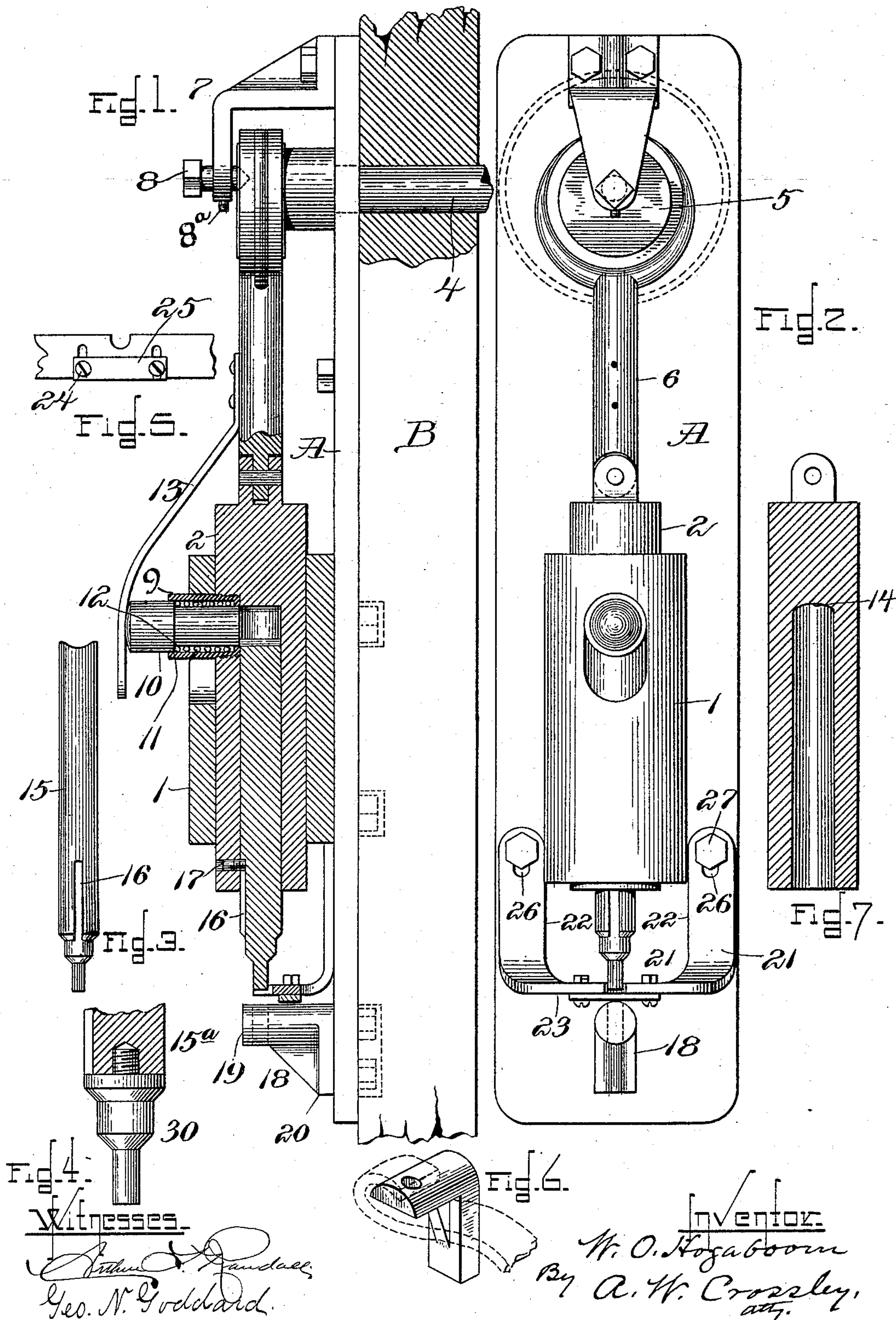


(No Model.)

W. O. HOGABOOM.  
PUNCHING PRESS.

No. 604,392.

Patented May 24, 1898.





# UNITED STATES PATENT OFFICE.

WILLIAM O. HOGABOOM, OF EVERETT, MASSACHUSETTS.

## PUNCHING-PRESS.

SPECIFICATION forming part of Letters Patent No. 604,392, dated May 24, 1898.

Application filed March 15, 1897. Serial No. 627,497. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM O. HOGABOOM, a citizen of the United States, residing at Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Presses and Punches, of which the following is a description sufficiently full, clear, and exact to enable those skilled in the art to which it appertains or with which it is most nearly connected to make and use the same.

My invention has relation to improvements in presses and punches.

My object is to provide a simple and compact device which can be readily attached to one of the upright posts in a machine-shop or to any convenient form of bench or supporting-standard, as well as to secure certain advantages in construction and operation, hereinafter more fully pointed out.

In the drawings, Figure 1 represents a side elevation, partly in section, of a punch embodying my invention. Fig. 2 represents a front elevation of the same. Fig. 3 is a detail showing one form of punch used in the device. Fig. 4 represents a modified form of punch. Fig. 5 is a bottom plan view of a portion of the stripper, showing the adjustable gage. Fig. 6 shows a form of die-block especially adapted to be used in punching bent strips of metal where the space between the bent portions of the strip is narrow. Fig. 7 represents a central sectional elevation of the plunger.

A designates a back plate, which is here shown bolted to an upright post B. Rigidly secured to this back plate is a block or casing 1, having a longitudinal cylindrical bore, in which the plunger 2 is made to reciprocate by any suitable means. In my preferred form I employ the shaft 4, passing through the back plate and the post and provided at its rear end with a heavy driving-pulley (indicated by dotted lines in Fig. 2) and at its front end with an eccentric 5, said eccentric being connected with the plunger 2 through the medium of the eccentric-rod 6.

In order to steady the shaft 4 as well as to prevent longitudinal movement thereof, I provide a heavy angle or keeper 7, securely fastened to the back plate. In the depend-

ing portion of said keeper I insert a longitudinally-adjustable center-pin 8, which forms a bearing for the outer end of the shaft 4 and serves to keep the said shaft in place, said pin being kept in place by a set-screw 8<sup>a</sup>.

The plunger 2 is horizontally bored to receive and retain a sleeve 9, said sleeve being adapted to receive a pin 10, the outer end of which is enlarged to provide a shoulder 11. A coiled spring 12 is placed about said pin and serves to keep said pin outward against the spring-keeper 13. The outer casing or block 1 has a vertical slot in its front face, which permits the sleeve and the pin therein to move up and down as the plunger reciprocates.

The plunger 2 is centrally bored through its longitudinal axis for a portion of its length. The upper end or wall of said bore is somewhat curved, as shown at 14 in Fig. 7, so as to form a bearing for the inner end of the pin 10 when said pin is pushed inward. The punch 15 is adapted to fit closely in the central bore of said plunger and is slotted at its lower end, as shown at 16, to receive the end of a set-screw 17, carried by the plunger, the end wall at the top of said slot forming a shoulder whereby the punch is supported and prevented from dropping out of the plunger. The upper end of said punch is slightly recessed, as shown in Fig. 3, to afford a bearing-surface against the pin 10. Rigidly secured to the back plate is the angular die-block 18, one member of which in Fig. 1 is shown as consisting of a projecting horn 19, the other member of said angle being a vertical flanged portion 20, the horn having a vertical aperture registering with the end of the punch and having sufficient taper to permit the clearance of the metal punched out.

The stripper 21 is preferably formed of a single bar of metal bent so as to form two vertical portions 22, resting flat against the back plate, and a horizontal flat portion 23. The horizontal portion 23 is transversely slotted to receive the bolts or screws 24, which hold the adjustable gage 25 in any desired position.

I have shown at Fig. 4 a modified form of punch 15<sup>a</sup>, made in two parts. The lower end or tip is removably secured to the grooved



shank by means of a tap-screw, so that different forms of punches or dies can be used upon a single shank.

In Fig. 6 I have shown a modification to illustrate how the form of the die-block may be changed to adapt it to any special form of work. It is obvious that by using other forms of dies and die-block this device can be used as a press for bending metal as well as for a punch.

The operation of my device is as follows: The spring-pressed pin 10 is normally pressed outward by the coiled spring 12, so that its inner face or end is slightly in front of the inner end of the sleeve 9. As the plunger descends the lower end of the punch comes in contact with the work as it is fed under the stripper against the gage. As the punch is free to move upwardly in the bore of the plunger it yields, and does not therefore punch or bend the metal. This enables the operator to allow the punch to touch the work until he has placed it in the precise position that he desires. By pressing the hand upon the keeper 13 the pin 10 is pressed inwardly and is interposed between the curved upper wall of the plunger-bore and the recessed upper end of the plunger-shank, thus obstructing any upward movement of the punch in the bore as the plunger descends. Hence as the pin prevents the punch from yielding the lower end of the punch must pass through the metal and punch the desired aperture therein.

The spring-keeper 13 serves not only to keep the pin from being entirely thrust out of the sleeves by the coiled spring, but it affords an elongated surface which is more easily struck by the hand when the machine is in motion than the comparatively small surface of the pin would be.

The fact that the die-block is supported at one end only gives the operator unimpeded access from every direction for his work, and thus enables him to work upon structural forms that could not be operated upon by any other type of machine. The device is simple in construction, certain in its operation, and is adapted to do every variety of work.

It will be understood that the term "die" may be used interchangeably with the word "punch" where reference is had to part 15

throughout the description and claims, as the press is adapted to both kinds of work.

Without attempting to illustrate all the different forms in which my invention is capable of being embodied or to set forth all the uses of which it is capable, what I claim, and desire to secure by Letters Patent, is—

1. In a press, the combination of a reciprocating plunger having a longitudinal bore, of means for retaining the punch in said bore, of a pin, and of a spring which normally holds said pin from projecting into said bore, said pin being adapted to be thrust between the upper end wall of said bore and the upper end of the punch.

2. In a press, the combination of a reciprocating punch, of a die-block, of an adjustable stripper, and of a gage carried by said stripper and adjustable thereon.

3. In a press, the combination of a back plate, of a stripper having vertically-slotted vertical arms, said stripper having its horizontal portion transversely slotted, of a plate, and of screws passing through said transverse slots, and securing said plate adjustably to said stripper.

4. In a press the combination of a back plate; of a block projecting therefrom, said block having a central bore and a slotted face; of a plunger made to reciprocate in said bore, said plunger carrying the pin which projects through the slot in the face of said block; of a punch carried by the plunger, said punch being thrown into operation by means of said pin.

5. In a press the combination of a back plate; of a centrally-bored block projecting therefrom having a slotted face; of a reciprocating plunger provided with a punch; of a spring-pressed pin carried by the plunger and projecting through the slotted face of the block; and of a keeper to limit the outward movement of the pin.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of March, A. D. 1897.

WILLIAM O. HOGABOOM.

Witnesses:

GEO. N. GODDARD,  
ARTHUR F. RANDALL.