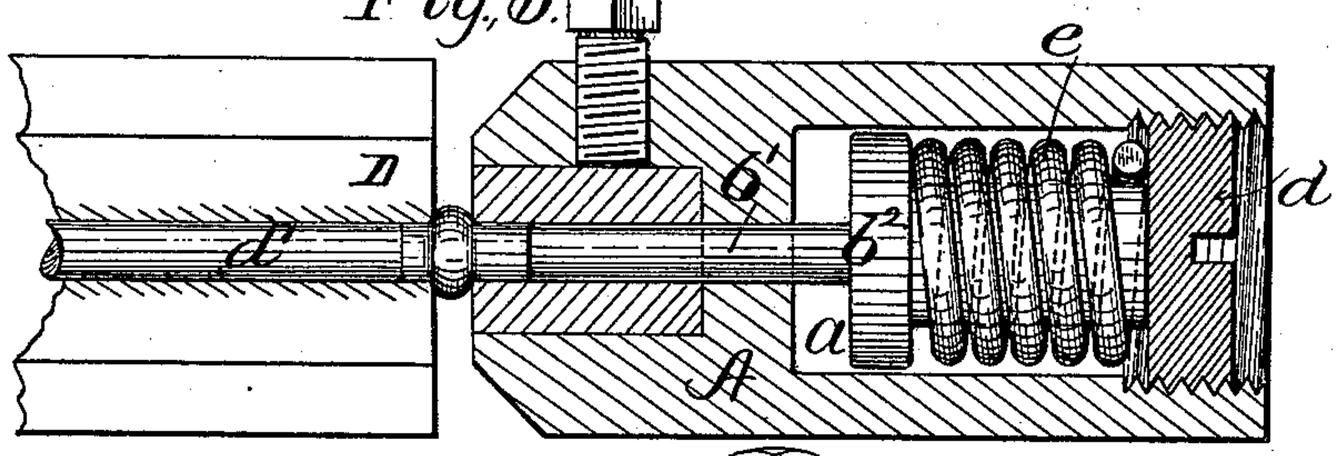


Fig. 4.

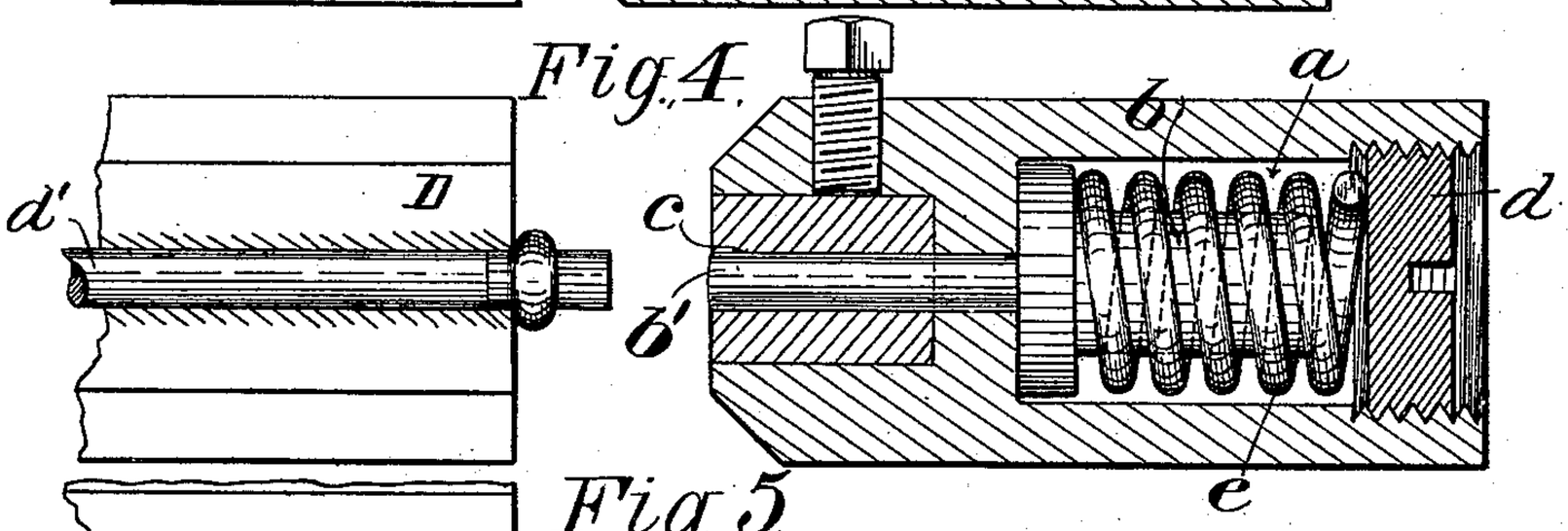


Fig. 5.

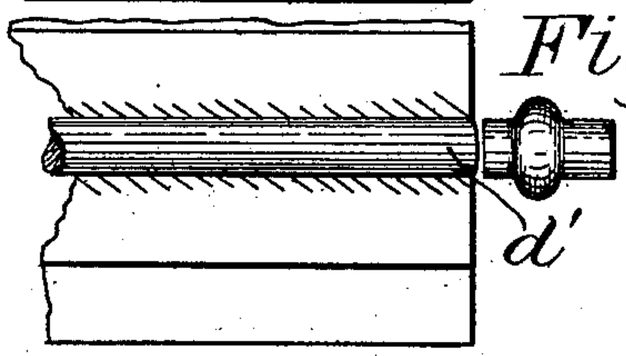
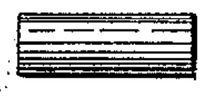


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM G. ALLEN, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE AMERICAN SPECIALTY COMPANY, OF SAME PLACE.

PUNCH OR HEADING DEVICE.

SPECIFICATION forming part of Letters Patent No. 578,437, dated March 9, 1897.

Application filed November 13, 1896. Serial No. 611,983. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. ALLEN, of Hartford, Connecticut, have invented new and useful Improvements in Punches or Heading Devices, which improvements are fully set forth in the following specification.

This invention relates to the construction of a punch or heading device such as used for upsetting the end of a wire, as in making rivets and similar articles. In such operations the wire or blank is held in a socket, with the portion to be upset and spread projecting. This projecting part is acted upon successively by two heading devices or punches. The first has a socket or recess which engages the end of the blank to hold it true during the squeezing operation, whereby the blank is sufficiently upset to press out a bulge or swell all around the blank between the two ends. A second punch or header completes the operation by flattening out the entire projecting part of the blank.

In forming rivets with relatively short shanks and large heads the projecting part of the blank is of greater length than that which lies in the socket of the anvil or holder. Consequently when the first header, after acting upon the blank, is withdrawn it frequently carries the blank with it. In such case the operation must be arrested until the blank is disengaged by hand from the header and replaced in the socket of the anvil or holder.

The object of the present invention is to construct a heading device which will automatically clear itself of the blank and which in operation possesses other features of utility, as will be hereinafter pointed out.

In the form of punch or holder in which I have embodied my invention the header has a chamber containing a plunger, the shank of which works freely in a hole extending from the chamber to the face of the punch. The head of the plunger lies in said chamber and is pressed forward by a comparatively stiff spiral spring. The chamber is closed at its end by an adjustable screw-plug, which forms a rigid bearing for the head of the plunger, the adjustment of the plug determining the amount of metal which the header will press out. The spring acts, when the header is withdrawn, to throw the plunger forward, thus discharging the blank and compelling it to remain in the anvil or holder.

In the accompanying drawings, illustrating my invention, Figures 1, 2, 3, and 4 are sectional views representing, respectively, relative positions of the holder and anvil at different stages of the operation. Fig. 5 is a similar view of the anvil or holder, showing the position of the core in discharging the partially-finished blank therefrom; and Fig. 6 is a detail of the blank before it has been subjected to the operation of the mechanism herein described.

Referring to the drawings, A represents a heading device having a chamber *a* therein, in which is located plunger *b*, shank *b'* of which works freely in opening *c*, extending from chamber *a* to the face of the header. The head b^2 of plunger *b* lies within the chamber and is pressed forward by a spiral spring *e*. At its rear end chamber *a* is closed by a screw-plug *d*, against which spring *e* presses. Said plug also forms a rigid bearing for the head of the plunger upon the stroke of the heading device.

As already explained, the adjustment of the plug determines the amount of metal which will be pressed out. Upon the retreat of the header after a forward stroke spring *e* acts to slide the plunger forward in opening *c*, thereby ejecting the blank from said opening and causing it to remain in the socket in the anvil or holder.

D is the anvil or holder, having a socket *d* therein, in which is arranged a core *d'*, movable to eject the partially-completed article after the action of the first heading device is completed. This anvil is of a well-known construction and need not be minutely described.

In operation a blank such as shown in Fig. 6 is placed in the socket *d*, Fig. 1, its greater portion projecting from the socket. Upon the advance of the heading device A, as shown in Fig. 2, the projecting end of the blank enters the end of opening *c*, pushing plunger *b* rearwardly until it abuts against the plug *d*. The further advance of the header (see Fig. 3) causes the blank to spread or bulge out between its ends, as clearly shown in the drawings. Upon the retreat of the header (see Fig. 4) the spring *e* causes the plunger to slide

forwardly, the shank b' thereof ejecting the blank from opening c and leaving it in the socket of the anvil or holder. It is ejected from the latter by the forward movement of the core d', effected by any suitable means. (Not shown.)

Modifications in details of construction may be made without departing from the nature and principle of the invention.

The word "rivet" is here employed in a generic sense to embrace all articles made from a wire blank in which a head is formed on one end of the blank by upsetting and spreading.

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

1. A punch or header having a chamber, and a perforation extending from the face of the punch to said chamber, in combination with a plunger comprising a shank working in said perforation, and a head in said chamber, a spring in the latter tending to throw the plunger forward, and means whereby the movement of said plunger may be adjusted, substantially as described.

2. In a heading device for making rivets and similar articles, the combination with the anvil or holder having a socket for receiving the blank, of a punch comprising a casing having a chamber therein and a perforation extending from the face of the punch to said chamber, a plunger comprising a shank working in the perforation and a head in said chamber, a spring in the latter surrounding said head and tending to throw the plunger forward, and a plug closing the end of the chamber and forming a rigid bearing for the head of the plunger, substantially as described.

3. A punch or header having a chamber, and a perforation extending from the face of the punch to said chamber, in combination with a plunger comprising a shank working in said perforation, a head on the plunger working in the chamber, a spring in the chamber tending to throw the plunger forward, and an adjustable plug or closure for the chamber forming a rigid bearing for the head of the plunger, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM G. ALLEN.

Witnesses:
CHAS. FLINT,
JOHN G. HAWLEY.