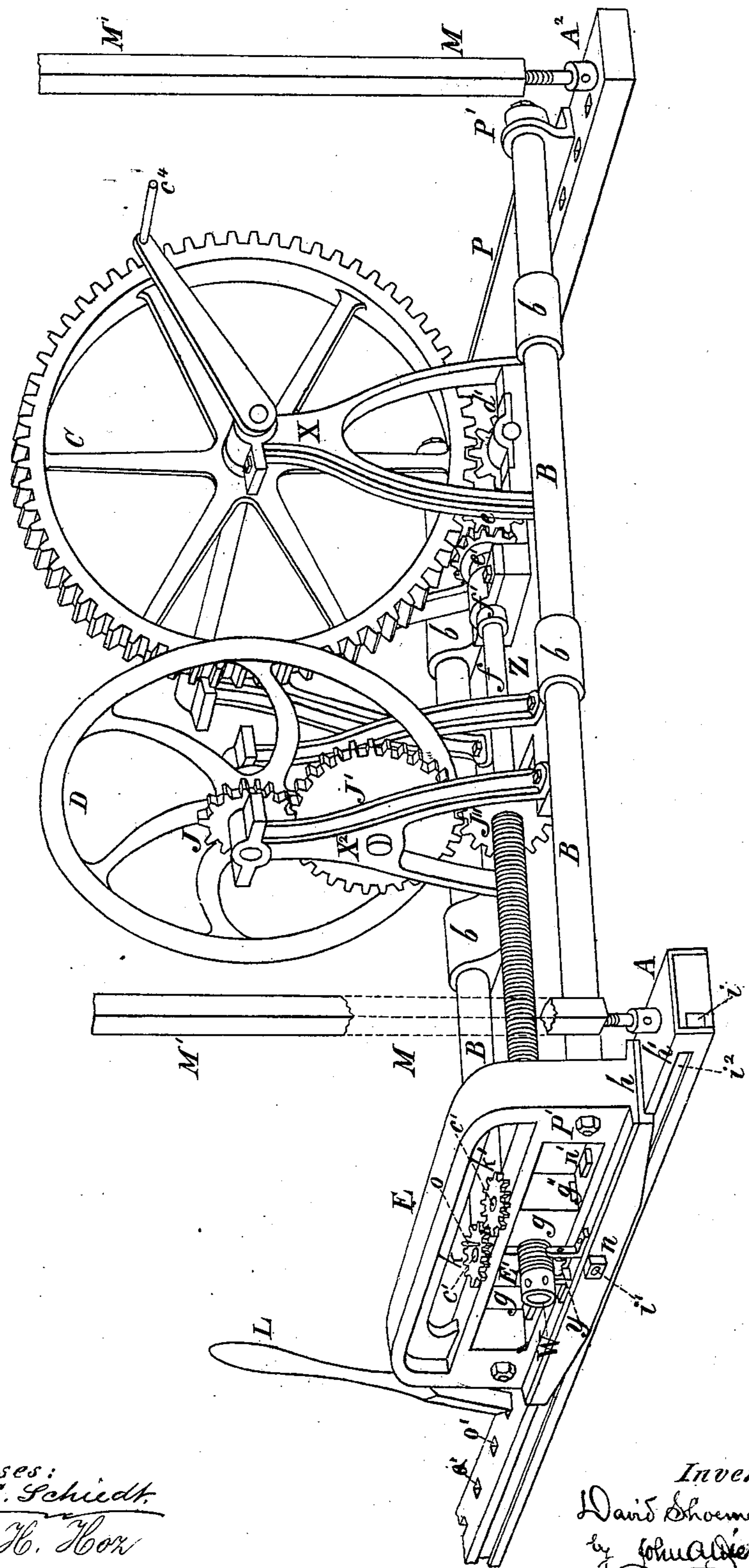


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**Coal-Boring Machines.**

No. 142,950.

Patented September 16, 1873.

*Fig. 1.*



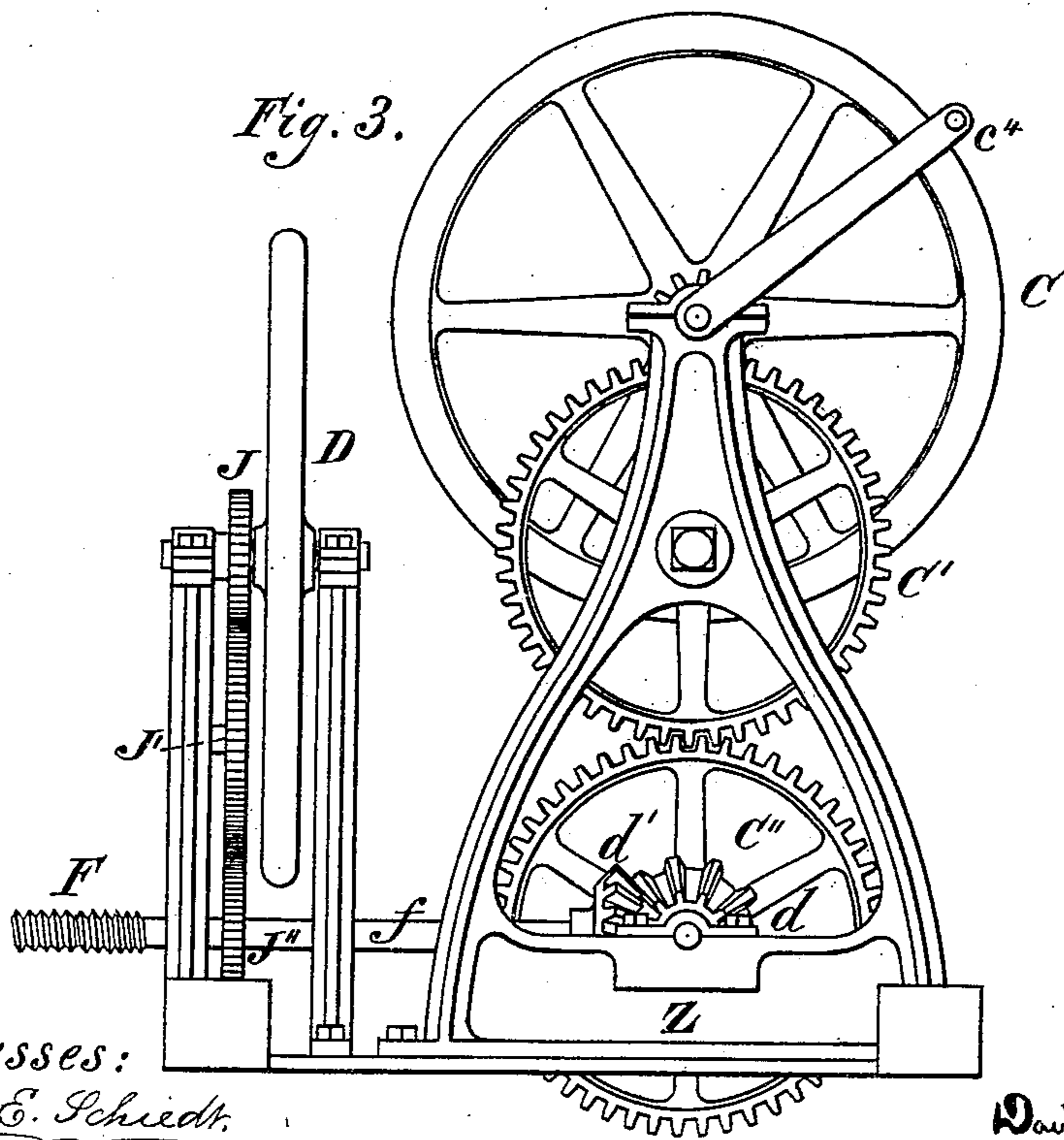
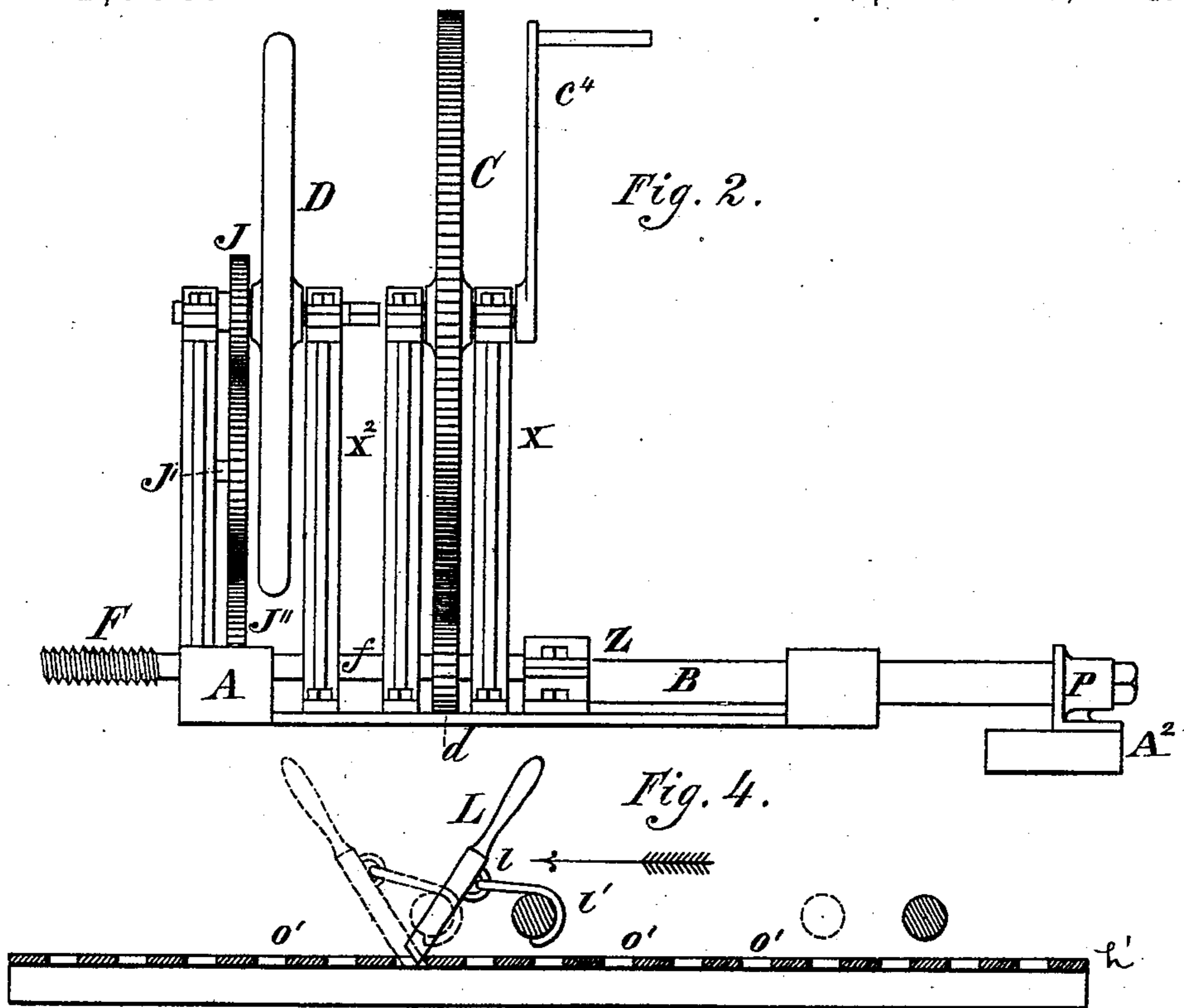
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Fig. 5. Patented September 16, 1873.

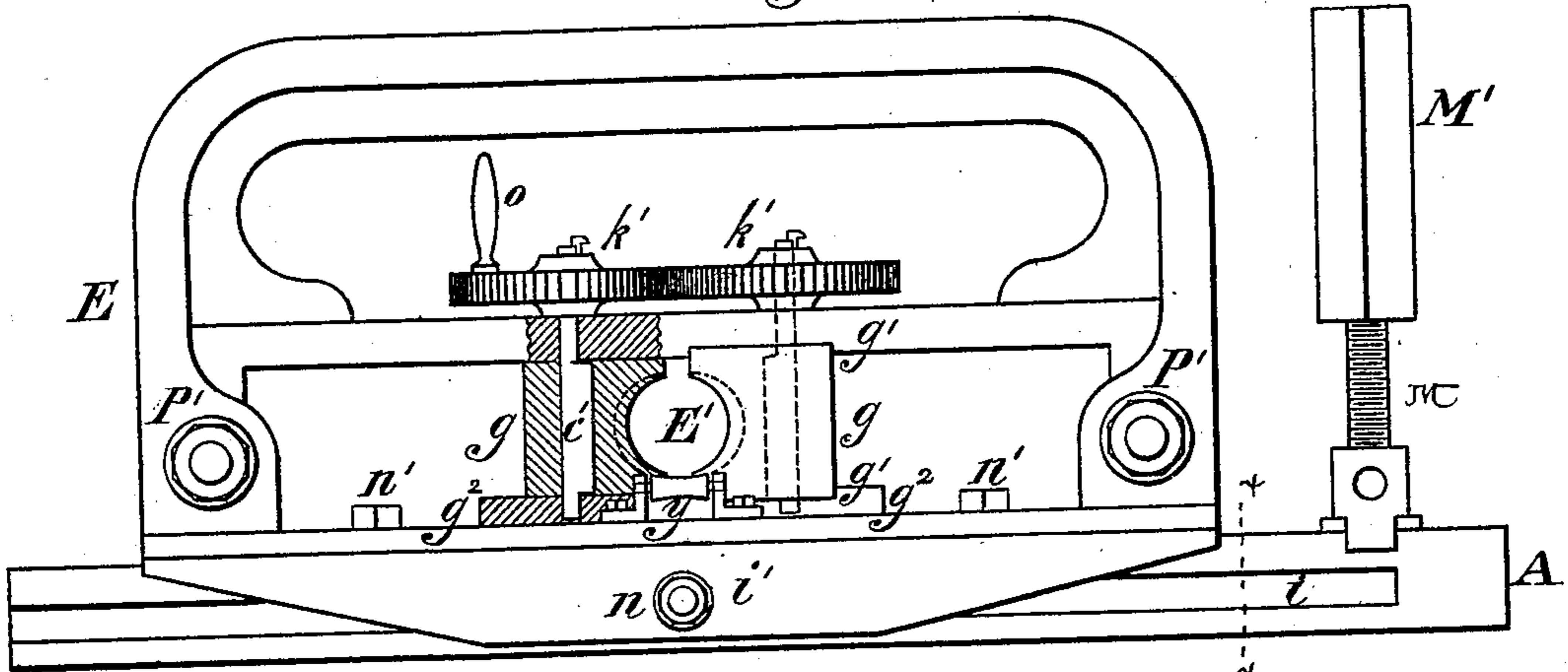


Fig. 6.

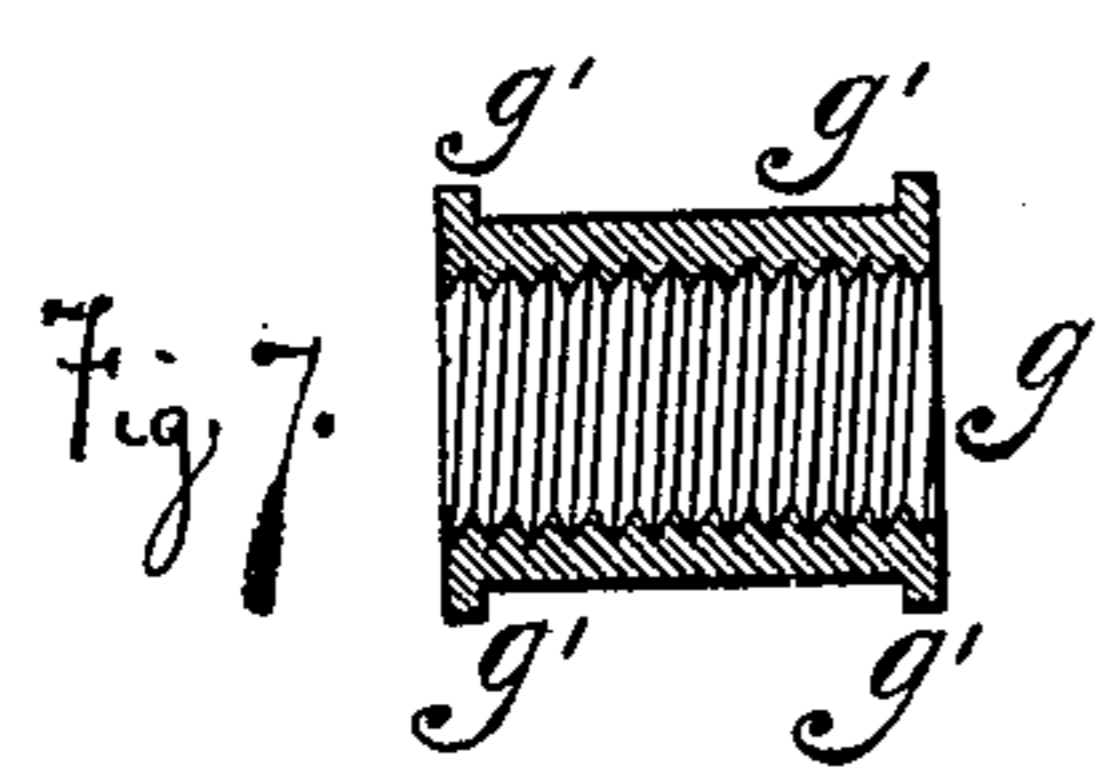


Fig. 7.

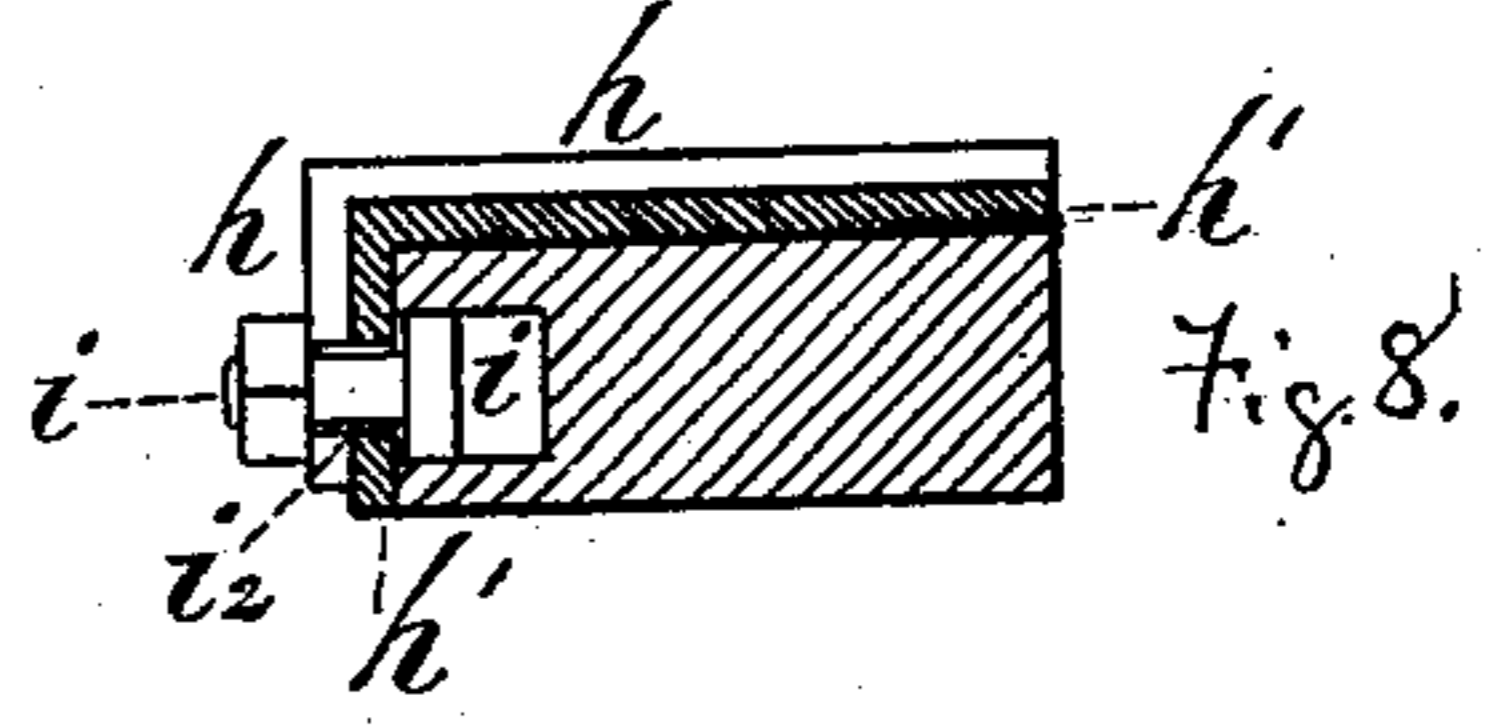
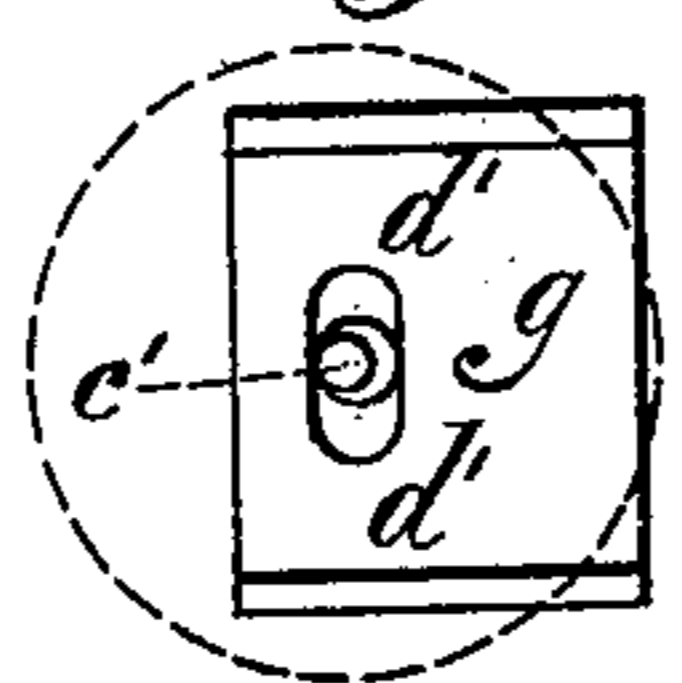


Fig. 8.

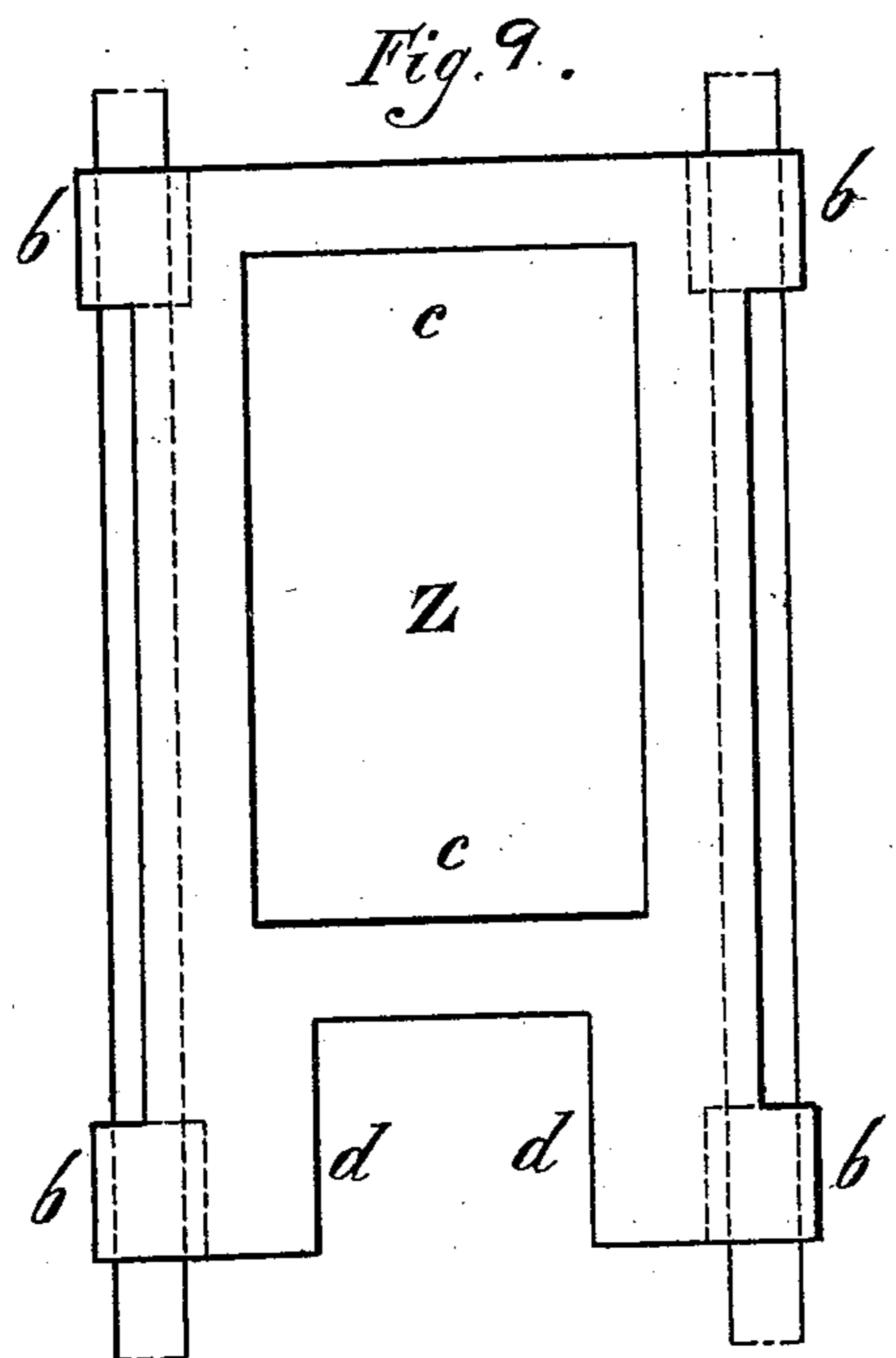


Fig. 9.

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# UNITED STATES PATENT OFFICE.

DAVID SHOEMAKER, OF KITTANNING TOWNSHIP, ARMSTRONG COUNTY,  
ASSIGNOR OF ONE-HALF HIS RIGHT TO G. A. REICHERT, JR., OF MAN-  
ORVILLE, AND JOHN HORN REICHERT, OF PHILADELPHIA, PA.

## IMPROVEMENT IN COAL-BORING MACHINES.

Specification forming part of Letters Patent No. **142,950**, dated September 16, 1873; application filed  
May 15, 1873.

*To all whom it may concern:*

Be it known that I, DAVID SHOEMAKER, of Kittanning township, in the county of Armstrong and State of Pennsylvania, have invented new and useful Improvements in Apparatus for Boring Coal and other minerals; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a perspective view of the device embodying my invention. Figs. 2 and 3 are side views of portions thereof, the gearing being differently arranged. Fig. 4 is a front view of a detached portion, partly in section. Fig. 5 is a front view of the housing, the parts therewith, the front sill, and one of the holding-screws. Fig. 6 is a top view of one of the bisected nuts. Fig. 7 is an inside view thereof. Fig. 8 is a longitudinal section in line  $xx$ , Fig. 5. Fig. 9 is a top view of the carriage.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a sliding carriage, which is advanced by the rotation of the bit-carrying screw, whose operating mechanism is mounted on said carriage. It also consists in a bisected nut for throwing the screw in and out of gear. It also consists in mechanism for opening and closing the parts of the nut. It also consists in the screw, its gearing, and a regulator operating upon and moving with the supporting-carriage. It also consists in means for lateral adjustment of the boring apparatus. It also consists in the construction of the sill for the attachment of the housing. It also consists in the construction of the carriage and gearing, without interfering with the free movements of the former. It also consists in the construction of the various parts to permit the lateral movement of the whole apparatus.

Referring to the drawings, A represents the

front sill, and  $A^2$  the rear sill, which are arranged transversely, and support the working parts of the device. B B represent two bars or rods, which extend longitudinally, and are connected, respectively, to a support, P, on the sill  $A^2$  and a portion of a housing, E, which is arranged on the sill, suitable nuts or other fastenings  $P^1$  being provided for securing the bars in place. On the bars B there is mounted a carriage, Z, which consists of a suitable frame-work, and has at its sides or corners bosses or sleeves,  $b b$ , through which pass the bars B, longitudinal motions of the carriage being permitted on the bars. From the carriage Z there rise standards  $x x^2$ , and on the standard  $x$  there is mounted a driving-wheel, C, which meshes with a spur-wheel  $d'$ , whose shaft carries a bevel-wheel,  $e$ , which gears with a similar bevel-wheel,  $e'$ , mounted on a longitudinally-arranged shaft,  $f$ . This shaft has its bearings at one end in a box,  $f'$ , on a corresponding part of the carriage Z, and its other end carries a toothed wheel,  $J''$ , which engages with a wheel,  $J'$ , the latter engaging with a wheel, J, both of which have their bearings on the standard  $x^2$ . D represents what I call the regulator, whose axis is on the standard  $x^2$ , and receives motion from the shaft  $f$  through the intermediate gearing  $J''$ ,  $J'$ , and J. F represents a screw-shaft, which is a continuation of the shaft  $f$ , and extends toward and through the housing E. The housing consists of a frame, preferably of metal, and is located on the front sill A. This housing carries two sliding pieces,  $g g$ , which are cut away semi-cylindrically on their internal faces, and such portions are screw-threaded to correspond to the screw-shaft F, so that the pieces  $g$  may be said to constitute a bisected nut,  $E'$ . Transverse sliding motions in opposite directions are imparted to the pieces  $g$ , so that they simultaneously advance to or recede from each other by means of vertical eccentric shafts  $c' c'$ , which pass through slots or openings  $d'$  in the body of the pieces  $g$ , and are mounted in suitable portions of the housing E. These shafts  $c' c'$  are geared to each other by wheels