J. KRUEGER.

SHEET METAL WORKING MACHINE.

APPLICATION FILED FEB. 12, 1918.

1,279,362. Patented Sept. 17, 1918.

Fig. 1.

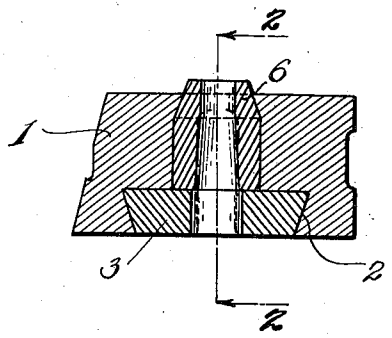


Fig. 2.

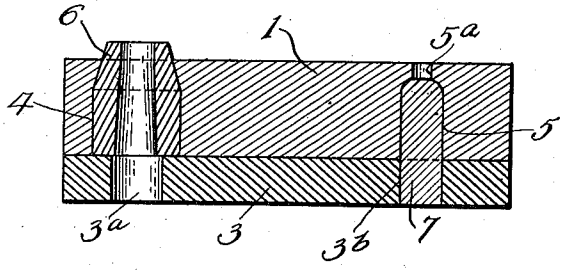
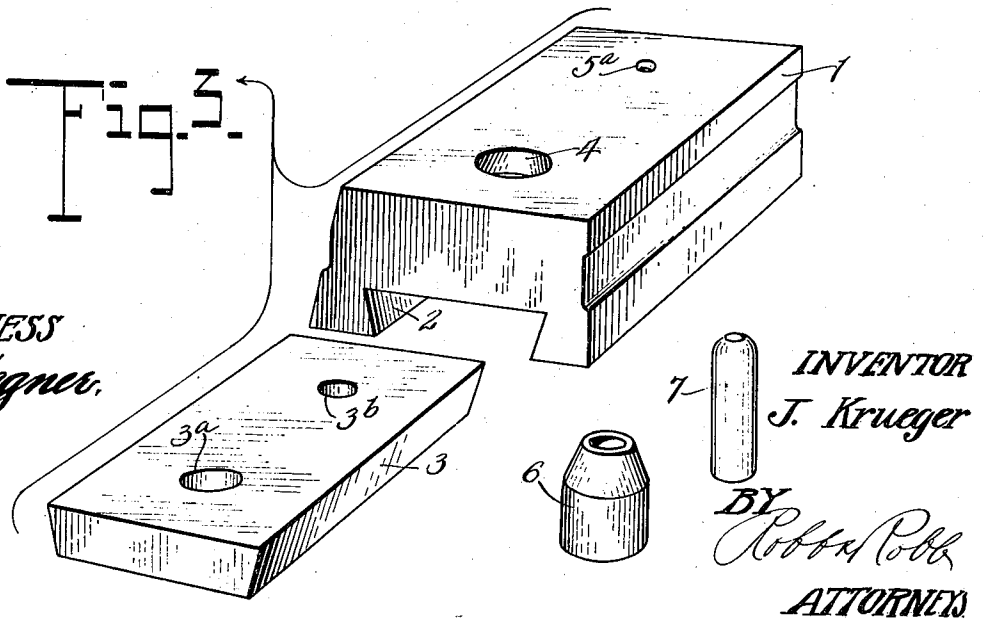


Fig. 3.



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SHEET-METAL-WORKING MACHINE.

1,279,362. Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed February 12, 1918. Serial No. 216,788.

To all whom it may concern:

Be it known that I, JOHN KRUEGER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Sheet-Metal-Working Machines, of which the following is a specification.

The invention hereof has relation to sheet metal working machines, and primarily to those of such machines adapted for punching purposes. The aim of the invention has been to devise novel means for detachably securing a die on the die holding block or bolster commonly employed for supporting removable dies in operative position relatively to the punch.

A clear understanding of the construction and advantages of my improved device will be apparent on reference to the aftergoing detail description in connection with the accompanying drawing, in which:—

Figure 1 is a transverse sectional view taken through the die holder and showing the retaining member in operative relation to the removable die;

Fig. 2 is a vertical longitudinal view of the same, parts illustrating the locking pin which is not seen in Fig. 1; and

Fig. 3 is a combined perspective view showing the various parts illustrated in Fig. 2 separated.

Throughout the following detail description, and on the several figures of the drawing, similar parts are referred to by like reference characters.

It is customary in ordinary metal punching machines to hold the hollow die which coöperates with the punch in place by means of a set screw and these set screws are frequently turned off under actual conditions of use. The present improvements avoid the set screw holding expedient entirely and in lieu thereof I virtually make my die holding block in two sections, a main or body section and a displaceable retaining section removal of which permits of ready displacement and replacement of the hollow or female die members which are provided of different sizes. The retaining member or section of my block not only performs the function of a retaining means but affords a base element for the block in no way reducing the strength or rigidity of the latter constituting as it does a base member of the punching press.

In the drawings 1 denotes the displaceable die holder or block which is adapted to be slipped into place between retaining flanges on the base of the punching machine, in the customary manner. In its bottom portion the holder 1 is formed with a dove-tailed groove 2 in which is adapted to fit the retaining member or section of the holder designated 3. The retaining member 3 is of dove-tail form in cross section so as to conform with the cross section of the groove 2. The holder 1 is provided with a suitable vertical opening 4 therethrough to removably receive the hollow die 6, the upper end of said opening 4 being tapered as well as the corresponding portion of the die. There is provided in the retaining member 3 an opening 3^a of sufficient size to permit the punching burs to drop down therethrough, said opening 3^a being adapted to register with the opening through the die 6, being somewhat larger in diameter than the lower extreme of said opening. The holder 3 is prevented from displacement by a locking pin 7 which is adapted to be snugly received in a recess 5 of the holder 1 and in an opening 3^b of the retaining member 3, the opening and recess aforesaid being of corresponding diametrical extent. At the upper end of the recess 5 there is an opening 5^a leading through the top of the holder 1 so that if necessary an instrument may be passed through the opening 5^a to displace the pin 7. Ordinarily, however, the pin is not sufficiently tight relatively to the parts 1 and 3 to necessitate such action.

In use, removal of the die 6 is effected by preliminary displacement of the holder 1 from the base of the punching machine, this permitting dropping out of position of the pin 7. The parts 1 and 3 are thus virtually unlocked and this enables the member 3 to slide longitudinally and be thus disengaged from the die 6 so that the latter may be readily removed and a fresh die replaced, after which the reverse manipulation of the parts is performed to restore the relation thereof as shown in Fig. 2 of the drawing. Since the die 6 is near one end of the holder 1 it is not absolutely necessary to entirely remove the retaining member 3 for obvious reasons. The simplicity and effectiveness of

the die holding contrivance as herein set forth is deemed sufficiently obvious as not to require special elucidation.

Having thus described my invention, what I claim as new is:—

1. In die holding means for punching machines, the combination with a die holder having an opening therein, a die received in said opening, a retaining member slidably interlocking with the holder and adapted to engage over an end of the die, and means to prevent accidental displacement of the retaining member.

2. In die holding means for punching machines, the combination with a die holder having an opening therein, a die received in said opening, a retaining member slidably interlocking with the holder and adapted to engage over an end of the die, and a pin interengaging the holder and retaining member to prevent relative movement thereof, said pin being quickly displaceable by being shoved out of interengaging position.

3. A die holder comprising a body member having a die receiving opening vertically therethrough and formed in its bottom portion with a dove tail groove, and a die retaining member of dove tail cross section removably fitted in said groove and engageable with and adapted to overlap said die receiving opening to prevent displacement of a die arranged within the latter.

4. A die holder comprising a body member having a die receiving opening vertically therethrough and formed in its bottom portion with a dove tail groove, and a die retaining member of dove tail cross section removably fitted in said groove engageable with and adapted to overlap said die receiving opening to prevent displacement of a die arranged within the latter, the bottom portions of said retaining and body members being in the same plane.

5. A die holder comprising a body member having a die receiving opening vertically therethrough and formed in its bottom portion with a dove tail groove, a die retaining member of dove tail cross section removably fitted in said groove engageable with and adapted to overlap said die receiving opening to prevent displacement of a die arranged within the latter, and a locking pin engaging the said members transversely thereof to interlock the same in such a manner as to prevent unauthorized relative movement.

In testimony whereof I affix my signature.

JOHN KRUEGER.