

(No Model.)

A. HOOLAHAN.
PUNCHING MACHINE.

No. 493,890.

Patented Mar. 21, 1893.

FIG. 1.

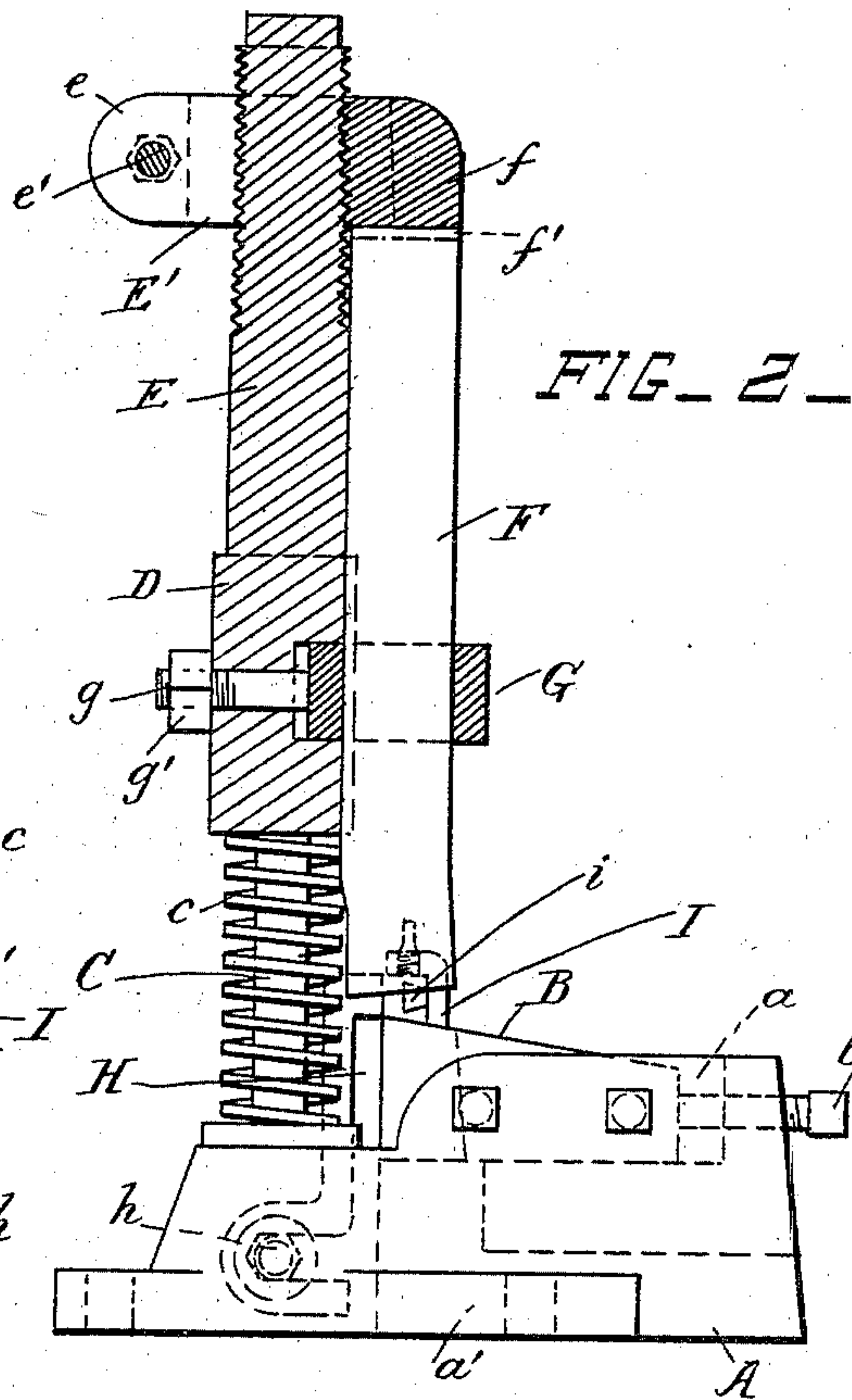
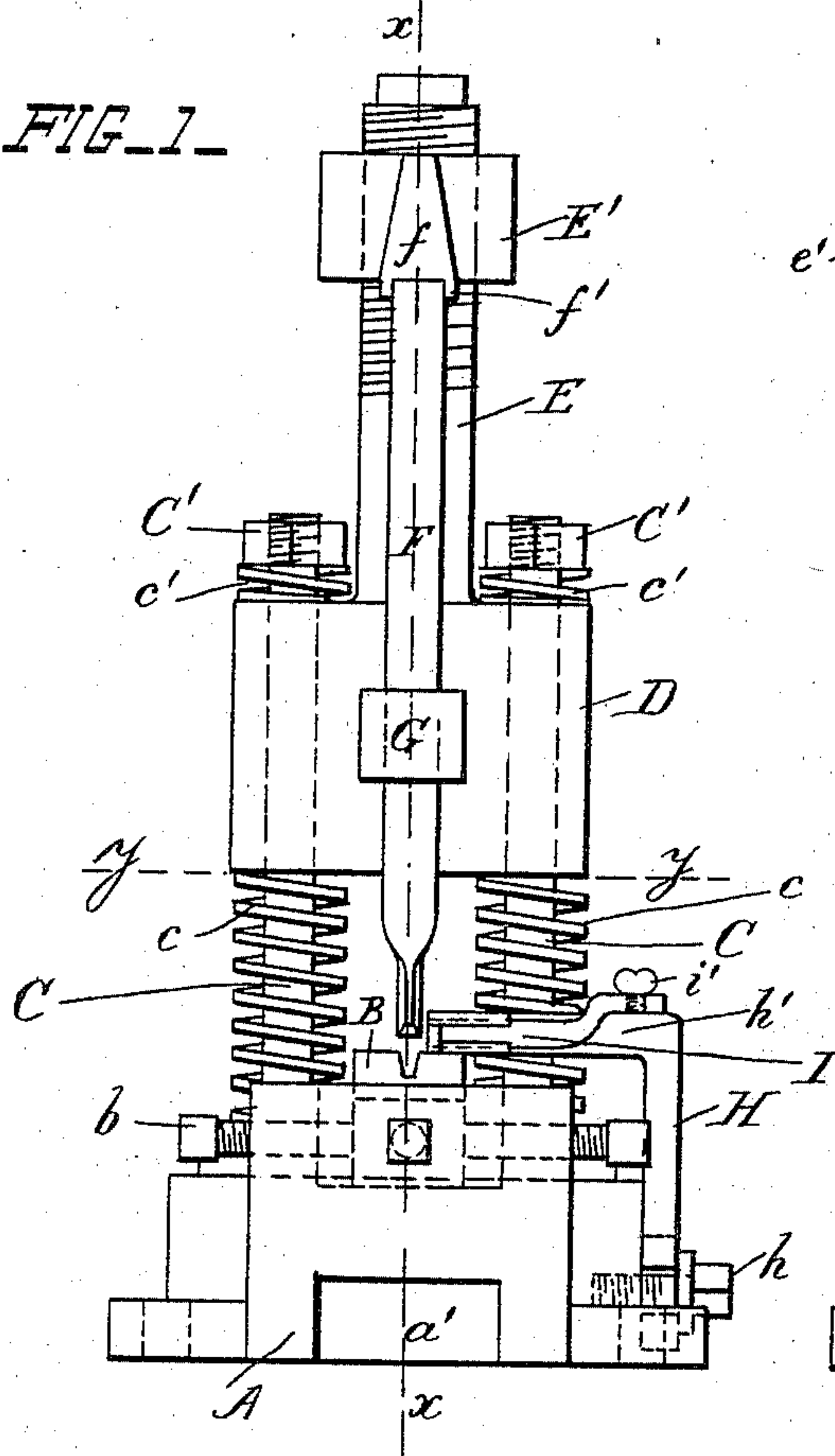


FIG. 2.

FIG. 3.

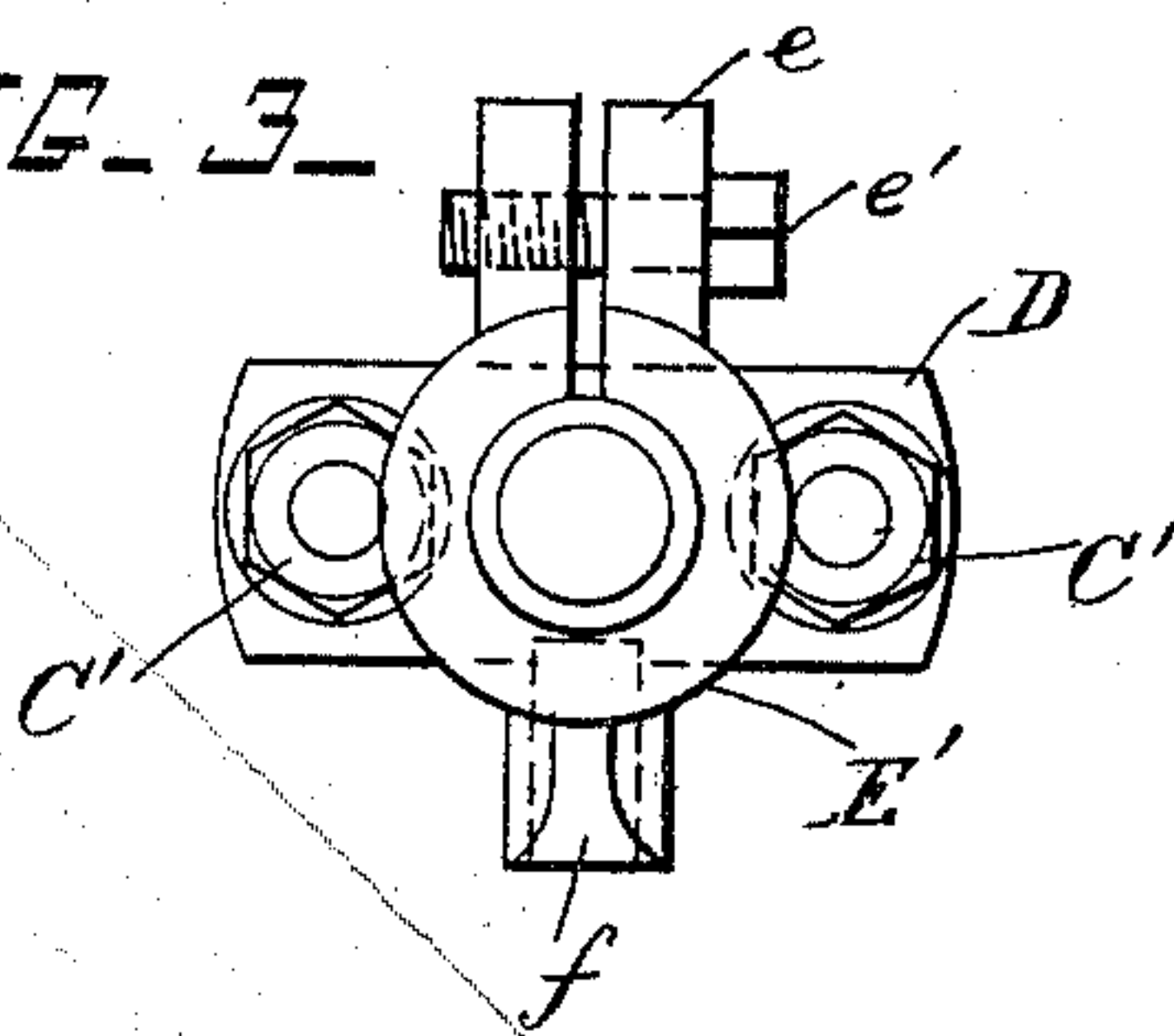
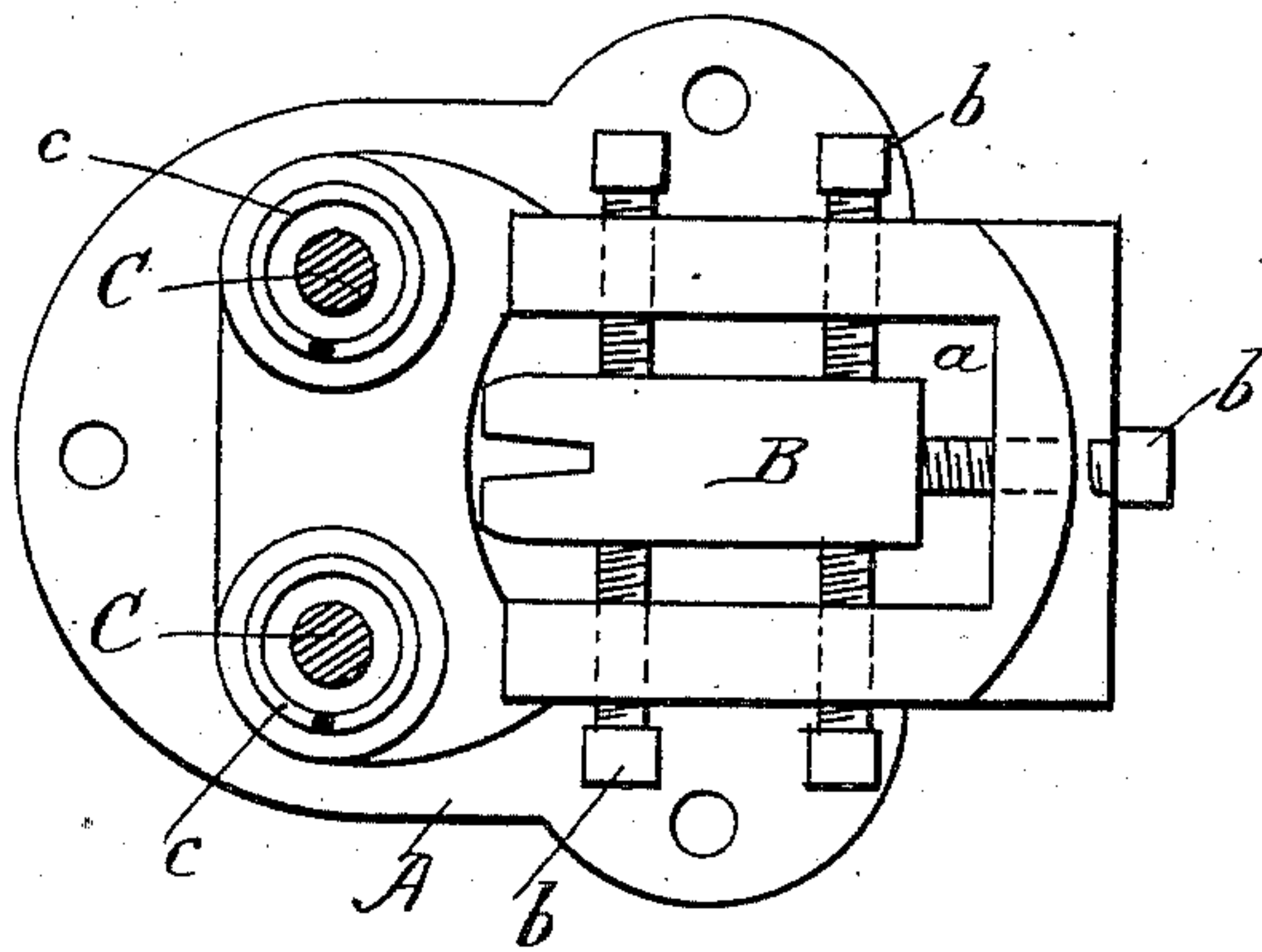


FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

AMBROSE HOOLAHAN, OF BUFFALO, NEW YORK.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,890, dated March 21, 1893.

Application filed July 19, 1892. Serial No. 440,531. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE HOOLAHAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Punching-Machines; and I do hereby 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.

This invention relates to punching machines, and more particularly to those machines specially adapted to punch out the teeth of the serrated tools used by stone cutters.

This invention consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings: Figure 1 is a front view of the machine. Fig. 2 is a side view of the same, taken in section on the line $x x$ in Fig. 1. Fig. 3 is a plan view, from above, of the punch holder. Fig. 4 is a plan view, from above, of the machine, taken in section on the line $y y$ in Fig. 1.

A is the base of the machine which is adapted to be secured to any ordinary work-table or bench. The base A is provided with a pocket a for receiving the die B, and a' is a receptacle under the said pocket for receiving the punchings. The die B is secured in the pocket by means of the set-screws b which pass through the front and the sides of the pocket.

C C are vertical guides secured into the base A.

D is the punch holder which slides upon the guides C, and c are springs which surround the said guides and normally support the punch holder in its raised position.

C' are nuts secured upon the upper ends of the guides C, and c' are springs interposed between the said nuts and the top of the punch holder to receive the shock of its rebound when forced upward by the springs c .

E is a screwthreaded bar projecting upward from the middle of the punch holder, and E' is a thrust block screwed upon the said bar. This thrust block is provided with the lugs e and the screw e' so that it may be securely clamped upon the bar E after its position has been adjusted to suit the length of the punch.

F is the punch secured to the punch holder over the die. The upper end of the punch bears against the arm f which projects from the thrust block and is provided with the shoulders f' to prevent the end of the punch from moving sidewise.

G is a loop which encircles the middle portion of the punch. This loop is let into a recess in the punch holder and is provided with a screwthreaded shank g passing through a hole in the punch holder. A nut g' is screwed on the shank g so that the punch is rigidly secured to the punch holder.

H is an adjustable standard secured at its lower end to the base by means of the screw h . The upper part of the standard is a horizontal bar h' the end of which rests on the die, and is provided with the longitudinal dovetailed groove i . I is a gage which slides in the said groove i , and is provided with a screw i' for securing it to the bar h' .

The tool to be serrated is placed on the die and a notch is punched in it by striking the bar E with a hammer. The punch is raised by the springs c after each notch is punched in the tool. The successive notches thus punched in the tool are slid over the end of the gage I, so that the notches or serrations are kept at the same distance apart. The distance between the notches is regulated by sliding the gage I in the groove i and securing it in the position which gives the desired result.

What I claim is—

1. The combination, with the base provided with a pocket, the die, and the adjusting screw securing the die in the pocket, of the vertical guides projecting from the base, the punch holder sliding on the said guides, the punch secured to the said holder, the adjustable thrust block for the punch to bear against and the springs surrounding the guides and supporting the punch holder, substantially as set forth.

2. The combination, with the base, and the vertical guides projecting from the base, of the punch holder sliding on the said guides, the punch secured to the punch holder, the adjustable thrust block secured to the punch holder above the punch, the springs surrounding the guides and normally holding the punch holder in its raised position, the nuts at the

tops of the guides, and the springs interposed between the said nuts and the punch holder and adapted to receive its rebound, substantially as set forth.

5 3. The combination, with the vertically-movable punch holder provided with an upwardly-projecting screwthreaded bar, of an adjustable thrust block screwed on the said bar and provided with a clamping device, the
10 punch bearing against the said thrust block, and the loop encircling the middle portion of the punch and adapted to clamp it to the punch holder, substantially as set forth.

4. The combination, with the base, and the

die secured to the base, of the adjustable 15 standard secured to the base and provided with a horizontal bar having a dovetailed groove, and an adjustable gage sliding in the said groove and provided with a screw for 20 securing it to the said bar at any desired distance from the aperture in the die, substantially as set forth.

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

AMBROSE HOOLAHAN.

Witnesses:

HENRY SCHAWZLIN,

LOUIS J. BOMMER.