

J. H. Brown,
Metal Punch,

N^o 24,191.

Patented May 31, 1859.

Fig. 2

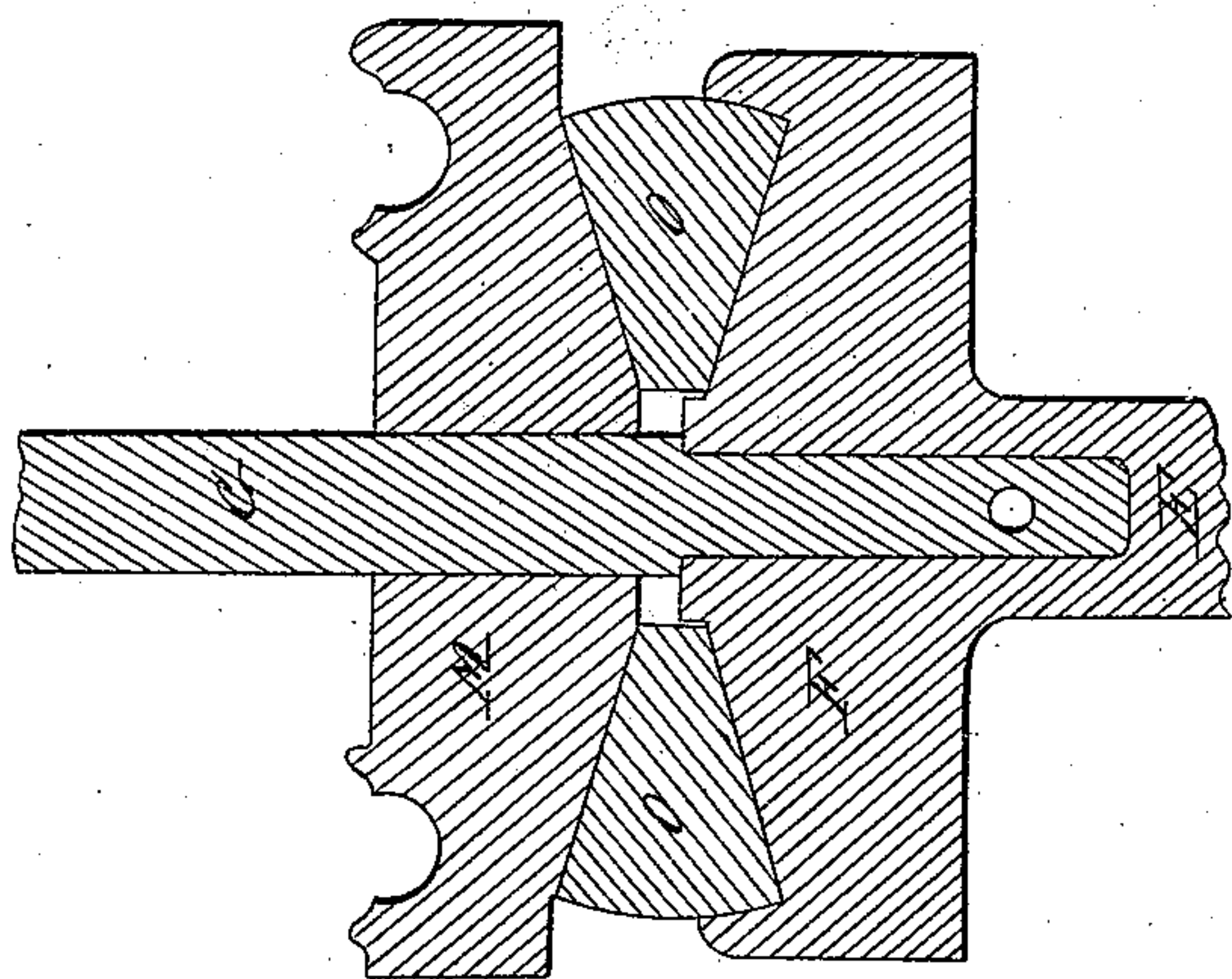


Fig. 3

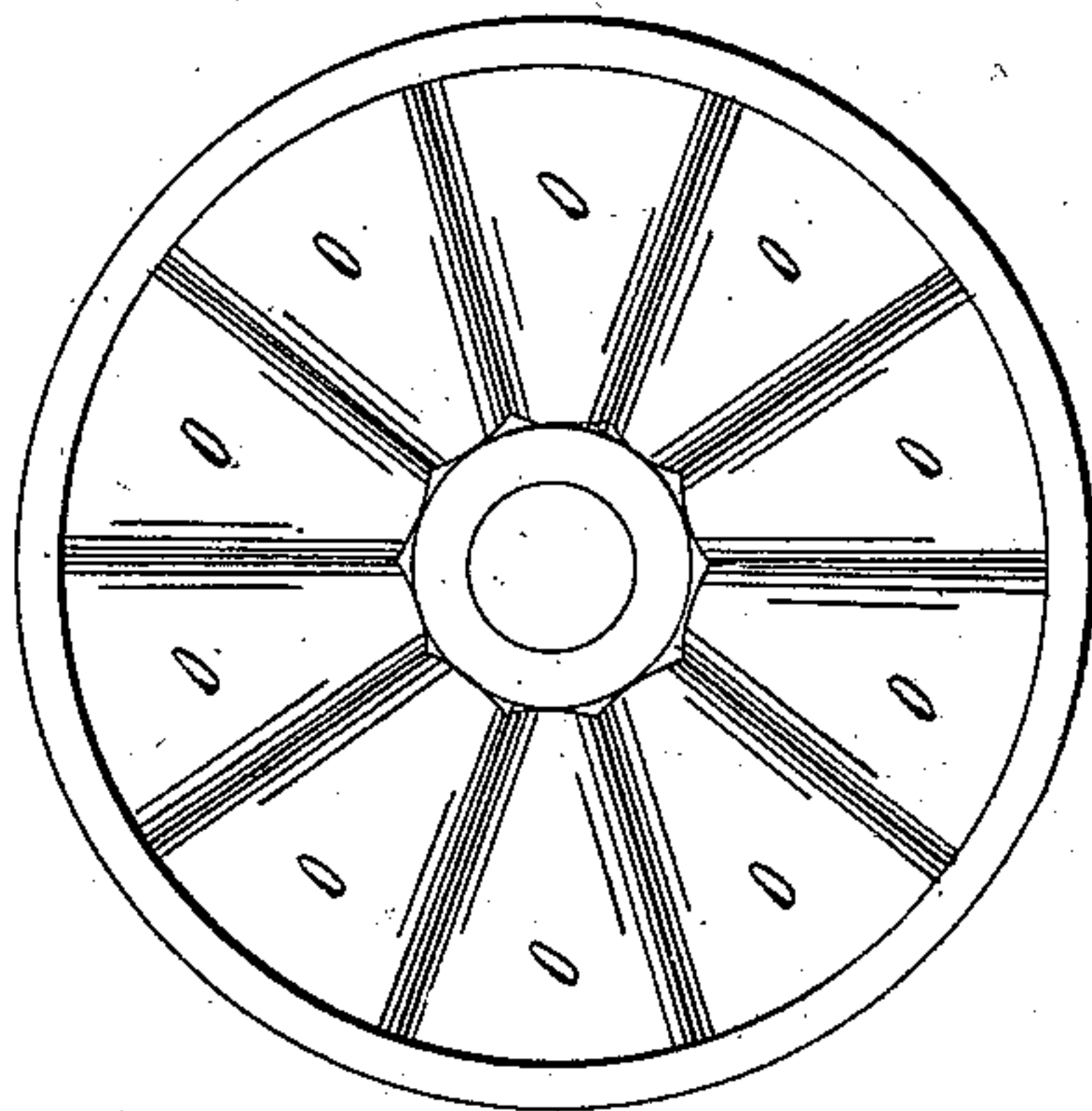
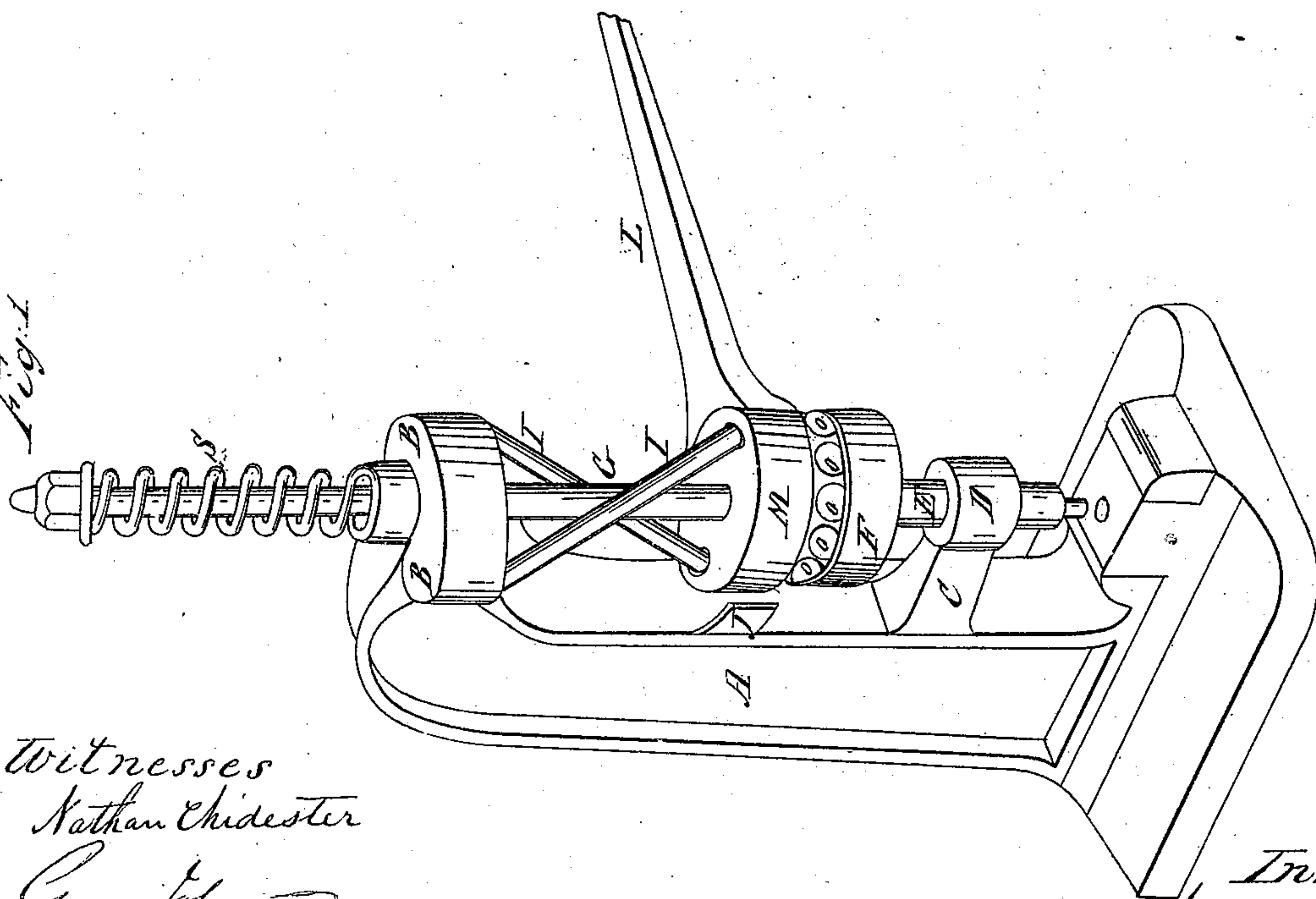


Fig. 1



Witnesses
Nathan Chidester
George Johnson

Inventor
Jay H. Brown

UNITED STATES PATENT OFFICE.

JAY H. BROWN, OF GRAND LEDGE, MICHIGAN.

MACHINE FOR PUNCHING METAL.

Specification of Letters Patent No. 24,191, dated May 31, 1859.

*To all whom it may concern:**

Be it known that I, JAY H. BROWN, of Grand Ledge, in the county of Eaton and State of Michigan, have invented a new and
5 useful Improvement in Machines for Punching Metals; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed
10 drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a detached vertical section. Fig. 3 is a plan of the head of the punching bar.

15 Similar letters indicate corresponding parts.

The frame of this machine is of iron, cast all in one piece. It consists of a standard
20 A of sufficient solidity and strength, with a platform at the bottom, which projects beyond the sides and front, and provided with a die box of any ordinary construction. The upper end of this standard is arched to project opposite the platform and has two stout
25 brackets B, B, cast on it, one on each side; an arm C is also cast on its edge at a proper height, which has a bearing at the end marked D to receive the punching bar E. This bar is made ordinarily of cast iron,
30 with strong flanges around the top forming a solid circular head marked F, and is usually banded with wrought iron where the punching tools are inserted at the lower end. The bar E is left free to move up or
35 down in its bearing in the arm C, but is prevented from turning by a tongue in the bearing, working in a groove in the bar. Or the bearing may be four square and the bar E also to effect the same purpose.

40 The upper end of the bar E is bored out to receive a rod G to which it is connected by a check pin below the head F. The rod G is usually of wrought iron, and may be much lighter than the bar E, to which it is
45 attached; it passes through a bearing in the upper projecting end of the standard, far enough to receive a stiff spiral spring S.

L is a lever which is intended to be operated by hand; it has a head M which
50 nearly corresponds in size and form with F, and is bored out in the center so that it may fit the rod G and turn freely round it.

55 A series of rollers O, O, O, &c., which are frustums of cones, of cast metal, are interposed between the upper side of F and the under side of M. These rollers are con-

finied in place by resting in a groove, so as to fill and occupy it, but not tightly in contact with it, and each other as more clearly shown in Fig. 3.

60 The large or outer ends of the rollers are rounded to a circle of the same radius as the circle they form when arranged in place; and the convexity of the two contact faces of F, M, as well as the taper of the said
65 rollers, are determined by lines which intersect at the center.

I, I are extension bars with steeled ends of spherical form, which ends are inserted in
70 sockets of a suitable corresponding form, two in the movable lever head M, and two in the under side of the stationary brackets B, B in such manner that when the lever is in line with the frame, the bars will stand vertical and at an equal distance from the rod G.
75 When the lever is moved around in either direction from this position, it carries with it the lower ends of the bars I, I, and the spring S acting on the rod G draws up the
80 punching bar to an extent equal to the shortening of said bars by the angle of inclination to which they are thrown, which is regulated by two stops, opposite the lever arm, one of which is seen at J.

The mode of operating this machine is by
85 simply moving around the lever L, from either stop, to the position first described, when the bars I, I, will assume a vertical position and drive down the punch. The frusto
90 conical rollers, by rotating when they take the power, prevent injurious friction, and obviate the difficulty of keeping flat rubbing surfaces in such a position, thoroughly lubricated when subjected to heavy pressure.

This machine is more especially adapted
95 for the use of those who are precluded from using the more elaborate and costly kinds, as it consists of very few parts, and is of simple construction, and give sufficient power and
100 travel for the ordinary work of country shops, such as punching holes, gumming saws and other analogous uses in the working of metals, for which it is adapted.

I know very well that the moving a rigid
105 bar, by the aid of both simple and compound levers, from an oblique to a straight and parallel position; in order to produce a powerful pressure, is not new, and that in one form of the printing press, two bars, but with their upper ends movable have been so
110 used to work the platen; and therefore do not claim broadly the extension bars I, I,

for producing pressure generally when used in the manner described; but

What I do claim as my invention and desire to secure by Letters Patent, is—

- 5 The application and use of the bars I, I, in combination with the lever L, punching bar E, frusto conical rollers O, O, O, O, &c., rod G and spiral (or equivalent) spring S,

for the purposes specified; the whole being constructed and arranged, substantially in 10 the manner as herein described and set forth.

JAY H. BROWN.

Witnesses:

NATHAN CHIDESTER,
GEORGE JOHNSON.