

(No Model.)

L. M. WOODCOCK.
AXLE SETTING MACHINE.

No. 308,725.

Patented Dec. 2, 1884.

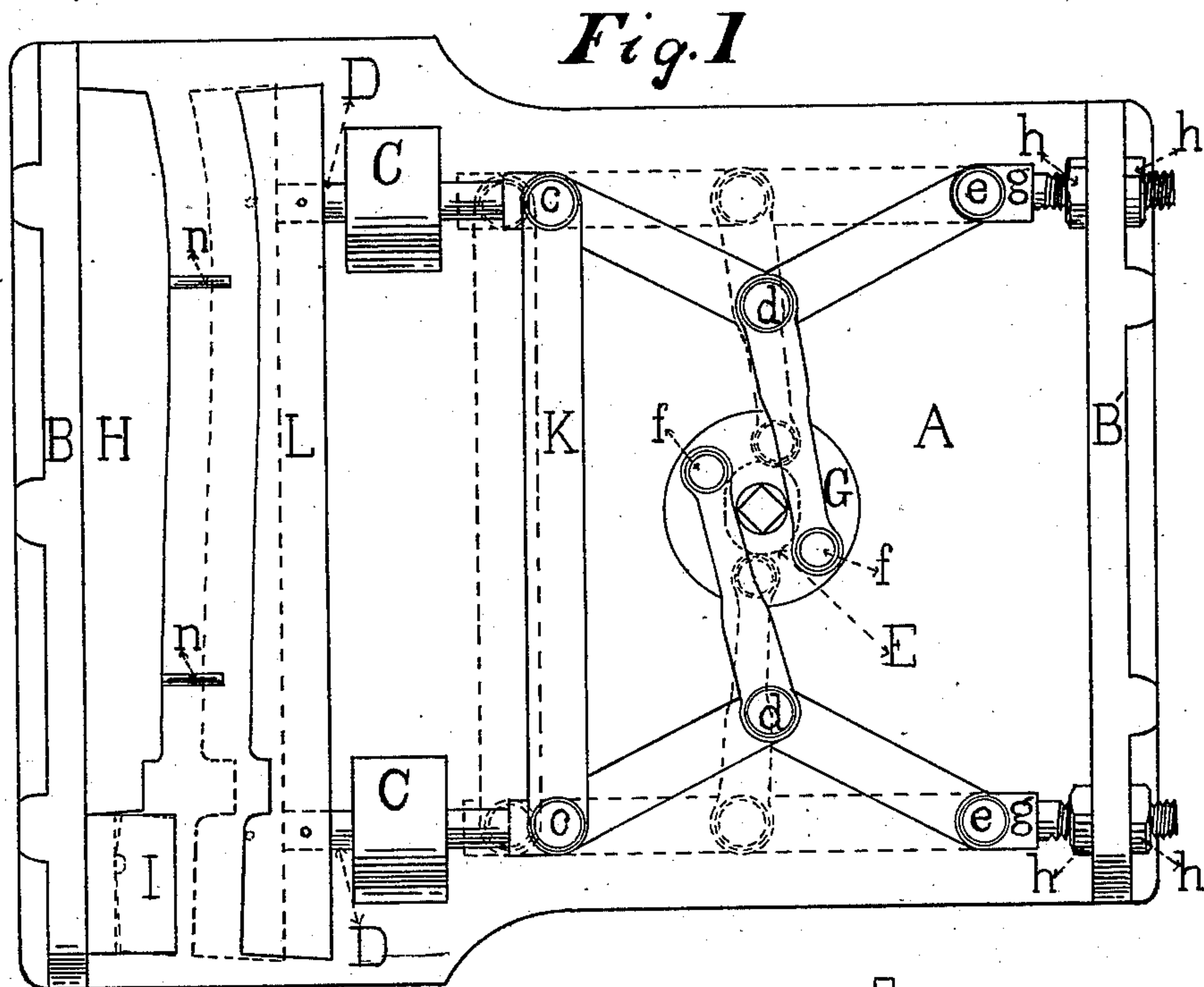


Fig. 6
Fig. 5

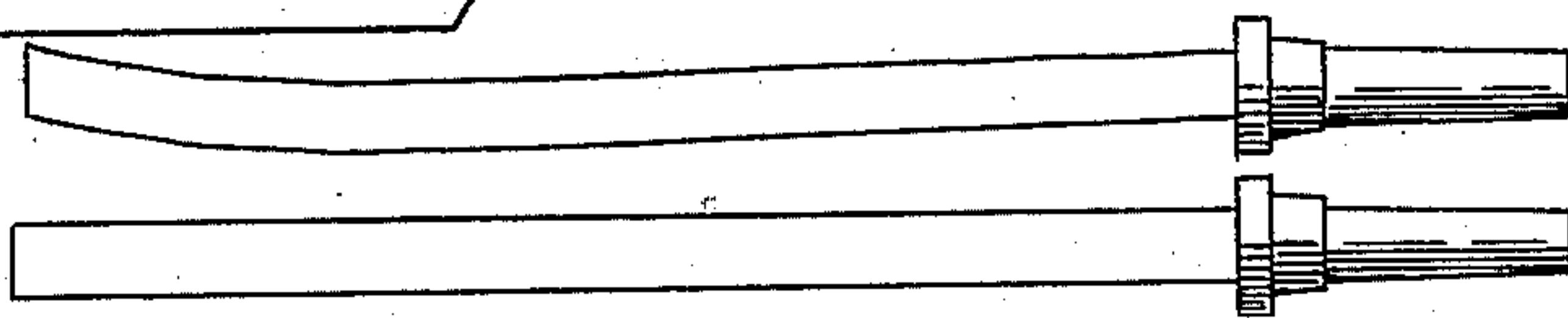


Fig. 4

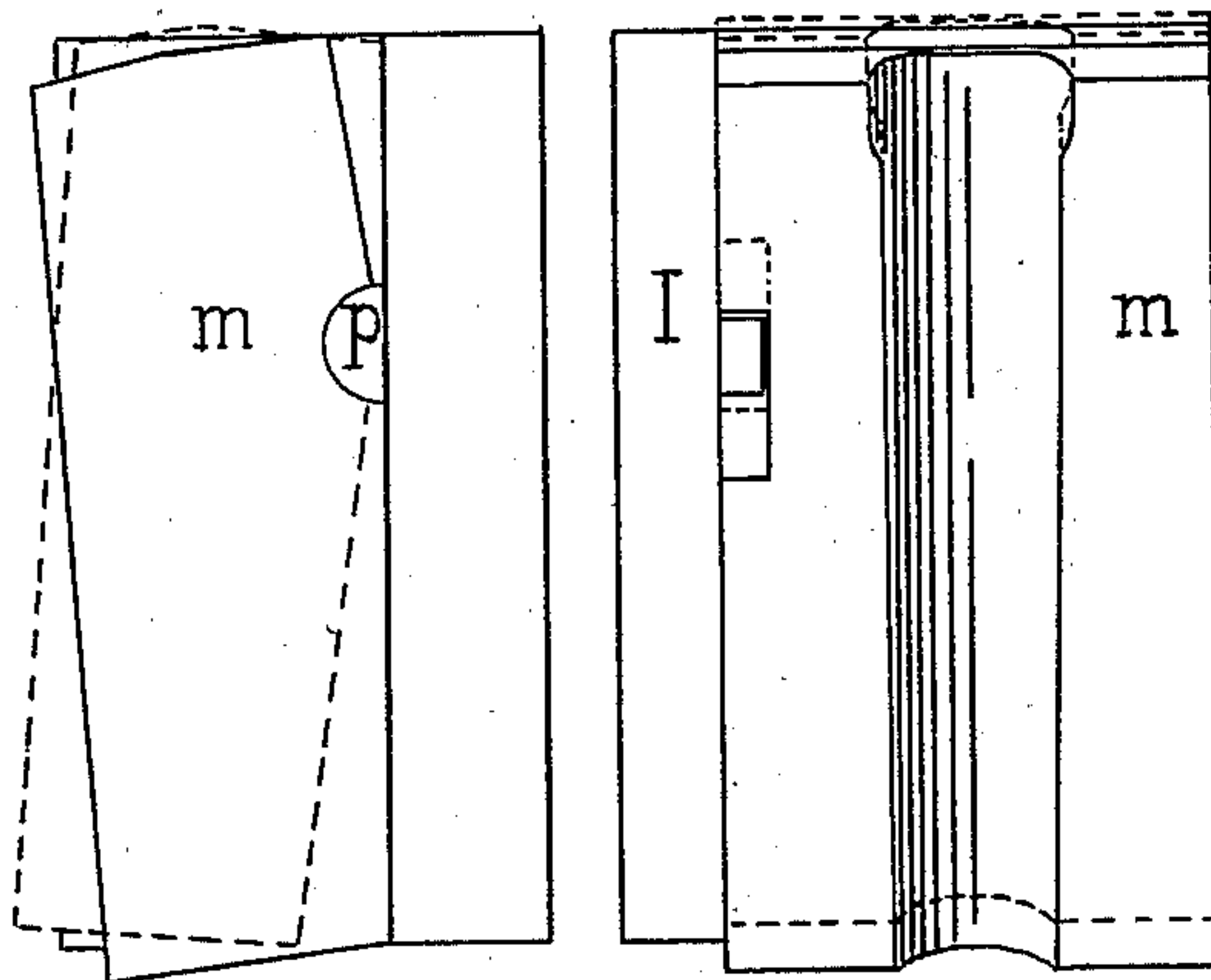
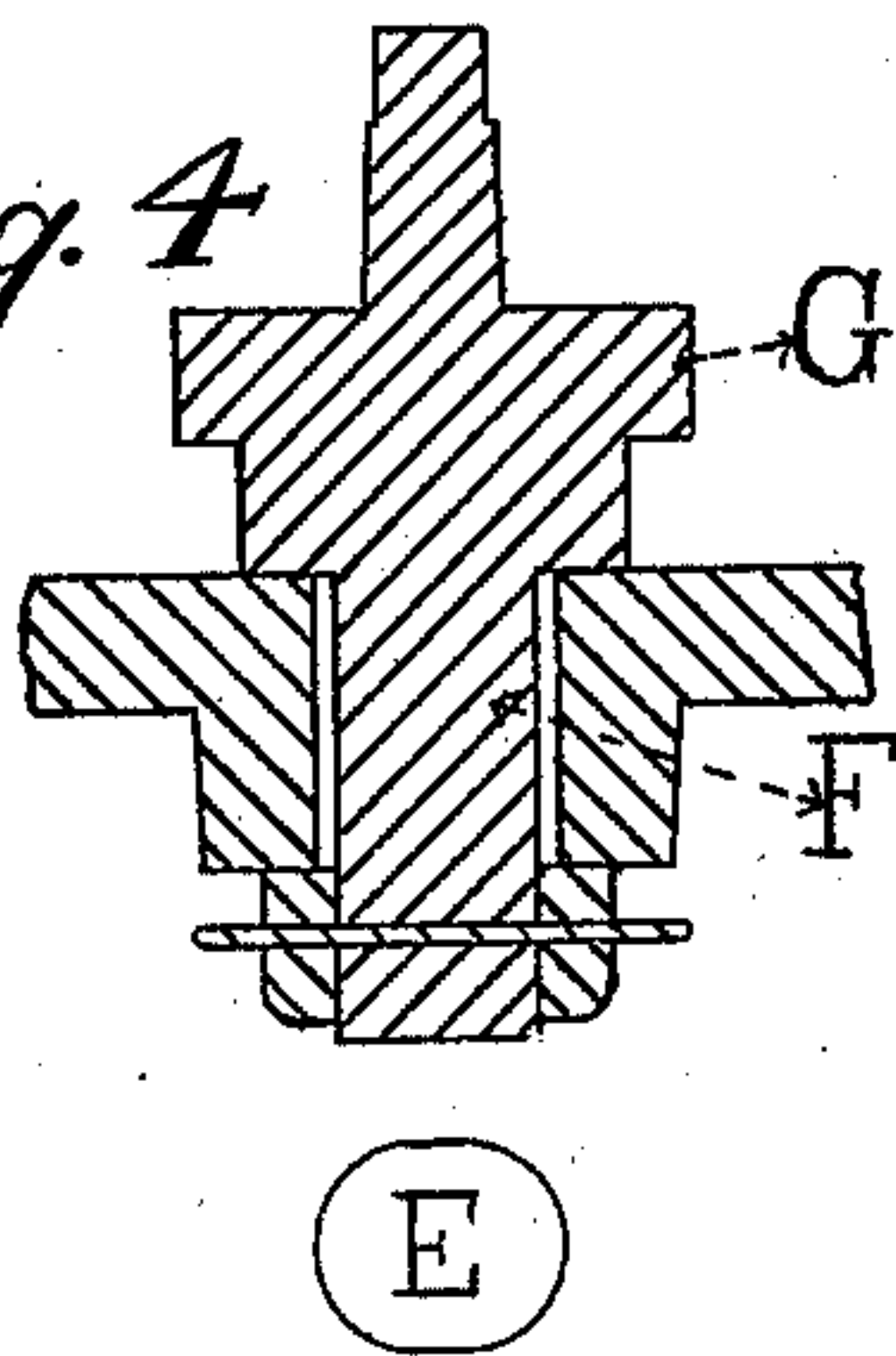


Fig. 2

Fig. 3

Witnesses.
George Lindemund
William R. Allen.

Inventor.
Leonard M. Woodcock.
by Frederick J. Allen.
Attorney.

UNITED STATES PATENT OFFICE.

LEONARD M. WOODCOCK, OF AUBURN, NEW YORK.

AXLE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,725, dated December 2, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEONARD M. WOODCOCK, of Auburn, Cayuga county, State of New York, have invented certain new and useful
5 Improvements in Machines for Imparting a Set to Axles, of which the following is a specification.

My invention relates to improvements in machines in which the axle is made by pressure to conform itself to the faces of a pair
10 of dies, which faces are of such shape as to give it the required set; and the objects of my improvements are, first, to give to the movable die a capacity for advancing or retarding either of its ends, so that the pressure of the die may be substantially uniform
15 throughout the length of the axle, regardless of variations in its thickness caused by irregular forging; second, to support the arm or round part of the axle in a self-adjusting bed, for the purpose of further equalization of the pressure throughout the length of said arm during the application of the power; and,
20 third, to obtain a quicker application of pressure to the axle than by the use of cog-gearing for advancing the movable die. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan of the machine. Fig.
30 2 shows the self-adjusting arm-bed, on an enlarged scale, as seen from below. Fig. 3 is a front view of same. Fig. 4 is a section through the center of the crank-head, showing its relation to the bed of the machine, and capacity
35 of lateral adjustment within the same by means of the oblong hole projected at E. Fig. 5 shows the axle before the operation of the machine upon it, and Fig. 6 shows the same after the set has been imparted to it.

40 Similar letters refer to similar parts throughout the several views.

A is the bed-plate of the machine, which is supported on legs or suitable frame-work. It has flange-plates B B' cast at either extremity, and the lugs C C upon its surface. An
45 oblong hole or bearing, E, has a lesser diameter, which fits the shaft F of the crank-head G, and a greater transverse diameter, which allows lateral movement to the said shaft. In

practice I have found that one-quarter of an
50 inch of lateral play is enough for the ordinary requirements of the full-sized machine. The die H and the self-adjusting arm-bed I are secured by screws through the flange-plate B to its face. Two pins, *n n*, serve to support
55 the axle in proper position between the dies. The movable die L is keyed to the ends of the rods D D, which are pushed forward or retracted through the lugs C C by means of the elbow-joints *c d e c d e*, actuated by the pit-
60 men *d f d f* from the crank-head G, which is revolved by means of a lever applied to its square head. The bolts *g g* pass through the flange-plate B', and are held in position by
65 nuts *h h h h*. Their heads are hinged to the extremities *e e* of the elbow-joints, which may by their means be advanced or retracted to vary the distance between the dies. A tie-rod, K, joins the extremities *c c* of the elbow-
70 joints and receives their lateral thrusts, thereby preventing the binding of the rods D D in the lugs C C.

The operation of the machine is as follows: The axle, having been heated, is laid upon the pins *n n* between the open dies, the arm or
75 round part of the axle lying before the self-adjusting bed. The crank G is turned, and the pitmen and elbow-joints assume their dotted positions shown in Fig. 1, thereby pushing the rods and movable die into their corresponding positions. Now, if any irregularities exist in the thickness of the axle-arm or axle-bed, the advancing die, being first stopped at that point, will still advance its free end, and the crank-shaft F will travel in its oblong
85 bearing toward that side of the machine, thereby straightening the elbow-joints unequally; and irregularities in the diameter of the axle-arm will cause the rocker *m* of the self-adjusting arm-bed to rock upon the fulcrum *p*, Fig.
90 2, and to adjust itself so as to equalize the pressure upon the arm of the axle.

I am aware that heretofore the set has been given to axles by compression between a pair of dies rigid from end to end, and of which
95 the moving die advanced through successive parallel positions actuated by screws corresponding to the pistons which I employ, which

screws were driven by cogged gears. I therefore do not claim, broadly, the use of dies for the purpose of setting axles.

What I claim as new, and desire to secure by Letters Patent, is—

1. The die L, pivoted to the rods D D, substantially as described, and for the purpose set forth.
2. In combination with the die H, the rocking arm-bed I.

3. The combination of the crank-head G, supported by a bearing which permits lateral movement to it, with the pitmen *f d*, elbow-joints *c d e*, tie-rod K, and rods D D, as shown and described.

LEONARD M. WOODCOCK.

Witnesses:

WM. P. ALLEN,
GEORGE UNDERWOOD.