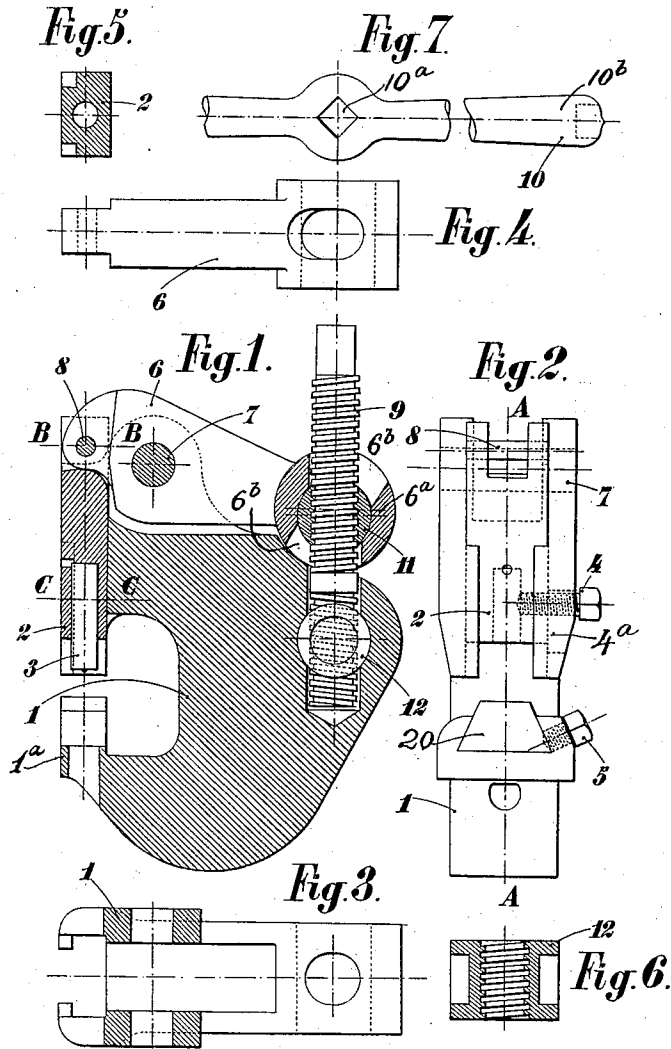


A. VERNET.
 PORTABLE SCREW PUNCH AND THE LIKE.
 APPLICATION FILED DEC. 17, 1909.

1,017,609.

Patented Feb. 13, 1912
 2 SHEETS—SHEET 1.



Witnesses;

[Signature]
[Signature]

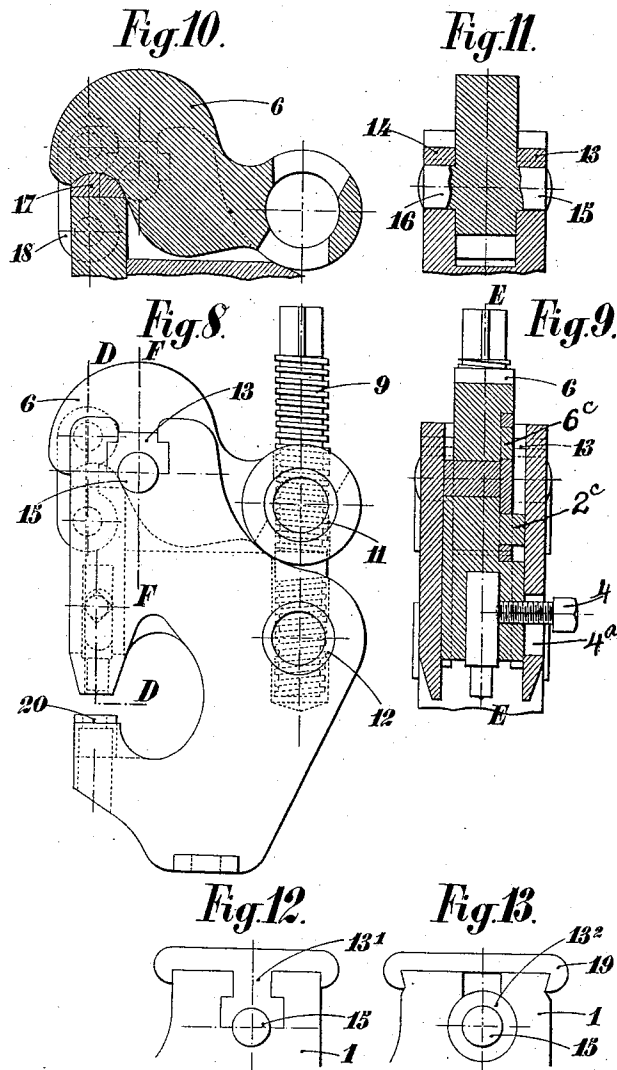
Inventor
 Arthur Vernet
 By *[Signature]*
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UNITED STATES PATENT OFFICE.

ARTHUR VERNET, OF DIJON, FRANCE.

PORTABLE SCREW-PUNCH AND THE LIKE.

1,017,609.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed December 17, 1909. Serial No. 533,664.

To all whom it may concern:

Be it known that I, ARTHUR VERNET, citizen of the French Republic, residing at Dijon, Department of the Côte d'Or, in France, have invented certain new and useful Improvements in Portable Screw-Punches and the Like, of which the following is a specification.

This invention relates to improvements in punching machines of that type wherein the operating lever is actuated by a threaded shaft and the object of the invention is to provide a novel organization of operating means, having in view the advantages of simplicity, compactness, lightness in weight, and general adaptability.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical section on the line A—A of Fig. 2; Fig. 2 is a front elevation with the operating lever removed; Fig. 3 is a plan view of the frame of the machine and partly in section on the line B—B of Fig. 1; Fig. 4 is a bottom plan view of the operating lever; Fig. 5 is a sectional view on the line C—C of Fig. 1 illustrating the punch holder; Fig. 6 is a detail sectional view of a rocking nut included in the organization; Fig. 7 is a detail view of the handle for turning the threaded shaft aforesaid; Fig. 8 is a side elevation illustrating a slightly modified construction; Fig. 9 is a vertical cross section on the line D—D of Fig. 8; Fig. 10 is a vertical longitudinal section on the line E—E of Fig. 9; Fig. 11 is a detail cross section on the line F—F of Fig. 8; Fig. 12 is a detail view illustrating a modified form of bearing construction for the operating lever; and Fig. 13 is a similar view illustrating a further modification of the same.

The main frame of the machine is indicated by the numeral 1 and is provided at its forward side with an anvil 1^a in which is fitted a die 20 which is fixed by a set screw 5.

The punch holder is indicated by the numeral 2 and is vertically slidable in a suitable guide-way formed in the front face of a fixed arm A' on the main frame, the said arm overhanging the anvil. The said punch holder is flush with the adjacent front faces of the frame and is provided with a recess in which is fitted a punch 3, located in axial alinement with the die 20 and fixed in position by a set screw 4 which is threaded

through the punch holder and works in a slot 4^a in the main frame.

The punch holder is moved in either direction by means of an operating lever 6 of the first order and which is pivoted in suitable bearings on the main frame as by a pin 7. The said lever at its forward end is pivoted to the punch holder by a pin 8 and at its rear end is provided with a cylindrical bearing 6^a formed at opposite sides thereof with outwardly flaring openings 6^b. The lever 6 is in turn actuated by a shaft 9 which is formed in adjoining portions thereof with right and left hand threads and which passes through the openings 6^b aforesaid. Within the bearing 6^a a cylindrical nut 11 is fitted horizontally for rocking movement and is provided with a threaded bore conforming to the right hand threads of the screw 9 and through which the latter extends. The frame 1 has its rear portion provided with a recess to receive the lower portion of the screw 9 which is provided with the left hand threads and in said recess a nut 12 is horizontally fitted for rocking movement, the said nut 12 being provided with a threaded bore which conforms to the left hand threads of the screw 9 and through which the latter passes. The screw 9 is turned by means of a handle 10 which is provided at a suitable point with a square opening 10^a to fit over the upper square end of the screw 9 and at one end thereof with an axially disposed square opening 10^b to fit over the square heads of the screws 4 or 5 as the case may be.

It will be apparent from the foregoing description that the lever 6 is rocked in either direction in accordance with the turning movements of the screw 9 and the provision of the rocking nuts 11 and 12 compensates for variations in the angular dispositions of the parts incident to the oscillatory movement of the lever 6. The said oscillatory movement is limited in one direction by the engagement of the punch against the anvil and in the other direction by the engagement of the bearing 6^a against the frame. Owing to the fact that the punch holder 2 is flush with the adjacent front faces of the frame it is possible, in punching beams or girders, to locate the holes very close to the adjacent webs or flanges, as the case may be. By substituting tools and dies of suitable character for those shown, the machine may be readily adapted for

various other metal working operations which will readily suggest themselves.

The modified construction shown in Fig. 8 differs in no way in essential principles from the construction shown in Figs. 1 to 7, the departure residing in the details of organization. In this case, instead of a pin or shaft 7, as in the previous form, the lever 6 is provided with trunnions 15 and 16 which are centered in bearings 13 fitted in the upper portion of the frame. Instead of the direct connection 8 between said lever and the punch-holder, an intermediate link 18 is employed, the ends of which are apertured and engage over laterally projecting studs 6' and 2' formed on said lever and punch holder respectively. It is also preferred to employ a wear piece 17 between the upper end of the punch holder and the lever, the said wear piece having a transversely convex face and the lever having a conformable recess in which the wear piece works. The wear piece serves to receive the pressure of the lever during its downward stroke, as is obvious.

Instead of the form of bearing shown in Fig. 8 the construction shown in Fig. 12 may be employed. In this case the bearing is indicated by the numeral 13' and embodies in addition to the bearing part proper a cap piece integral therewith and formed to connect and brace the two wings of the frame between which the bearing part is fitted. The bearing part is of substantially inverted T shape and the openings between the wings are conformable in order that the stress which on the upward stroke of the lever might otherwise tend to the displacement of the bearings, may be efficiently re-

sisted. Fig. 13 shows a further modification of the bearing construction wherein the bearing part consists of a ring or cylinder 13² which is fitted between the wings of the frame and is separate from the cap piece 19 which connects and braces said wings.

Having fully described my invention, I claim:

In a punching machine, a frame provided with a fixed die carrying anvil and with a fixed arm overhanging the anvil, a punch holder fitted in the forward portion of the arm for vertical reciprocatory movement, an operating lever of the first order pivotally mounted on the arm, the arm being provided with wings, bearings for the pivot of the operating lever which are fitted between the wings, the openings between the latter above the bearings being of less width than the openings in which the bearings are fitted, a cap connecting and bracing the wings, a pivot connection between the forward end of the lever and the punch holder, the lever having a cylindrical bearing at its rear end, said bearing being provided with oppositely disposed openings, a cylindrical nut mounted for horizontal rocking movement in the bearing, the frame having a recess, a cylindrical nut fitted in the recess, and a shaft having adjoining right and left hand threaded portions, the shaft passing through the said nuts.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR VERNET.

Witnesses:

H. C. COXE,

EMILE KLOTZ.