

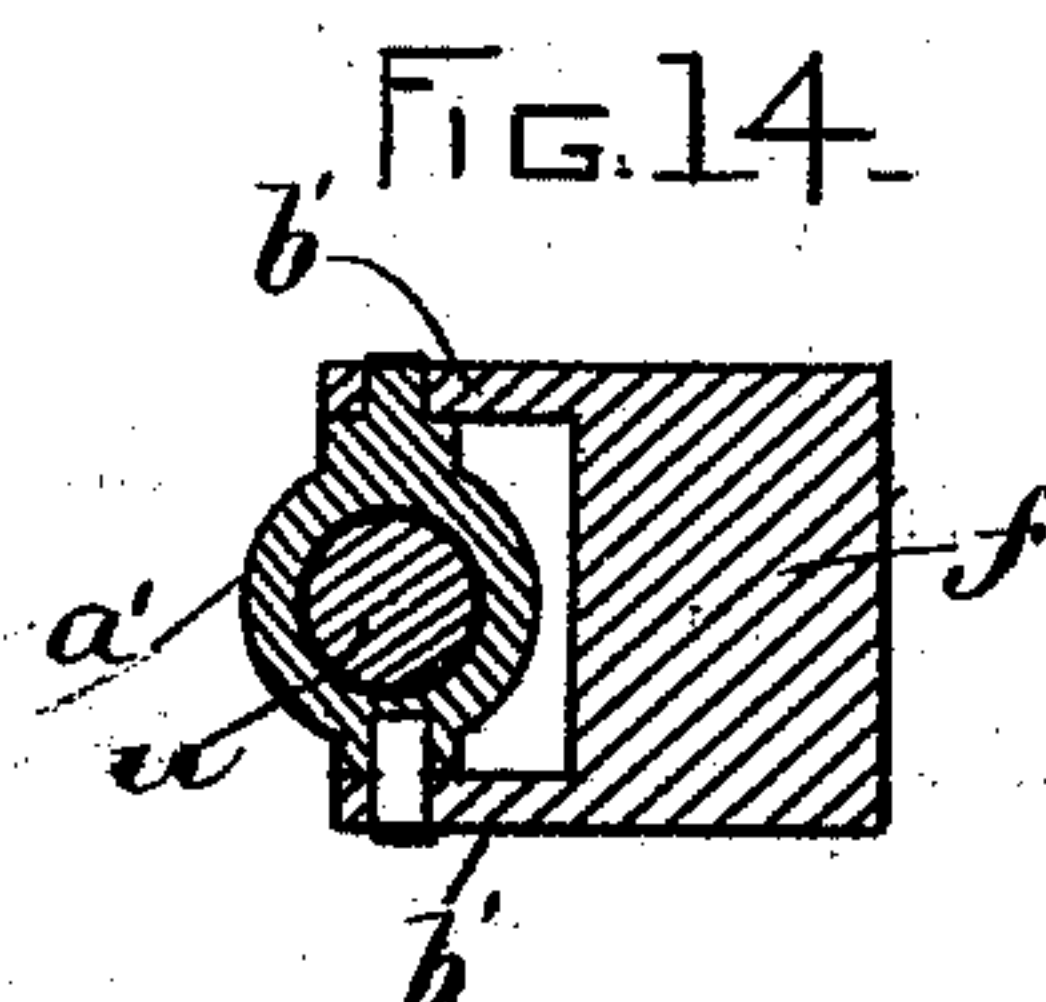
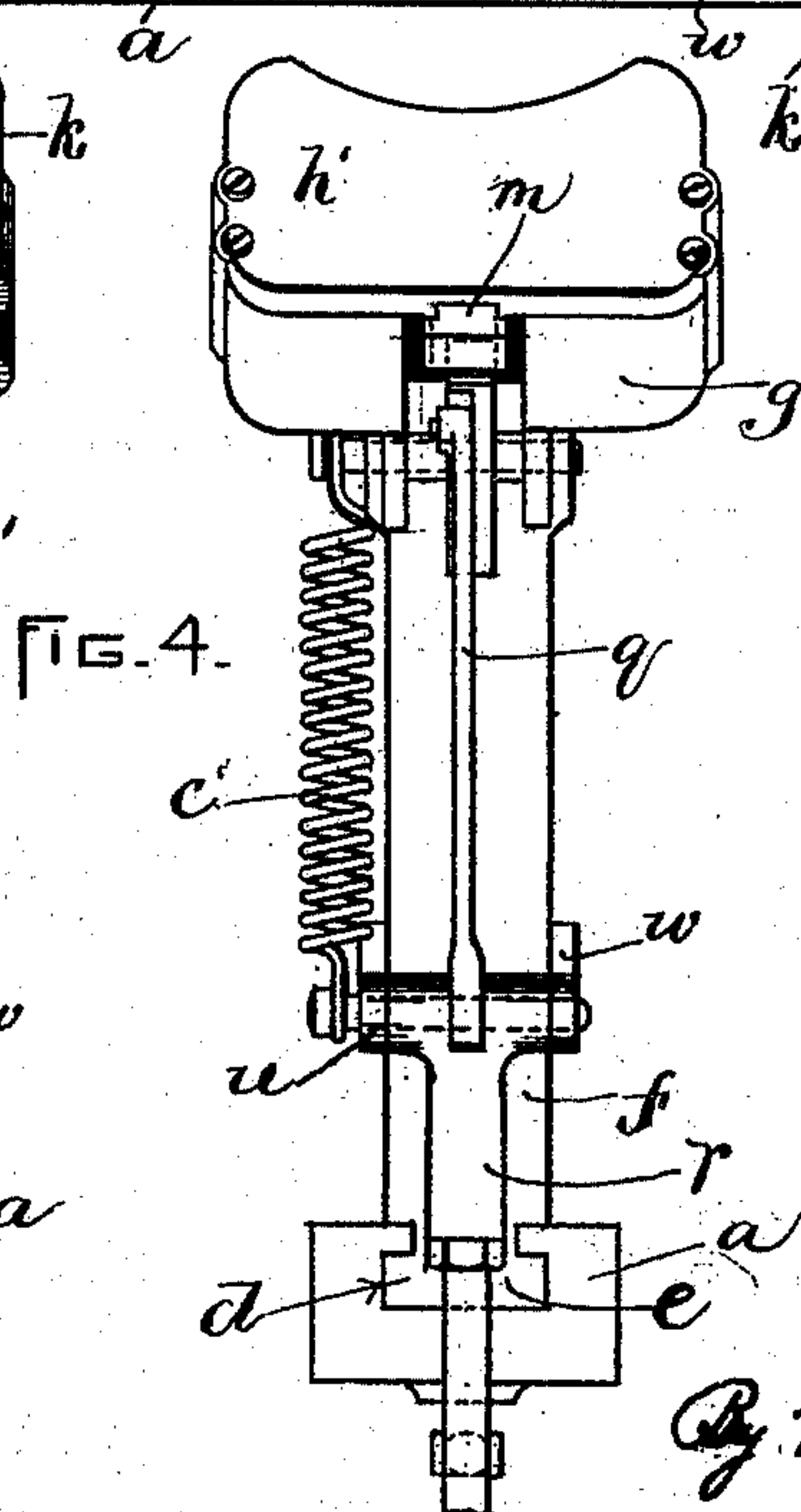
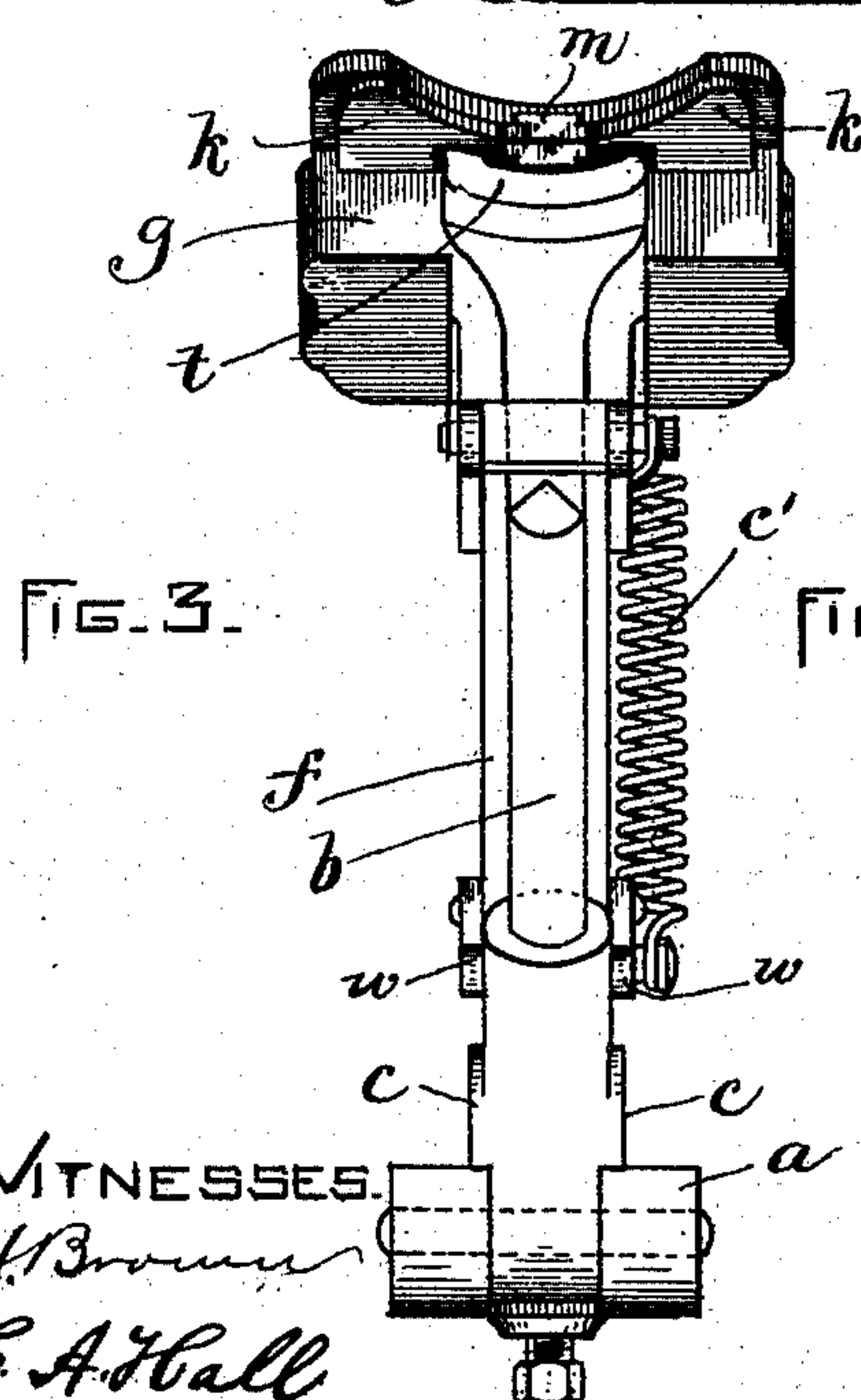
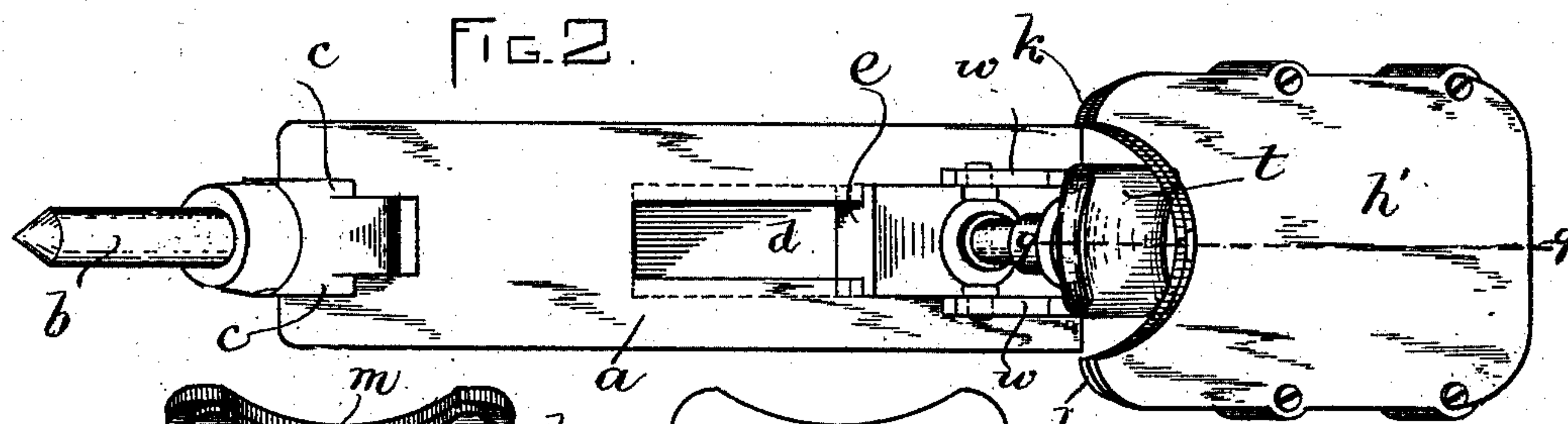
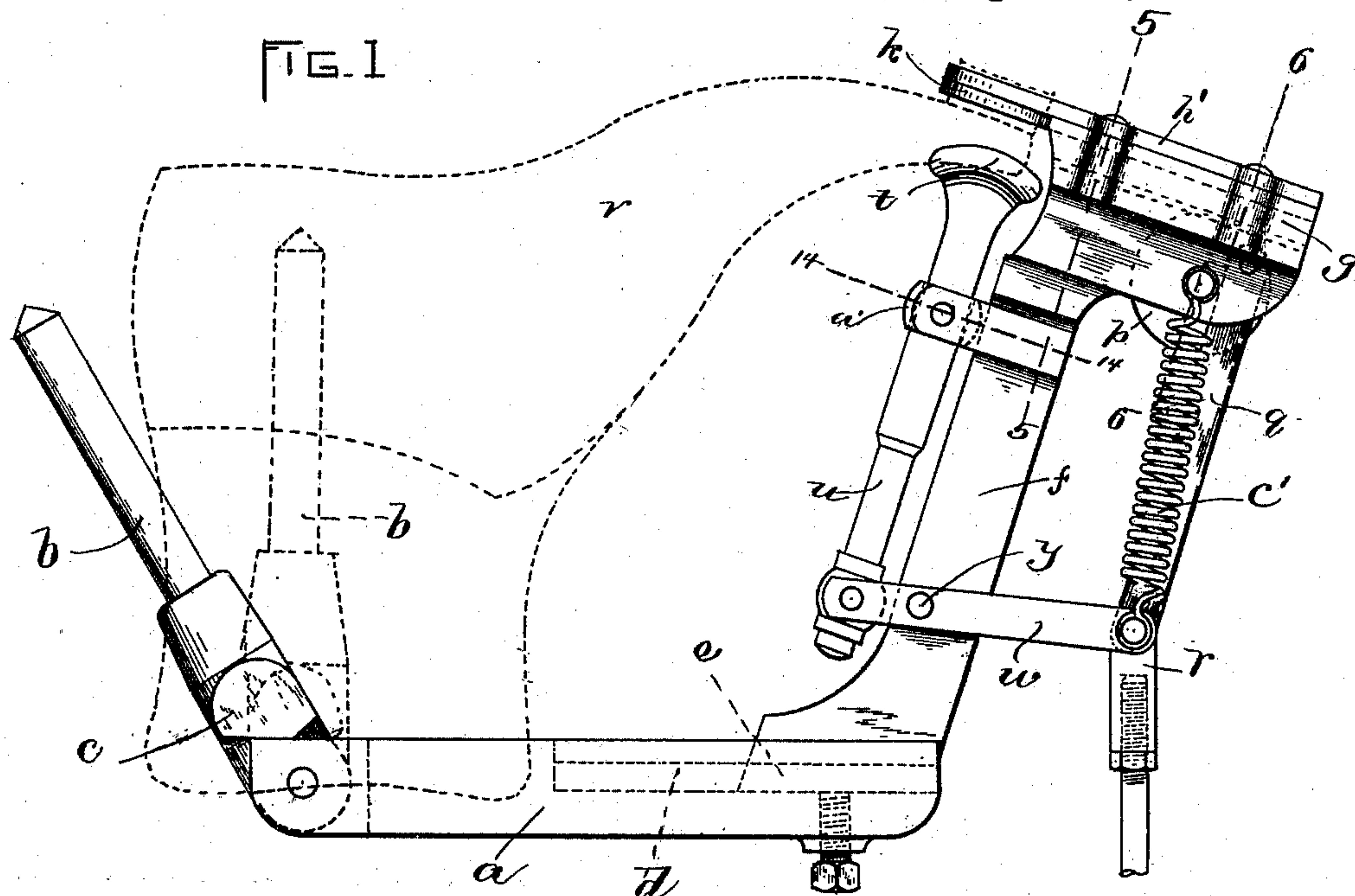
(No Model.)

3 Sheets—Sheet 1.

B. A. NORWOOD.
LASTING MACHINE.

No. 505,671.

Patented Sept. 26, 1893.



WITNESSES:
H. Brown
H. A. Hall

INVENTOR:
Benj. A. Norwood.
By Hugh B. Brown
Atty

(No Model.)

3 Sheets—Sheet 2.

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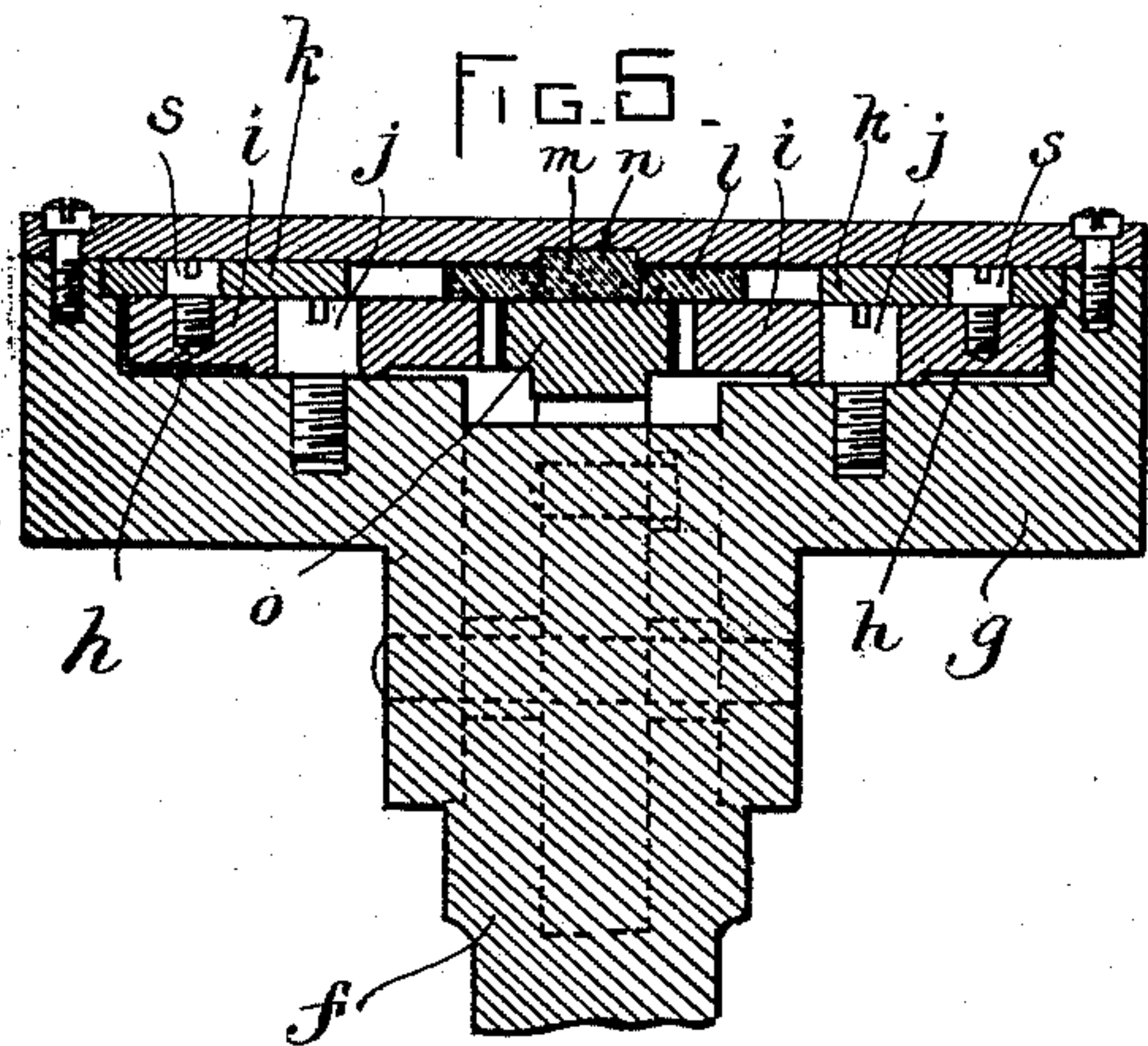


FIG. 11.

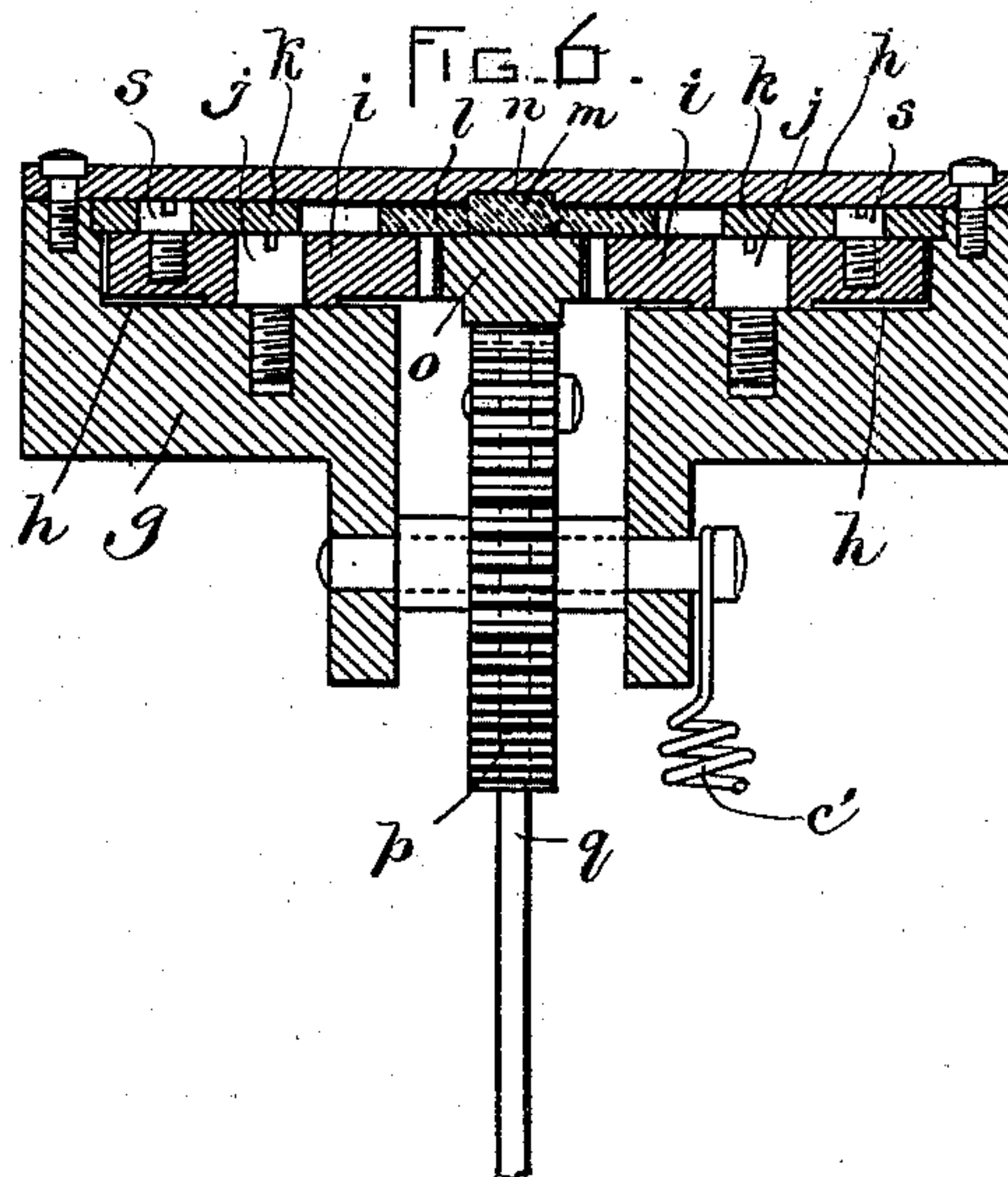


FIG. 12.

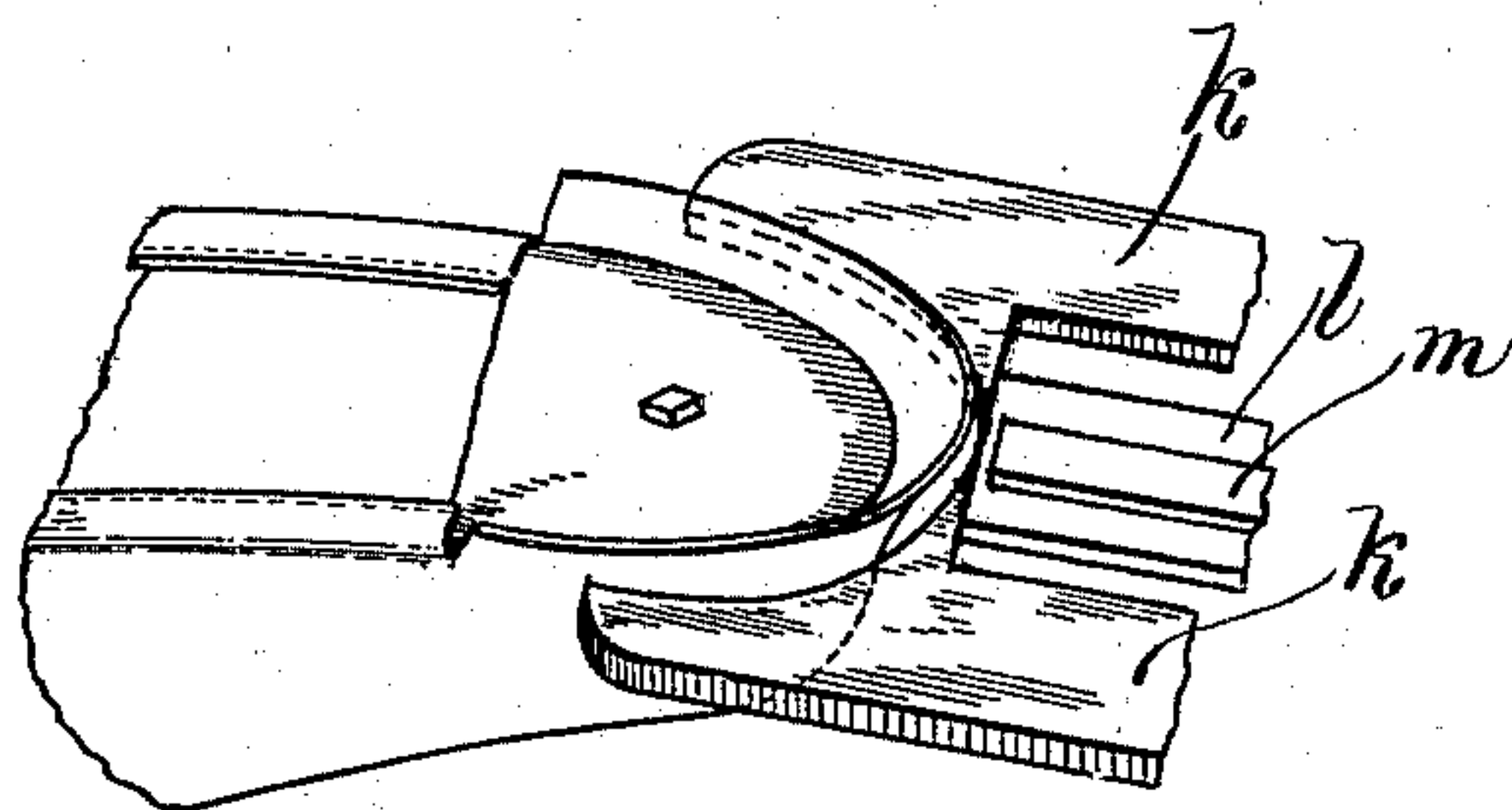
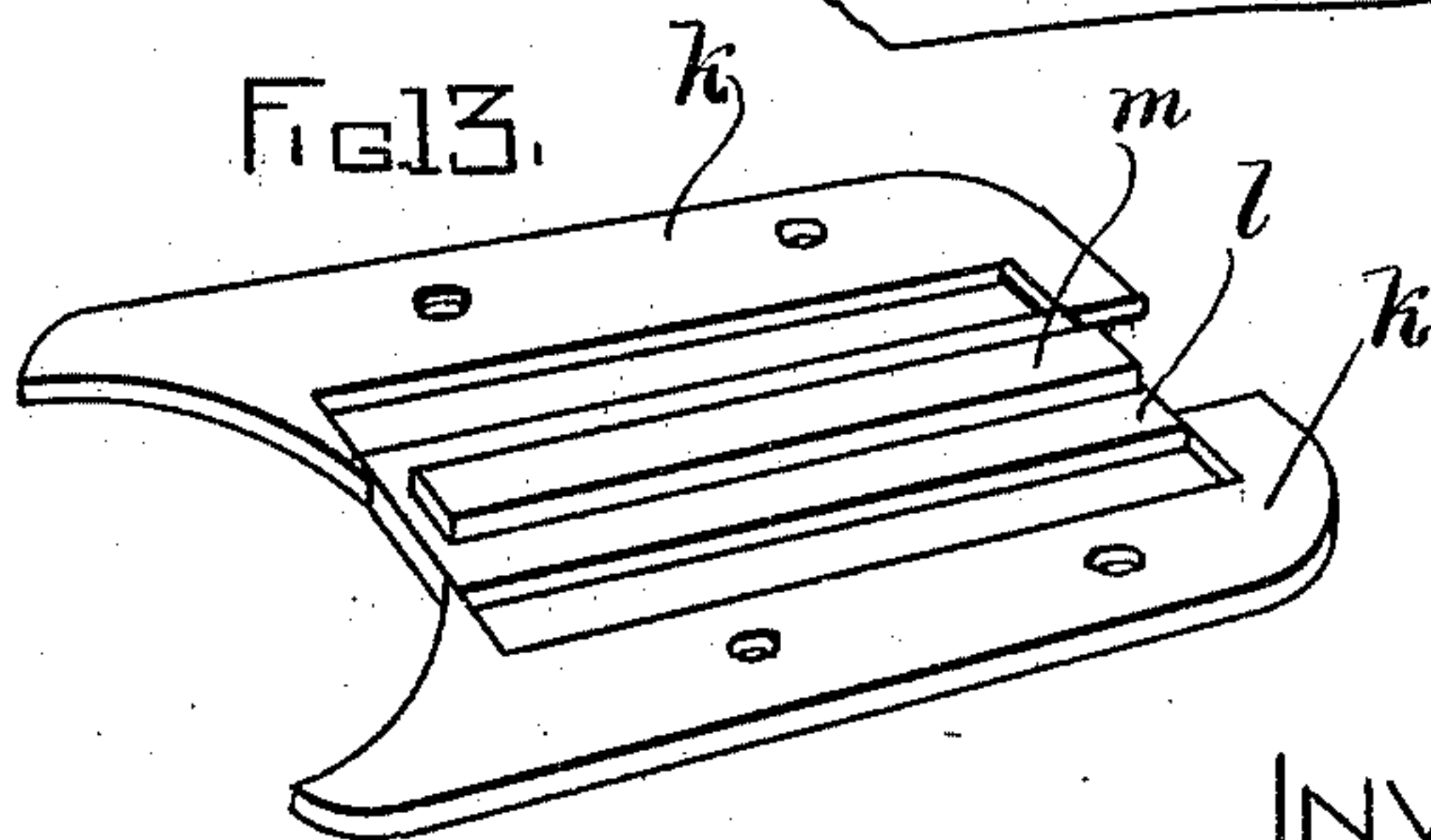
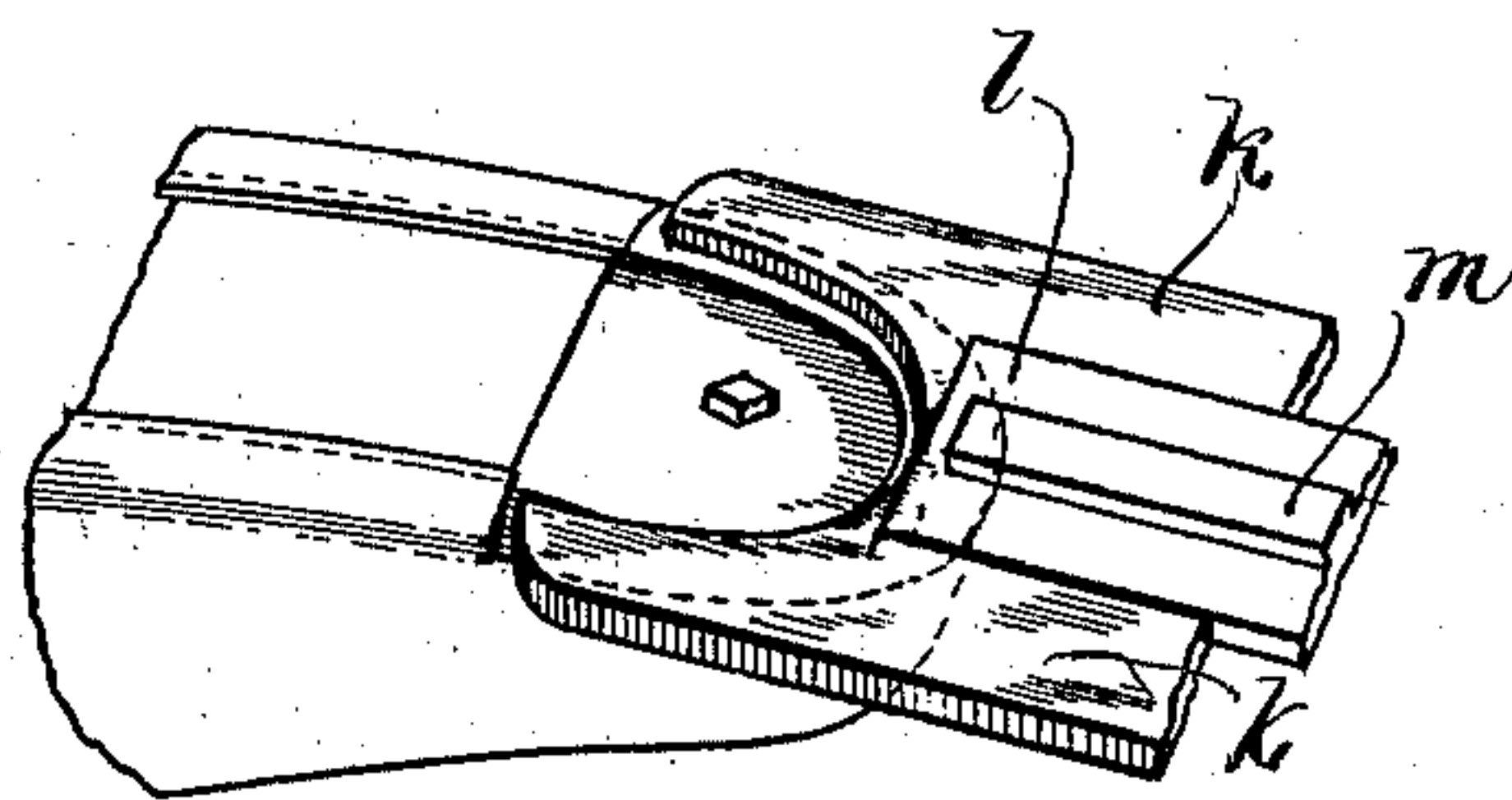


FIG. 13.



WITNESSES:

H. Brown

H. A. Hall.

INVENTOR:

Benj. A. Norwood.

By Knight Brown & Co. Attys

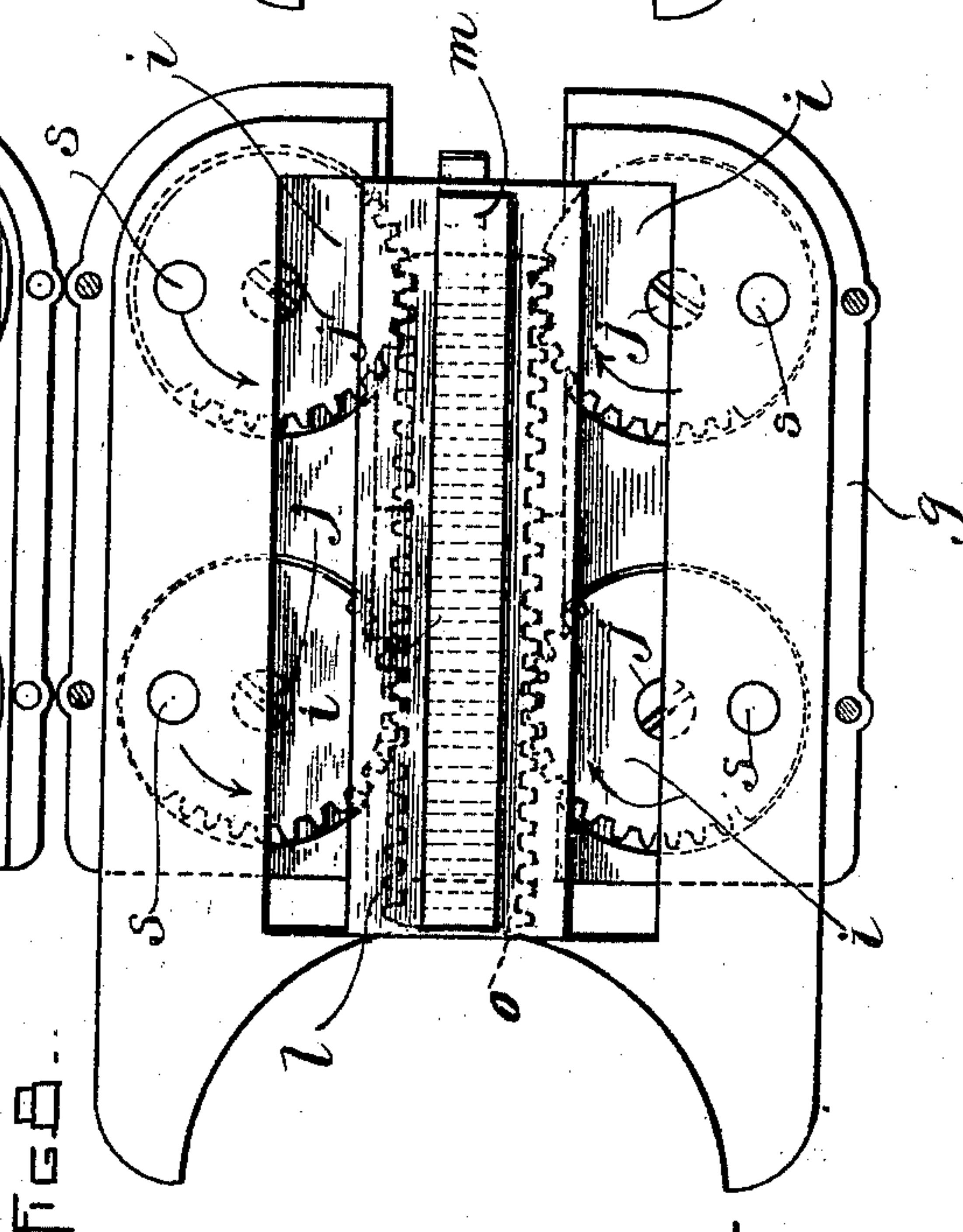
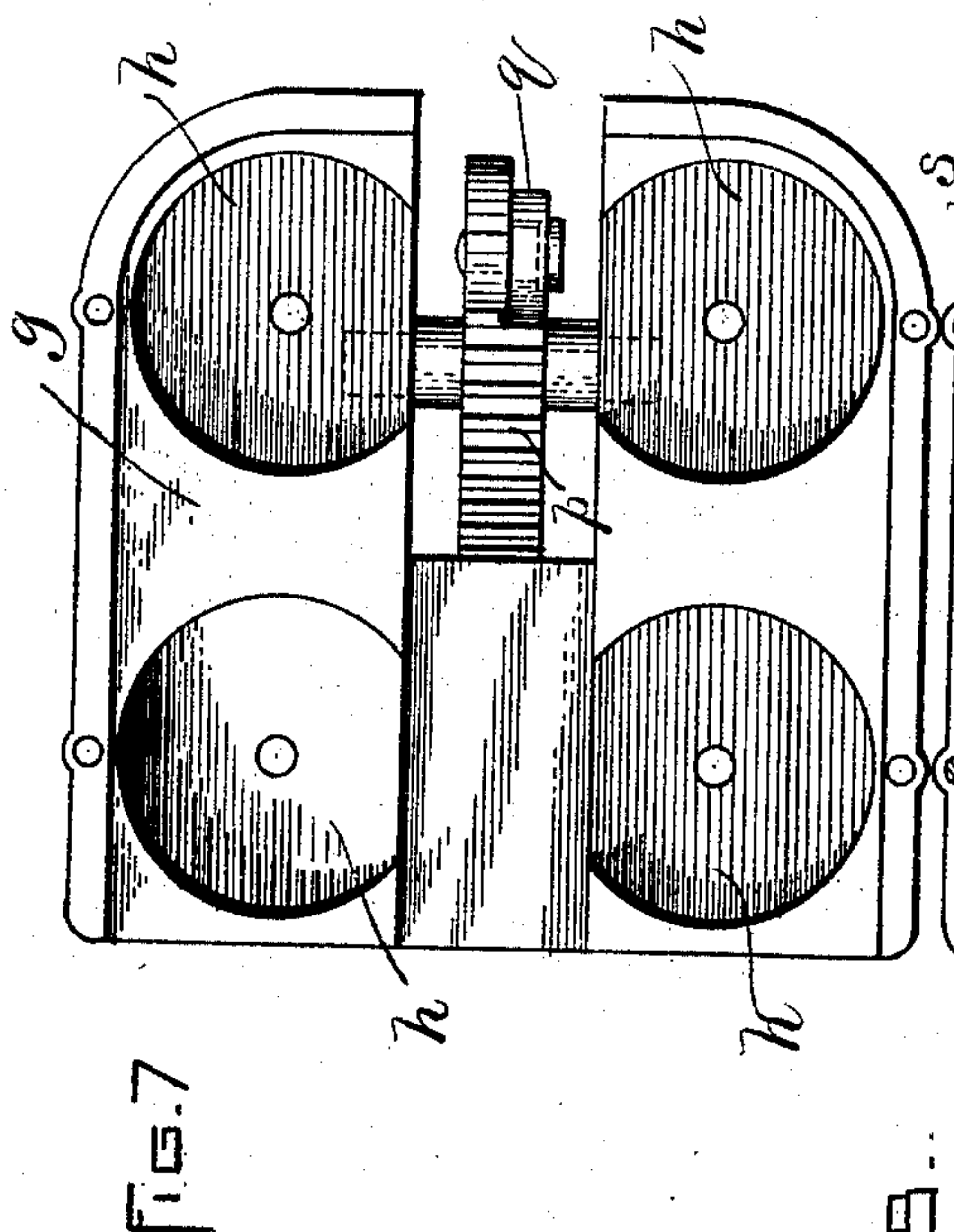
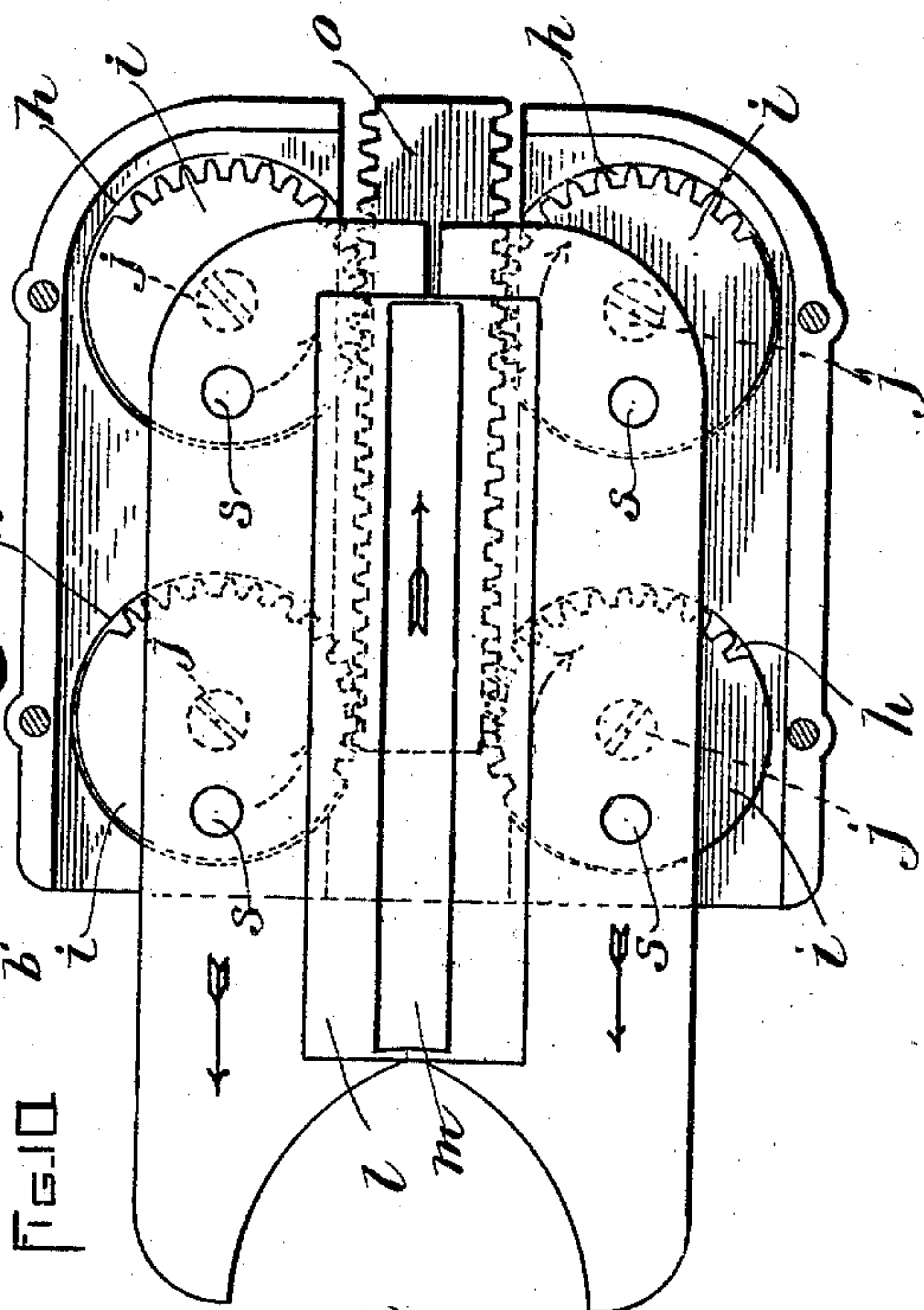
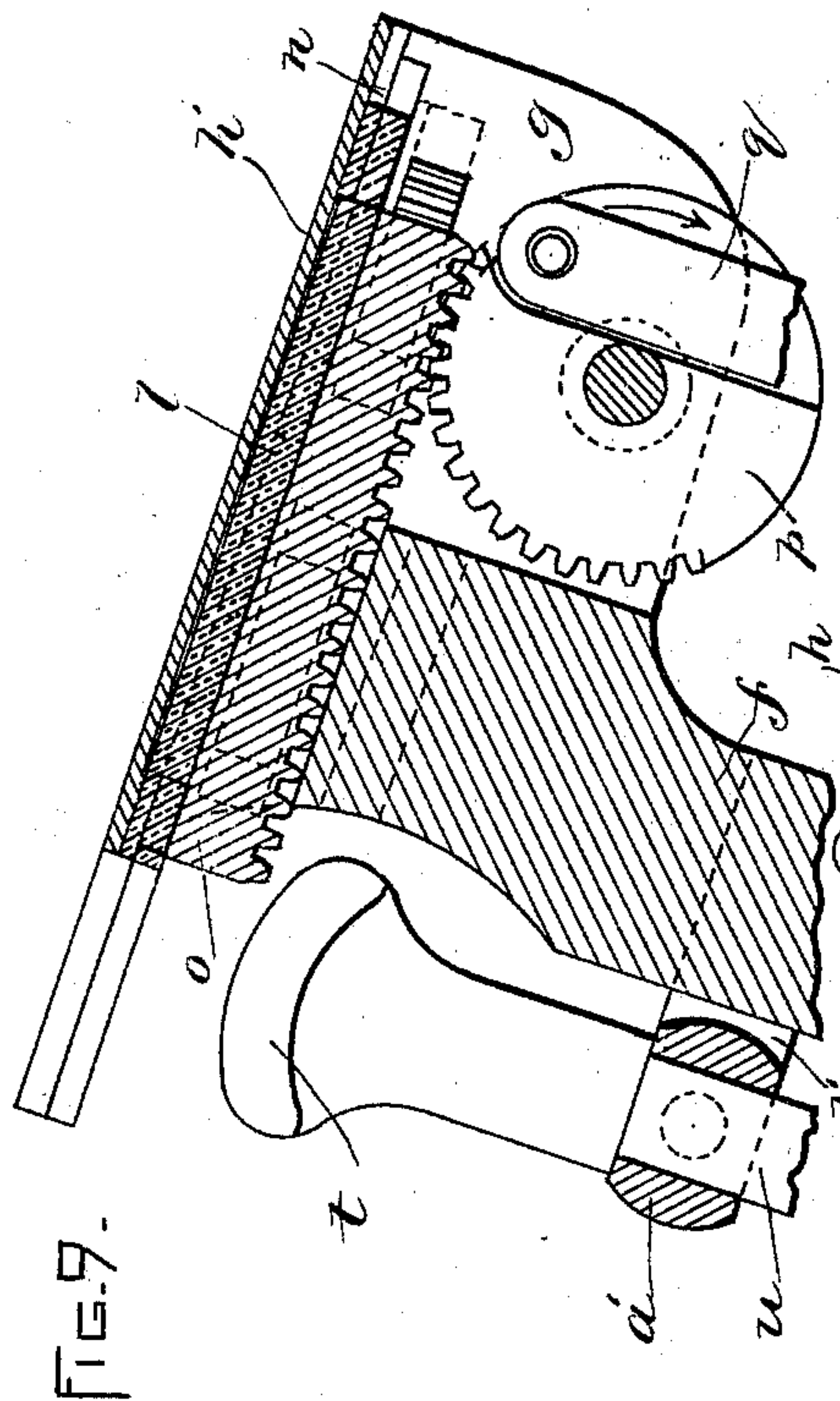
(No Model.)

B. A. NORWOOD.
LASTING MACHINE.

3 Sheets—Sheet 3.

No. 505,671.

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WITNESSES:

H. Brown
H. A. Hall.

INVENTOR:

Benj. A. Norwood
By Hugh B. Brown & Co.
Atty.

UNITED STATES PATENT OFFICE.

BENJAMIN A. NORWOOD, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE EUREKA PROCESS LASTING COMPANY, OF SAME PLACE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 505,671, dated September 26, 1893.

Application filed October 3, 1892. Serial No. 447,676. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. NORWOOD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lasting Appli-
5 ances, of which the following is a specification.

This invention has for its object to provide an improved machine for lasting boots and shoes and it consists in the combination with
10 a lasting jack of improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a side elevation of a machine embodying my
15 improvements. Fig. 2 represents a top view of the same. Fig. 3 represents a front view. Fig. 4 represents a rear view. Fig. 5 represents a section on line 5 5, Fig. 1. Fig. 6 represents a section on line 6 6, Fig. 1. Fig. 7
20 represents a top view of the supporting frame with the mechanism removed. Fig. 8 represents a similar view with the mechanism in position. Fig. 9 represents a section on line 9 9, Fig. 2. Fig. 10 represents a view similar
25 to Fig. 8, showing the operating mechanism in a different position. Figs. 11, 12 and 13 represent detail views hereinafter explained. Fig. 14 represents a section on line 14 14, Fig. 1.

The same letters of reference indicate the
30 same parts in all the figures.

a represents a supporting bed which may be supported at the proper height upon a bench or in any suitable manner. Said base has a spindle *b* at one end adapted to engage
35 with and support the last of a boot or shoe placed thereon, the spindle being pivoted in the bed and provided with lugs *c* adapted to rest upon the bed and support the spindle normally in the position shown in Fig. 1, so
40 that the last may be more easily applied thereto. The base is provided with a groove *d* in its upper side in which is adjustably secured the base *e* of the supporting post or column
45 *f* to which the devices to be described are attached.

The supporting post has at its upper end and formed therewith a projecting head *g* substantially square in plan and is adapted to support the mechanism for wiping or smooth-

ing the toe of the upper of a boot or shoe over the lasted inner sole.

In Fig. 7 I have shown a plan view of the upper portion without the operating mechanism, adapted to be attached thereto. As shown in said figure I form in the surface of the top
55 *g* recesses or counter-bores *h*, preferably four, for the reception of spur gears *i*, as shown in Fig. 8. Said gears are adapted to rotate upon bearings *j* secured to the part *g* as shown in Figs. 5 and 6. To the gears *i* are connected
60 by suitable bearings, what I term wipers *k* which are formed of suitable metal and are curved at one end to correspond to the shape of the toe of a boot or shoe. The inner sides of said plates are recessed to receive a third
65 plate *l* which plate has formed upon its upper side a guide *m* adapted to engage a slot *n* in the top or cover *h'* of the supporting base *g* which arrangement secures the plate from lateral movement, as shown in Figs. 5 and 6.
70

The gears *i* are adapted to mesh with a rack *o* as shown in dotted lines in Figs. 8 and 10. Said rack has teeth formed upon its under side adapted to mesh with the teeth of a spur
75 gear *p* journaled in bearings in the supporting frame as shown in Figs. 6 and 9.

To the gear *p* is pivotally connected a rod *q* which rod is connected at its lower end with a rod *r* adapted to be connected with a treadle or other suitable means for moving said rod
80 downwardly, and thereby communicate a partial revolution to the gear *p* in the direction of the arrow marked thereon. A portion of the gear *p* is cut away on one side for the purpose of connecting the rod near its longitudinal
85 center. The rotation of the gear *p* moves the rack *o* in the same direction, and the movement of the rack imparts motion to the spur gears *i* meshing with the teeth formed upon the sides of said rack. The movement im-
90 parted by the gear *p* to the rack will be sufficient to rotate the gears *i* a quarter revolution, which will move the attached wipers *k* in the arc of a circle, the radius of which will be from the center of gears *i* to the connect-
95 ing crank-pin *s* through which movement is imparted from the gears to the wiper plates. The gears *n'* thus form crank-disks.

The described movement of the operating mechanism of the wiper plates will move the plates to the position shown in Fig. 10, in which figure it will be seen that the plates *i* have carried the central plate *l* therewith by reason of the engagement of said plate with the recess formed in the wiper, as shown in Figs. 8 and 13.

t represents a toe rest adapted to support the forward portion of a boot or shoe *v* thereon. Said rest is provided with a shank *u*, the lower end of which is pivotally connected with two arms *w* pivoted at *y* to the supporting column, and connected at their outer ends with the treadle rod *r*. The upper portion of the toe rest is held in position by a guide *a'* which surrounds said shank and in which the shank is permitted to move longitudinally. The guide *a'* is pivotally arranged in arms *b'* on the supporting column *f* as is most clearly shown in Figs. 9 and 14.

The machine as thus far described is intended for use in connection with a new method of lasting boots and shoes for which I have applied for Letters Patent of the United States in an application filed concurrently with this.

In the operation of my machine I place the shoe upon the spindle *b* and apply suitable pinchers (not shown) to the projecting toe of the upper. I then place the shoe upon the toe-rest, as shown in dotted lines in Fig. 1, the toe of the shoe occupying a position in close proximity to the wipers, as shown in Fig. 11. I then depress the rod *r* by any suitable means causing the partial rotation of the gear wheel *p* which meshes with the rack, thereby imparting motion to the rack and through the latter to the gears *i*, imparting to said gears a quarter of a revolution, whereby the wiper plates are moved in the arc of a circle which carries them forward and inward, the central plate being moved therewith as already described and brought into contact with the toe of the shoe (while held by the pinchers) and wipes or smooths the toe piece over the inner sole, as shown in Fig. 12, the pinchers being removed when the wipers have acquired sufficient contact with the toe to render their further use unnecessary. While the wipers are moving inwardly the toe-rest rises slightly, thus raising the last sufficiently to cause a gradually increasing pressure of the toe-piece of the upper against the wipers, for the purpose of compressing the wiped over toe piece and flattening the wrinkles formed thereon.

The wiper plates having operated upon the toe the latter is secured by any suitable means, such as tacking or nailing and the pressure upon the treadle is removed, and the mechanism is returned to its normal position (which is that shown in Fig. 8) by a spring *c'* attached at its upper end to the journal of the gear which projects sufficiently to attach said spring thereto (Fig 6). The lower end

being connected to operator rod *r* in like manner, maintains the mechanism in the position shown in Fig. 1.

I believe myself to be the first to provide a lasting machine with a wiping device comprising three plates, two of which are movable laterally and rectilinearly in opposite directions and all three movable longitudinally in unison. The lateral rectilinear inward movement of the plates *k k* while they are moving lengthwise with the plate *l* gives said plates a greater range of opening and closing movement than would be possible if the plates *k k* were hinged and had a swinging movement. I do not therefore limit myself to the details of mechanism herein described for operating said plates and may impart the described movements thereto by any other suitable means.

I claim—

1. A lasting machine comprising in its construction a pair of parallel wiping plates and means substantially as described for moving said plates in the direction of their length, and at the same time moving them toward each while preserving their parallelism.

2. A lasting machine comprising in its construction three parallel wiping plates, and means for moving said plates in unison in the direction of their length, and at the same time moving the two outer plates toward the center plate while preserving their parallelism.

3. A lasting machine comprising in its construction a pair of parallel wiping plates, means for moving said plates in the direction of their length, and at the same time toward each other while preserving their parallelism, and a center plate in engagement with said parallel plates, whereby it moves longitudinally with them without partaking of their lateral movement.

4. In a lasting machine, a pair of parallel wiping plates; crank-disks connected with said plates; and means for simultaneously actuating said crank-disks whereby the plates are moved toward and away from each other and also in the direction of their length, while their parallelism is preserved.

5. In a lasting machine, a pair of parallel wiping plates; gears connected eccentrically with said plates; and a reciprocating rack in mesh with all said gears whereby the plates will be moved toward and away from each other and also in the direction of their length, while their parallelism is preserved.

6. In a lasting machine, the combination of a head; a wiping plate engaged with said head whereby it is guided in a movement in the direction of its length; a pair of parallel wiping plates on opposite sides of the first-named plate and engaging the same, said pair of plates movable in the direction of their length and also toward and away from each other; and means for actuating the two outer plates whereby an arc movement is imparted to them, and a longitudinal movement

is imparted to the central plate, substantially as described.

7. In a lasting machine, the combination of a lasting jack; an adjustable column connected thereto; a vertically movable toe-rest supported on one side of the column; a head at the upper end of the column; wiping plates in said head; means for actuating said wiping plates and supported on the opposite side of the column to the toe-rest; and a suitable connection between such actuating means and the toe-rest, and supported by the column, whereby the toe-rest and wiping plates are operated simultaneously.

8. In a machine for lasting boots and shoes, the combination of the head *g*, a gear jour-

naled in bearings in the head, a rack adapted to mesh with said gear, gears adapted to mesh with teeth formed upon each side of said rack, and wiping plates connected with said gears as described, and adapted to be moved in the arc of a circle by the partial rotation of said gears, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of September, A. D. 1892.

BENJAMIN A. NORWOOD.

Witnesses:

C. F. BROWN,

M. W. JACKSON.