

C. GLOVER & C. HOLT.
HEAD SHAPING MACHINE.
APPLICATION FILED MAR. 31, 1910.

1,021,736.

Patented Mar. 26, 1912.

3 SHEETS-SHEET 1.

Fig. 1.

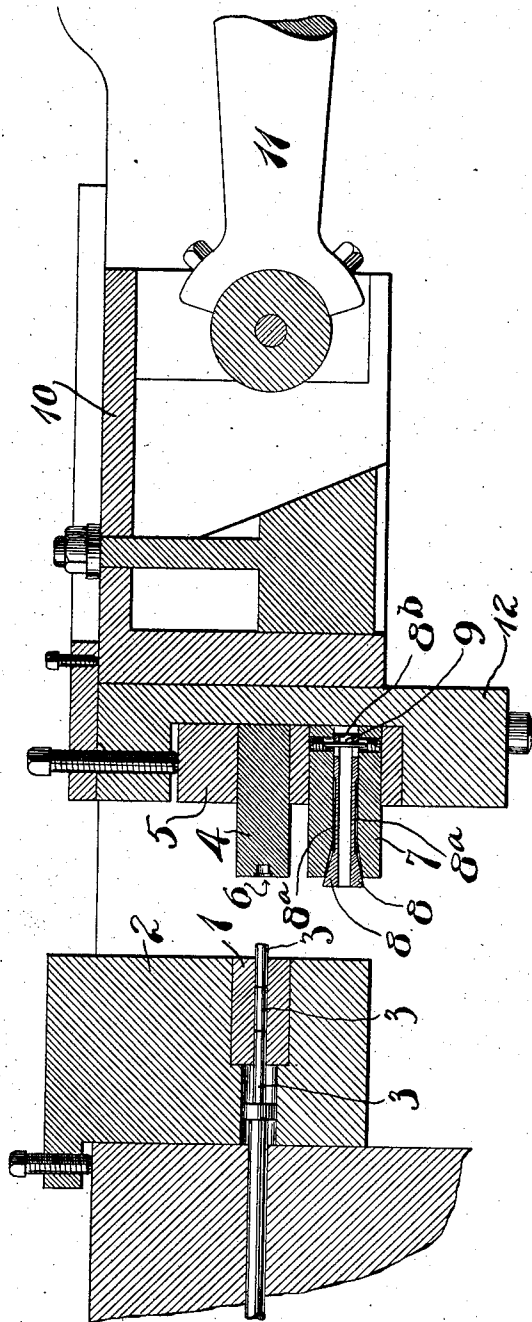


Fig. 11.

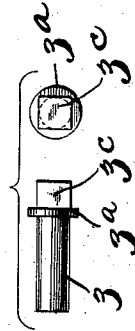
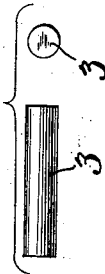


Fig. 12.



Fig. 13.



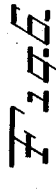
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3 SHEETS--SHEET 2.



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 Chas. A. Paul

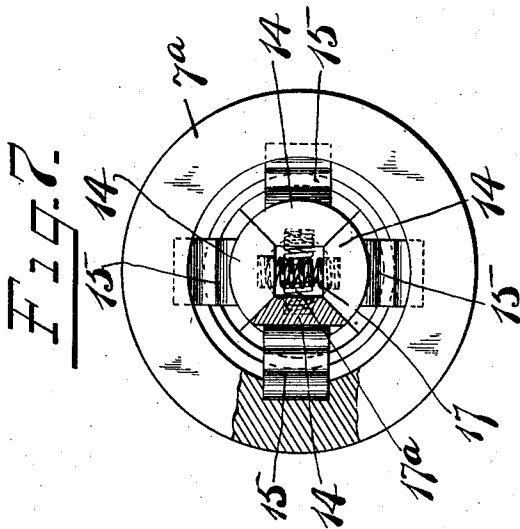
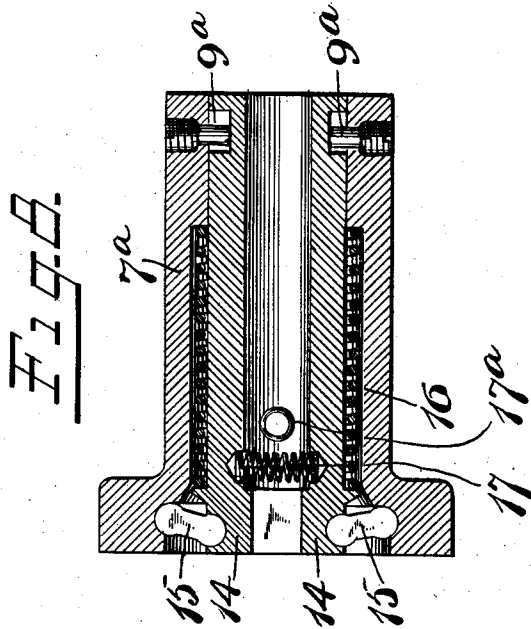
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

CHARLES GLOVER AND CHARLES HOLT, OF NEW BRITAIN, CONNECTICUT, ASSIGNORS
TO CORBIN SCREW CORPORATION, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

HEAD-SHAPING MACHINE.

1,021,736.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed March 31, 1910. Serial No. 552,505.

To all whom it may concern:

Be it known that we, CHARLES GLOVER and CHARLES HOLT, citizens of the United States, residing at New Britain, county of
5 Hartford, State of Connecticut, have invented certain new and useful Improvements in Head-Shaping Machines, of which the following is a full, clear, and exact description.

10 This invention relates to improved means for forming heads on bolts and other generally similar metallic devices.

The object, in the main, is to provide a simple and effective means for heading and
15 shaping pins, bolts and the like, the operation being exceedingly simple and speedy. By this improvement a pin or bolt head having as many sides as desired may be rapidly and inexpensively produced.

20 Other objects and advantages will appear to the mechanic skilled in the art from a reading of the following specification.

In the accompanying drawings: Figure 1 is a view of certain parts of the improved
25 machine constructed to embody this invention, such parts being shown in section; Fig. 2 is a similar view, somewhat abbreviated, showing parts of said machine in another position; Fig. 3 is a similar view showing
30 some parts in still another position; Fig. 4 is a relatively enlarged sectional view of certain parts; Fig. 5 is a side elevation of a detail; Fig. 6 is an end elevation of the same detail; Fig. 7 is an end elevation partly
35 in section, showing a modification; Fig. 8 is a longitudinal section of the parts shown in Fig. 7; Figs. 9, 10 and 11 are successive views of the pin or bolt in process of formation.

40 The main frame and associated parts of the machine proper are such as embodied in a usual so-called "heading" machine and hence need no detailed showing or description.

45 Those features which are involved in this invention include a die element 1 mounted on a suitable holder 2. This die element is suitably constructed in any well known manner to hold a blank or pin 3 whereby its
50 end may be shaped as later described. In this particular instance we have shown our invention in a single machine adapted to both swage up a head and shape the same so as to give thereto the desired cross-sectional outline. 4 is what may be termed a

swaging die or heading punch mounted on a suitable holder 5, which latter, as later described, is mounted on the end of a reciprocating carrier and so mounted as to have lateral movement relatively thereto. The
60 end of the swaging die 4 is provided with a recess 6 of the desired shape having substantially parallel walls, said walls receiving the exposed end of the wire 3 in such a manner that when said die element is advanced the end of said wire will enter the
65 recess 6 and will be upset and conformed to the outline of the recess 6. Also mounted in the holder 5 is a sleeve 7, having a longitudinal passage therein with a bell shaped
70 mouth, in which mouth and passage stands what might be termed a shaping die, as distinguished from a swaging die. The shaping die is shown in detail in Figs. 4 and 5 and may be seen to comprise jaws 8—8
75 having outwardly flared exterior walls arranged to co-act with the wall of the bell shaped mouth of the sleeve 7 the number of said jaws corresponding to the number of faces to be formed on the sides of the head. 80 These jaws 8—8 are carried preferably by spring shanks 8^a—8^a, projecting forwardly from the tail 8^b of said die.

8^c is a slotted recess in 8^b, in which a stop pin 9, carried by the sleeve 7, stands. The
85 function of this pin is to limit the outward movement of the shaping die relatively to the sleeve.

The holder 5 is carried by what may be termed a reciprocating carrier 10, the details of which are immaterial, it being sufficient to say that the same is mounted so as to permit of reciprocal action through the medium of a power driven pitman 11. 12
90 is a holder mounted at the forward end of the carrier 10 in such a manner that it may be shifted transversely relatively to the rectilinear movement of the carrier, and for the purpose of presenting in front of the wire or pin 3 (to be headed) either the
95 swaging die or the shaping die.

In Fig. 9 we have shown a short length of round wire which may represent a single pin 3. This pin is first held in the die 1 with one end projecting therefrom to the proper extent. The holder 12 first stands
105 (relatively to the carrier 10) in the position shown in Fig. 1. As the carrier is reciprocated by the pitman 11; the swaging die 4 will first engage the end of the pin and

swage it in such a manner as to produce a head corresponding to the shape of the die cavity 6. In this particular instance the head includes the flange 3^a and the round end 3^b. The holder 12 may then be shifted transversely to present the shaping die in front of the now partially finished head, whereupon, when the carrier 10 is again advanced, the shaping die will move over the head 3^b until it encounters the flange 3^a or the end of die 1, whereupon the advance of the shaping die is checked, but, since the carrier 10 continues to advance, the jaws 8 of the shaping die are contracted radially by the action of advancing sleeve 7 in such a manner as to transform by lateral pressure the shape of the head from that shown in Fig. 10 to that shown in Fig. 11. It will be noted that the contracting movement of each jaw is radial and is at right angles to the plane of the shaping face. This results in the production of a head having flat side faces with sharp and well defined corners as distinguished from imperfectly formed or rounded corners. In this particular instance the cross-sectional outline of the head is rectangular as indicated at 3^c, Fig. 11. Obviously, the shape of the recess or cavity 6 may be modified in any desired manner as particular exigencies demand. So also may the number of jaws 8 be changed to correspond with and produce the desired number of sides to the head. After the head has been shaped and the carrier 10 recedes, it first moves the sleeve 7 backwardly on the jaws 8, which in turn expand radially and become freed from the shaped head 3^a. As soon as the stop pin 9 reaches the rear end of the slot 8^c in the tail 8^b of the shaping die, further retractive movement of the carrier 10 withdraws the shaping die from the finished head, whereupon the pin may be manually removed or mechanically knocked out by any suitable means and a new one inserted.

In Figs. 7 and 8 we have shown a modification in which 7^a represents the sleeve for the shaping die, the latter being made up of a plurality of jaw members 14 hinged at their rear ends, the forward ends being shaped to give to the pin head the desired form. In this instance, instead of providing the sleeve 7^a with a bell-shaped mouth, we provide toggles 15—15, between the outer ends of the jaw members 14 and the surrounding wall of the sleeve 7^a, whereby when the latter moves forwardly relatively to the former, the forward ends of the shaping die jaws will be contracted radially to impart to the pin head the desired cross sectional outline and shape. 16 is a spring to force the several sections of the shaping die longitudinally

in the sleeve 7^a. 17—17 are assister springs aiding in the operation of separating or moving apart the outer ends of the jaws of said shaping die. In Fig. 8 the jaws of the shaping die are shown as contracted. 9^a—9^a are stop pins to limit the outward movement of the jaws 14—14 in the sleeve 7^a.

From the foregoing it will be seen that pin heads of sharp angular cross section may be rapidly and uniformly produced, this being due to the fact that the contracting movement of the jaws is always at right angles to the flat surfaces to be produced thereby respectively.

We are aware that various modifications may be resorted to without departing from the scope of the appended claims.

What we claim is:

1. In a heading machine, a holding die, a reciprocating carrier, a holder mounted thereon, an upsetting punch and a shaping die mounted upon said holder, said punch having a substantially cylindrical recess in its front end for producing a cylindrical blank, said shaping die comprising a plurality of radially movable jaws, the recess in said punch and the space between the jaws when closed being so proportioned to each other that the cylindrical blank formed by the punch may be changed to a polygonal form by the radial movement of the jaws of the shaping die, mechanism for reciprocating the carrier to and from said holding die, said holder being movable to bring said punch and shaping die alternately into and out of axial alinement with the holding die, and mechanism for opening and closing the jaws of the shaping die in synchronism with the reciprocating movement of said carrier.

2. In a machine for producing polygonal heads on rods, means for holding the rod upon which the head is to be formed, a reciprocating carrier, a holder therefor, an upsetting punch and a shaping die mounted upon said holder, said punch having a recess with its surface substantially parallel to its axis, said die having a plurality of jaws corresponding to the number of faces to be produced and means for moving said jaws radially in synchronism with the axial movement of the carrier to and from the holding die, said holder being movable to bring said punch and shaping die alternately into axial alinement with the rod in the holding die.

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