No. 691,932. Patented Jan. 28, 1902.

J. C. BURGESS.

COLD IRON PUNCH.

(Application filed Aug. 8, 1901.)

(No Model.)

Fig. 1.

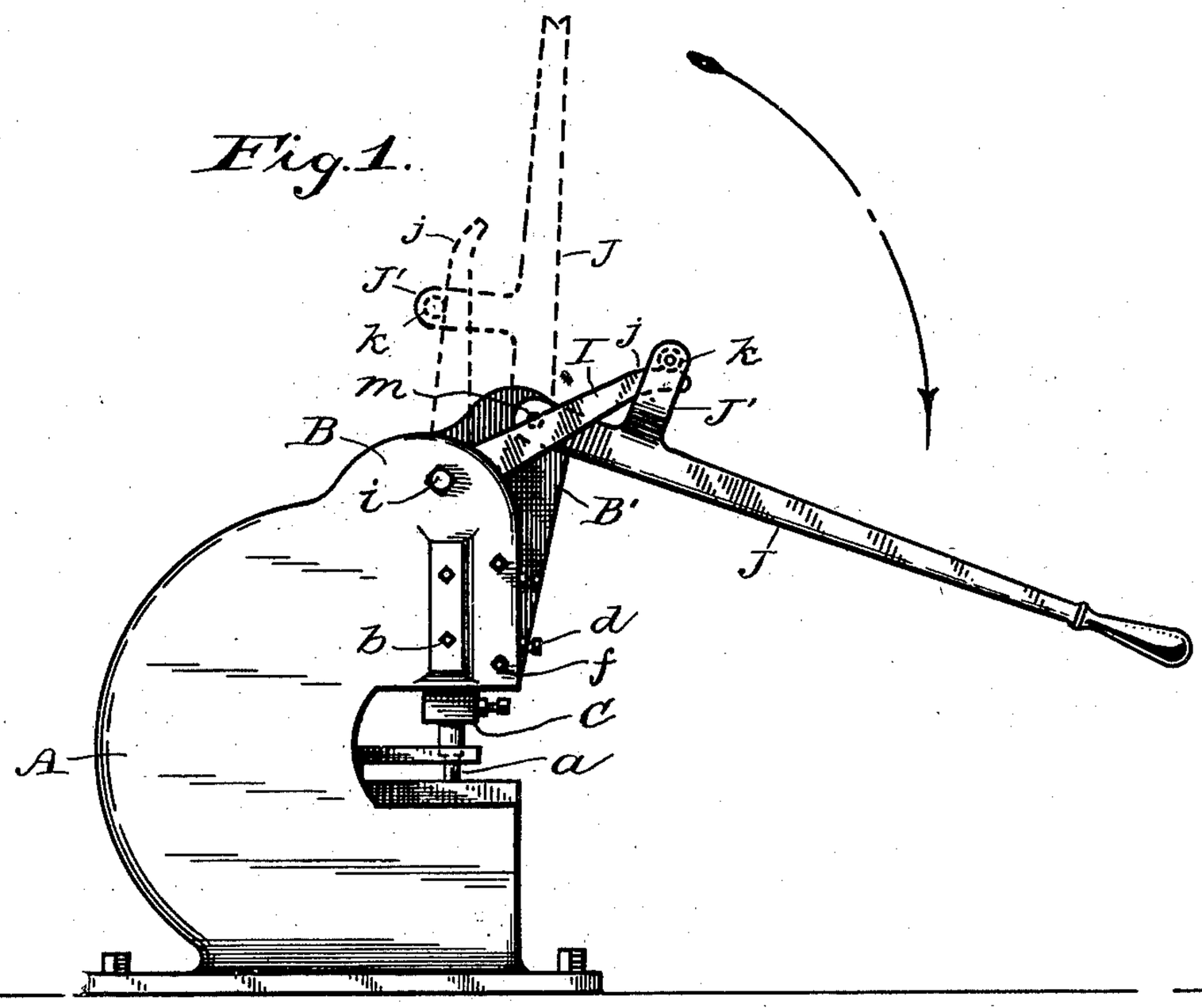


Fig. 2.

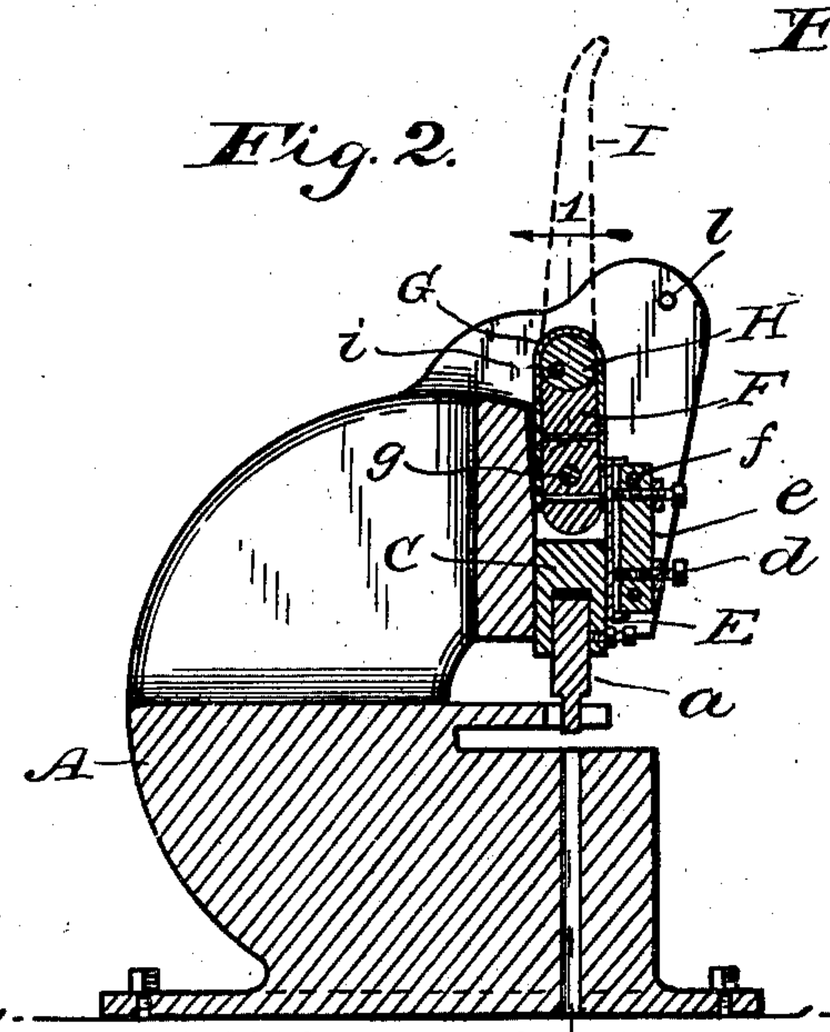


Fig. 3.

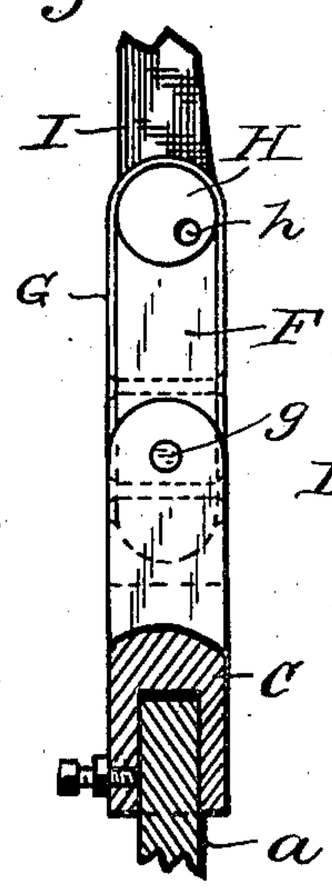
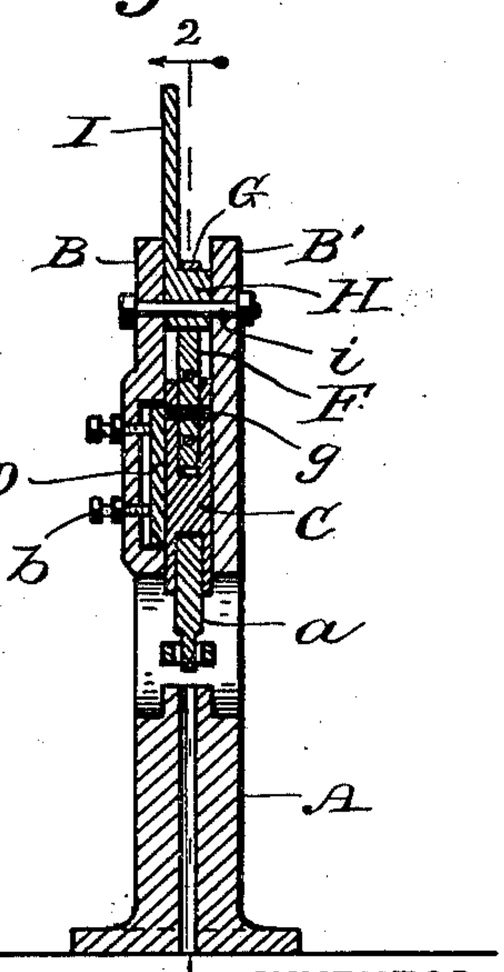


Fig. 4.



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COLD-IRON PUNCH.

SPECIFICATION forming part of Letters Patent No. 691,932, dated January 28, 1902.

Application filed August 8, 1901. Serial No. 71,281. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. BURGESS, a citizen of the United States, residing at Sheridan, in the county of Hamilton and State of Indiana, have invented certain new and useful Improvements in Cold-Iron Punches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to hand-power machines for punching holes in cold-iron and other metals, the object of the invention being to provide a punching-machine of this character that will be particularly adapted to supply the needs of small blacksmith-shops, as well as factories, whereby small holes may be quickly punched and the maximum power be quickly obtained for punching large holes, a further object being to provide a cheap, durable, and economical punch suitable for bench use.

With the above objects in view the invention consists in the novel parts and in the combination and arrangement of parts, as hereinafter particularly described, and pointed out in the claims forming part of this specification.

Referring to the drawings, in which similar reference characters in the several figures indicate corresponding parts, Figure 1 represents a side elevation of a punching-machine constructed substantially according to my invention; Fig. 2, a central longitudinal vertical sectional view; Fig. 3, a detail view of the punch-head and connections substantially on a line 2 2 in Fig. 4, viewed as indicated by the arrows; and Fig. 4, a vertical transverse sectional view as on a line 1 1 in Fig. 2.

In construction I provide a suitable frame A, which may be composed either of cast-iron or of built-up sections of plate-iron and having a frame-head comprising vertical plates B and B′, the latter projecting above and also forward of the former. A suitable guide-channel is formed in the frame-head between the plates B and B′, in which the punch-head C is mounted, so as to slide therein vertically, the punch-head having a suitable socket in which the punch *a* may be secured. Any desired number of punches and dies may be employed, as will be understood, arranged relatively according to the usual practice. At the side of the head C is an adjustable gib D, engaged by adjusting-screws *b*, fitted into holes in the plate B, and at the front of the head C is another adjustable gib E, engaged by adjusting-screws *d*, fitted into a block *e*, secured between the plates B and B′ by means of bolts *f*. Thus lost motion of the punch-head may be taken up by adjusting the screws *b* and *d*.

The head C is operated by a pitman F, connected thereto by a pivot-bolt *g*. The upper end of the pitman F is provided with a strap G, which, together with the end of the pitman, forms a circular eccentric-strap encircling an eccentric H, having an axle-hole *h*, through which extends an axle-bolt *i*, that is secured in the plates B and B′, the eccentric being situate between said plates and provided with a lever I, attached thereto, whereby to control and operate the eccentric, and consequently the parts connected therewith. The lever I is comparatively short, so as to be easily handled directly for punching small holes quickly, and it also forms part of a compound lever, its extremity having a convex portion *j* at the upper or rear side thereof. A comparatively large lever J is pivoted to the plate B′ by means of a bolt *m*, inserted in a hole *l* above and forward of the bolt *i*. The lever J has an offset yoke J′, through which the free end of the lever I extends, and in the yoke is a roller *k* to operate upon the convex portion J. This lever J may be quickly disconnected from the lever I, as will be obvious, by either removing the bolt *m* or the roller *k*.

In practical use the levers I and J will stand in substantially vertical positions, as indicated in dotted lines in Fig. 1, with the punch up. To punch a hole, the levers will be drawn forward and downward, the compound levers being employed for heavy work and the single lever I for light work, the eccentric providing ample power with a short lever so that the operator may handle the short lever while

at the same time handling the iron he may be punching, which is a considerable saving of time.

Having thus described my invention, what I claim is—

1. In a punching-machine, the combination of the frame, the frame-head comprising the two plates of which one extends above the other and also forwardly toward the front of the machine, the punch-head, the pitman, the eccentric axle-pin in said frame-head, the eccentric on said axle-pin, the main eccentric-lever having the convex portion at the upper side thereof, the supplemental lever pivoted to the more elevated one of said head-plates, and the offset yoke attached rigidly to said supplemental lever and engaging said main eccentric-lever, as set forth.

2. In a punching-machine, the combination of the frame, the frame-head comprising the two plates, the block secured between said two plates, the punch-head, the adjusting-screws in said block, the adjusting-screws in said frame-head, the gibs, the punch, the eccentric, the pitman, and the main eccentric-lever, all constructed and arranged as set forth.

3. In a punching-machine, the combination of the frame, the head composed of the longer and the shorter plates, the main lever pivoted to the shorter plate, the eccentric, the pitman, the punch-head, the supplemental lever pivoted to said longer plate, the offset yoke attached rigidly to said supplemental lever, and the roller in said yoke, said main lever extending into said yoke, substantially as set forth.

4. In a punching-machine, the combination of the frame, the frame-head composed of the two plates extending forwardly and one extending upwardly and forwardly from the other, the block between said plates, the punch-head between said plates and said frame and said block, the eccentric pivoted between said plates, the pitman, the main lever, the supplemental lever, the offset yoke, the roller in said yoke, and the convex end portion on said main lever extending into said yoke, as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. BURGESS.

Witnesses:
ALBERT C. PEARSON,
JOHN W. KNIGHT.