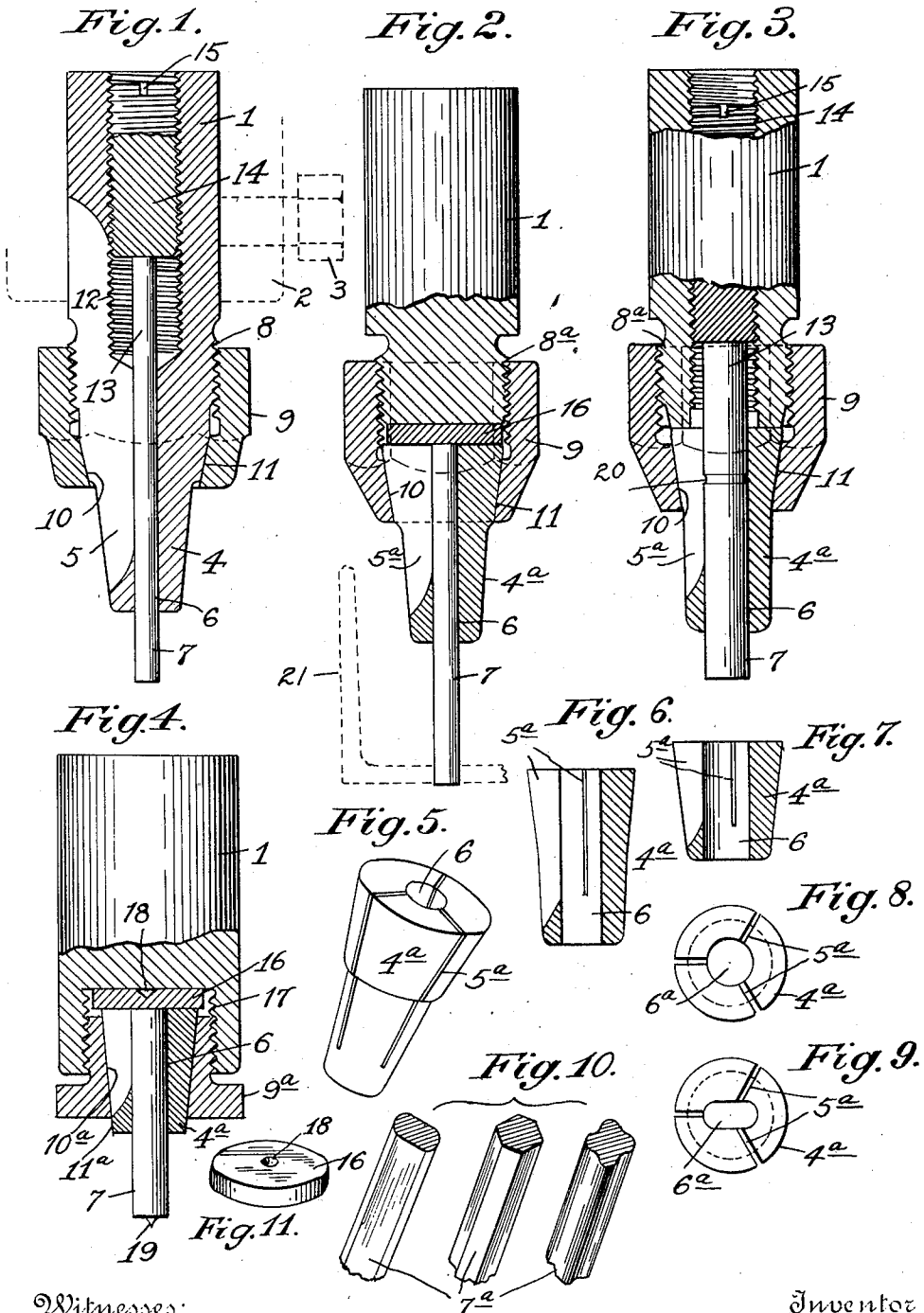


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 HOLDER FOR PUNCHES AND THE LIKE.
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UNITED STATES PATENT OFFICE.

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HOLDER FOR PUNCHES AND THE LIKE.

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To all whom it may concern:

Be it known that I, THOMAS H. LEWTHWAITE, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Holders for Punches and the Like, of which the following is a specification.

This invention relates to punch-holders and the like, and the object of the invention is to provide a holder of this class to permit the use of reversible punches, means being provided to enable the use of the holder in punch presses having variable distances between the die and the punch slide.

A further object of the invention is to provide an abutment for the punch and which will protect from injury the end of the punch extending into the holder, as well as the holder.

In carrying out the invention I provide a clamping member comprising a shank and split nipple for the reception of the punch, said clamping member being engaged by a binding or locking member to lock the punch in place, an abutment being provided for that end of the punch which extends into the clamping member to receive the force of the punch blow and protect the end of the punch when the punch press is in operation, and also the seat in the holder.

In the accompanying drawings Figure 1 is a sectional side elevation of my improved punch holder, showing the shank and nipple integral and provided with an adjustable abutment for the punch. Fig. 2 is a sectional side elevation showing the nipple separable from the shank and the abutment as a hardened washer between the shank and nipple. Fig. 3 is a view similar to Fig. 1, but showing the nipple separable from the shank. Fig. 4 is a sectional side elevation showing the locking member and nipple contained within a bore in the shank, the nipple being separable from the shank, and the abutment in the form of a hardened washer between the shank and nipple or collet. Fig. 5 is a perspective view of the nipple or collet. Figs. 6 and 7 are sectional side elevations of the collet. Figs. 8 and 9 are plan views of the nipple or collet, showing the holes of different shapes for the reception of variably formed punches. Fig. 10 is a perspective view of punches of various shapes; and Fig. 11 is a perspective view of the abutment washer shown in Fig. 4.

The shank of the holder 1 engages the usual recess in the plunger 2 of the punch press and retained therein by any suitable means, as a screw 3. In Fig. 1 the shank 1 is provided with an integral clamping portion or nipple 4 having milled cuts 5, preferably three in number. The nipple has a bore 5 which is engaged by and conforms to the shape of the punch 7, and is provided with screw threads 8 engaged by an internally screw-threaded binding or locking member 9, said binding member being in the present instance in the form of a nut and having a tapered portion 10 to engage a tapered portion 11 on the nipple to press the sections of the nipple against the punch and firmly clamp it in place. Very often it is found desirable to use the holder in a punch press having a very short stroke or space between the die and plunger of the press, and for this purpose I provide the shank 1 with a bore 12 into which the end 13 of the punch may extend. Said bore is screw threaded and engaged by a screw threaded adjustable abutment 14 for the punch, said abutment being engaged by the end of the punch to receive the force of the punch blow when the press is in operation and protecting said end of the punch from injury. The abutment has a screw-driver slot 15 to permit fine adjustment of the punch to compensate for wear or grinding of the punch when sharpened.

In Fig. 2 the nipple is shown in the form of a one piece collet 4^a and separable from the shank 1, and also being split for a portion of its length, as at 5^a. Said collets may be of variable lengths (Figs. 2, 3, 6 and 7) to permit the use of the holder in punch presses having either a short or long stroke or space between the die and the press plunger; and also giving stability and rigidity to the punch when in use. In this view the punch is shown as operating upon a piece of angle iron 21, to illustrate the purpose of the long collet. The shank 1 is screw-threaded, as at 8^a, and engaged by a binding or locking nut 9, the tapered portion 10 of which nut engages the tapered portion 11 on the collet, not only to firmly clamp the punch 7 in place, but to also connect the collet to the shank. A hardened metal washer 16 is interposed between the end of the shank and the collet to take up the force of the punch blow and to also protect the end of the punch within the collet from injury.

In Fig. 3 the shank and clamping member are separable the same as in Fig. 2, but a screw-threaded bore extends through the shank into which the end of the punch may extend to be engaged by an adjustable abutment the same as in Fig. 1.

In Fig. 4 the clamping members are shown as contained within a bore 17 in the shank 1, said bore being screw-threaded and engaged by an externally screw-threaded binding or locking nut 9^a and having a tapered hole 10^a to engage the taper 11^a on the collet to clamp the punch in place and connect the collet to the shank. A hardened washer 16 is also interposed between the collet 4^a and the bottom of the screw threaded bore 17 in the shank 1 for the purpose hereinbefore set forth. Said washer, however, is provided with recesses 18 to be engaged by a prick point 19, which it is sometimes desirable to have on the punches, to protect them from injury.

In Figs. 8 and 9 are shown nipples or collets having holes or bores 6^a of different shapes. While I have shown only two forms it will be understood that there may be a great number of different forms to receive punches 7^a of variable shapes (Fig. 10); said punches being made of standard stock, readily procurable on the market, and broaches may be made from said stock and the holes in the collets broached out to shape.

Both ends of the screw threaded abutment 14 may be provided with screw-driver slots to permit ready adjustment of said abutment from the lower end of the bore in the shank 1 (Fig. 1), and without the necessity of removing the holder from the punch press.

The punch 7 may be provided with a groove 20, and a corresponding bead or projection provided in the collet 4^a to fit in said groove to prevent the punch from pulling out from the holder when it becomes dull, the said bead being of such proportion and provided in the split portion of the collet to readily permit of the punch being sprung into place.

Variations may be resorted to within the scope of the invention, and portions of the invention may be used without others.

What I claim is:

1. In a holder for reversible punches, the combination of a shank provided with a bore, a clamping member, a binding nut to engage said clamping member and shank, and an abutment for the punch in the bore of the shank.

2. In a holder for reversible punches, the combination of a shank provided with a

screw-threaded bore into which the punch extends, a split clamping member, a binding nut to engage said clamping member and shank, and a screw-threaded abutment for the punch in the bore of the shank.

3. In a holder for reversible punches, the combination of a shank having external screw threads and provided with a screw threaded bore, a one-piece split collet or clamping member having an external taper, a binding nut provided with an internal taper to engage the shank and collet to connect the same, and a screw-threaded abutment in the shank to take up the force of the punch blow.

4. In a holder for reversible punches, the combination with a shank, of a split nipple, a binding nut to engage the shank and nipple to firmly clamp the punch in place, a bore in the shank, and an adjustable abutment in the bore of the shank for the punch.

5. In a holder for reversible punches, the combination with a shank having external screw threads, of a tapered nipple split for a portion of its length, a binding nut having an internal taper to engage the shank and nipple to firmly clamp the punch in place, a screw-threaded bore extending through the shank, and a screw-threaded abutment in the bore of the shank to take up the force of the punch blow and also permit fine adjustment of the punch.

6. A holder for reversible punches comprising a shank having a bore, a one piece tapered nipple split for a portion of its length, a binding nut provided with an internal tapered portion to engage the shank and nipple, and an adjustable abutment for the punch in the bore of the shank.

7. In a holder for reversible punches, the combination of a shank having an externally screw threaded end, a screw threaded bore extending through said shank into which the punch extends, a tapered one piece collet or clamping member split for a portion of its length, a nut to engage the shank and having an internal taper to engage the taper on the collet to connect the collet to the shank, and to press the split portions of the collet against the punch and firmly hold the latter in place, and a screw threaded abutment for the punch in the bore of the shank to permit fine adjustment of the punch and to also take up the force of the punch blow; said clamping member or collet being of considerable length to rigidly hold the punch.

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