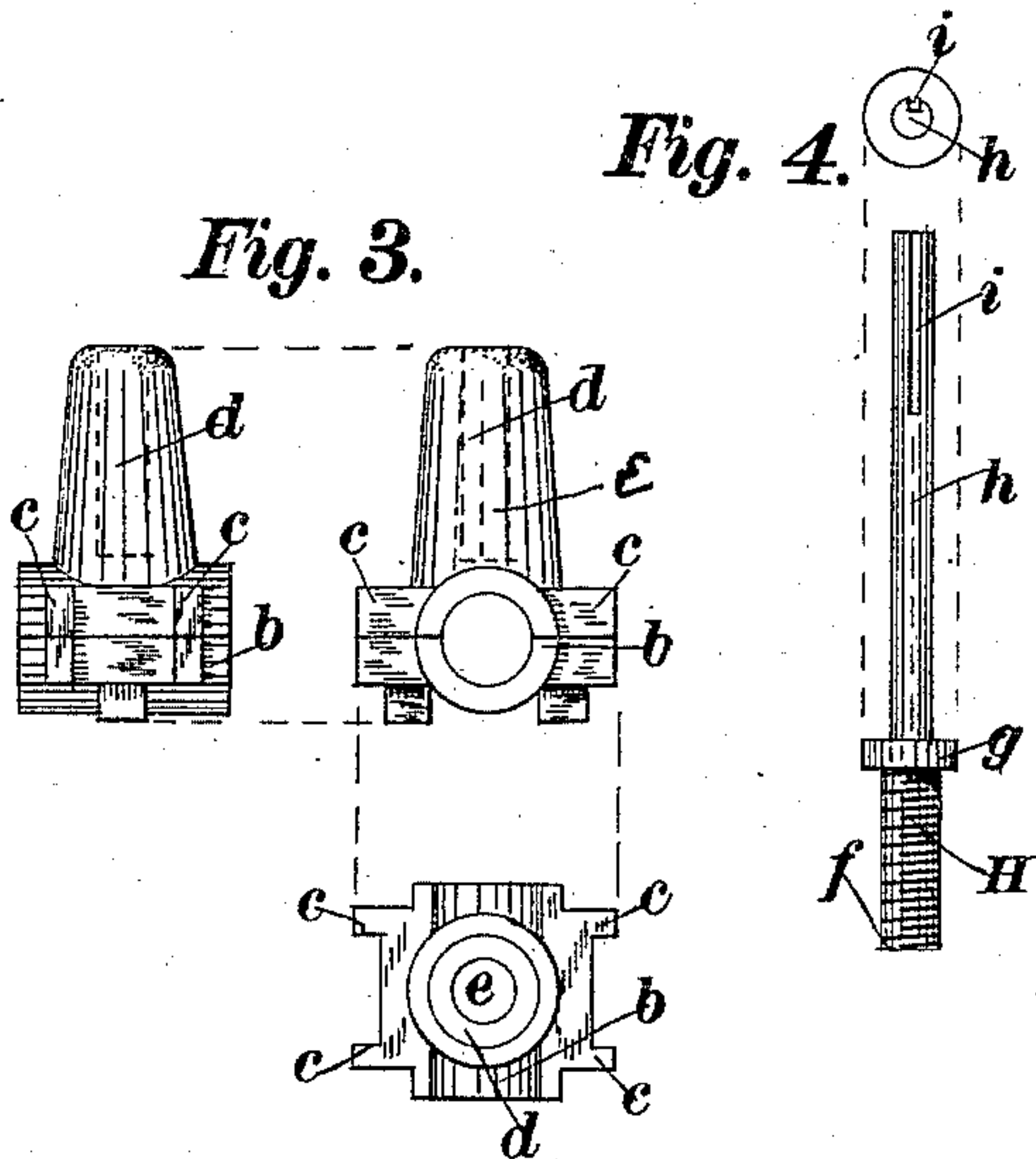
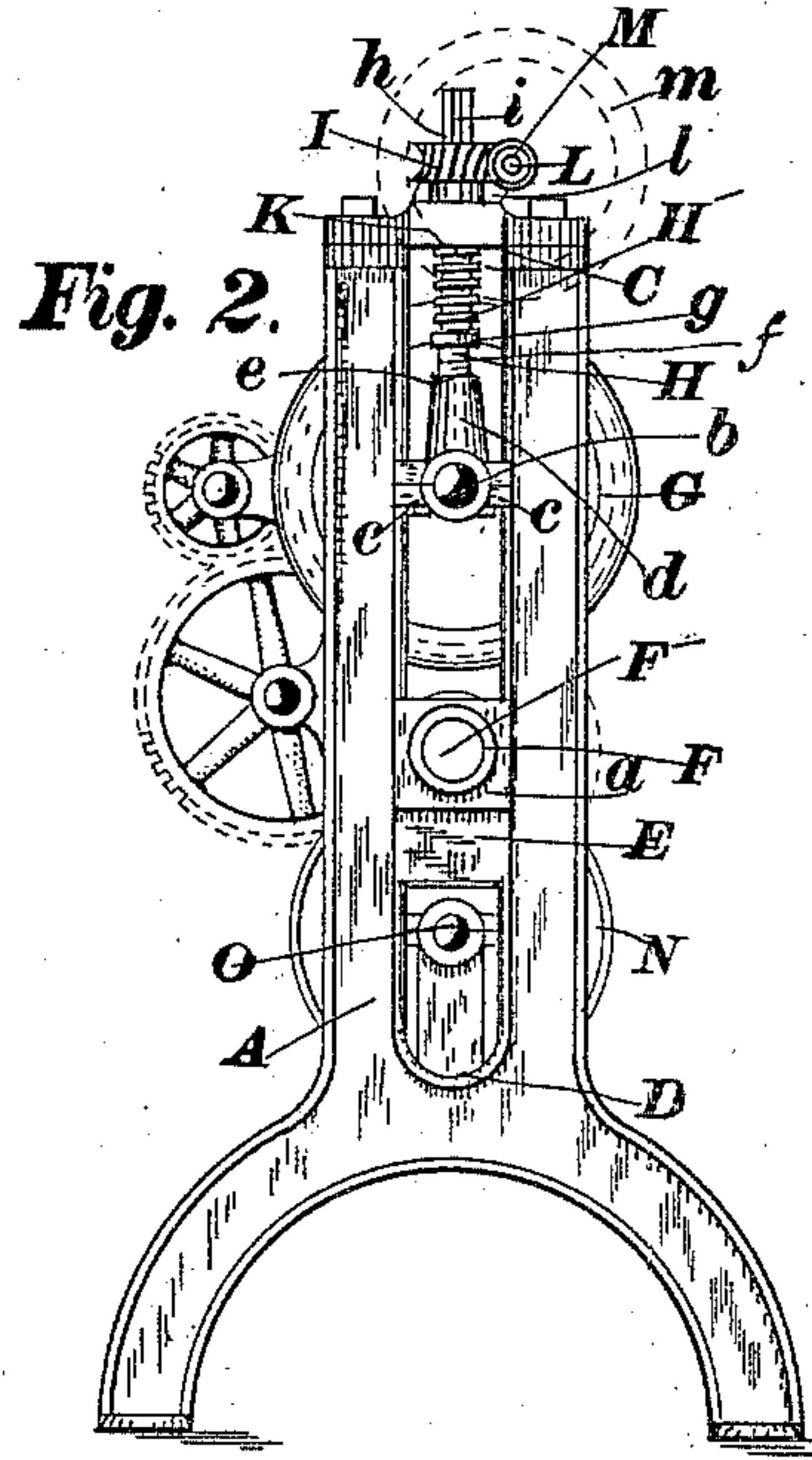
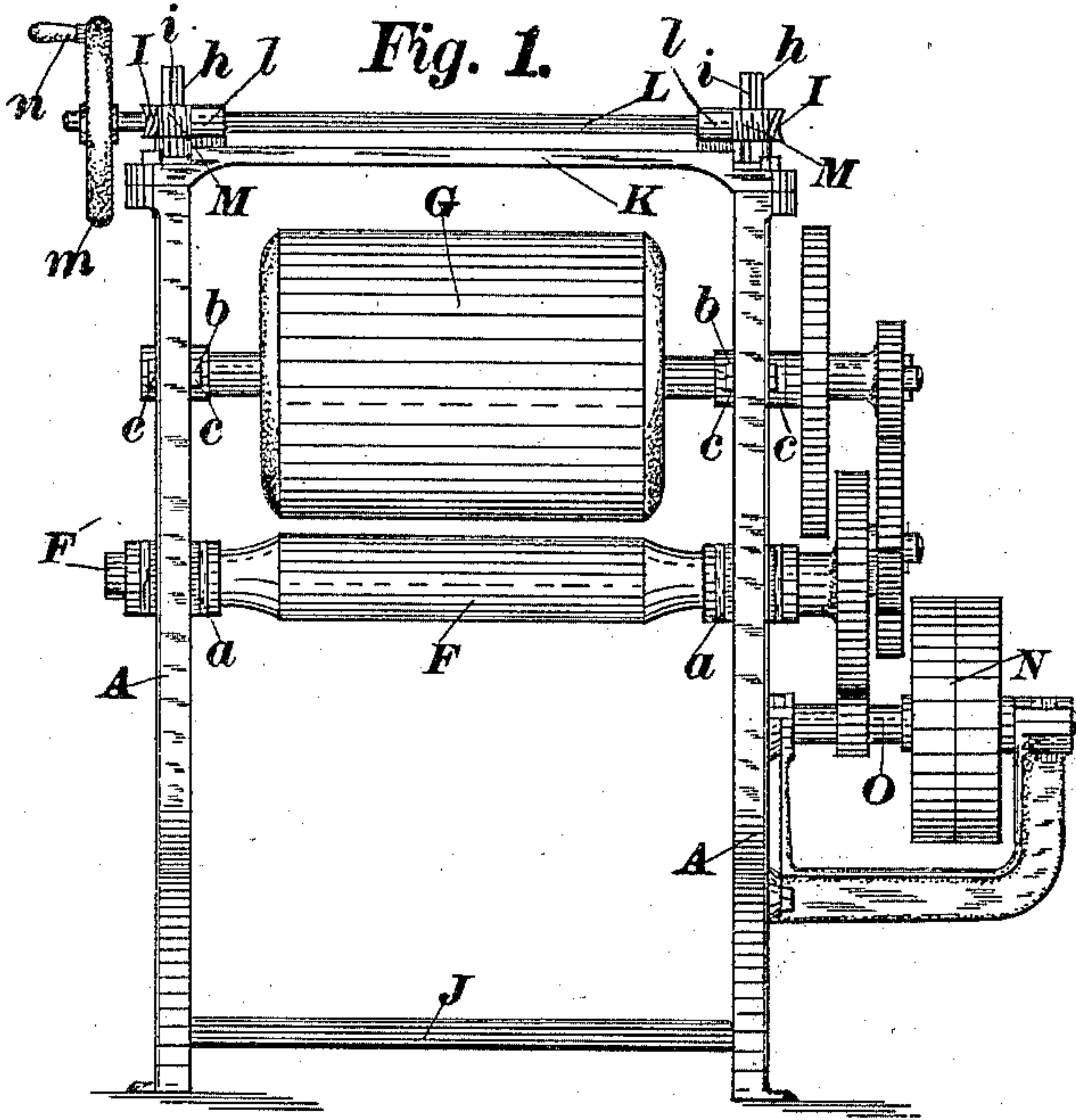


(No Model.)

R. S. NELSON & A. KREUTER.  
IRONING MACHINE.

No. 473,950.

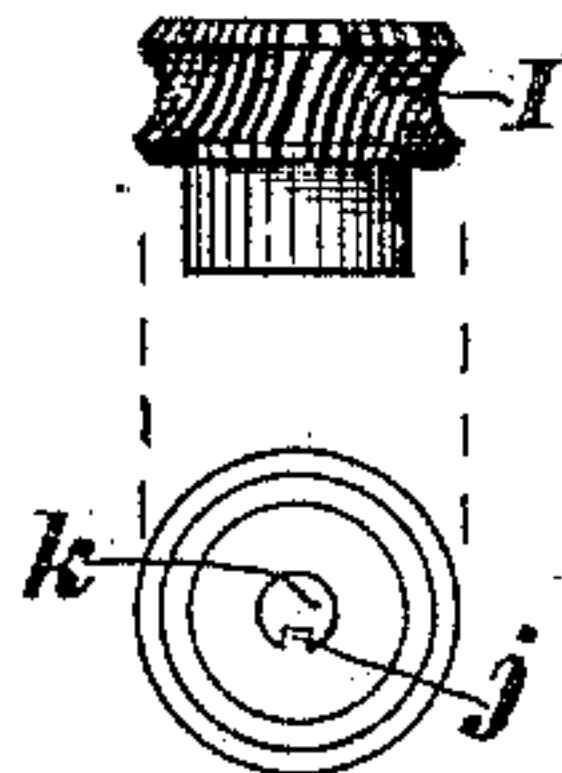
Patented May 3, 1892.



**Fig. 5.**



**Fig. 6.**



**Fig. 7.**



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT S. NELSON AND ADAM KREUTER, OF CHICAGO, ILLINOIS.

## IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 473,950, dated May 3, 1892.

Application filed September 4, 1891. Serial No. 404,706. (No model.)

*To all whom it may concern:*

Be it known that we, ROBERT S. NELSON and ADAM KREUTER, both citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ironing-Machines, of which the following is a specification.

Our invention relates to that class of ironing-machines which have two horizontal rollers revolving within a strong frame, one of these rollers being mounted in stationary bearings and the other in movable bearings, as will be understood by the description herein-after.

Our object is to introduce an improved device in an ironing-machine of this kind for the purpose of effectually regulating the pressure of one roller against the other, so that a yielding pressure is attained, which can be quickly increased or decreased as to amount at the will of the operator; and we attain this object by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a front elevation of a collar and cuff ironer embodying our improvement; Fig. 2, an elevation of the left-hand end of the machine shown in Fig. 1, with several minor parts shown in dotted lines. Fig. 3 shows side, end, and top views of one of the journal-boxes of the upper roller. Fig. 4 shows top and side views of a regulating-screw and its shaft. Fig. 5 shows a spiral spring used in the combination. Fig. 6 shows side and bottom views of a worm-wheel; and Fig. 7 shows side and end views of a screw or worm which engages with the worm-wheel shown in Fig. 6, and forming a worm-gear, as shown in Figs. 1 and 2.

The standards A of the frame of the machine are bifurcated from C to D, Fig. 2, and there is a cross-brace connecting the sides of the bifurcation of each standard at E. Resting upon the cross-brace E at each side of the machine are journal-boxes *a*, forming bearings for the lower roller F. This lower roller is ordinarily not provided with means for elevating its boxes, but remains in one position. This roller is hollow, is made of metal, and has a highly polished surface, and within its central hollow portion is introduced a pipe from the end F', which pipe is provided with air and gas connections whereby the roller

is heated throughout its length, as is common with ironing-machines of this class.

Above journal-boxes *a* are journal-boxes *b*, 55 which form bearings for the shaft of the upper movable roller G. This box (shown in Fig. 3) is arranged to slide vertically in the bifurcations of the standards A, and has projections *c* to hold it from lateral motion. At 60 the top of each of the boxes *b* is a projecting portion *d*, which is provided with a vertical threaded hole *e* to receive the screw-threaded end *f* of vertical shaft H. (Shown in Fig. 4.) Shaft H has a shoulder *g* at the upper end of 65 its screw-threaded portion *f* and above the shoulder a round shank *h*, which has a groove *i* at its top to receive the projection *j* (shown in Fig. 6) of worm-wheel I. This worm-wheel is so fitted to the top of shank *h* that the 70 shank is free to slide through the hole *k*, but any rotary motion being imparted to worm-wheel I will be transmitted to shank *h*. It will be understood that projection *j* is firmly secured to the worm-wheel I. The two stand- 75 ards A of the frame are held in position at the bottom by a round rod J and at the top by a broad cross-tie K, each end of which also forms a tie to strengthen the top of the two parts of the bifurcated standard A. 80

In Fig. 2 is shown box *b* and its projection *d*, together with shaft H and its shoulder *g*, and around shank *h* is a spiral spring H', (shown, also, in Fig. 5,) whose lower end bears against the top of shoulder *g* and whose top 85 bears against the under side of cross-tie K. The shank *h* of shaft H passes up through a hole in cross-tie K, and the top of the cross-tie forms a bearing upon which rests the hub of worm-wheel I. Shaft H is shown in Fig. 2 90 with its threaded end *f* in engagement with the threads of journal-box projection *d*. Fig. 1 shows a shaft L across the machine at the top, which shaft is journaled in boxes *l*, near worm-wheels I, and at the left-hand end, Fig. 95 1, is a hand-wheel *m* with its handle *n*, by which shaft L is revolved. Secured to shaft L, opposite worm-wheels I, are worms M, whose threads engage with the teeth of worm-wheels I and form worm-gears. 100

The machine is operated for ironing by power being applied to pulley N by means of a belt and through a train of gearing to rollers F and G.



In operation when any change in pressure between rollers F and G is desired the hand-wheel *m* is turned, which motion is transmitted through shaft L and the worm-gears to vertical shafts H. Should the threaded portion *f* of shafts H be screwed down into the box projections *d*, the distance of the shoulders *g* from the under side of the cross-tie K will be increased, which also increases the length of the spiral springs H', surrounding shanks *h*, and thereby decreasing their strength. If the motion of the hand-wheel *m* is now reversed and the threaded portions *f* of shafts H are screwed out of projections *d* of boxes *b*, the shoulders *g* of shafts H will approach the under side of cross-tie K and compress spiral springs H' and increase the downward thrust of shafts H upon the threads in holes *e* of projections *d* of journal-boxes *b*, which pressure is transmitted to roller G through its shaft, whose ends are journaled in boxes *b* at each side of the machine. Since roller G rests upon roller F when no goods are being ironed and since the goods which are ironed by this class of machines are never of very great thickness, the roller G never rises and falls to an appreciable distance, for its surface being padded the thickness of the goods being ironed is taken up by the surface elasticity of the roller, so that the adjusting device hereinbefore described is intended to increase or decrease the pressure at the contacting-surfaces of the two rollers and to follow up from time to time the set in the surface elasticity of roller G as the padding be-

comes permanently compressed by long use. Should any unusual thickness be accidentally run between the rollers, the springs will always yield to the increased strain and prevent any danger of breakage of the operative parts, and since shank *h* of each shaft H is free to move longitudinally through the worm-wheel I the worm-wheel is adequately held from being lifted from its seat by the contact of worm-wheel M.

We claim as our invention—

In an ironing-machine, threaded shafts H, each having a shank *h*, journal-boxes *b* of movable roller G, said boxes fitted to move longitudinally between the bifurcations of standards A, said boxes each having a threaded portion *d*, in which operates the threaded portion *f* of one of the shafts H, the top portion of each of said shanks *h* supported in a bearing in cross-piece K, springs H', one spring bearing against a projection of each of said shanks, the upper end of said springs bearing against cross-piece K, and a worm-wheel I, mounted at the top end of each of said shanks, said worm-wheels revolving with said shanks, said shanks capable of a longitudinal motion through said worm-wheels, each of said worm-wheels geared to and driven by a worm, in the manner and for the purpose substantially as described.

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