Sheet 1 - 2 Sheets.

# J. B. Barnes,

## Metal Punch,

No. 61,987. Patented Feb. 12. 1867.

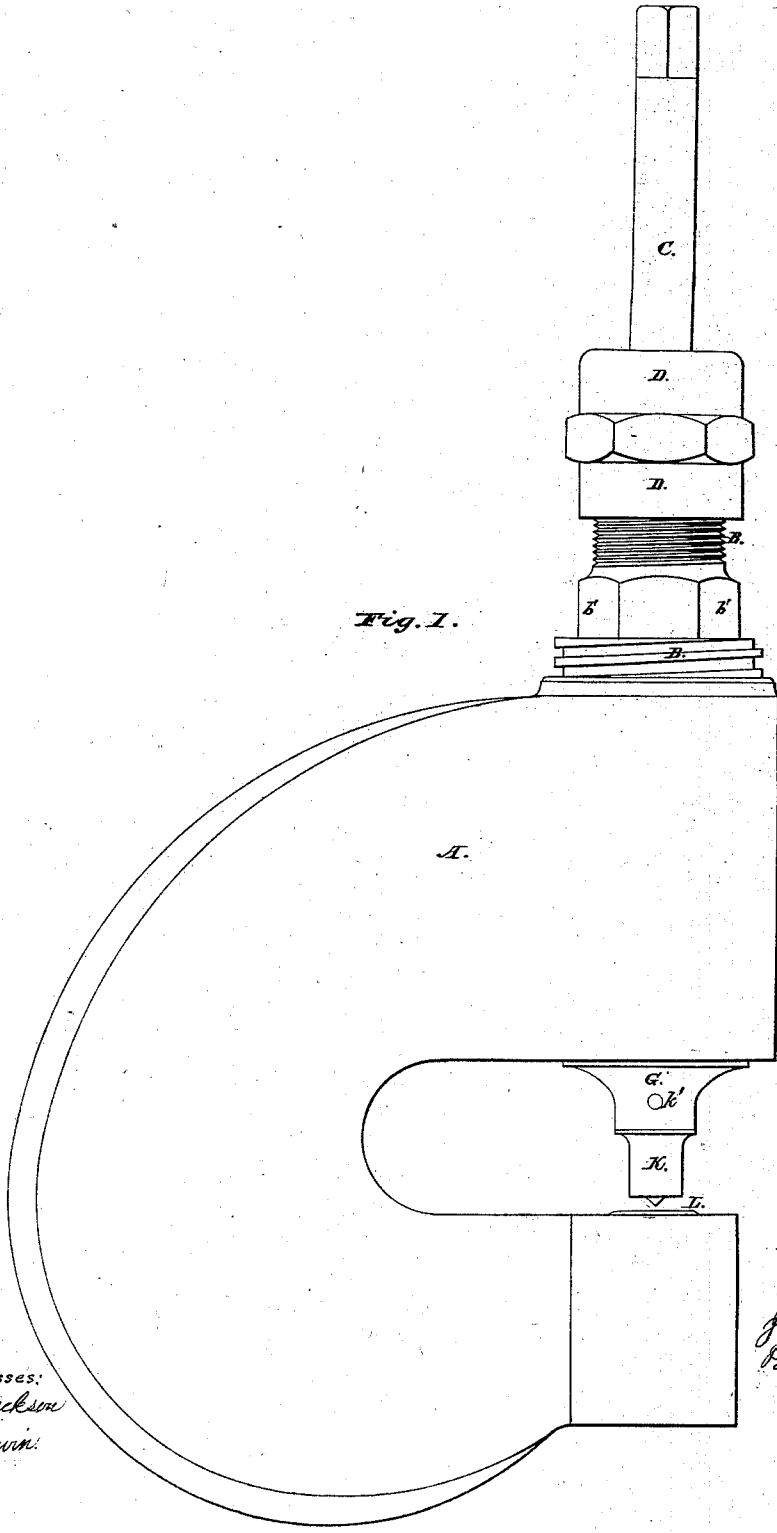



Fig. 1.

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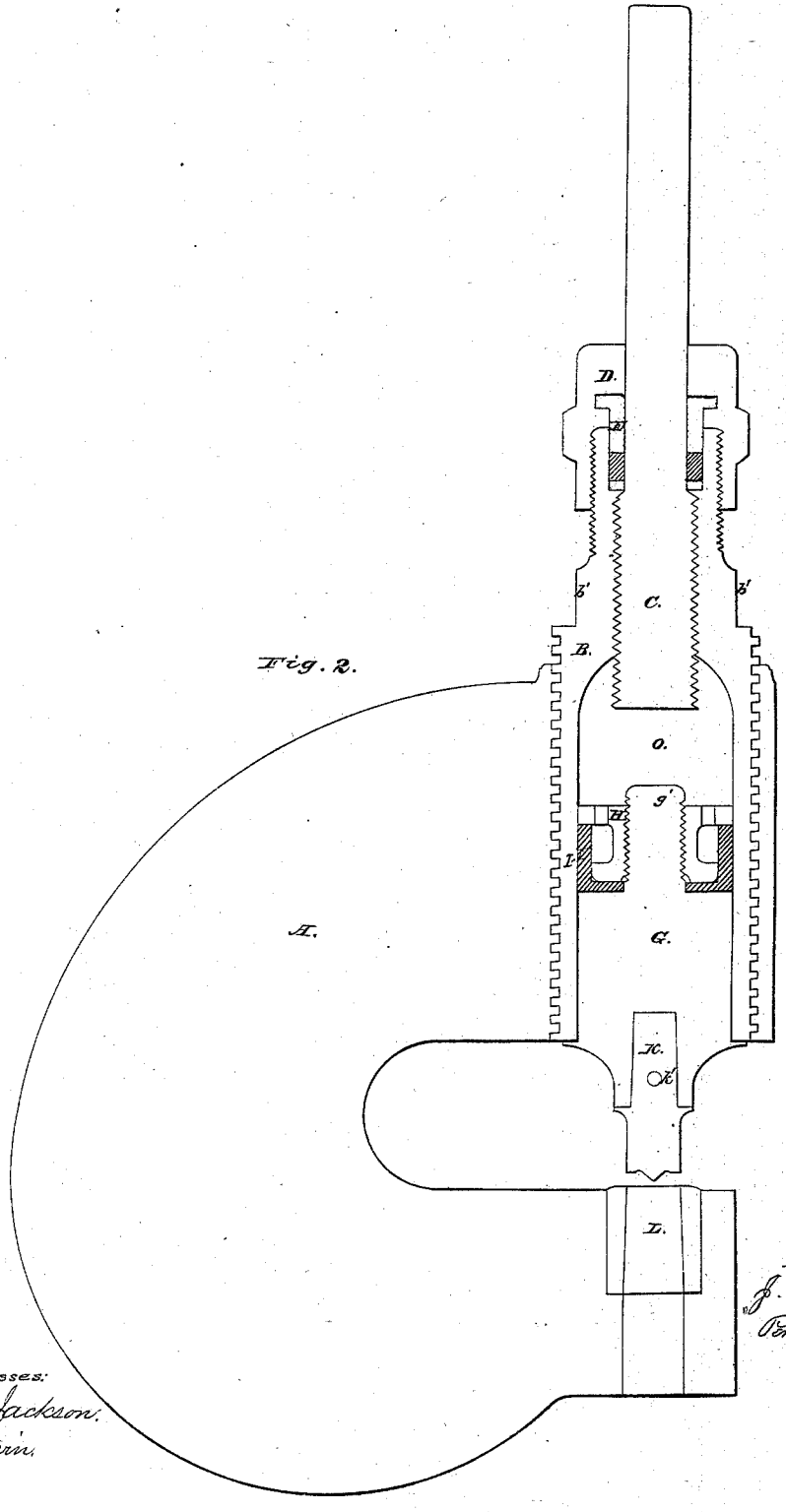
Sheet 2 · 2 Sheets.

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Fig. 2.




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# United States Patent Office.

JOSHUA B. BARNES, OF FORT WAYNE, INDIANA.

*Letters Patent No.* 61,987, *dated February* 12, 1867.

## IMPROVED HYDRAULIC PUNCHING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSHUA B. BARNES, of Fort Wayne, in the county of Allen, and State of Indiana, have invented a new and useful improvement in Hydraulic Punch; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my improved punch.

Figure 2 is a sectional view of the same.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an improved punch, by means of which more work, with less power, and in a less time, can be performed than can be done with the ordinary punch, and which can be used upon a boiler, inside or outside, wherever it can be got upon a flange; and it consists of an improved punch, formed by the combination of the large hollow screw, the small interior screw, and the plunger with each other and with the yoke of the punch, as hereinafter more fully described.

A is the yoke of the punch, which is made of wrought iron, in substantially the form represented in the drawings, and which must be made sufficiently strong to withstand the pressure of the punch when operated. The upper end of the yoke A is perforated, and the hole thus formed has a square screw-thread cut in it to receive the square-threaded hollow stub-screw B. O is the oil chamber, which is formed in the lower part of the hollow screw B, and in the lower part of which chamber works the plunger G. K is the punch, which is secured in the lower part of the plunger G by the pin *k*, so as to be removed and replaced by a punch of a different size when desired. L is a die set in the lower end of the yoke A, and which is removable, so that it may be changed as the punch K is changed. The central part *g'*, of the upper part of the plunger G, extends upward, and has a screw-thread cut upon it. Around the screw *g'* thus formed is placed the packing I, which is secured in place by the flanged nut H; the packing I and nut H being so framed and arranged as to leave a space between them, into which the oil from the oil chamber O enters, and when compressed forces the packing I outward against the walls of the cylinder or chamber in which the plunger G works, as shown in fig. 2. The upper part of the hollow screw B is contracted or drawn in, and has a screw-thread cut upon its inner surface in which the small screw C works, as shown in fig. 2. E is a packing, placed at the upper end of the hollow screw B around the shank of the small screw C, as shown in fig. 2, and which is held in place by the stuffing-box D, which screws down upon the upper end of the hollow screw B, compressing the packing around the shank of the small screw C. The screw B is operated by a wrench placed upon the shoulders *b'*, formed upon its upper part for that purpose; and the screw C is operated by a wrench attached to its upper end.

In using the machine, the boiler-plate, or other metal to be punched, is placed between the punch K and die L, and the screw B turned down so as to bring the punch K in contact with the plate, and also to pack the oil in the oil chamber O; the small screw C is then turned down, driving the punch through the iron. By means of this machine boiler iron, from three-eighths to five-eighths of an inch in thickness, may be punched with a wrench from ten to twelve inches long; and with it one man can do the work that it would require three to do with an ordinary punching machine.

I claim as new, and desire to secure by Letters Patent—

An improved hydraulic punch, formed by the combination of the large hollow screw B, the small interior screw C, and the plunger G with each other and with the yoke A, substantially as herein shown and described.

The above specification of my invention signed by me this 30th day of May, 1866.

JOSHUA B. BARNES.

Witnesses:

C. V. N. MILLIMAN,

R. E. SLOANE.