

(No Model.)

R. WHITE.
SOCKET FOR PUNCHES.

No. 353,189.

Patented Nov. 23, 1886.

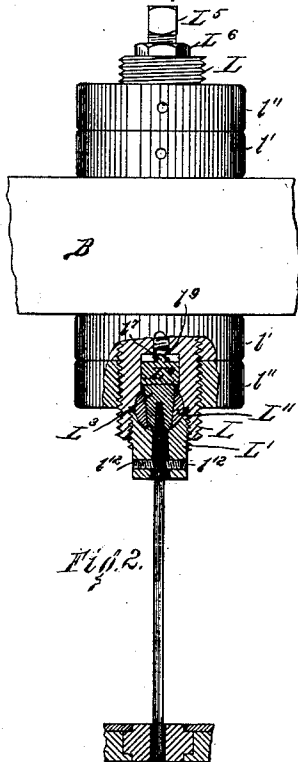


Fig. 2.

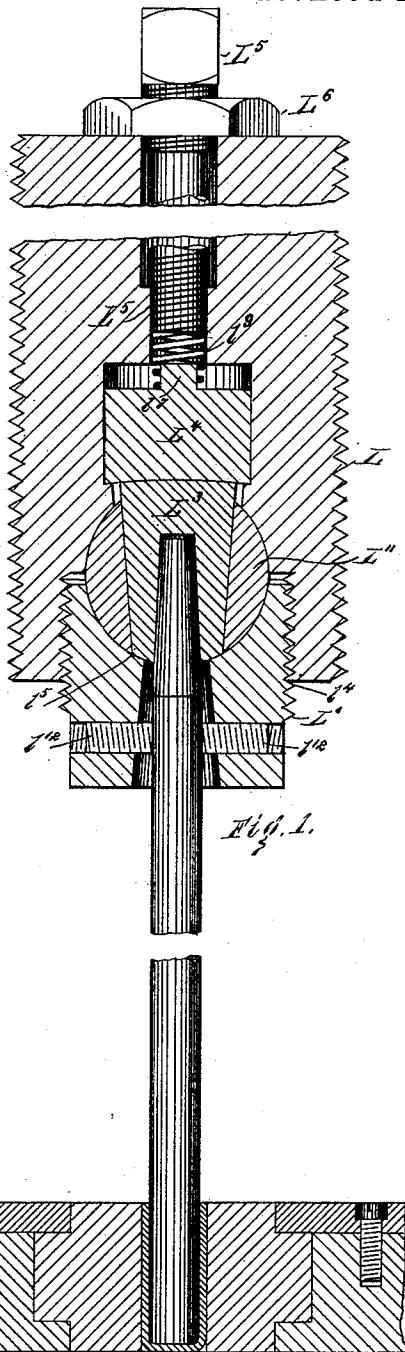


Fig. 1.

Witnesses -

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Inventor -

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UNITED STATES PATENT OFFICE.

ROLLIN WHITE, OF LOWELL, MASSACHUSETTS.

SOCKET FOR PUNCHES.

SPECIFICATION forming part of Letters Patent No. 353,189, dated November 23, 1886.

Application filed January 2, 1886. Serial No. 187,478. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN WHITE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Sockets for Punches, of which the following is a specification.

My invention relates to an improvement in punch-sockets, and is especially designed to be applied to punches for drawing cartridge-shells and similar articles drawn from metal.

In the accompanying drawings, Figure 1 represents a sectional elevation of my improved punch-socket, a punch, a die, and a part of the die-holder, the middle portion of the punch and of the punch-socket being broken out; Fig. 2, an elevation of a part of the head of a machine in which the nuts by which the punch-socket is held, a punch, the die, and a part of the die-holder, the die and holder being in section, and the lower part of the socket and the lower nuts being broken away to show the manner of holding the punch.

In drawing cartridge-blanks and similar articles drawn from metal much difficulty is experienced in having the drawing-punches pass into the die exactly in line with the axis of the die-opening, and even where the punch is correctly set it is liable to be moved from the exact line of the die-opening. I remedy this defect by allowing the punch to automatically adjust itself by a peculiarly-constructed punch-socket. I secure in the head B of a machine, which is caused in practice to have a reciprocating motion, a holder or sleeve, L, by means of nuts l' and check-nuts l'' , which turn on the screw-threaded end portions of said sleeve above and below the head. This holder is laterally adjusted to bring it and the punch carried by it directly over the die-opening which corresponds to it, and as near as possible in line with the axis of the die. In the lower end of said holder L is a cylindrical opening, l^1 , into which opening is screwed a hollow cylindrical plug, L^1 .

The plug L^1 is provided in its upper end with a hemispherical cavity, in which rests a ball, L'' , and the sleeve above said cylindrical opening l^1 is chambered out to fit the upper portion of said ball. The ball L'' has a down-

wardly-tapering central opening, l^2 , which receives a tapering plug, L^2 , in the lower end of which is secured the upper end of the punch. Above the plug, within said holder, in a vertical opening larger than said plug, is a block, L^4 , which is adapted to slide in said opening. The upper side of the block L^4 is preferably provided with a projecting teat, l^3 , which is surrounded by a spiral spring, l^4 , which presses upon the block L^4 . A screw, L^5 , turning vertically in a screw-threaded hole in the top of the holder L, compresses the spring l^4 between it and the top of the block L^4 , and allows the punch to yield vertically, and thereby adjust itself laterally to the die.

The screw L^5 is preferably provided with a check-nut, L^6 . When the punch is properly adjusted in its seat, it may be limited in its lateral motion by the screws l^{12} , which turn radially in the plug L^1 against the shank of the punch, the opening in said plug being greater than the shank of the punch. The screws l^{12} aid in bringing the punch in line with the axis of the die, but should not press upon the shank with sufficient force to prevent the free vertical movement of the punch.

It will be seen that in operation, as the punch enters the die-opening, the resistance offered by the blank in the die will tend to raise the enlarged portion of the punch or conical plug L^3 from its seat in the ball L'' , and the punch is then at liberty to move laterally to adjust itself to the die, in which position it may be secured by the screws l^{12} , or may be allowed to move freely. The resistance necessary to raise the punch from its seat is regulated by the spring l^4 being more or less compressed between the block L^4 and the screw L^5 .

In many cases it is advantageous to make the conical plug L^3 and the punch in one piece, thus making it a punch with an enlarged head, the action being the same in either form.

Should the screws l^{12} be turned up, so as to press upon the shank of the punch from all sides, it will be seen that when the punch is raised from its seat, as above described, it will move as if pivoted at the point at which the screws press, and move to adjust itself to the opening of the die.

I claim as my invention—

1. The combination of a holder having at its

lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a central conical opening, a punch having a conical head adapted to be received into said conical opening, and a punch, substantially as described.

2. The combination of a holder having at its lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a conical central opening, a punch having a conical head adapted to be received into said conical opening, two or more screws turning in screw-threaded holes in the lower part of said plug radially to the punch, and a punch, substantially as described.

3. The combination of a holder having at its lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a central conical opening, a punch having a conical head adapted to be received into said conical opening, a punch, a

spring, and a screw passing through the top of said holder and adapted to compress said spring between said screw and the upper end of the conical head of said punch, substantially as shown and described.

4. The combination of the head, the holder or sleeve provided at its ends with external screw-threads, and having in its lower end a chamber, the lower end of said chamber being provided with an internal screw-thread, a cylindrical plug having an external screw-thread to engage with the threads of said chamber, and having a central vertical opening and in the top a hemispherical cavity, a ball having a central conical opening, a conical plug adapted to fill said conical opening, and having a central orifice to receive the upper end of a punch, and a punch, substantially as shown and described.

ROLLIN WHITE.

Witnesses:

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ALBERT M. MOORE.