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C. A. HENRY.
SPOT OR FASTENER SETTING IMPLEMENT.
APPLICATION FILED NOV. 9, 1904.

Fig. 1.

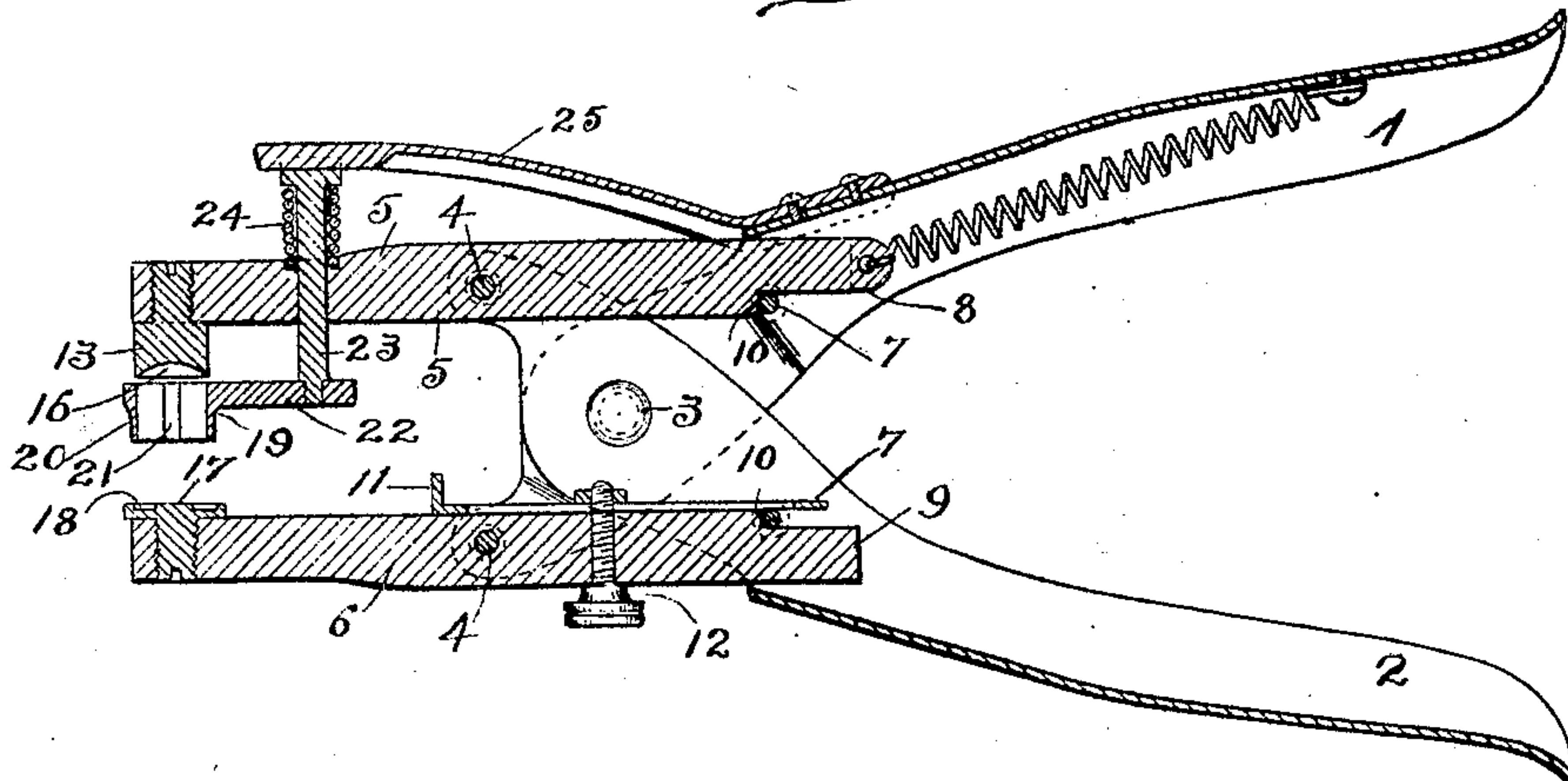


Fig. 2.

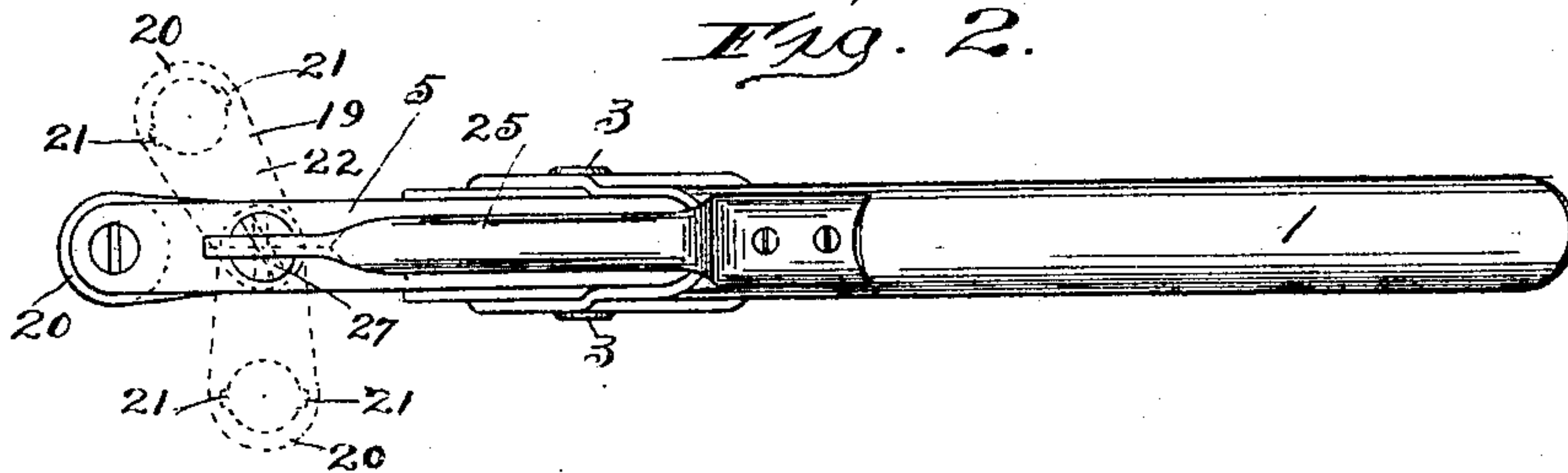


Fig. 3.

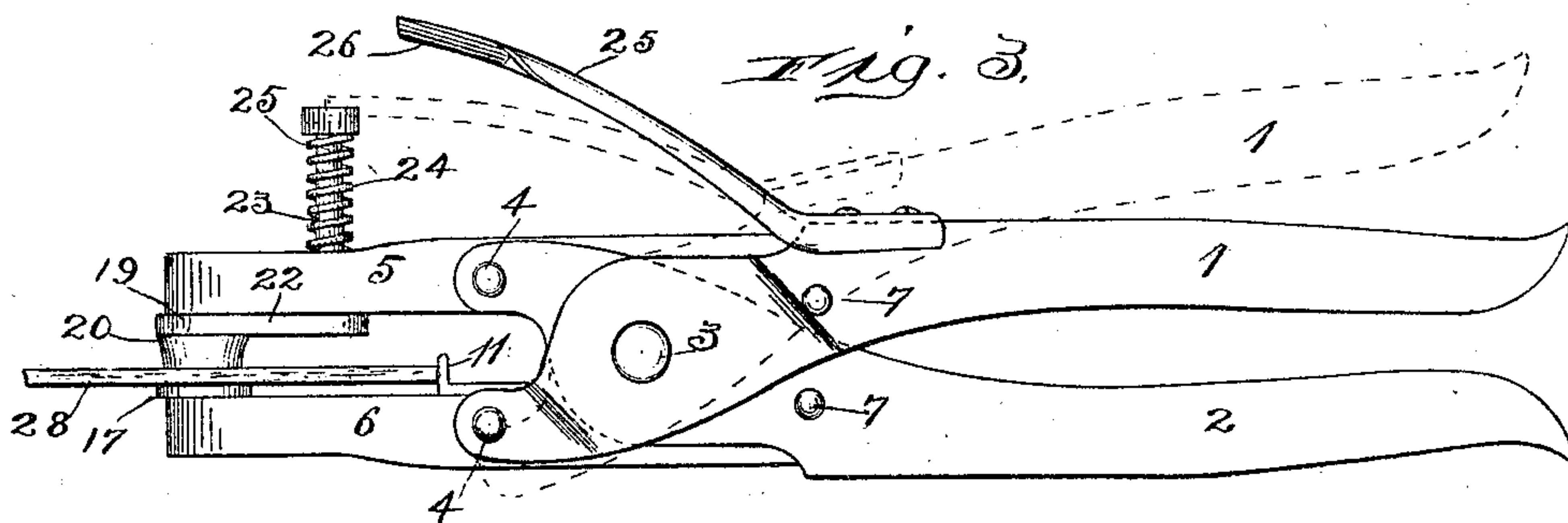
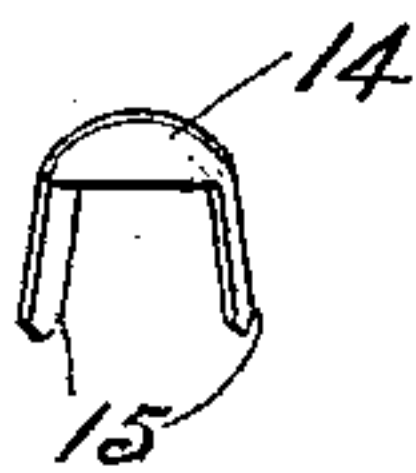


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SPOT OR FASTENER SETTING IMPLEMENT.

No. 799,564.

Specification of Letters Patent.

Patented Sept. 12, 1905.

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To all whom it may concern:

Be it known that I, CHARLES A. HENRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spot or Fastener Setting Implements, of which the following is a specification.

My invention relates primarily to mechanism for inserting and setting of ornamental "spots" in harness and similar goods; but it will be evident from the ensuing description that it is equally applicable to the setting of or riveting fasteners for holding purposes—such, for instance, as used with stationery.

It consists in combining with an anvil and a relatively movable die a carrier provided with a holder adapted to receive and guide the spot or fastener under the action of the die, said carrier being movable laterally away from the die when the die is fully opened away from the anvil to enable a spot or fastener to be inserted into the holder, then movable back to position the holder beneath the die, and thereafter movable toward the anvil with the die, but at a slower rate of speed, so that the die may pass down within the holder and act upon its charge, in combining with jaws moving toward and from each other in parallelism a die upon one jaw, a clenching-anvil upon the other, a carrier pivoted to the die-holding jaw to swing at right angles to the path of the die and having a spot or fastener holder and guide through which the die plays, means whereby the carrier is caused to accompany the die in its closing movement at a lesser rate of speed than the die may enter the holder and act upon its charge, and means whereby also it is caused to rise with the die in the opening movement of the latter still at a lesser rate of speed until the holder is entirely stripped from the die, and in other combinations and features of construction hereinafter pointed out and claimed.

In the drawings, Figure 1 is a central longitudinal section of an instrument embodying my invention in the best manner now known to me in central longitudinal section with the jaws open and the carrier beneath the die. Fig. 2 is a top plan view thereof with the spot or fastener carrier indicated in full lines in position for the action of the instrument and in two positions in dotted lines to explain its adaptability to either a right or a left handed operator when being loaded. Fig. 3 is a side elevation of said instrument when closed in clenching the spot or fastener, and

Fig. 4 is a side elevation of a spot or fastener adapted for use in an implement of the special form herein illustrated for the purpose of explaining my invention.

Referring now to said drawings, the numerals 1 and 2 indicate hand grip-levers, such as commonly used in punches, concave in cross-section and hinged together by the pivots 3, which are in axial line with each other. The short arms of these levers are pivoted at the points 4 to the jaws 5 and 6, the upper lever 1 being pivoted to the lower jaw 6 and the lower lever 2 being pivoted to the upper jaw 5, as shown. The inner ends of these jaws project through slots in the lever-handles, the tops of which tend to hold said jaws parallel in connection with the pivots 4, this parallelism being finally secured by pins 7, passed through the handles or long arms of the levers equidistant with the pivots 4 from the axis of the lever-pivots and over which tangs or cut-away extensions 8 and 9 of the jaws take, the shoulders 10 of these extensions acting as stops for the levers. The tang 8 of the upper jaw is connected by a strong contraction-spring with the upper handle at a point adjacent to its rear end thereof, and this spring tends constantly to keep the levers open, together with the jaws, as shown in Fig. 1, to the full extent permitted by said shoulders. The lower jaw is provided with a longitudinally-slotted gage 11, adjustable by means of binding screw and nut 12, as customary with punch-gages. As thus far described the parts do not or need not differ in construction and coaction from like parts in a very common and well-known type of punch. I will now, however, proceed to describe the features whereby the instrument is adapted to its purpose as a spot or fastener setter or riveter.

The front end of the upper jaw carries a die 13, of a cross-section corresponding, as a rule, to the outline of the head of the spot or fastener to be inserted. Herein I have shown for the purpose of description a spot or fastener having a circular crowning head 14 and two prongs 15. Therefore the die will be treated as cylindrical and will be cupped, for the reception of said head. Opposite this die in the lower jaw is an anvil 17, having an annular dishing groove 18 for the purpose of turning and clenching the prongs of the spot or fastener. A movable carrier 19 is employed in connection with the die, so mounted that when the jaws are open it will

be just below the plane of the bottom of the die and can be moved away, to one side at least, to be charged or loaded with a spot or fastener and then moved back beneath the die, holding its charge for the action of the latter and slipping up over said die as the latter is caused to descend from the position indicated in Fig. 1 to that indicated in Fig. 3. Preferably this carrier is made movable away from the die both to right and to left, as indicated in dotted lines in Fig. 2, to accommodate either left or right handed operators.

For the purposes of the present description the carrier is made with a cylindrical holder 20, through which the die can play snugly, and since the spot or fastener shown has but two prongs this holder has but two vertical grooves 21 for the reception of said prongs, the flare of the latter serving to hold the spot or fastener frictionally in the holder when once inserted. It will be understood, however, that the number of grooves will be determined by the number of prongs and that the outline of the holder, as in the case of the die, will be determined to a large extent by the outline of the head of the spot or fastener. From this holder extends a flat shank 22, giving to the profile of the carrier proper, as seen in cross-section, the appearance of a straight-handled and bottomless dipper. A cylindrical headed bolt 23 is passed vertically through a corresponding bore in the upper jaw and its lower end rigidly affixed to the inner end of the aforesaid shank. Between its head and the jaw is inserted a coiled expansion-spring 24, tending constantly to lift the carrier and close the holder over the die, a movement resisted when the jaws are partially or fully open by an arm 25, attached to the upper handle and extending over said head. When the jaws are open to their full extent, as shown in Fig. 1, this arm serves as a rigid stop to hold the carrier just below the die against the force of the spring. In this position it extends past the bolt-head, and being provided with a long knife-edge 26, taking into a diametrical groove 27 in said head, serves also to lock the carrier, with its holder, directly beneath the die, unless the carrier is forcibly swung aside to one of the positions represented by dotted lines, where it will be held by friction of the stop-arm against the bolt-head. When the instrument is being closed, the knife-edge will draw slowly through the slot, the stop-arm concurrently rising under the force of the spring with the change in angle between the upper lever-handle and the upper jaw, but also descending with the die, although at a proportionately slower speed, until immediately after reaching the position indicated by dotted lines in Fig. 3, where the spring is expanded to its entire permitted extent, the arm clears the head. As the jaws open following the inserting operation, the tip of the stop-arm

comes down upon the bolt-head and its knife-edge engages the groove, which has been held in alinement by the interlocking of the die with the carrier, and thereafter said tip will travel over the head until it resumes its original position, (represented in Fig. 1,) with the holder fully stripped from the die.

In operation, assuming the position of parts to be as represented in Fig. 1, the carrier is moved out from beneath the die to the left, if the operator is right-handed, to the right, if he is left-handed, and a spot or fastener inserted in the holder, it being held therein frictionally by the prongs, as above explained. The levers are then closed to carry the jaws toward each other, the die gradually entering the holder as the latter is released by relative rising of the stop-arm until ultimately the holder comes in contact with the material to be decorated or united lying on the lower jaw and positioned against the gage. Then, finally, the die completes its passage into the holder, which until now has served as a guide for the spot or fastener, with which it is charged home, and clenching said spot or fastener.

Believing myself to be the first to employ a carrier which is movable out from beneath the die to receive a spot or fastener for insertion into material and then movable back to position its charge beneath the die and thereafter movable toward the anvil with the die, but at a slower rate of speed, to serve as guide for said charge under the action of the die until it is driven home and clenched, I do not limit myself to the specific features or precise details of the apparatus herein described, considering that they may be widely changed without departing from the principle of my invention; but

What I do claim, and desire to secure by Letters Patent, is—

1. In an implement for setting spots or fasteners, the combination with an anvil and a relatively-movable die, of a carrier provided with a holder fitting said die and adapted to receive the spot or fastener and guide it under the action of the die, suitable means supporting said carrier, whereby it may be moved laterally away from the die when the latter is fully opened away from the anvil, to enable a spot or fastener to be inserted in the holder, then movable back, to position the holder beneath the die, and means whereby it is thereafter movable toward the anvil with the die, but at a slower rate of speed, so that the die may pass down within the holder and act upon its charge.

2. The combination with jaws moving toward and from each other in parallelism, of a die upon one jaw, a clenching-anvil upon the other, a carrier supported upon the die-holding jaw in such manner that it may be moved laterally away from or toward the die, and having a spot or fastener holder and guide

through which the die plays, means for actuating said jaws, means whereby the carrier is caused to accompany the die in its closing movement, at a lesser rate of speed, that the die may enter the holder and act upon its charge, and means whereby also it is caused to rise with the die in the opening movement of the latter, still at a lesser rate of speed, until the holder is entirely stripped from the die.

3. The combination with jaws moving toward and from each other in parallelism, of a die upon one jaw, a clenching-anvil upon the other, a carrier pivoted upon the die-holding jaw so as to be swung in a plane at right angles to the path of the die, and having a spot or fastener holder and guide through which the die can play, means for actuating said jaws, means whereby the carrier and its pivot-bolt are caused to accompany the die in its closing movement, at a lesser rate of speed, that the die may enter the holder and act upon its charge, and means whereby said carrier and bolt are caused to rise with the die, in the opening movement of the latter, still at a lesser rate of speed, until the holder is fully stripped from the die.

4. The combination with jaws moving toward and from each other in parallelism, and means for actuating said jaws, of a die upon one jaw, a clenching-anvil upon the other, a carrier having a spot or fastener holder and guide through which the die can play, a headed pivot-bolt passing perpendicularly through the die-holding jaw and rigidly affixed at its lower end to the shank of the carrier, a spring interposed between the head of said bolt and the jaw and tending to lift the carrier toward the die, a stop acting upon the head of the bolt to depress the carrier beneath the die when the jaws are open, and means whereby as the jaws close the stop is relatively and gradually lifted away from said head.

5. The combination with jaws moving toward and from each other in parallelism, of a die upon one jaw, a clenching-anvil upon the other, a carrier having a spot or fastener holder and guide through which the die can play, a bolt having a head provided with a groove thereon, passing perpendicularly through the die-holding jaw and rigidly affixed at its lower end to the shank of the carrier, an expansion-spring interposed between the head of said bolt and the jaw and tending to lift the carrier toward the die, a stop acting upon the head of the bolt to depress the carrier beneath the die when the jaws are open, a knife-edge upon said stop entering the groove in the bolt-head to normally hold the carrier in alignment with the jaw and with its holder registering

with the die, and means whereby as the jaws close the stop is relatively and gradually lifted away from said head, allowing the spring to expand and draw the holder over the die.

6. The combination with jaws moving toward and from each other in parallelism, and grip-levers whereby they are operated, of mechanical connections between said levers and jaws, a die upon one jaw, a clenching-anvil upon the other, a carrier having a spot or fastener holder and guide through which the die can play, a headed bolt passing perpendicularly through the die-holding jaw and rigidly affixed at its lower end to the shank of the carrier, an expansion-spring interposed between the head of the bolt and the jaw and tending to lift the carrier toward the die, a stop-arm rigidly affixed to the grip-lever handle which lies on the same side as said jaw, extending over the head of said bolt and acting to compress the spring and depress the carrier beneath the die when the jaws are open, the closing of said levers and jaws causing relative movement of said stop-arm away from the die-holding jaw, allowing the gradual expansion of the spring.

7. The combination with jaws moving toward and from each other in parallelism, and grip-levers whereby such motion is caused, of mechanical connections between said levers and jaws, a die upon one jaw, a clenching-anvil upon the other, a carrier having a spot or fastener holder and guide through which the die can play, a headed bolt passing perpendicularly through the die-holding jaw and rigidly affixed at its lower end to the shank of the carrier, an expansion-spring interposed between the head of the bolt and the jaw and tending to lift the carrier toward the die, a stop-arm rigidly affixed to the grip-lever handle which lies on the same side as the said jaw, extending over and past the head of the bolt and acting to compress the spring and depress the carrier beneath the die when the jaws are open, an elongated knife-edge on the end of the stop-arm entering a groove in the bolt-head to normally hold the carrier in alignment with the jaw with its holder registering with the die, the closing of said levers and jaws lifting the stop-arm gradually and relatively away from the bolt-head to allow the spring to expand, and drawing the knife-edge through the groove, for reengagement therewith when the jaws open.

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Witnesses:

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