

R. L. Barclay,

Punching Metals.

No. 97,153.

Patented Nov. 23, 1869.

Fig. 1.

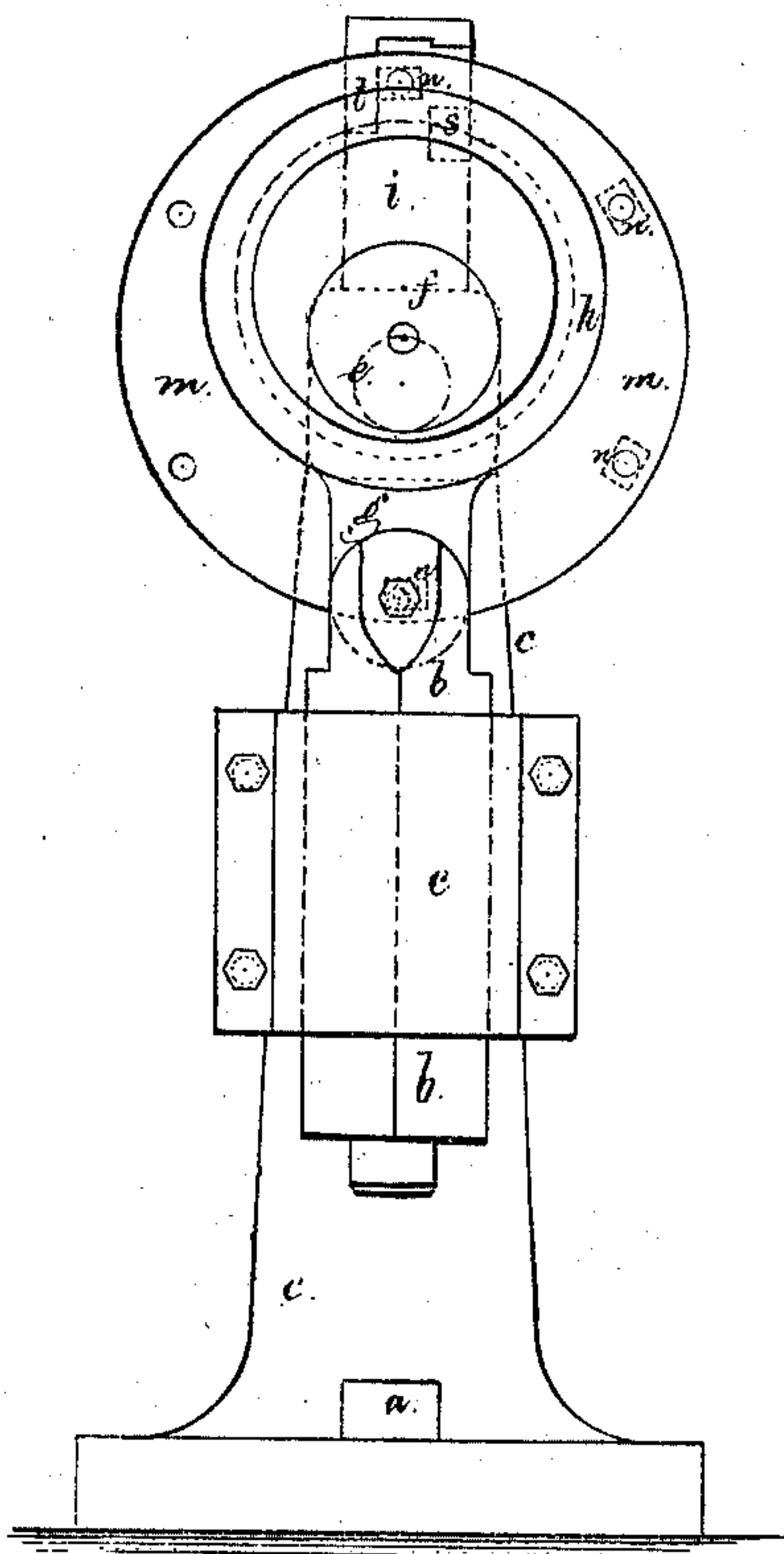


Fig. 2.

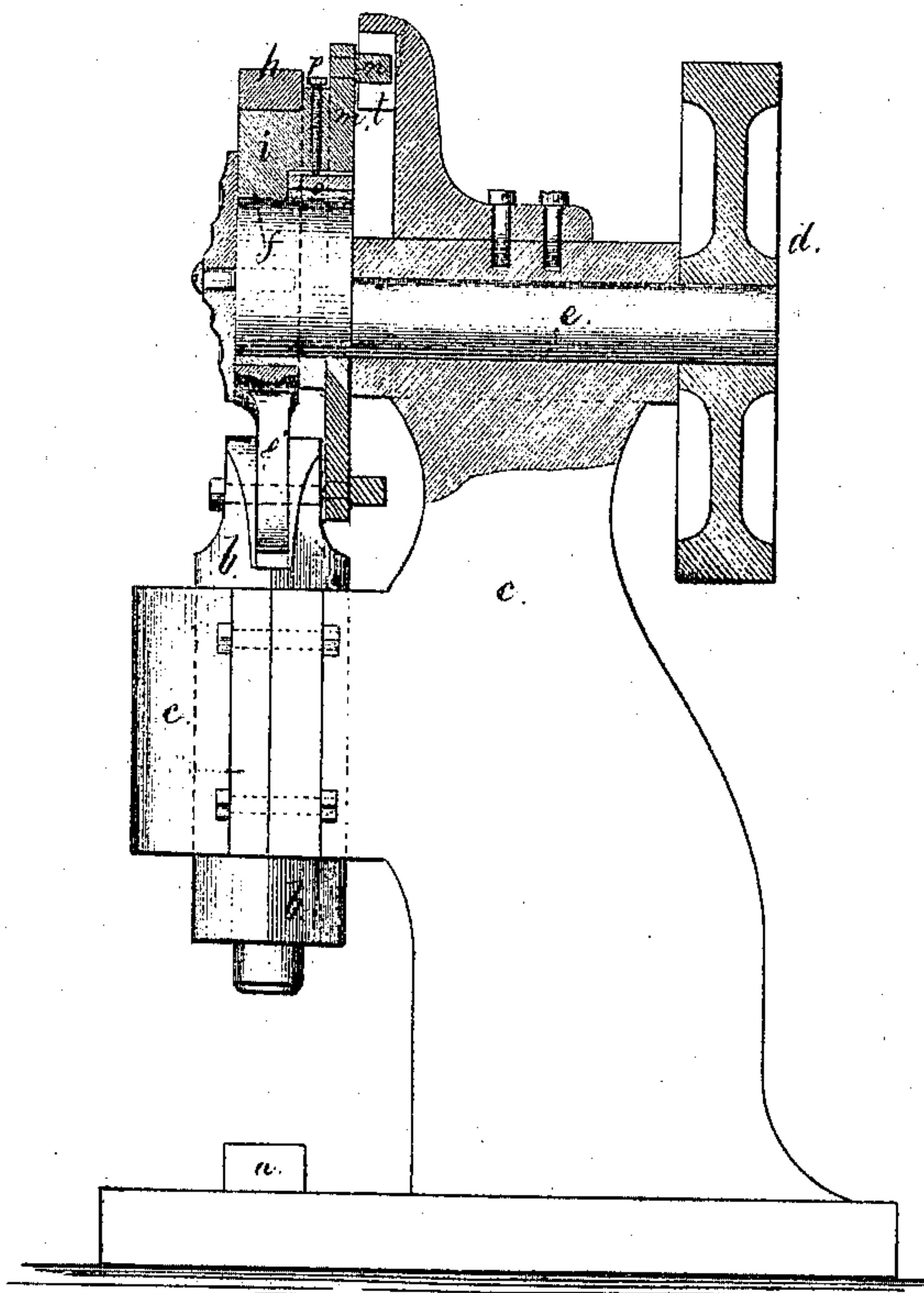
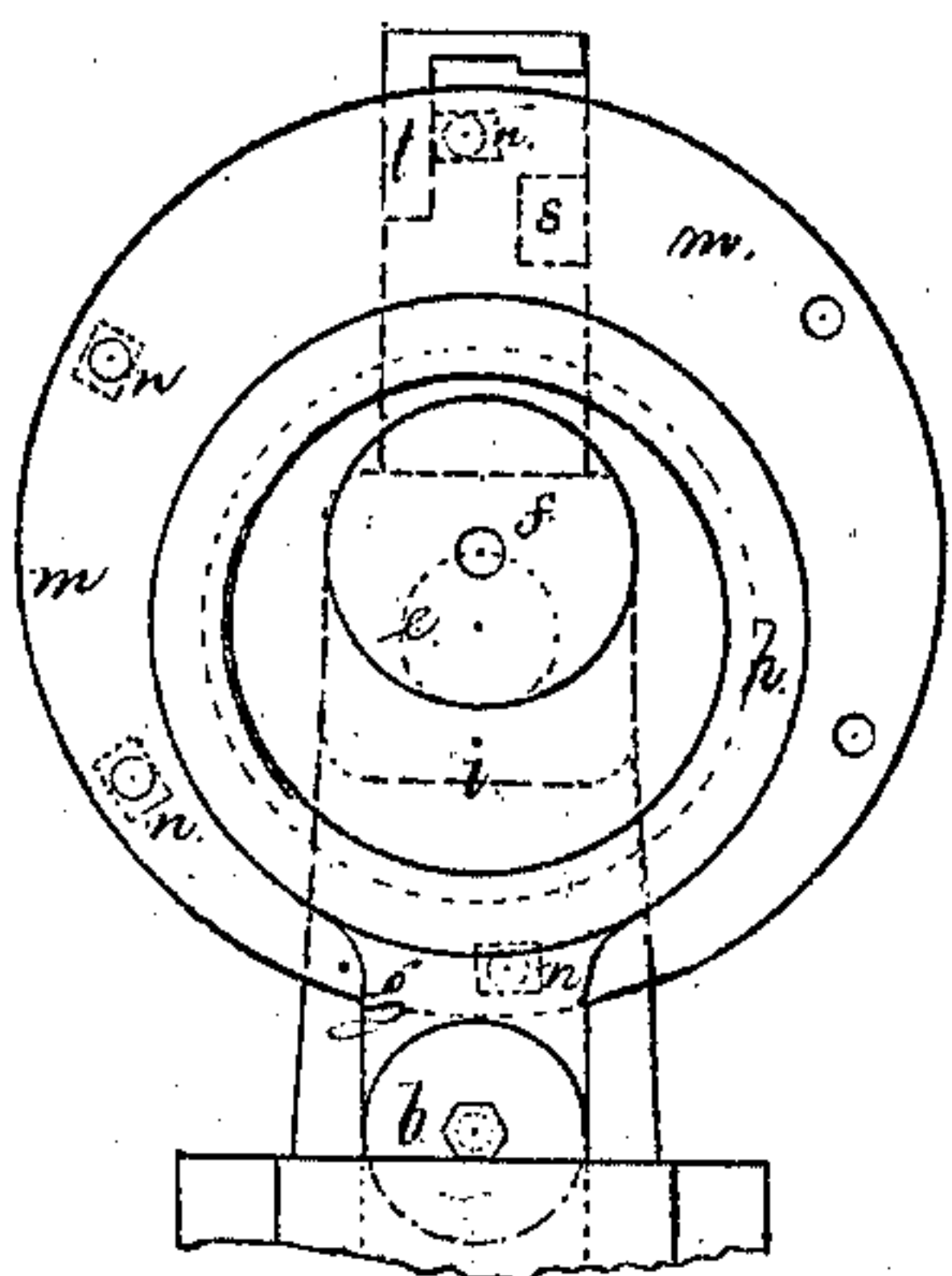


Fig. 3.



Robert L. Barclay

Witnesses

Chas. Smith

Geo. Walker

United States Patent Office.

ROBERT L. BARCLAY, OF BROOKLYN, E. D., NEW YORK.

Letters Patent No. 97,153, dated November 23, 1869.

IMPROVEMENT IN PROGRESSIVE RECIPROCATING MOTION FOR STAMPING AND OTHER MACHINES.

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, ROBERT L. BARCLAY, of Brooklyn, E. D., in the county of Kings, and State of New York, have invented and made an Improvement in Progressive Reciprocating Motion for Stamping, Forging, Mortising, and other Machines; and I do hereby declare the following to be a correct description thereof.

In machines, such as those named, a reciprocating motion is employed; in most instances, however, the variation in the thickness of the article operated upon or the extent of the operation have been regulated by moving the bed supporting the said article, and this cannot always be conveniently accomplished.

The object of this invention is to produce a progressive reciprocating motion by the action of the revolving motor itself, from which the reciprocation is obtained, so that the movement is automatic.

In the drawing—

Figure 1 is an elevation of my mechanism as applied to a bolt-machine, and

Figure 2 is a side view, partially in section, of the same.

The other figures are hereafter referred to.

a represents a die for clamping a bolt to be headed, by upsetting the metal, and spreading it in a die, and *b* is the reciprocating bar, carrying the die or hammer, and sliding through the frame *c*.

The bolt cannot usually be compressed endwise by one blow, so as to spread the head and fill the die compactly, hence several blows are required before the head is brought to the proper thickness. This renders it necessary to employ my progressive reciprocating motion, to follow up the metal as it is compressed by each stroke to a given point.

This mode of operating by a progressive reciprocating motion in a bolt-machine, is introduced to illustrate my invention, the application of the said motion in the other machines will be apparent to the mechanic.

The motive-power is applied by the wheel *d*, or otherwise, to the shaft *e*, that is supported in the upper part of the frame *c*, or in suitable bearings.

At the end of the shaft *e* is an eccentric, *f*, that gives to the bar *b* its primary reciprocation through the agency of the link or pitman *g* and ring *h*.

Between the eccentric *f* and the ring *h*, I, however, introduce a second eccentric, *i*, and a friction is applied by the plate *o* and set-screw *p*, or otherwise, so that the eccentric *i* will be revolved by the eccentric *f*, except when said eccentric *i* is held so that it cannot be revolved.

It will now be understood that when the parts stand in the position of fig. 1, the dies *a* and *b* stand furthest apart, and that if the eccentric *i* was kept

from rotating, but allowed to move up and down, the eccentric *f*, in revolving, would reciprocate the rod or die *b* the amount due to the eccentricity of *f*, regardless of the intervening eccentric *i*.

If the eccentric *i* is turned into the position of Figure 3, the dies *a* and *b* are brought more nearly together, the centres of both eccentrics *f* and *i* being below the axis of the shaft *e*.

It will now be apparent that the eccentric *i* acts to vary the action of the die or bar *b*, the same way as would be effected by lengthening or shortening the pitman *g*; hence, if the eccentric *i* is turned gradually as the reciprocation progresses, the dies will follow the metal as it is compressed, and the reciprocation be made also progressive in one direction, as the work is performed, and then the parts are brought back to the point of beginning.

This operation is performed automatically by the flange *m*, of the eccentric *i*, in which are pins *n*, and upon the upper part of the frame *c* is an escapement slot, formed by the block *s*, against which one of the pins *n* stops, as the eccentric *f* is rising, then the pin *n* escapes above the block *s*, and takes against the block *t*, and as the pin *n* is drawn down between *s* and *t*, in the slot, by the revolution of the eccentric *f*, the pin *n* escapes below *t*, and the eccentrics *i* and *f* turn together, and the next pin, *n*, stops against the block *s*, and so on.

Any number of pins *n* may be employed, and they regulate the progressive downward movement of *b*, and may also cause a progressive return movement, but if the pins are only applied to one hundred and eighty degrees of the circular flange *m*, the eccentric *i* may revolve with the eccentric *f* a half revolution, and bring the parts up to their normal position.

The rotation of the eccentric *i* may be regulated or effected by hand, or in any desired manner, to effect what is a secondary reciprocation, resulting from the said eccentric *i*.

What I claim as my invention, is—

1. The eccentric *f*, in combination with the eccentric *i* and connection *g*, arranged and operating substantially as set forth, whereby the progressive reciprocation is effected by the rotation of both eccentrics, as set forth.

2. The flange *m*, of the eccentric *i* and pins *n*, in combination with the escapement *s* *t*, and eccentric *f*, substantially as and for the purposes set forth.

In witness whereof, I have hereunto set my signature, this 25th day of September, A. D. 1869.

ROBERT L. BARCLAY.

Witnesses:

CHAS. H. SMITH,
GEO. T. PINCKNEY.