

G. WOODWARD.

Bolt Header.

No. 14,381.

Patented March 4, 1856.

Fig. 1.

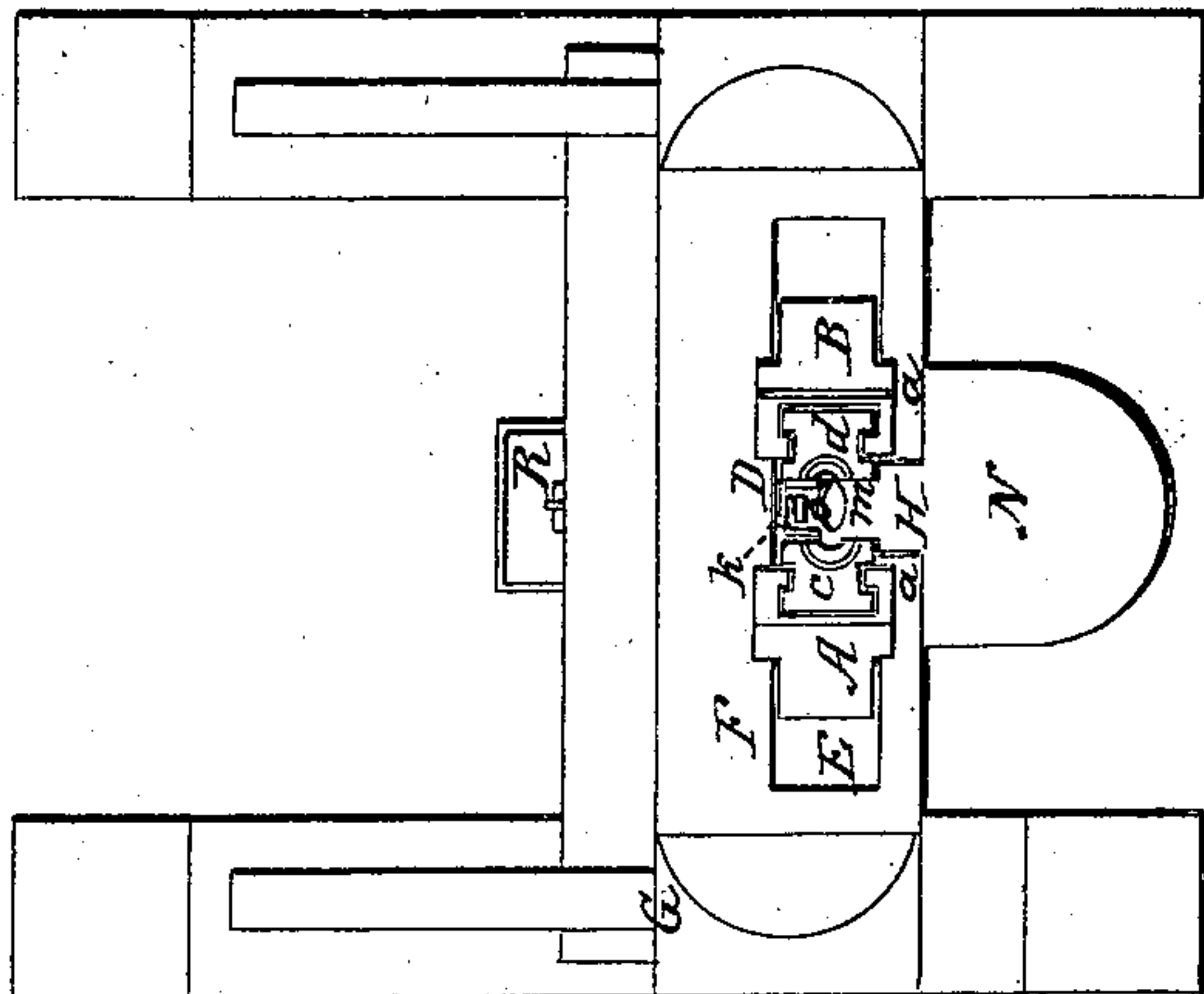


Fig. 3.

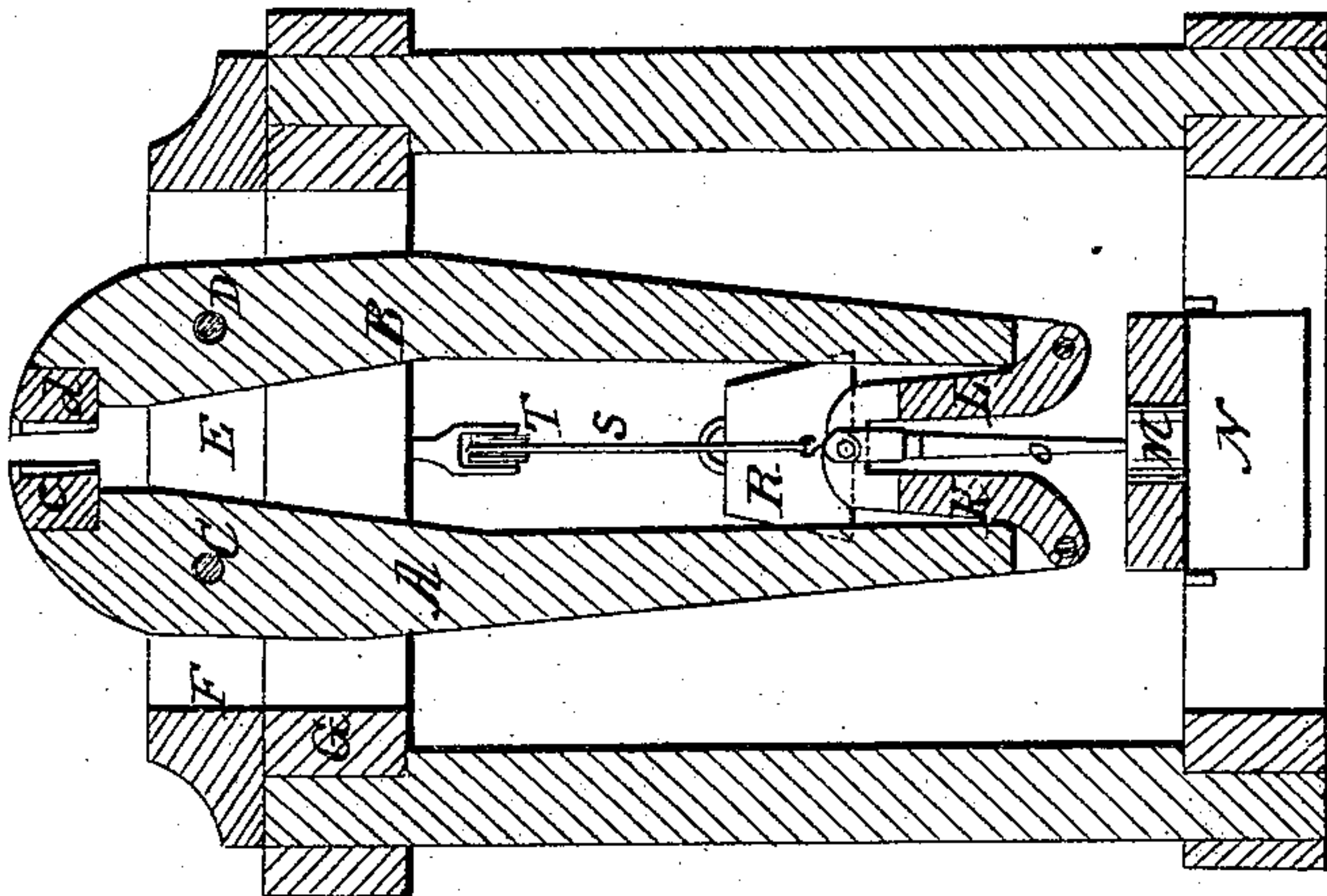
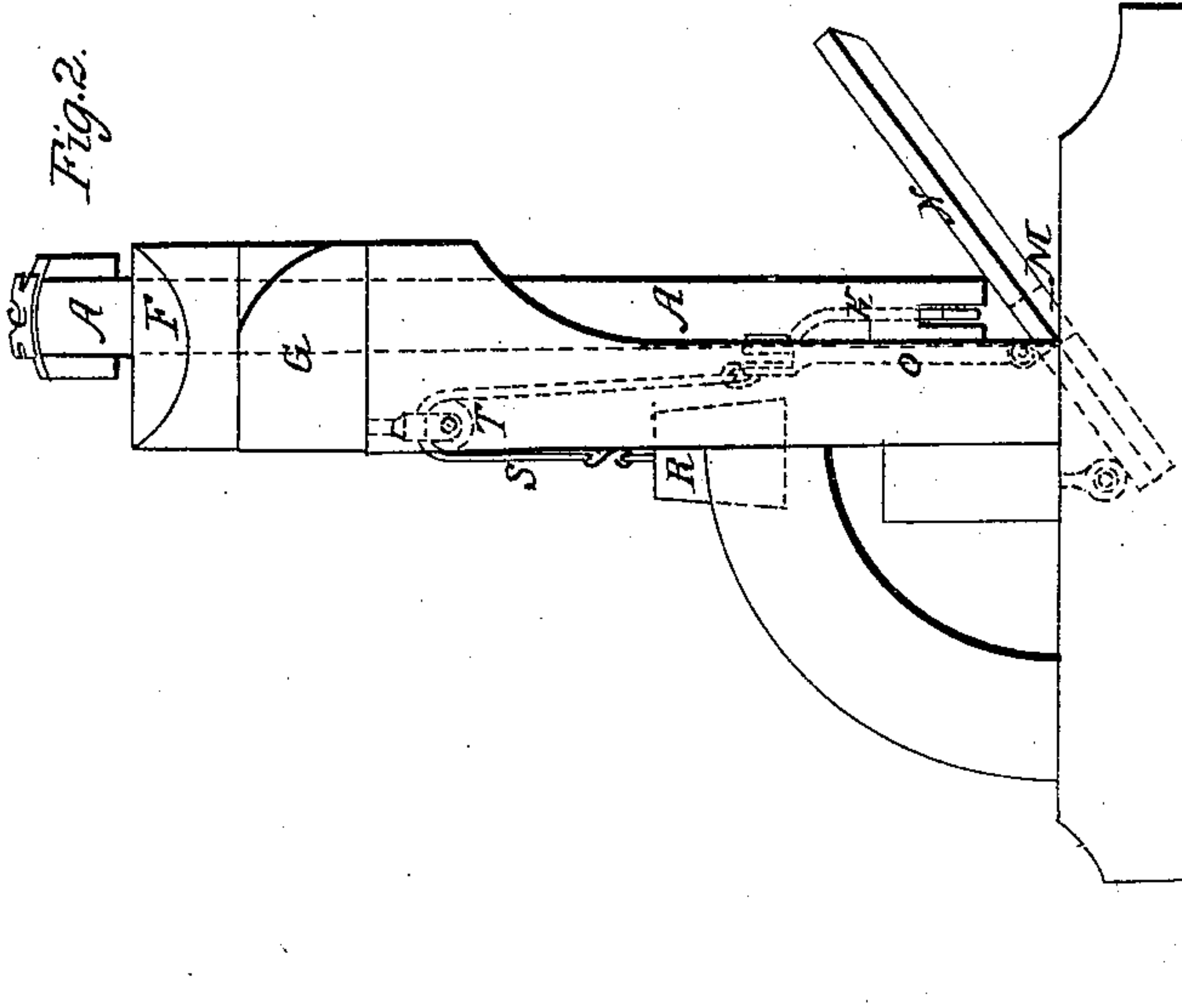


Fig. 2.



# UNITED STATES PATENT OFFICE.

GEO. WOODWARD, OF BRUNSWICK, MAINE.

## HEADING BOLTS.

Specification of Letters Patent No. 14,381, dated March 4, 1856.

*To all whom it may concern:*

Be it known that I, GEORGE WOODWARD, of Brunswick, in the county of Cumberland and State of Maine, have invented an improved machine to be used by blacksmiths for heading the long iron bolts used in the construction of navigable vessels, &c.; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a top view; Fig. 2, a side elevation; and Fig. 3 a vertical, central, and transverse section of my said improved bolt heading machine.

In the said drawings A, B, represent two levers that turn respectively on fulcra C, D. They extend down through a long vertical slot E made through a strong metallic bed or block F that is firmly fastened on the wooden frame G of the machine. There is an opening or passage H made through the side or part *a* of the block F, and into the passage E, such opening being arranged directly between the two levers. Each lever is provided or made with a suitable socket or recess in its upper end, such being for the reception and support of one of two steel jaws or blocks *c*, *d*, by or between which the bolt is grasped and firmly held during the operation of heading it. Each jaw is semi-circularly hollowed out on its inner side for the purpose of receiving the bolt, the head of the bolt being formed on the top of the jaws, and by the blows of a hammer held in the hand of a workman. The levers formed and arranged as seen in the drawings are respectively jointed at their lower ends to two toggles K, L, whose upper ends are bent backward so as to carry them entirely beyond or out of the way of a bolt placed between the jaws and extending downward by them and through a hole or passage M made through a foot treadle N. The upper ends of the said toggles are jointed together and to the upper end of a pitman O, the lower end of the said pitman

being jointed to the treadle in rear of the opening or passage M. The said passage M is to be made much larger in diameter than that of any bolt or so as to permit of the free vertical movements of the treadle without contact with the bolt when it is passed through the said passage.

A counterbalance weight R is used to open the jaws asunder. It is suspended to a cord or chain S that passes over a pulley T and is attached to the upper part of the toggles.

In heading a long bolt after the upper end of it has been heated red hot it is only necessary to pass the lower end of the bolt down through the passage M and insert the upper part of it into and through the opening H and between the jaws of the levers, the bolt being regulated to the required height or so that a sufficient portion of its upper end for the formation of the head shall project above the jaws. This done the workman places his foot on the treadle, presses it down so as to move the levers and thus confine the bolt by and between the jaws, while he alone or in conjunction with one or more others hammers down and forms a head on it.

The machine above described is a very simple and useful one for the purpose for which it is intended, it being particularly for heading long bolts.

Having thus fully described my improvement, what I claim as my invention and desire to secure by Letters Patent is—

The two oscillating shanks or levers A, B, when combined, in the manner as specified, with the suspended and bent toggles K, L, and the perforated treadle N.

In testimony whereof I have hereto set my signature this second day of August, A. D. 1852.

GEORGE WOODWARD.

Witnesses:

JOHN M. O'BRIEN,  
L. P. O'BRIEN.