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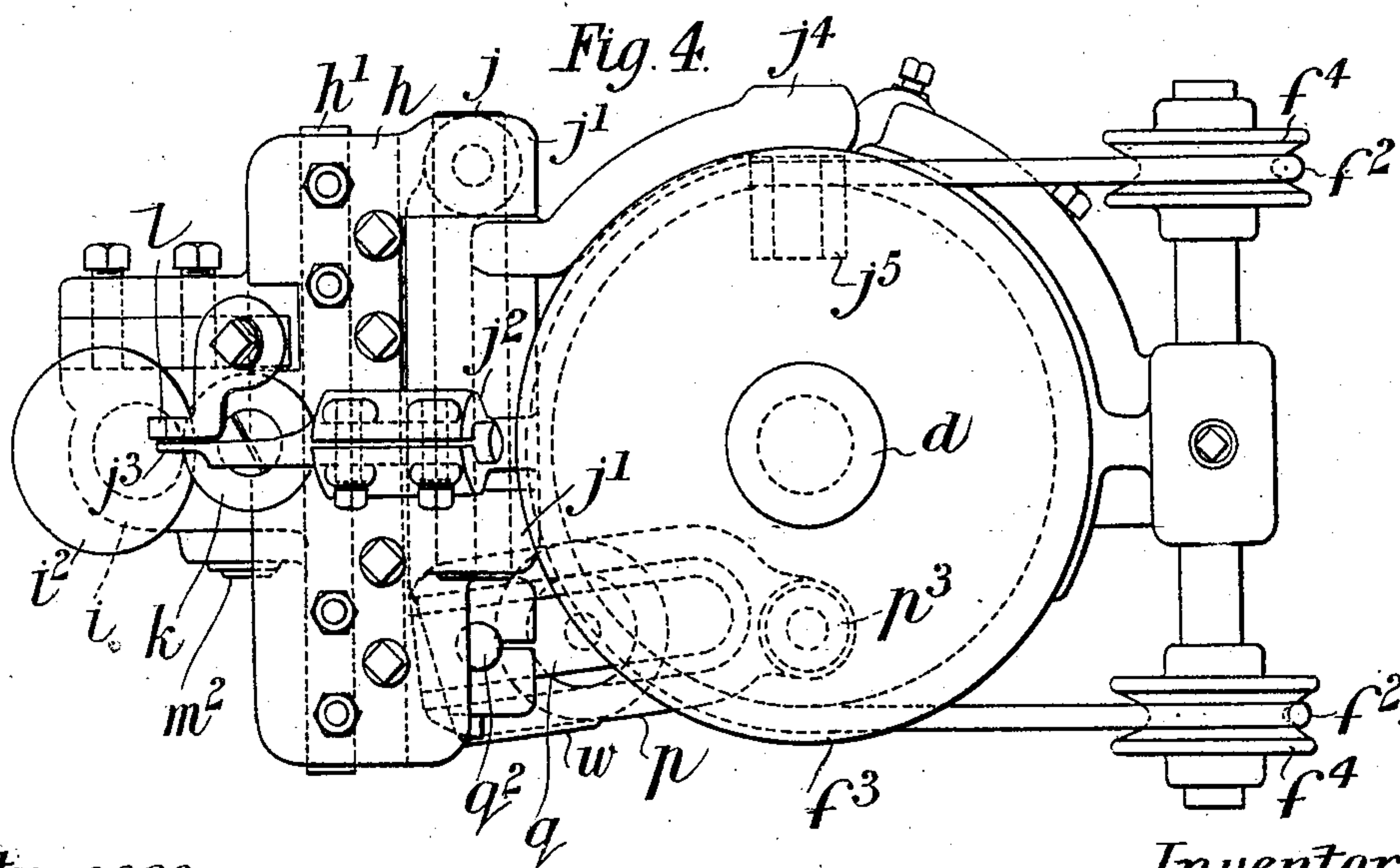
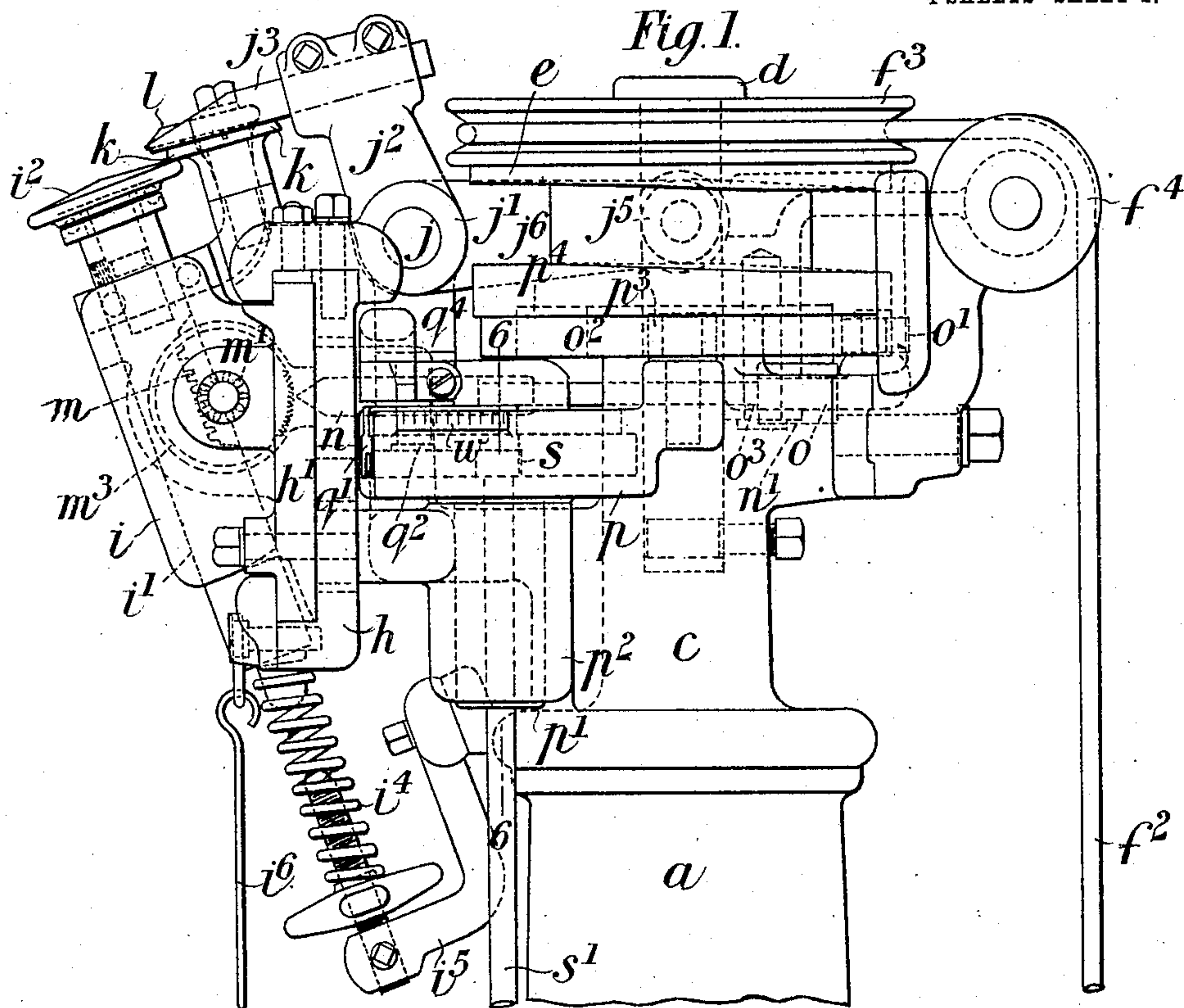
PATENTED JAN. 14, 1908.

M. T. DENNE.

MACHINE FOR SEPARATING OR INDENTING STITCHES ON BOOTS AND SHOES.

APPLICATION FILED FEB. 24, 1906.

4 SHEETS—SHEET 1.



Witnesses.

J. K. Moore
Hubbard

Inventor.

Mark Y. Denner
by
Whitaker Cross
attys.

No. 876,699.

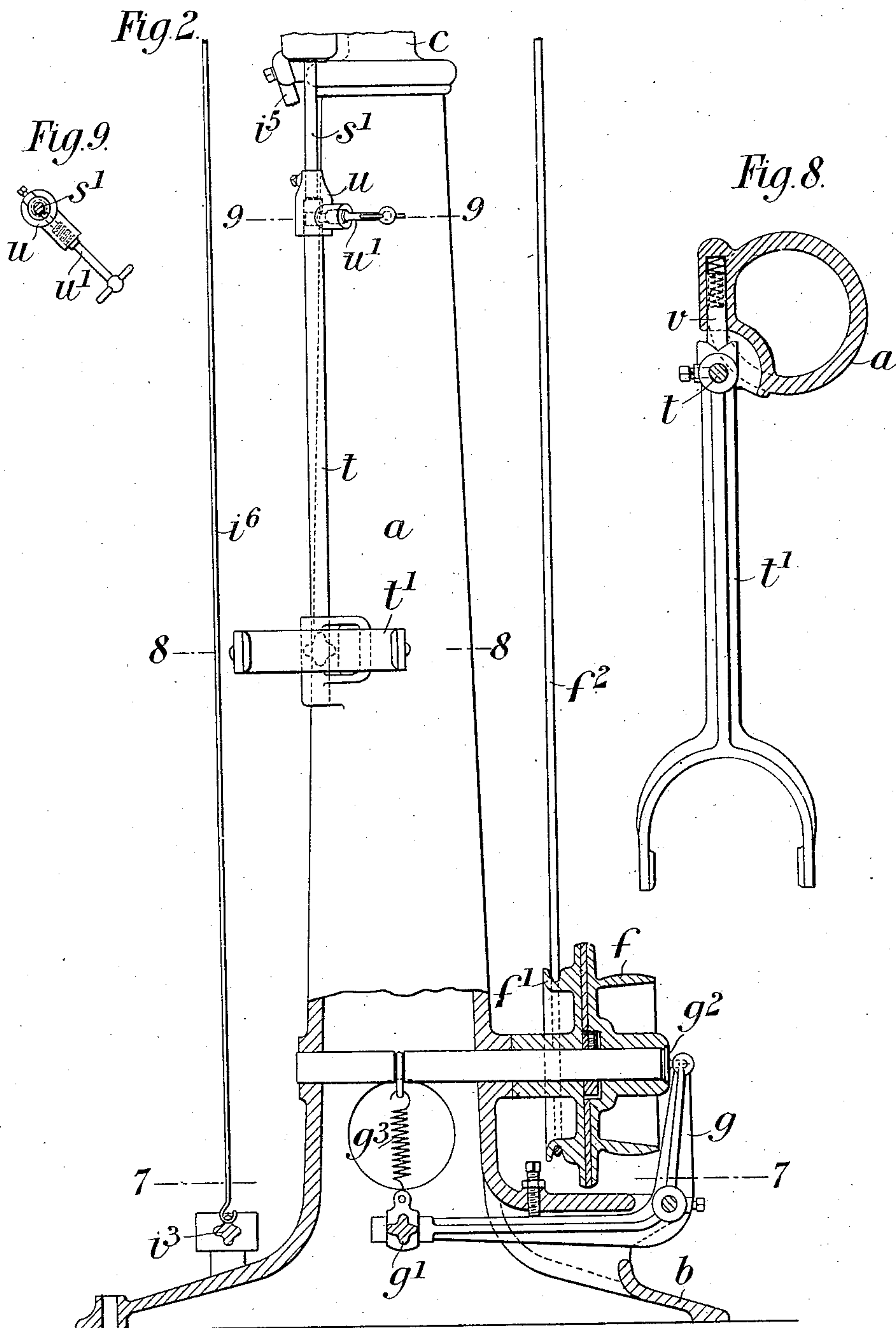
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4 SHEETS—SHEET 2.



Witnesses.

J. K. Moore
F. H. Hubbard

Inventor.

Mark Y. Demme.
by
Whitaker Burnett
attys.

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4 SHEETS—SHEET 3.

Fig. 3.

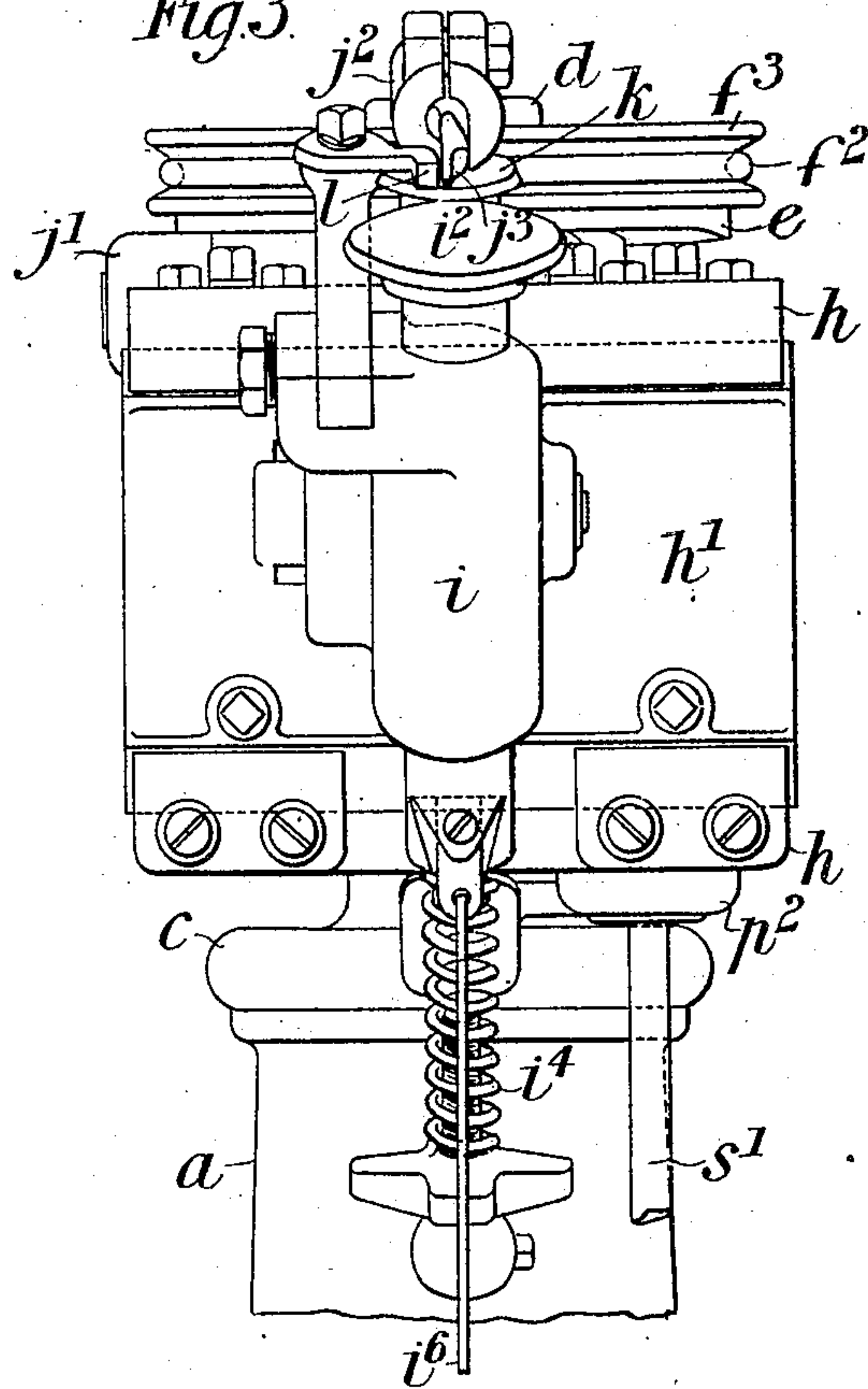


Fig. 6.

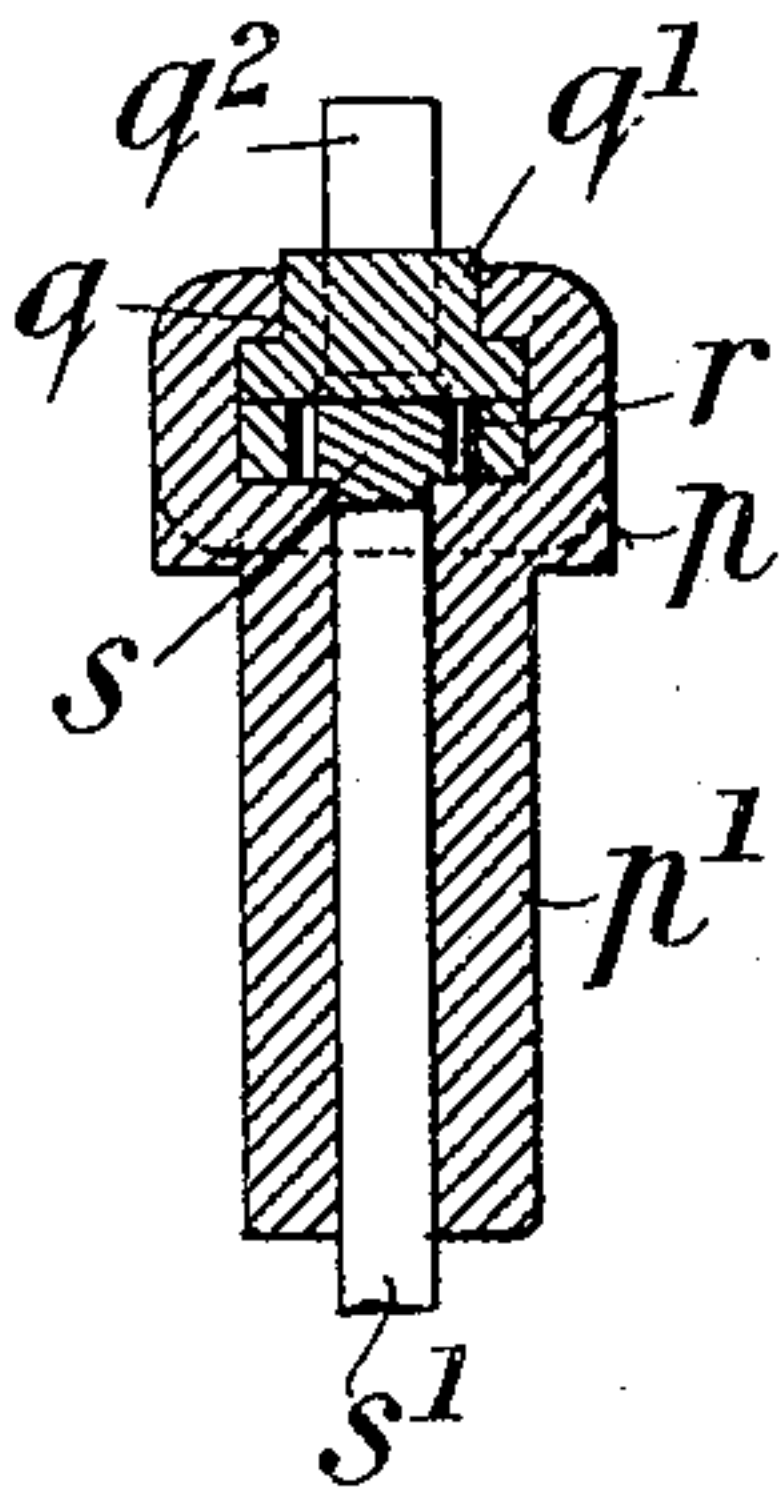
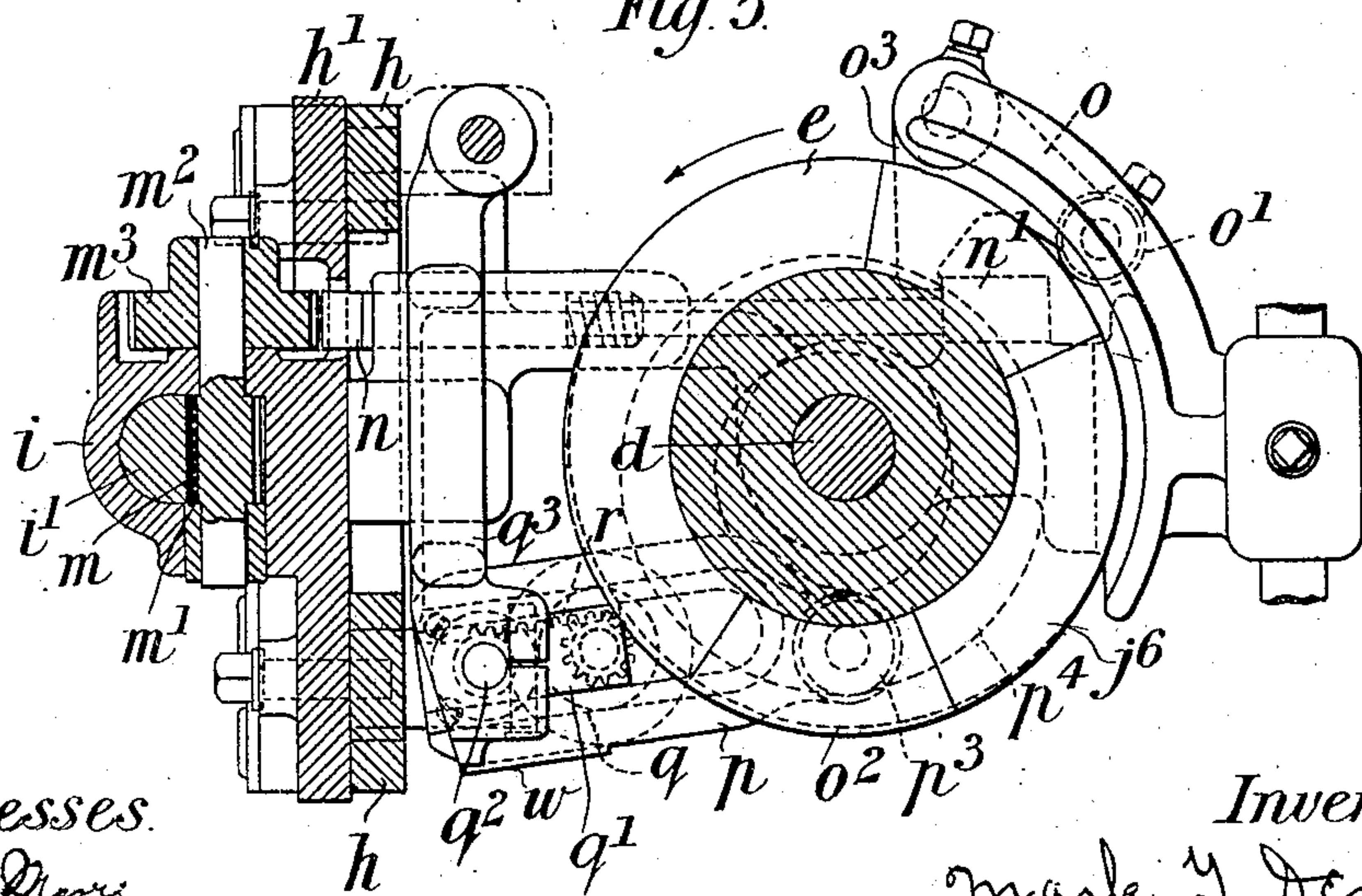


Fig. 5.



Witnesses.

J. K. Moore
F. H. Hubbard

Inventor.

Mark Y. Denne
by
Whitaker & Tabor
attys.

No. 876,699.

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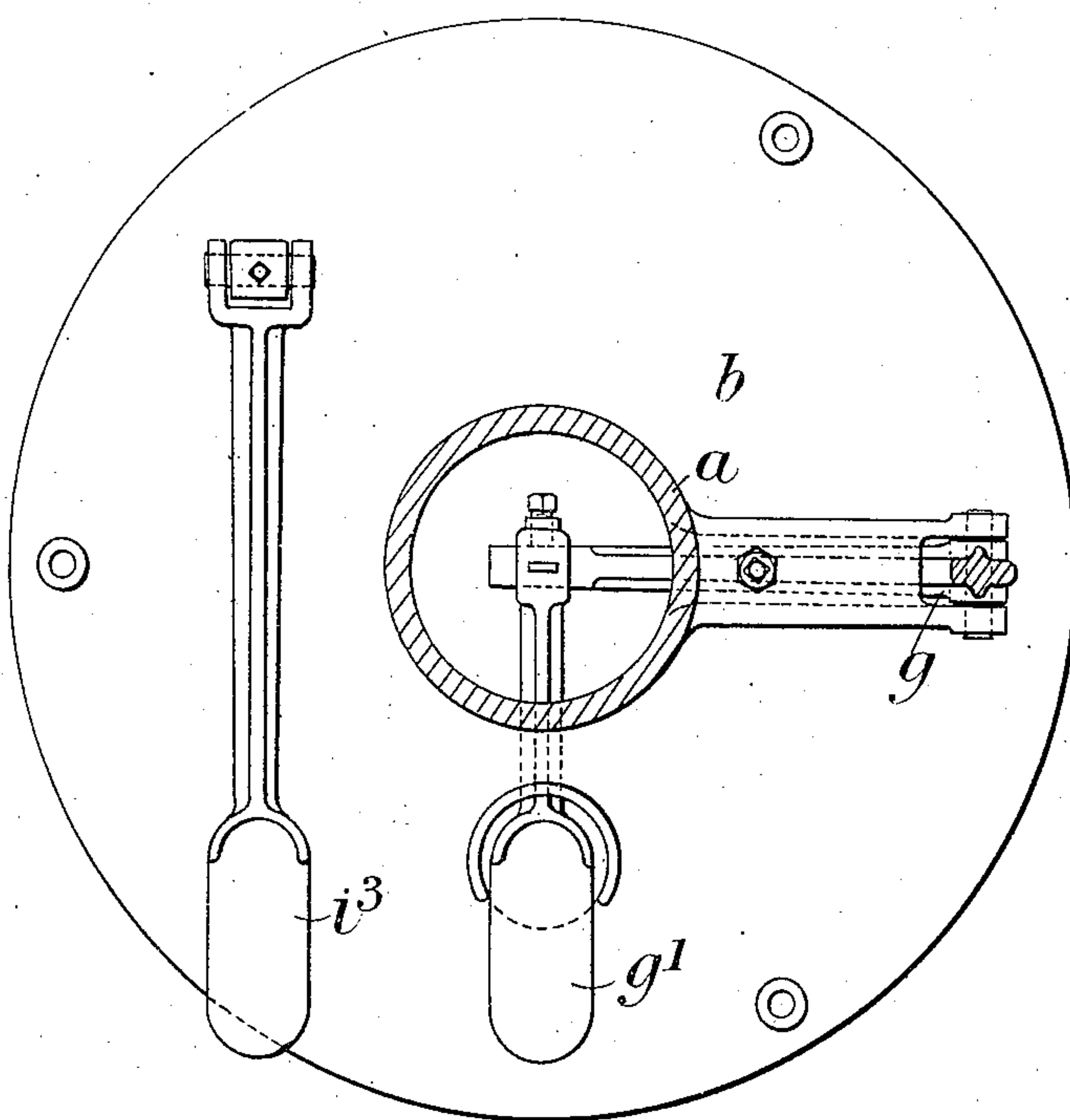
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4 SHEETS—SHEET 4.

Fig. 7.



Witnesses.

J. K. Moore
J. H. Hubbard

Inventor.

Mark T. Denne
by
Whitaker & Tamm
attys

UNITED STATES PATENT OFFICE.

MARK THOMAS DENNE, OF RUSHDEN, ENGLAND.

MACHINE FOR SEPARATING OR INDENTING STITCHES ON BOOTS AND SHOES.

No. 876,699.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed February 24, 1906. Serial No. 302,736.

To all whom it may concern:

Be it known that I, MARK THOMAS DENNE, a subject of the King of Great Britain, residing at Rushden, Northamptonshire, England, have invented new and useful Improvements in Machines for Separating or Indenting Stitches on Boots and Shoes, of which the following is a specification.

My invention relates to machines used in the manufacture of boots and shoes for separating the stitches or indenting the leather of the welt between the stitches; and is intended to follow the operation of "stitching" in either "welted", "machine sewed and stitched" or other forms of machine or hand made boots or shoes, and to that class of machine wherein a positive feed motion is given to the work. The machines in common use for this purpose at the present time may be separated in two classes, viz:—

(1) The class wherein an indenting tool is caused to move over the stitches and to enter the depressions between adjacent stitches when it momentarily comes to rest, and is then pressed by the action of the machine into the leather to indent the same. In this form therefore the variations in length of the stitches found in most work do not affect the result and the indentations are formed at greater or lesser distances apart according to the length of the stitch. This action is satisfactory except in cases where the switch on the welt of the shoe is not sufficiently prominent to arrest the indenting tool which then may indent the leather without respect to the stitching.

(2) The class wherein the indenting tool, common to all machines of this kind, is reciprocated to make the impression only and has no horizontal motion, the work being fed forward by hand at the discretion of the operator.

In my improved machine I provide a positive feed motion which is set to give a standard length of feed to the work, which length is found by applying a metal gage to the stitches on the work about to be operated on. As there are slight variations in the length of stitch in most of the work the machine has to deal with, it is also necessary to effect a slight and instantly obtainable variation in the length of feed to compensate for this, and I effect this variation by a device connected to the main feed lever and so arranged as to vary the length of motion (without stopping the action of the machine) either in excess of

the standard length or vice versa. My improved device does not therefore depend on the prominence of the stitches for its successful operation, nor does it require a skilled operator to bodily move the work along from one stitch to another. Provided the stitch is of standard length the machine will deal with it in a perfect manner, and slight variations are easily seen and the necessary adjustment effected as the work passes under the indenting tool.

To enable my invention to be fully understood I will describe the same by reference to the accompanying drawings, in which:—

Figure 1 is a front elevation of the upper part of a machine constructed according to my invention. Fig. 2 is a front elevation of the lower part of the said machine but drawn to a smaller scale than Fig. 1. Figs. 3 and 4 are respectively a side elevation and a plan of the parts shown in Fig. 1, and Fig. 5 is a sectional plan of the same. Fig. 6 is a section on the line 6—6, Fig. 1. Figs. 7, 8 and 9 are sections on the lines 7—7, 8—8, and 9—9 respectively of Fig. 2.

a is the pillar or pedestal of the machine provided with an enlarged foot or base *b* and carrying at the upper end a frame or head *c* in which is carried a vertical shaft *d* having mounted upon it a cam drum *e* for imparting movements to the various parts of the machine and to which motion is transmitted by any suitable means. As shown in the drawing motion is transmitted from a belt pulley *f* on the base to an adjacent grooved pulley *f*¹ and thence through a band *f*² to a grooved pulley *f*³ formed upon or fixed to the upper part of the cam-drum *e*, the said band passing around guide pulleys *f*⁴. The pulley *f*¹ is loose relatively with the belt pulley *f* and the said pulleys have their adjacent surfaces arranged in contact so that motion will be transmitted from one to the other.

g represents a bell crank lever which at one end is arranged in connection with a treadle *g*¹ and at the other end adapted to bear against the boss of the pulley *f* at *g*² in such a manner that, when pressure is applied to the treadle *g*¹, the said pulley *f* will be forced into frictional contact with the pulley *f*¹ to drive the latter. A spring *g*³ serves to normally hold the lever *g* so that the frictional surfaces are out of contact.

h is the sliding plate which is mounted on a guide plate *h*¹, on the head *c* and on the

face of this guide plate is formed a socket i in which slides a bar i^1 carrying at its upper end a work table i^2 and capable of being moved more or less vertically by means of a treadle i^3 against the pressure of a spring i^4 which is supported by an arm i^5 on the head c and acts against the lower end of the sliding bar i^1 , the movement of the treadle being communicated to the said bar through the medium of a rod i^6 .

Upon a pin j carried in lugs j^1 on the slide h is mounted a two armed lever one arm j^2 of which carries the tool j^3 by means of which the indentations or stitch marks are formed, while the other arm j^4 carries a roller j^5 which extends into the cam-groove j^6 of the drum e , the said groove being formed in such a manner that, as the cam is rotated, an oscillating movement will be imparted to the double armed lever to produce the desired movement of the indenting tool j^3 . This tool projects over the work table i^2 so as to act upon the work supported thereon.

Adjacent to the table i^2 is mounted an edge wheel k against which the edge of the sole is placed as the work proceeds, and in connection with the said table I also arrange a presser foot l between which and the table the sole or welt to be inserted is placed. In practice, the work table i^2 is made rotatable so that it can follow the movements of the work when the latter is fed beneath the indenting tool as hereinafter described. In order to lock the work table so that it shall not move downwards while the indenting tool is pressing upon the work I provide means for locking the sliding bar i^1 carrying the table. As shown in the drawing, the said sliding bar is formed with a series of rack teeth m with which engages a pinion m^1 mounted on a spindle m^2 carried in the socket i and which spindle also has upon it a notched or toothed wheel m^3 with which a detent n is adapted to engage, as shown in Figs. 1 and 5, the said detent n having at its rear end a sliding block n^1 . In connection with this detent is a bell crank lever one arm o of which carries a roller o^1 which runs on a cam surface o^2 on the periphery of the cam drum e while the other arm o^3 of the said lever bears against the block n^1 . The cam surface o^2 is of such formation that during the time that the work is being fed forward upon the work table i^2 the detent n will be drawn out of engagement with the notched wheel m^3 and that during the time that the indenting tool is acting against the work the detent will engage with the said notched wheel to lock the sliding bar i^1 carrying the work table.

The feeding of the work is effected through the medium of the indenting tool j^3 to which a slight reciprocating movement is imparted during the time that the tool is in engagement with the work. This feeding move-

ment is produced by transmitting a slight lateral movement to the sliding plate h through the medium of a slotted lever p having a boss p^1 on its underside which works in a bearing p^2 on the head c , the said lever p at one end carrying a roller p^3 which runs in a cam groove p^4 on the underside of the cam drum e . In the slot q of the lever p is mounted a sliding block q^1 (Figs. 5 and 6) which sliding block carries a pin q^2 to which one end of a link q^3 is connected, the other end of the said link being united to a projection q^4 on the underside of one of the lugs j^1 of the slide h .

The sliding block q^1 is on the underside provided with a groove having a series of rack teeth r on one side with which teeth a pinion s engages, the said pinion being mounted on a shaft s^1 which passes through the boss p^1 . It will be understood that by rotating the pinion s the position of the block q^1 and consequently of the pivot q^2 relatively with the pivot or fulcrum p^1 of the lever p can be varied and produce a corresponding variation in the movement imparted to the slide h and indenting tool j^3 from the cam.

Provision is made for enabling the person operating the machine to vary the position of the pivot q^2 during the working of the machine. For this purpose a shaft t is arranged on the pedestal a of the machine in alinement with the shaft s^1 , the said shaft t having at its lower end a lever t^1 adapted to be operated by the knee of the operator. At the upper end of the shaft t is a coupling u which is permanently attached to the shaft s^1 , but adjustably connected with the shaft t through the medium of a set screw u^1 . The lever t^1 has in combination with it a spring device v shown in Fig. 8, which device, after the lever has been moved to either side of its central position and is released, will return the said lever to this central position.

In adjusting the machine for any particular work I first apply a metal gage to the stitches on the work about to be operated upon in order to ascertain the number to the inch and I then more or less rotate the shaft s^1 to adjust the position of the pin q^2 according to the number of stitches, this adjustment being determined by means of a scale w , (Fig. 1) upon the edge of the lever p over which the end of the link q^3 works. This operation having been performed, the set screw u^1 is tightened to lock the shafts s^1 and t firmly together so that the operative by means of his knee may slightly vary the distance between the indentations as the work proceeds according to any variations between the stitches of the particular piece of work being operated upon.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a machine for separating or indenting the stitches on boots and shoes, the combination with an indenting tool, a slide carrying the same, and means for reciprocating the said slide including a forked or slotted lever operatively connected with said slide, a block movable longitudinally of said lever in its fork or slot, a shaft passing through the pivot of said lever and operatively connected with said sliding block to move the same longitudinally of said lever, substantially as described.

2. In a machine for separating or indenting the stitches on boots and shoes, the combination with an indenting tool, a slide carrying the same and means for reciprocating said slide including a forked or slotted lever operatively connected with said slide, a block having rack teeth and movable longitudinally of said lever in the slot of the same, and a shaft passing through the pivot of said lever and provided with a pinion engaging the rack upon said block to move the same, substantially as described.

3. In a machine for separating or indenting stitches on boots and shoes, the combination with the indenting tool and a slide carrying the same, of means for reciprocating the said slide comprising a forked or slotted lever operatively connected with said slide, a block movable longitudinally of said lever in its fork or slot, a shaft passing

through the pivot, of said lever operatively connected with said block, said shaft extending downward and provided with means whereby the operator may turn said shaft and means for returning said shaft to normal position, substantially as described.

4. In a machine for separating or indenting stitches on boot and shoe soles, the combination with a table or work support mounted on a sliding bar, and a spring tending to force the said work support upward, of a rotating notched disk operatively connected with said sliding bar and a reciprocating detent for engaging said disk and locking it from movement, and means for withdrawing and applying said detent, substantially as described.

5. In a machine for separating or indenting the stitches on boot and shoe soles, the combination with a table or work support mounted on a sliding bar provided with rack teeth, of a shaft having a pinion engaging said rack, said shaft having a toothed disk upon the same, a reciprocating detent and means for automatically withdrawing the detent from the disk at the time the feed of the machine takes place, substantially as described.

MARK THOMAS DENNE.

Witnesses:

ARTHUR CAVE,
H. DORRETT.