

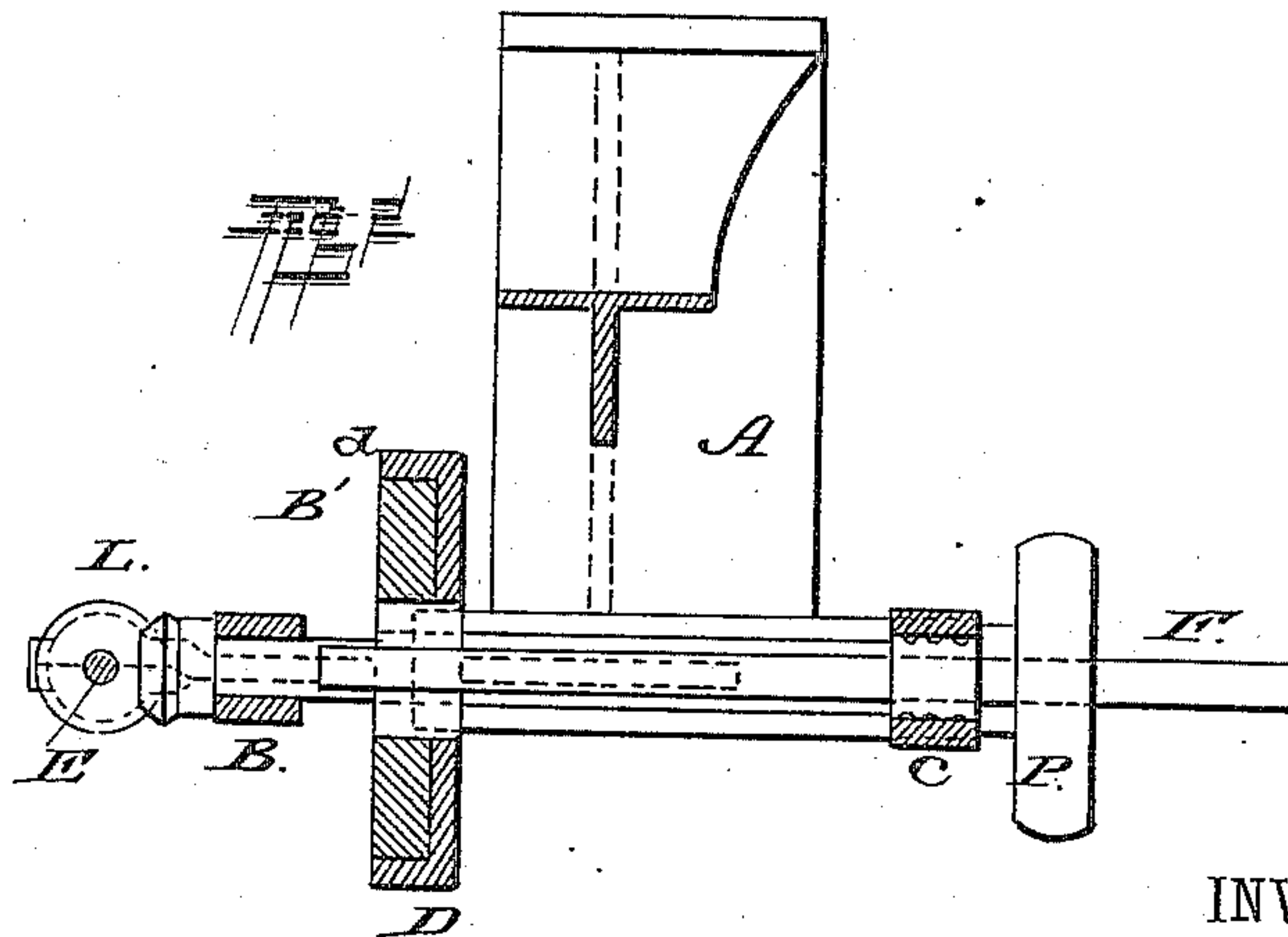
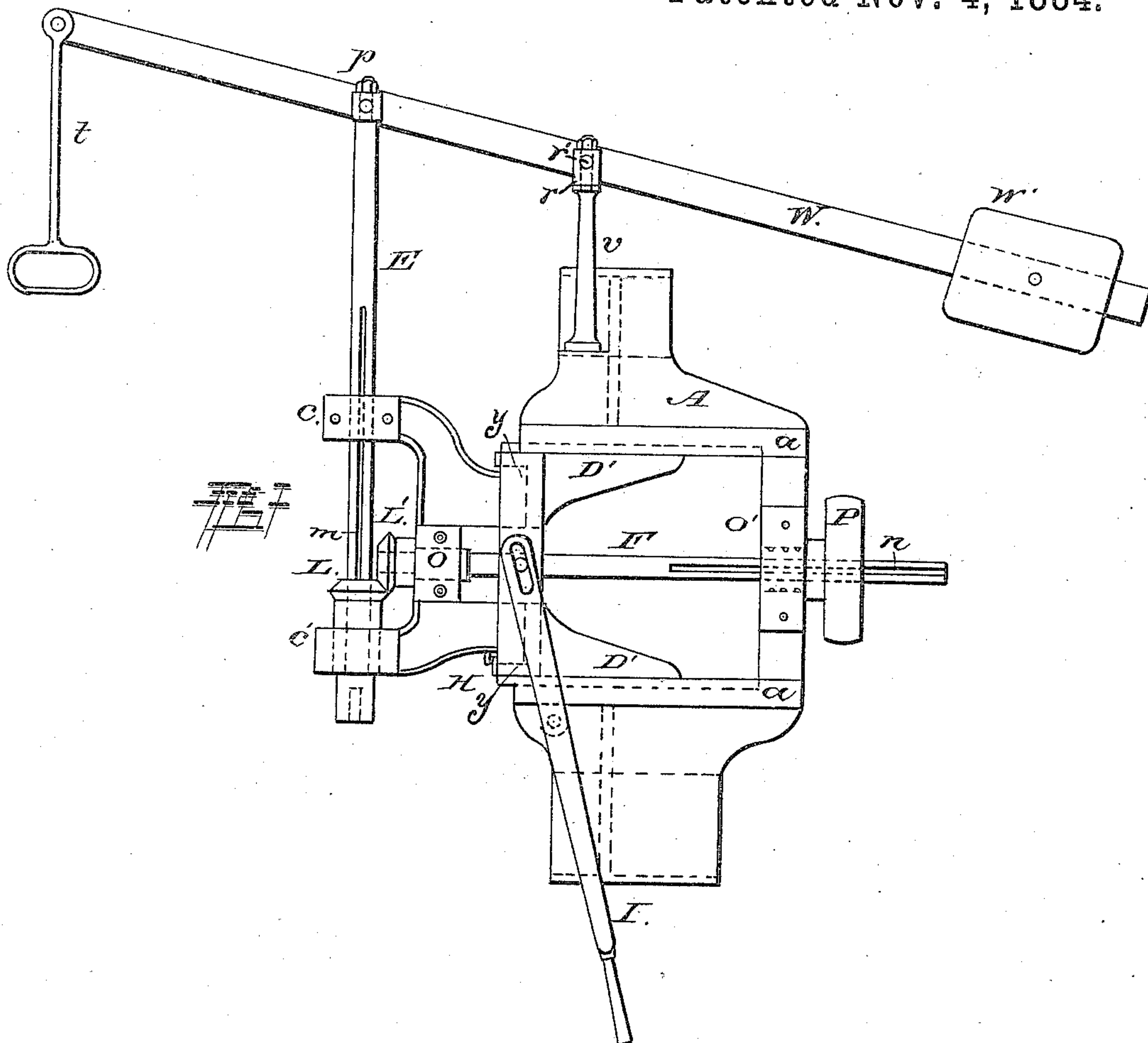
(No Model.)

4 Sheets—Sheet 1.

H. M. PERRY.
BORING MACHINE.

No. 307,680.

Patented Nov. 4, 1884.



WITNESSES:

Ad. S. Dieterich
E. J. Chandler

INVENTOR.

Hubert M. Perry

Robt Vose ATTORNEY

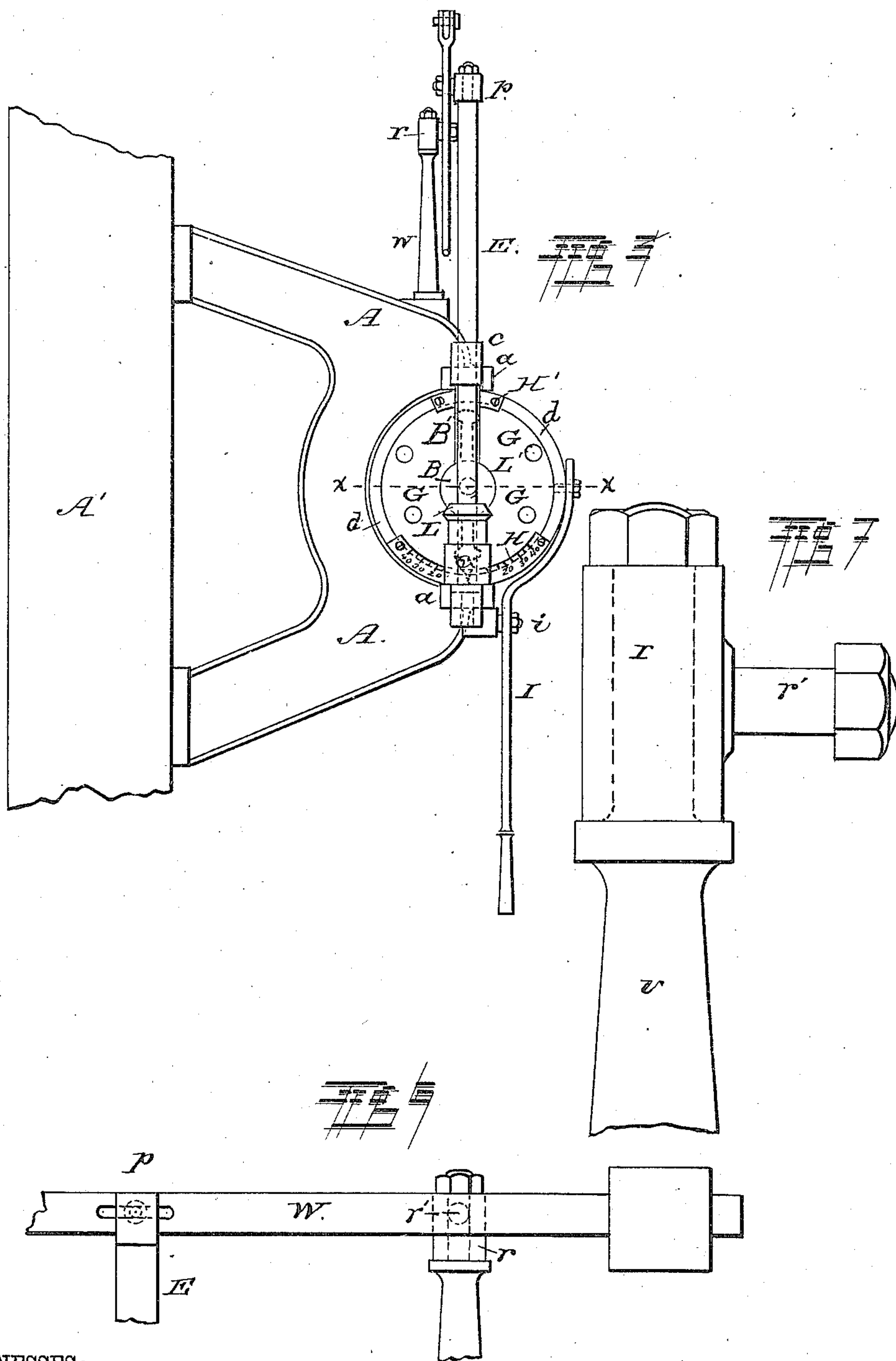
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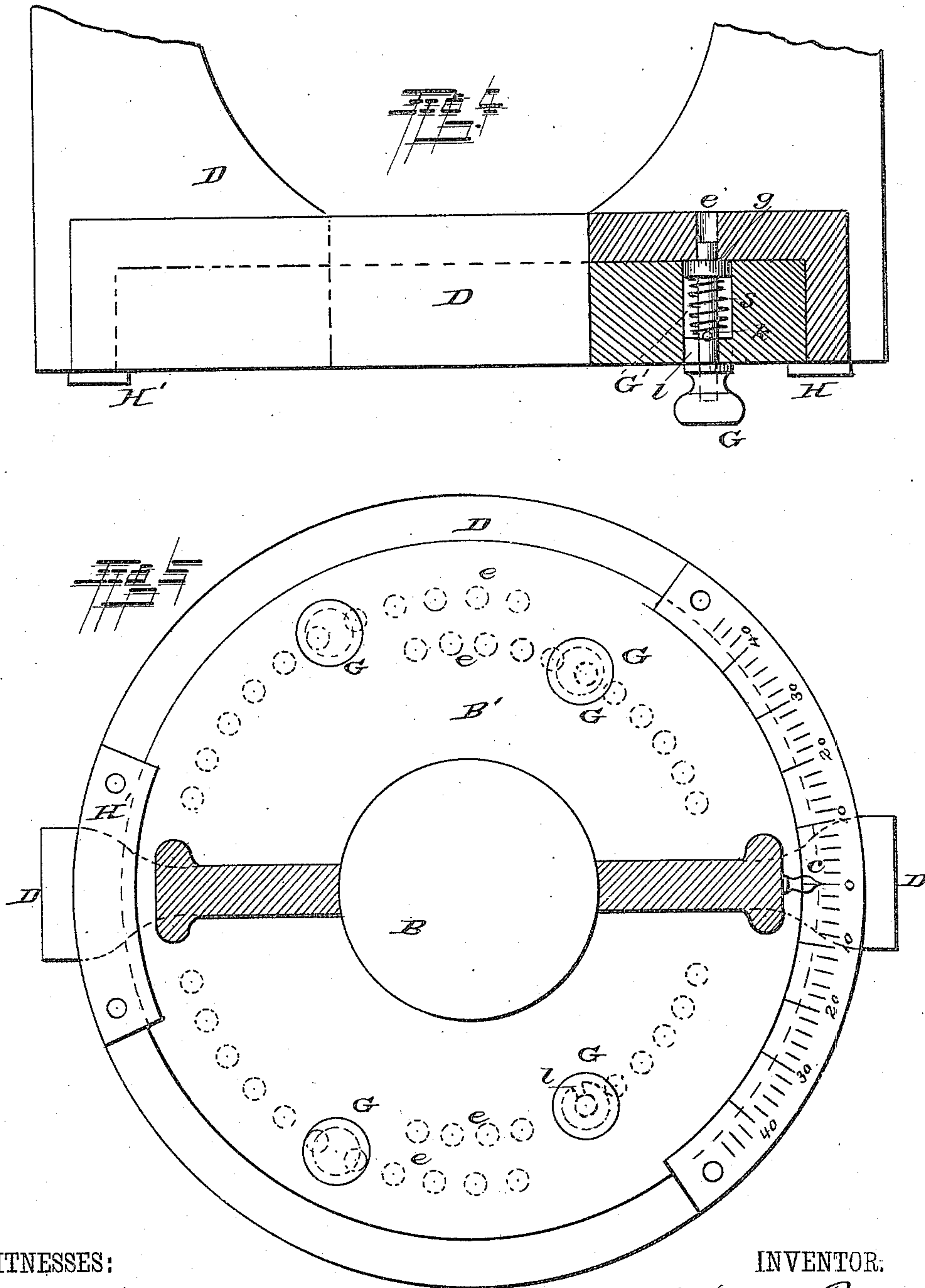
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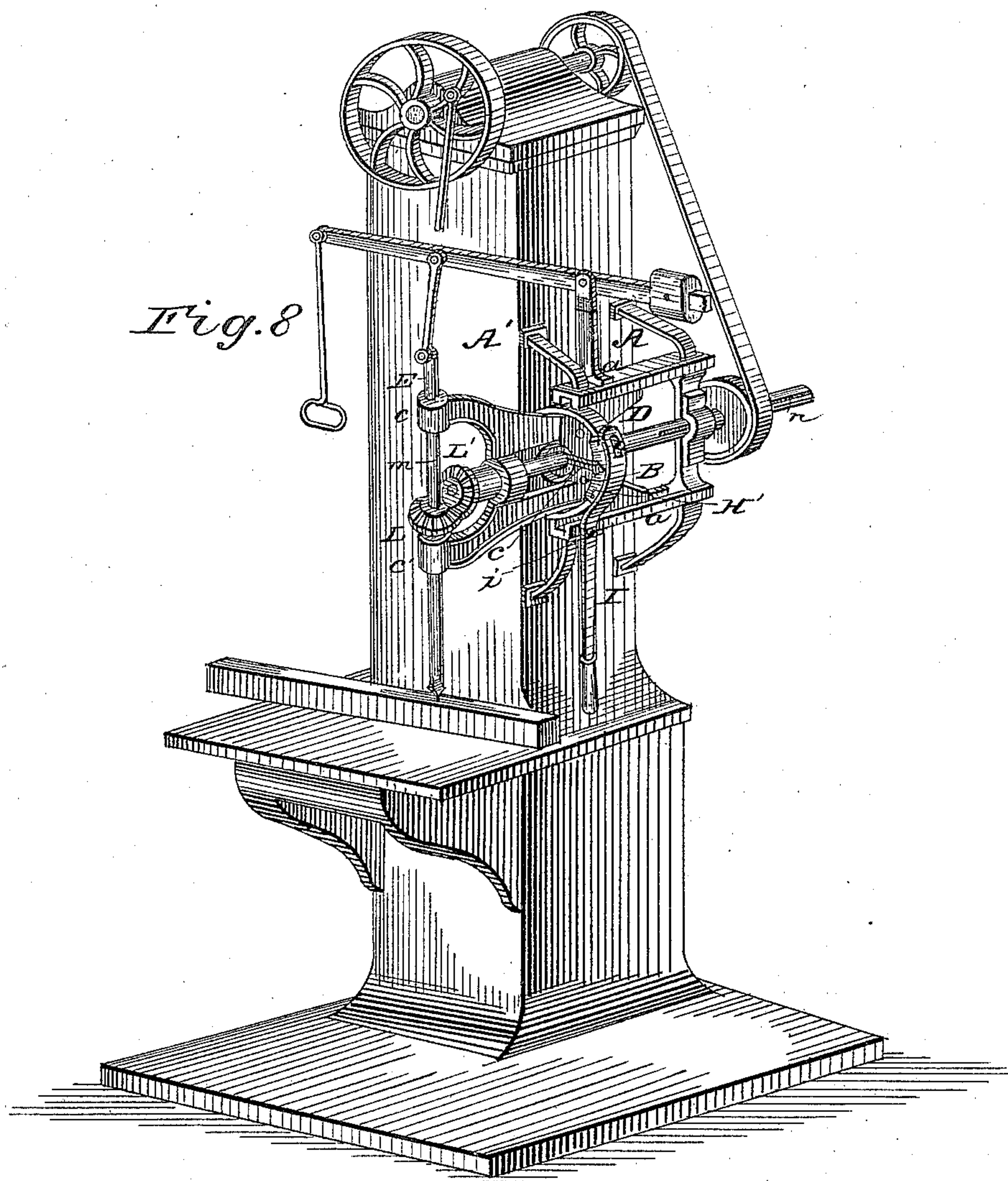
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G. F. Chandler.

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UNITED STATES PATENT OFFICE.

HUBERT M. PERRY, OF MUSKEGON, MICHIGAN, ASSIGNOR OF ONE-HALF TO
ALEXANDER RODGERS, OF SAME PLACE.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 307,680, dated November 4, 1884.

Application filed April 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, HUBERT M. PERRY, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation of the machine attached to its supporting-post. Fig. 3 is a front elevation of the same. Fig. 2 is a horizontal section on line *x x* of Fig. 3. Fig. 4 is an enlarged side view, partly in section, of the radial head. Fig. 5 is a section on the dotted line *y y* of Fig. 1, and gives an enlarged front view of the head. Figs. 6 and 7 are enlarged detail views of the connection between the operating-lever and the boring-spindle. Fig. 8 is a perspective view of the machine attached to the supporting-post of a power mortising-machine.

Heretofore it has been common in car-shops and other places where similar heavy joiner's work was performed by the aid of machinery to have the machines by which the operations of boring and mortising were performed separate from each other, thus requiring a removal of the timber being operated upon from one table to another to have the different operations performed upon it.

The object of the present invention is, therefore, to produce a boring-machine capable of boring holes at any desired angle which may be attached to a mortising-machine in such a manner that the same table shall be common to both, thus avoiding the necessity of changing the position of the work from one table to another in order to perform both operations, thus effecting a saving of time and consequent expense.

The invention consists, essentially, of a partially-rotating head provided with bearings for the boring-spindle and its driving-shaft, and attached to a face-plate upon a sliding frame, the arrangement of devices being such as to allow radial, vertical, and horizontal movements to the spindle, as will be hereinafter fully described and the novelty therein specifically pointed out in the claims.

In the drawings, A represents the main frame or bracket carrying the machine. This frame may be attached to the post A' of a mortising-machine, or, if the boring apparatus is to be used separately, to any suitable support. The projecting portion of the frame A is provided with grooved ways *a a*, for the reception of the wings D' of the sliding head D, which may be given a horizontal reciprocating movement within the ways *a* by means of a hand-lever, I, which is fulcrumed upon the pin *i*, attached to the frame A. The front of this head D is provided with a projecting lip, *d*, thus forming a recessed face-plate which receives the disk B' of the rotating head B. This disk fits snugly into the recess of the face-plate, and is retained therein by the plates H and H', which are secured to the lip *d* of the head D by screws or other suitable means, as shown in Fig. 3. One or both of these plates H H' is graduated with a scale commencing at O in the middle of the plate and increasing as it approaches either end thereof. An index or pointer, *e*, attached to the head B, enables the operator to determine the degree of inclination given to the boring-spindle.

In order to secure the disk B' in the desired position with relation to the head D, four concentric rows or series of holes, *e e*, are bored in the head and so spaced that a radial line drawn from the center of the head to its periphery could only be made to pass through the center of one hole, thus allowing the distance between two holes in the same concentric line to be divided into four parts or as many parts as there are separate rows of holes in the face-plate. By this means the pins G, forming the connection between the disk B' and head D, may be of good size and strength, still maintaining a finely-graduated movement of the disk upon the face-plate. These pins G, equal in number to the rows of holes in the face-plate, pass through a recessed orifice, G', in the disk, and are provided with a collar, *g*, which moves freely in the orifice G' and carries a spring, *s*, which is coiled around the pins and tends continually to force them toward the face-plate, so that, in turning the disk, whenever one of the pins comes opposite a hole in the face-plate it is instantly forced

therein by the spring, thus locking the disk and face-plate firmly in their relative positions. It will also be observed that, owing to the arrangement of the holes in the several rows, but one pin can enter a hole in the face-plate at the same time.

In order to afford a means of holding the pins G back, so that the disk and plate may move freely upon each other, a pin, *k*, is inserted in one side of the pin G, back of the spring, and a slot, *l*, formed in the side of the orifice in the disk through which the pin G passes. Thus when it is desired to withdraw said pin it is turned until the pin *k* can be drawn out through the slot *l*, when, upon turning it still farther, the pin *k* will rest upon the outside of the disk and effectually prevent the locking of said disk to the face-plate when they are rotated upon each other. The boring-spindle E revolves and slides in the journal-boxes *c c'*, attached to the head B. In order to give it its rotary motion, it is passed through a bevel-gear, L, which rests upon the lower journal-box, *c'*, and gives motion to the spindle by means of a feather-key engaging with the spline *m*, formed in one side of said spindle. The gear L is rotated by a similar gear, L', secured to one end of the shaft F, which revolves in the journal-boxes O and O', the first of which is attached to the head B and the last to the main frame A. This shaft F also has an endwise movement with the head B, imparted to both shaft and head by the hand-lever I. Thus the gears L and L' are always engaged and a movement of one is communicated to the other.

In order to rotate the shaft F when desired, a pulley, P, is placed thereon, which pulley is provided with a feather-key acting in the spline *n* of the shaft. It will be apparent that by this construction the shaft F may have an endwise movement with the head B without disturbing the devices by which it is rotated.

In order to give a vertical movement to the boring-spindle, it is attached to the lever W by a loose collar, *p*, which revolves on the spindle, and is provided with a stud at one side, that passes through a slot in the lever. This lever is fulcrumed upon the standard V, which carries a loose collar, *r*, provided with a stud, *r'*, at one side, upon which the lever is pivoted, the whole forming a perfect universal joint, thus giving to the boring-spindle free vertical and lateral movement.

To one end of the lever W is attached a rod, *t*, the lower end of which forms a loop, making a convenient hand-hold for the operator, by which he is enabled to control the move-

ments of the boring-spindle. A weight, W', adjustable upon the lever W, serves to balance the weight of the boring-spindle and its attachments, thus rendering their manipulation much more convenient.

The operation of the machine will be readily understood from the above description of its construction.

I am aware that mortising and boring mechanisms have been heretofore connected. Especially has this been the case in machines designed for mortising hubs and other wheelwright's work.

I am also aware that machines for boring and drilling metals have been so constructed as to allow the boring-bar to be placed at different angles with relation to the material operated upon. I do not, therefore, broadly claim a boring and mortising machine united for joint operation; but

What I do claim as my improvements in such machines is—

1. In a boring-machine, the combination of the supporting-bracket A, provided with ways *a a*, the sliding head D, sliding in said ways, and the rotating head B, pivotally attached to said sliding head and carrying the boring-spindle E, all arranged and operating as described.

2. In a boring-machine, the combination of the bracket A, provided with ways *a a*, the sliding head D, having wings D', sliding in said ways, the rotating head B, pivotally attached to the sliding head and provided with disk B', and means, substantially as described, for adjustably securing the head and disk together, and the hand-lever I, for imparting a reciprocating movement to the heads, as set forth.

3. In a boring-machine, the combination of the sliding head D, provided with a recessed face-plate having two or more concentric rows of holes, arranged as described, and the rotating head B, having disk B', provided with spring-pins to secure the face-plate and disk in certain relative positions, as specified.

4. In a boring-machine, the combination of the sliding head D, provided with a recessed face-plate and graduated arc, and the rotating head B, carrying disk B', provided with index *c*, and means, as shown and described, for adjustably connecting the heads at any desired angle.

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

HUBERT M. PERRY.

Witnesses:

D. McLAUGHLIN,
A. C. McLAUGHLIN.