June 9, 1925. 1,540,860

G. W. POBANZ

HAND PUNCH

Filed June 18, 1924

Fig. 1.

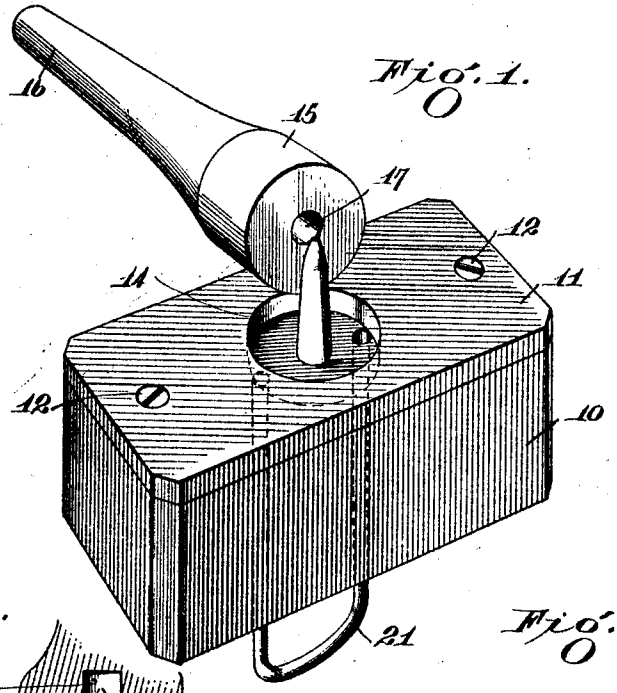


Fig. 2.

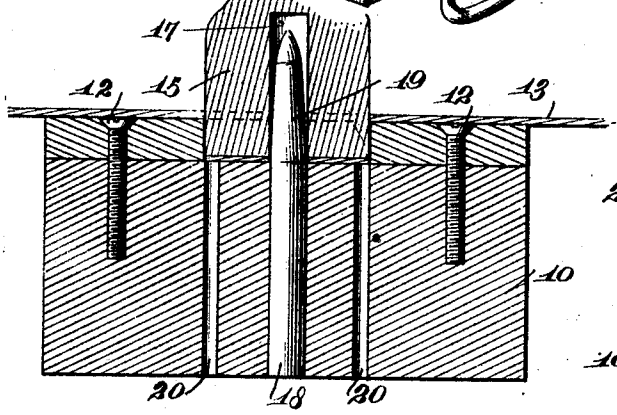


Fig. 3.

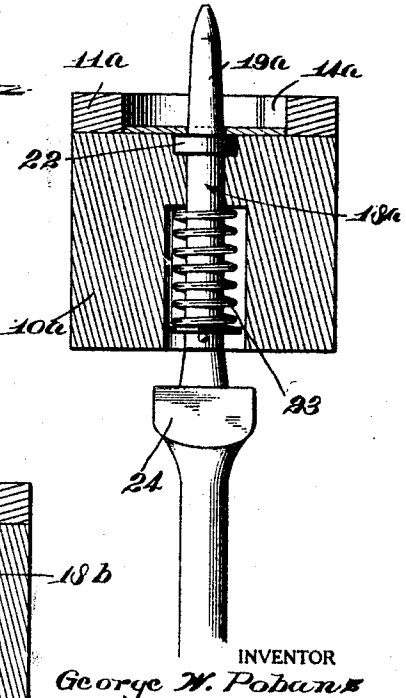
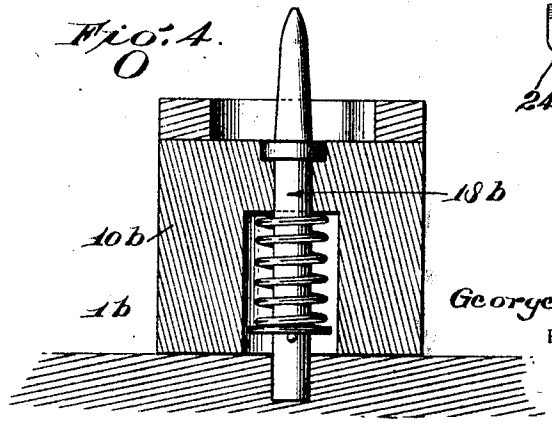


Fig. 4.



WITNESSES

M. Fowler

INVENTOR

George W. Pobanz

BY Munn & Co.

ATTORNEYS

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UNITED STATES PATENT OFFICE.

GEORGE W. POBANZ, OF GENESEO, ILLINOIS, ASSIGNOR TO CHARLES A. POBANZ, OF GENESEO, ILLINOIS.

HAND PUNCH.

Application filed June 18, 1924. Serial No. 720,795.

To all whom it may concern:

Be it known that I, GEORGE W. POBANZ, a citizen of the United States, and a resident of Geneseo, in the county of Henry and State of Illinois, have invented certain new and useful Improvements in Hand Punches, of which the following is a specification.

My present invention relates generally to devices for punching sheet metal and more particularly to a hand punch in which the punch is actuated by the blow of a mallet, hammer or other implement to perforate the metal in cooperation with a die on which the metal rests, the die being suitably supported by means of a holder in conjunction with certain means cooperating with the punch to center and guide the latter in operation.

In the accompanying drawing which illustrates my present invention and forms a part of this specification,

Figure 1 is a perspective view showing the invention,

Figure 2 is a central vertical section taken therethrough,

Figure 3 is a transverse section through a slightly modified form, and

Figure 4 is a transverse section through another slightly modified form.

Referring now to these figures I have shown a die holder in the form of a block 10 in Figures 1 and 3, upon which a die 11 is secured as by means of screw or like fastening members 12, this die presenting an upper flat surface for the work as for instance sheet metal as indicated at 13 in Figure 2, and having an opening 14 into which the punch 15 is adapted to enter.

In operation the work is disposed upon the die as in Figure 2 and the punch placed thereon in vertical alinement with the die opening 14. The upper end of the stem 16 of the punch 15 is then struck with a mallet, hammer or other implement so that the sheet metal immediately below the punch is forced downwardly into the die opening 14 and sheared by the cooperaion of the lower circular end of the punch and the upper circular edge of the die opening 14, assuming of course that it is desired to remove a circular section of the sheet metal.

In order to properly center the punch over the die opening, the punch is provided with an axial opening 17 and the die holder 10 supports an upstanding guide stud 18 which projects axially through the die opening 14 substantially above the same so that by perforating the work to receive the upper tapering end 19 of the stud 18 therethrough, this portion of the stud is thus free to enter the axial opening 17 of the die and cooperate with the latter to the end that the punch is not only centered in the first instance but is guided so as to avoid danger of accidental displacement in the hammering of this punch downwardly into the die opening and through the work.

As shown in Figures 1 and 2 I have also provided means for lifting the die cut section of the work out of the die opening 14. To this end I have provided the block 10 with vertical openings 20 at opposite sides of the stud 18, to receive the extensions of a U-shaped displacing member 21 as seen in Figure 1 so that after the die 15 and the work 13 have been removed from the die subsequent to the operation illustrated in Figure 2, it is simply necessary to pass the extensions of the displacing member 21 vertically through the openings 20 and thus displace the cut disk vertically out of the die opening 14.

In Figure 3 I have shown a slight modification intended to do away with the necessity of the special displacing member 21, the stud 18^a in this instance being movable vertically through the die support or block 10^a, with its upper tapering end 19^a projecting axially through and above the opening 14^a of the die 11^a. The stud 18^a has a collar 22 which in the normal position seats in a receiving cavity in the upper surface of the die block 10^a, the stud being controlled by a spring 23 engaging and surrounding the same within a counter bore in the lower portion of the die block so as to hold the stud in the position described until it is desired to displace the die cut disk from the die opening. The lower end of the stud 18^a shown as terminating in the normal position flush with the lower surface of the die block, it is then struck with any suitable implement so as to force the stud vertically during which movement the collar 22 engaging the die cut disk will displace the latter vertically out of the die opening.

In Figure 4 I have shown another slight modification wherein the construction described in Figure 3 is duplicated except that in terminating the stud flush with the

lower surface of the die block and in this way necessitating an implement 24 shown in Figure 3 for forcing the stud upwardly, the lower end of the stud 18^b of Figure 4 is extended below the lower surface of the die block 10^b so that a hammer or other implement may be utilized to force the stud vertically in displacing the die cut disk from the die opening.

I claim:

1. A metal hand punch including a die holder, an apertured die on the holder which also forms a rest for the work, a portable hand manipulated punch having an axial bore, and a stud upstanding from the holder axially through the die aperture and adapted to project substantially into the punch bore to act as a guide and centering member for the punch in operation.

2. A metal hand punch including die or anvil having an aperture, a portable hand manipulated punch, and means for supporting the die, said supporting means having a stud upstanding substantially above the die and said punch having an axial bore receiving said stud whereby to guide and center the punch with respect to the die aperture.

3. A hand punch including an apertured die, a die holder having a bore axially of the die aperture, provided with an upper shallow counter bore at the base of the die aperture and having an elongated lower counter bore at the opposite end of its bore, a portable hand manipulated punch having an axial bore, a stud upstanding above the die to enter the punch bore and guide the latter into the die aperture, said stud having a shank movably interfitting the bore of the holder, provided with an annular collar at the lower end of the stud normally seated in the shallow upper counter bore, said shank depending within the lower counter bore, and a spring within the lower counter bore around and engaging the shank for normally holding the latter in its lowermost position whereby to hold the collar in said shallow counter bore.

4. A hand punch including an apertured die, a die holder having a bore axially of the die aperture, provided with an upper shallow counter bore at the base of the die aperture and having an elongated lower counter bore at the opposite end of its bore, a portable hand manipulated punch having an axial bore, a stud upstanding above the die to enter the punch bore and guide the latter into the die aperture, said stud having a shank movably interfitting the bore of the holder, provided with an annular collar at the lower end of the stud normally seated in the shallow upper counter bore, said shank depending within the lower counter bore, a spring within the lower counter bore around and engaging the shank for normally holding the latter in its lowermost position whereby to hold the collar in said shallow counter bore, the lower end of the shank projecting below the bottom of the holder for the purpose described.

GEORGE W. POBANZ.