

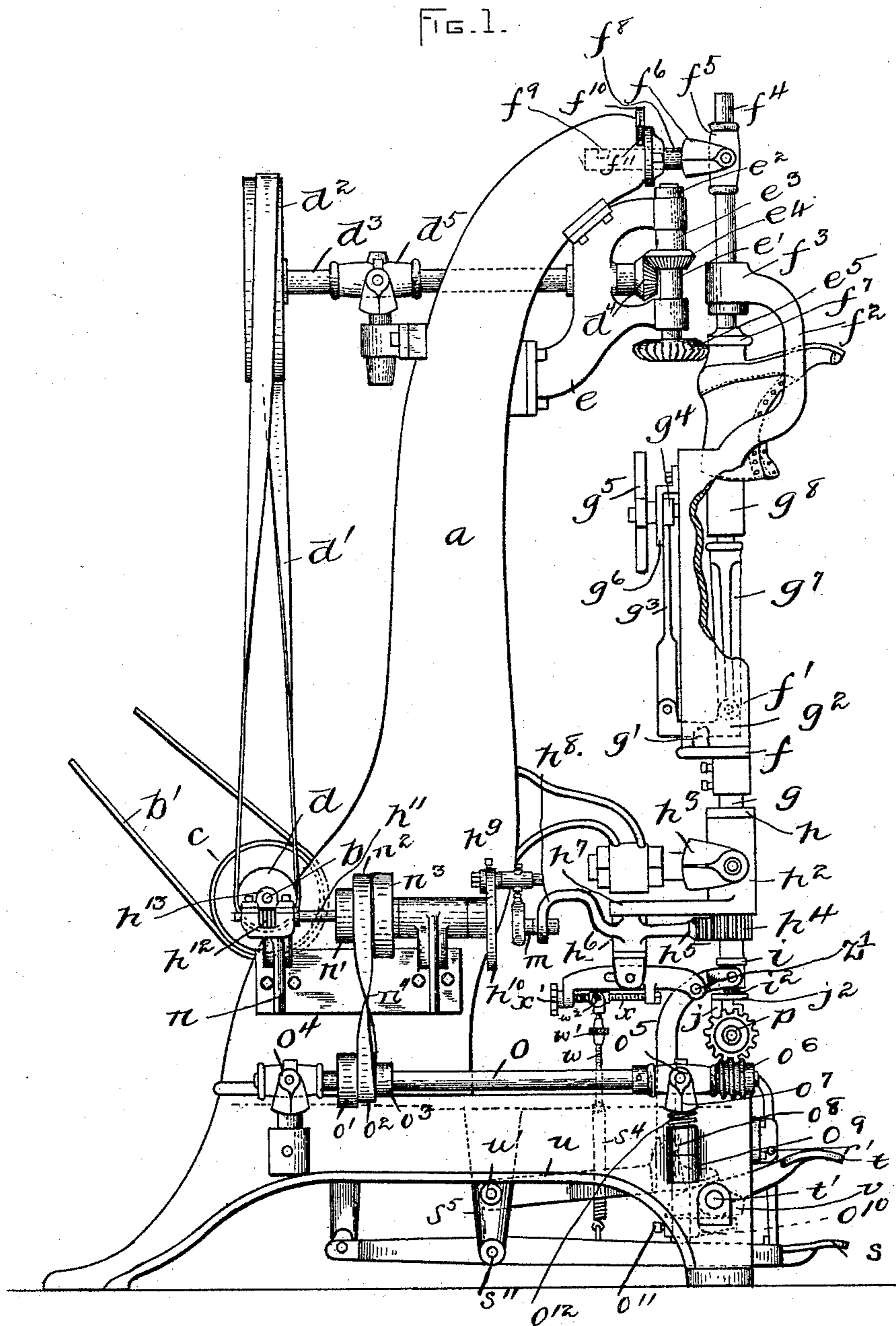
(No Model.)

4 Sheets—Sheet 1.

A. L. F. MITCHELL.
BURNISHING MACHINE.

No. 495,746.

Patented Apr. 18, 1893.



WITNESSES:

Imation City
Harry J. Davis

INVENTOR:

Albion L. F. Mitchell
By Wright Bond Counsel
his attys

(No Model.)

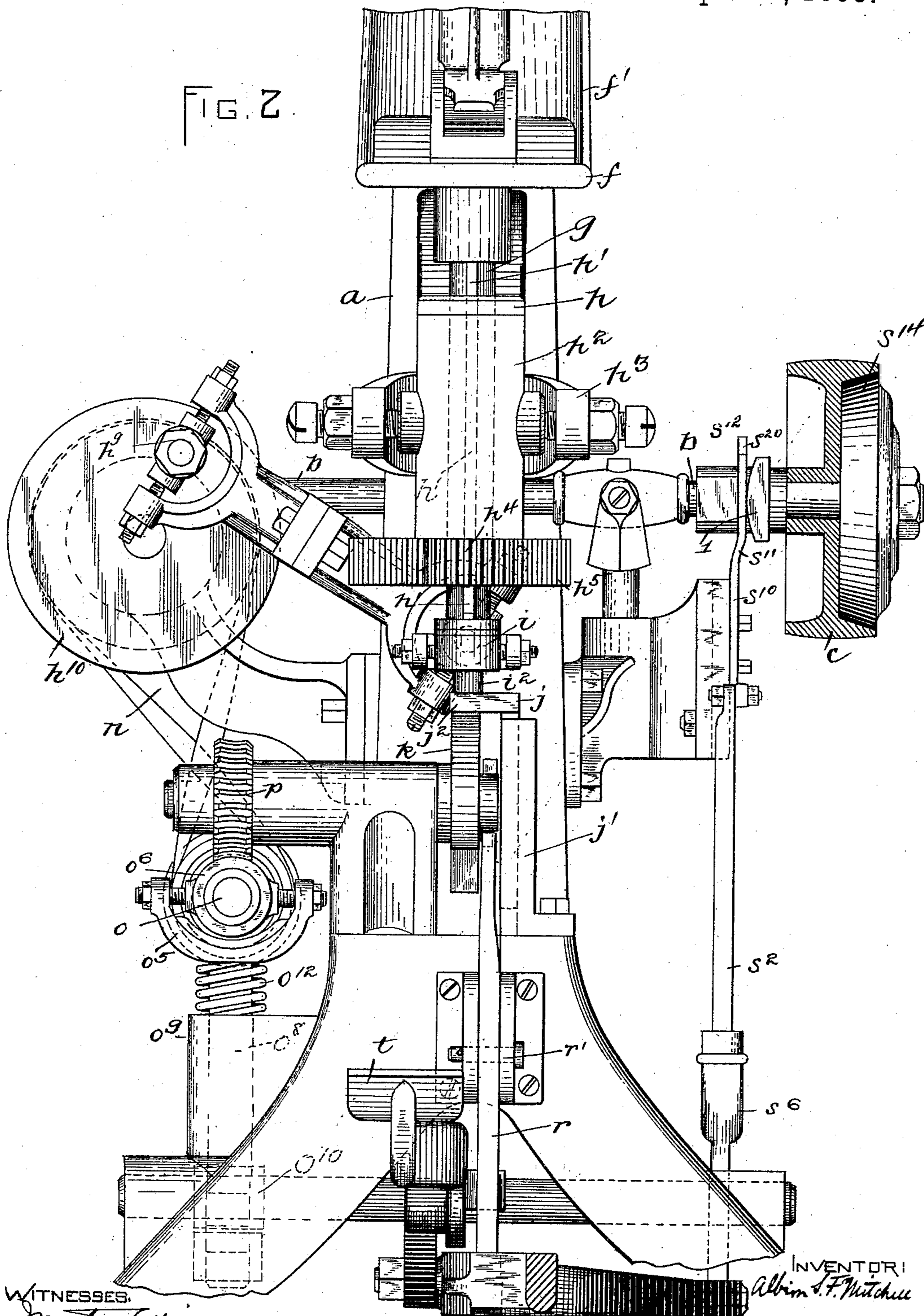
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FIG. 2.



WITNESSES.
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(No Model.)

4 Sheets—Sheet 3.

A. L. F. MITCHELL.
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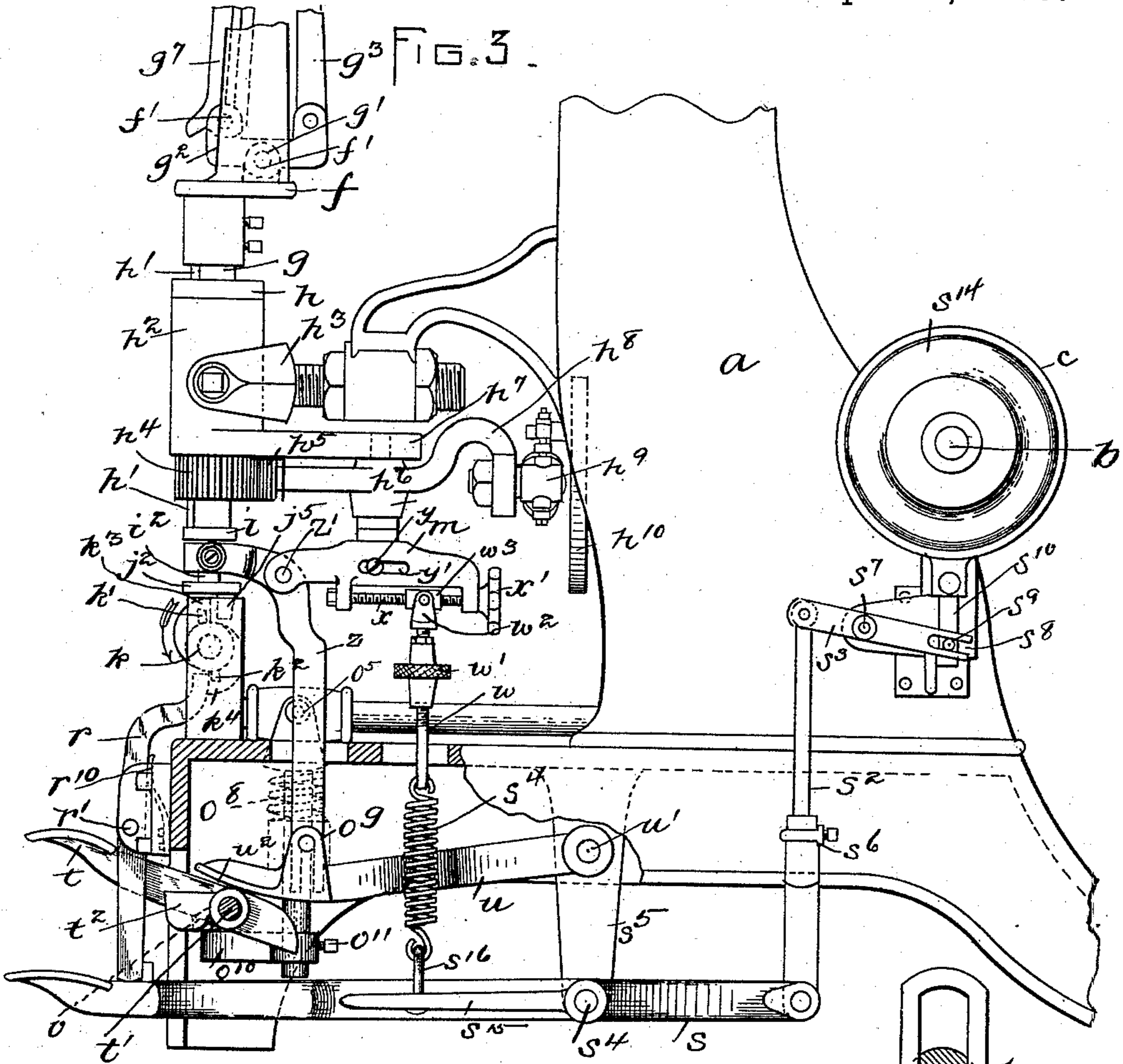
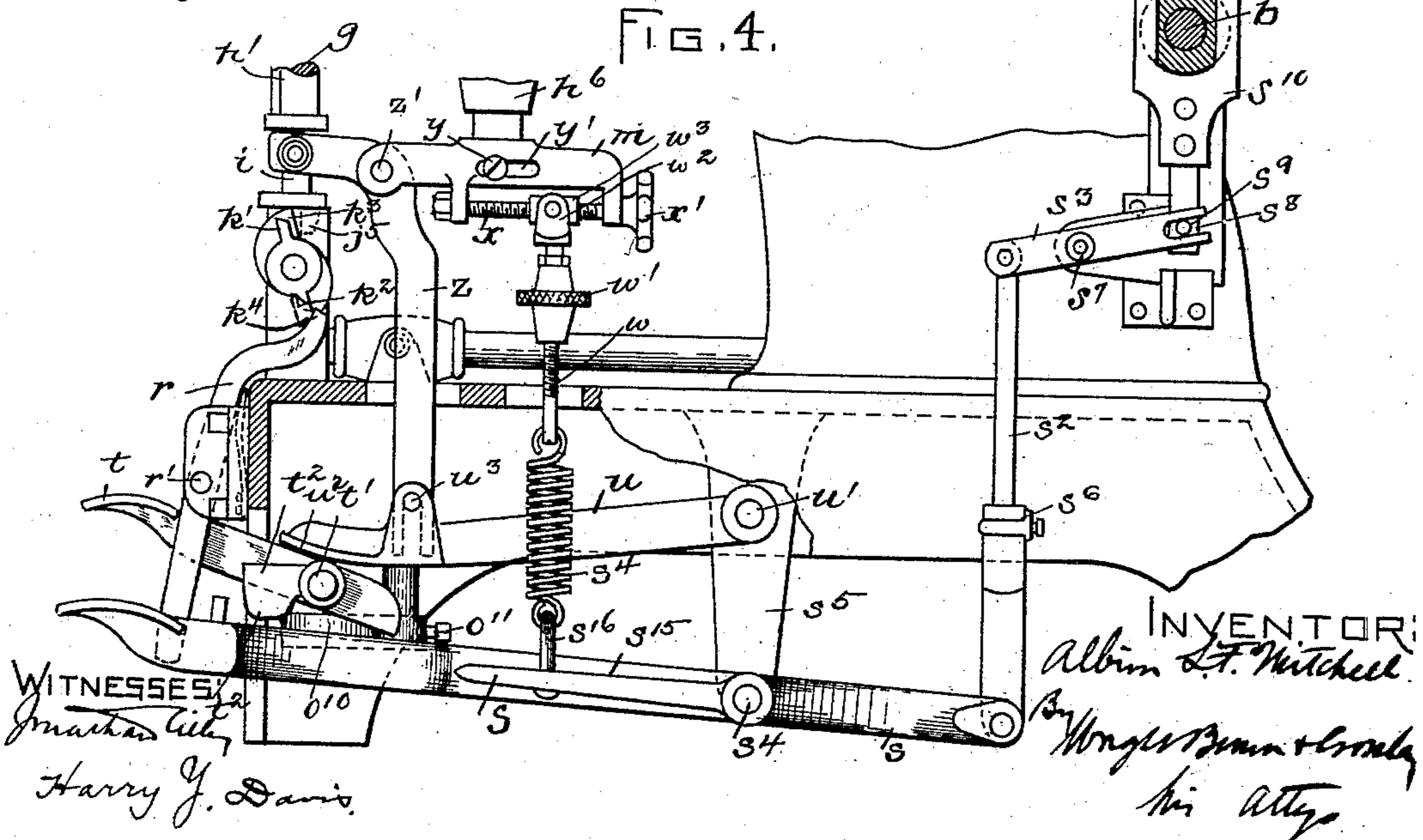


FIG. 4.



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INVENTOR:
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By Wm. L. Brown & Co.
his Atty.

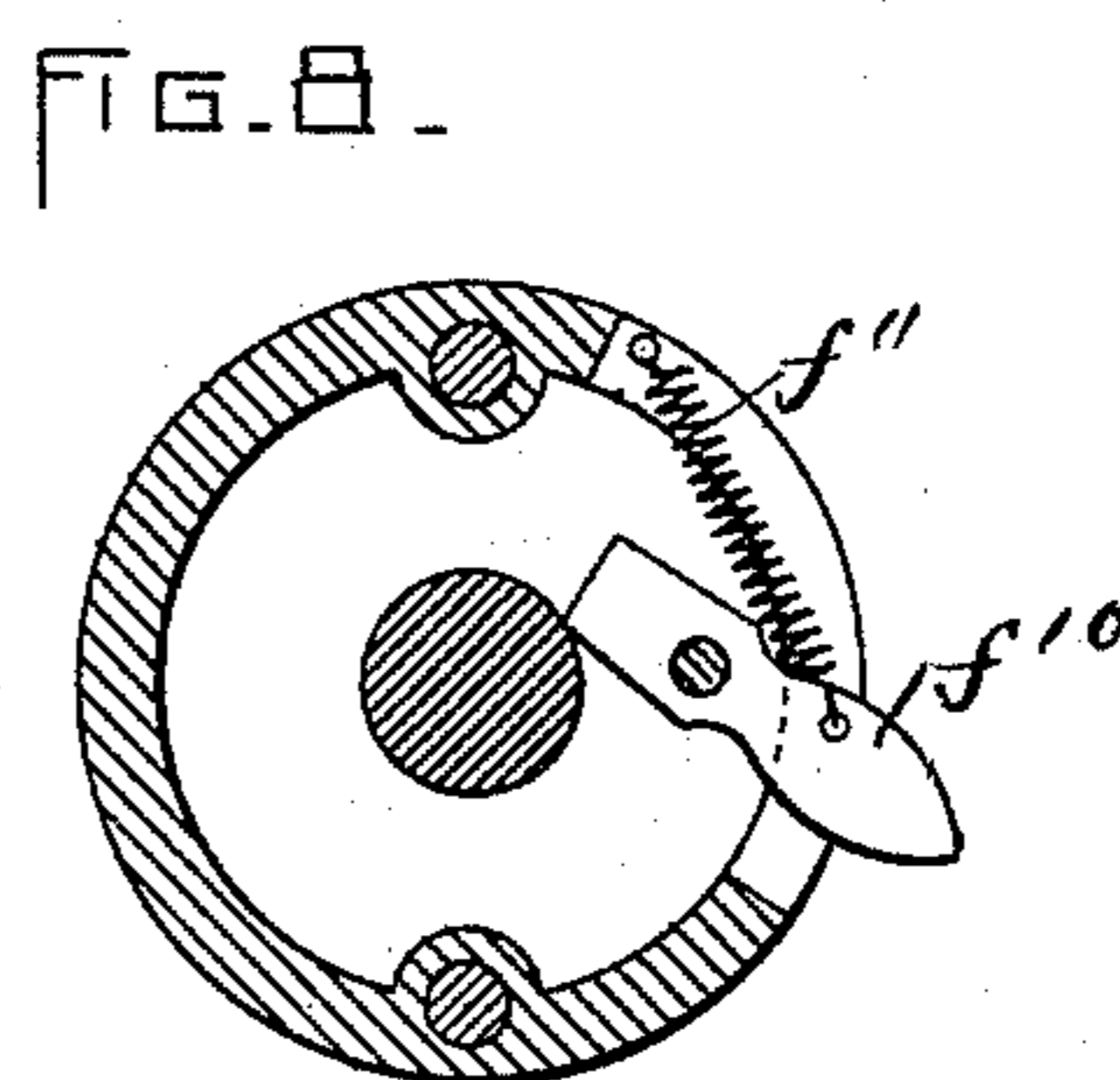
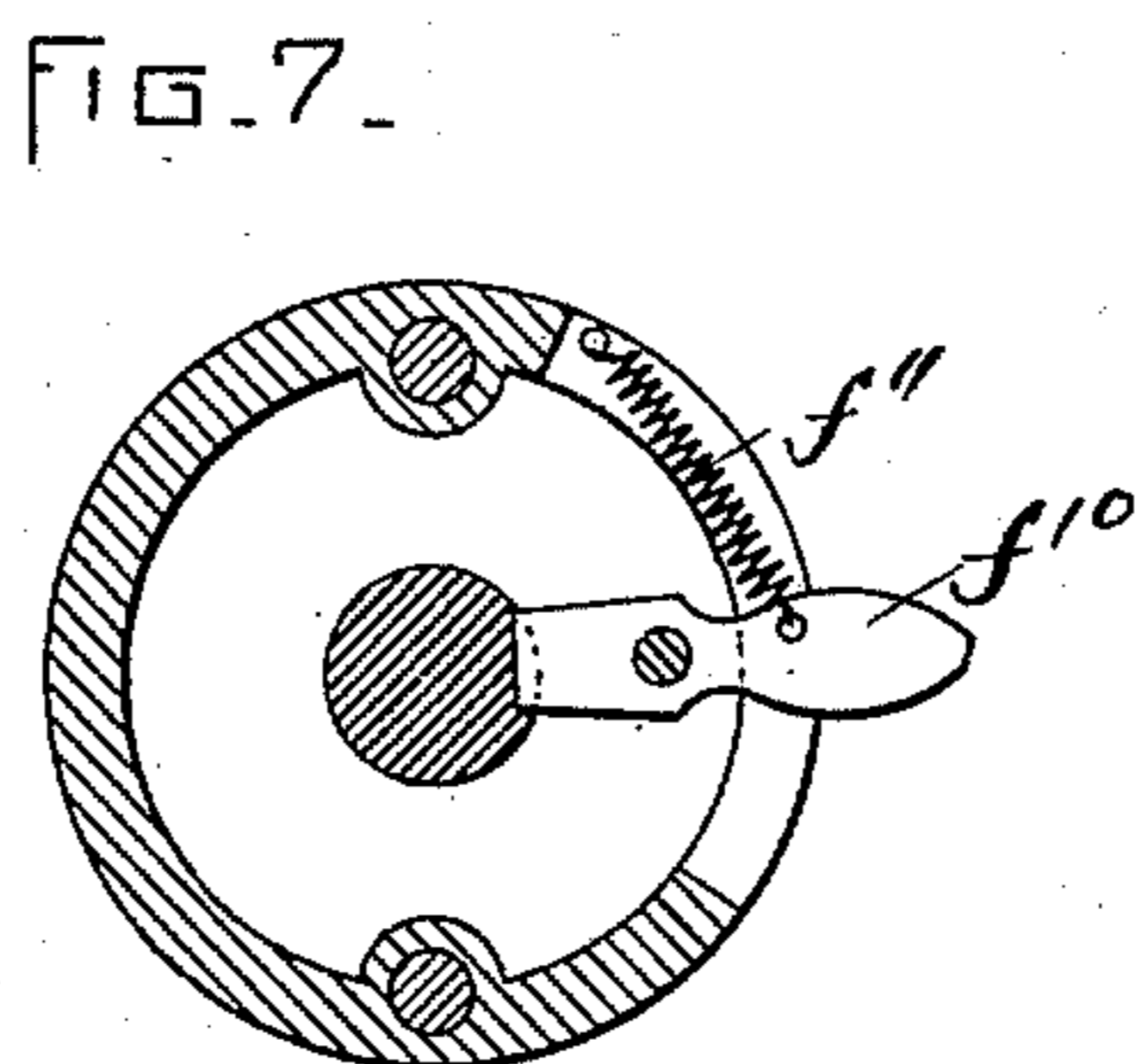
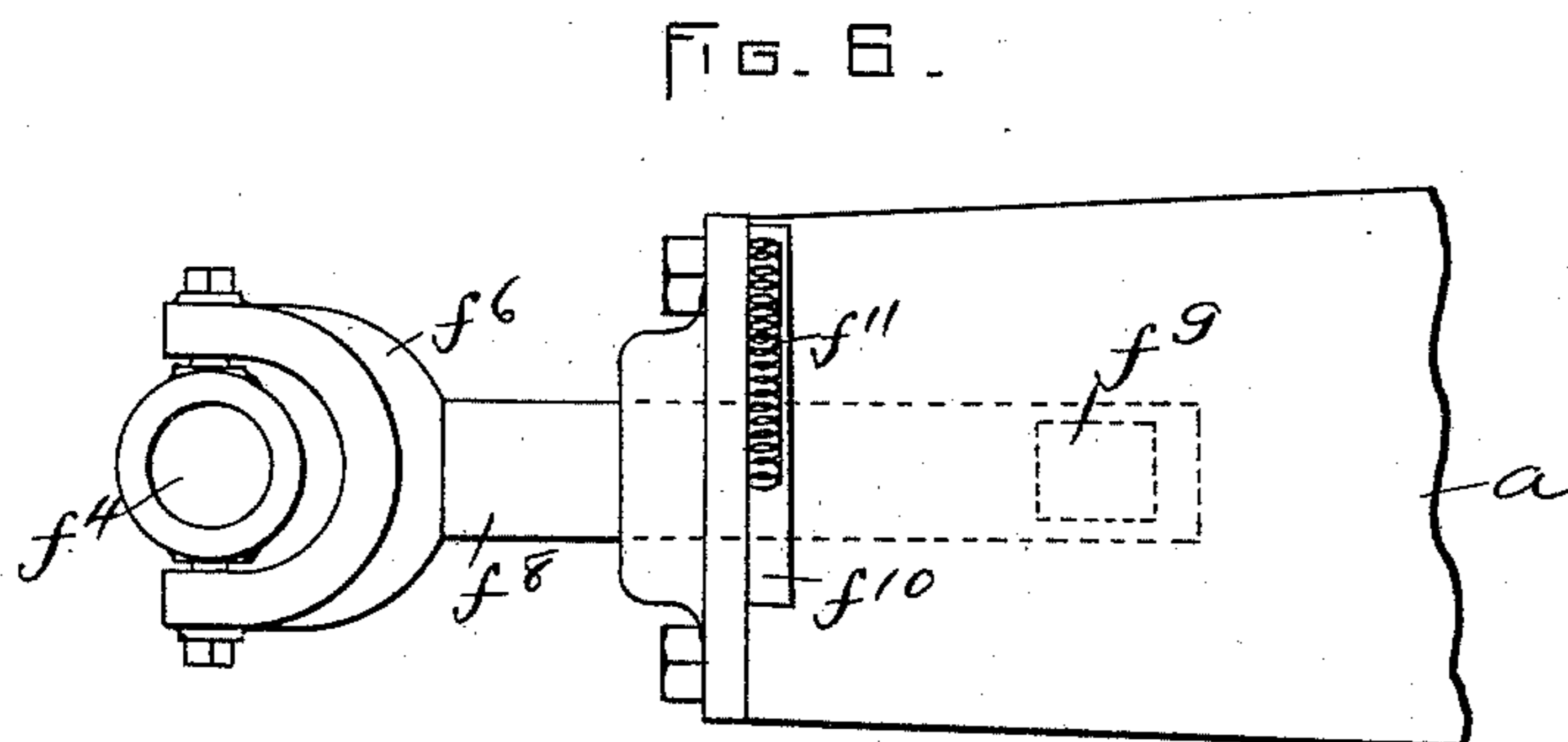
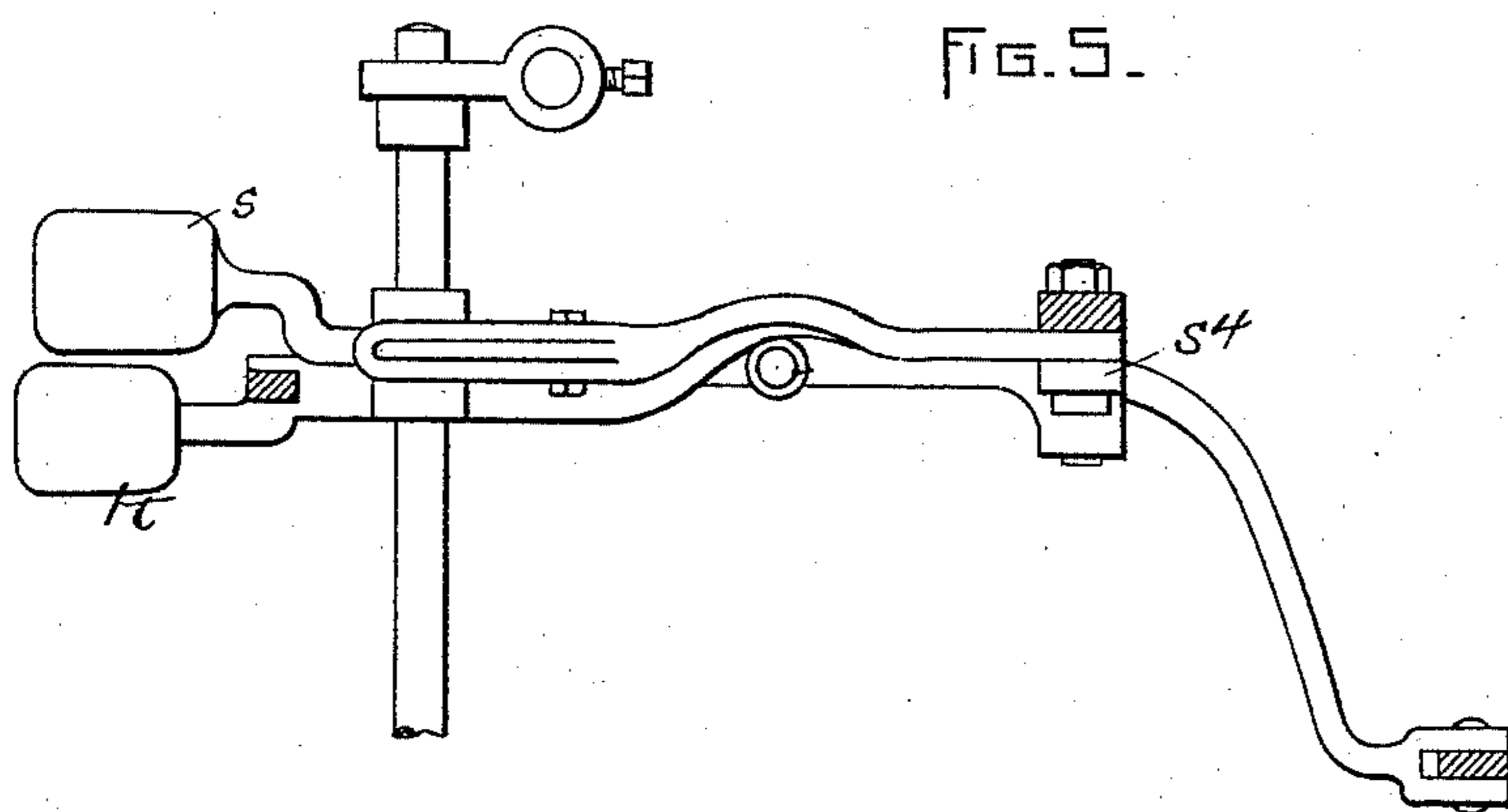
(No Model.)

4 Sheets—Sheet 4.

A. L. F. MITCHELL.
BURNISHING MACHINE.

No. 495,746.

Patented Apr. 18, 1893.



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UNITED STATES PATENT OFFICE.

ALBION L. F. MITCHELL, OF LYNN, MASSACHUSETTS, ASSIGNOR TO JOSIAH MITCHELL, OF SAME PLACE.

BURNISHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 495,746, dated April 18, 1893.

Application filed May 24, 1892. Serial No. 434,211. (No model.)

To all whom it may concern:

Be it known that I, ALBION L. F. MITCHELL, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heel-Burnishers, of which the following is a specification.

My invention relates to a machine for burnishing the heels of boots, shoes and like articles, and is designed to be an improvement upon an apparatus for which I have obtained Letters Patent No. 452,032, dated May 12, 1891, and to which reference is hereby made for a more complete understanding of the present invention.

The object of the present invention is to construct a machine which will accomplish in a more efficient manner the purposes for which such machine is intended, and, at the same time, involve fewer parts, and be more readily operated than machines of a like character heretofore used.

To these ends, reference being had to my aforesaid Letters Patent, my invention consists in improved means of mounting and imparting motion to the burnishing tool, which, in this instance is a rotating instead of a reciprocating instrument; improved means of imparting motion to and controlling the main shaft of the machine from which the burnishing tool derives its motion and the jack its rotation and vertical movement; improved means of regulating the pressure of the heel upon the burnishing tool; improved means of raising and lowering the jack automatically to permit freedom of movement thereof toward and from the tool, and improved means for limiting the last-mentioned movement of the jack and retaining it in its position away from the tool as may be desired, all as shall now be described and pointed out in the claims.

In the accompanying drawings forming part of this specification, I have shown what I deem the best embodiment of my invention, although it is obvious that I am not limited to the precise construction there shown.

Figure 1 is a side view of the machine; Fig. 2, an enlarged front view of a portion of the apparatus; Fig. 3, a side view of the lower portion of the machine, also enlarged; Fig. 4,

a view showing the mechanism in a position different from that of Fig. 3. Fig. 5 is a top view of the treadles. Figs. 6, 7 and 8 are details of a device for limiting the extent of movement of the jack away from the burnishing tool, and retaining the same in its position away from the tool.

a is the main frame or post.

b is the main shaft which carries pulley *c*, adapted to engage the shaft *b* by an improved clutch mechanism, which may be thrown in and out of engagement at will from the front of the machine, as shall presently appear. Shaft *b* also carries pulley *d*, rigidly secured thereto, which is connected to pulley *d*² by belt *d*'. Pulley *d*² is secured to shaft *d*³, which has bearings in support *d*⁵, and bracket *e* on the post *a*. Spindle *e*' also journaled in bracket *e* has collars *e*², *e*³ and bevel gear *e*⁴ meshing with gear *d*⁴ on shaft *d*³. Burnisher *e*⁵ carried by spindle *e*' is of a well-known circular form, with ridges or grooves thereon, as is usual in such tools.

The jack and its attendant mechanism are as follows: Secured to a rotary shaft *g* is a disk or plate *f*, upon which is a frame *f*', semi-cylindrical in cross-section and ending in arms *f*², which join together above, forming a bearing *f*³ for the hanging shaft *f*⁴. This shaft *f*⁴ is hung from a pivoted bearing *f*⁵, which is supported on the end of a stud *f*⁶ passing into the top of post *a* so as to slide in and out from the post. On the lower end of hanging shaft *f*⁴ is the plate *f*⁷, against which the bottom of the heel is to be pressed. Upon a pair of ears *g*' on the plate *f* is mounted the lever *g*².

*g*³ is a connecting rod, one end of which is pivoted to the lever *g*², the other end lying against the cam *g*⁴ on a shaft carrying a hand-wheel *g*⁵, being held in place by a slotted link *g*⁶ attached to the part *f*', as will be clear by reference to my aforesaid Letters Patent. Upon the other end of the lever *g*² is pivotally mounted a spindle *g*⁷ carrying a jack *g*⁸, the upper end of which furnishes a support for the shoe to be burnished. The spindle and jack are adjustable in length, so that the machine may be used to burnish heels of varying thicknesses. The spindle and jack piv-

oted to the frame f' being swung forward through an arc of thirty degrees to receive the shoe, are then swung back into position, as shown in Fig. 1. The hand-wheel g^5 is then turned to so operate the cam g^4 as to depress the end of the lever g^2 to which the rod g^3 is attached, thus elevating the spindle g^7 and jack g^8 and binding the heel against the plate f^7 and holding it fast, the reverse motion of these parts allowing the shoe to be removed.

The mechanism for giving the shoe a rotary motion is as follows: The shaft g on which the plate f is mounted passes through a sleeve h to which it is splined at h' , so as to rotate with the sleeve but move vertically in it, and it sets upon a stud i so as to oscillate thereon. Stud i has on its under surface the pin or projection i^2 , which rests upon a right-angled piece j , which slides in the bracket j' mounted upon the frame of the machine. This piece j is provided with a pin j^5 which rests upon cam k , by which the jack and its attendant mechanism are raised and lowered. The sleeve h lies within a bearing h^2 which is hung in a yoke h^3 , so that the jack may swing out from the tool as the diameter of the heel increases. This swinging movement is permitted by the stud f^6 , which is secured to spindle f^8 sliding in the post a . This spindle is provided with a slot or recess f^9 which is engaged by a pivoted lever f^{10} in the post a , serving as a detent or catch which is acted upon by a spring f^{11} , whose tendency is to press the said detent or catch into engagement with said slot when the spindle is drawn out to the required extent. It will be observed that this improvement prevents the jack from being pulled too far from the post a , and will hold the same in position away from the post while a shoe is being set in place. Yoke h^3 is adjustably secured to the post a , so that the position of the jack with reference to the tool may be adjusted according to the size of the heel to be burnished. To the sleeve h is fastened a gear h^4 into which meshes a segment-gear h^5 , which turns on a stud h^6 mounted on the lever m in a manner presently to be explained. The stud passes up and screws into the arm h^7 which is cast onto the bearing h^2 , (see Fig. 3.) The segment-gear is oscillated by means of a connecting rod h^8 which connects it with a crank-pin h^9 mounted on a disk h^{10} , this disk being on the end of a shaft h^{11} , which is mounted on the bracket n and carries at its farther end a worm h^{12} meshing into a gear h^{13} on the main shaft b . On shaft h^{11} are pulleys n' , n^2 , n^3 , connected by belt n^4 with pulleys o' , o^2 , o^3 on shaft o . This shaft o is supported in pivoted bearings o^4 , o^5 , and has at its outer extremity worm o^6 , meshing with gear p , which is connected to and rotates cam k . Stud or spindle o^8 of bearing o^5 is guided in ear o^9 , extends downwardly, and has a retracting bar o^{10} secured adjustably thereto by set-screw o^{11} . Spring o^{12} tends to press worm o^6 and gear p together and keep them in mesh. Cam k on

which piece j rests is rotated by gear p and has two cam projections or surfaces k^3 , k^4 and pins k' , k^2 . Cam surfaces k^3 , k^4 engage pin j^5 on arm j^2 of piece j to raise and lower the jack, while pins k' , k^2 engage a lever r pivoted at r' , one end of which engages a seat in treadle s . Treadle s is fulcrumed at s^4 in a hanger s^5 and is adjustably connected, as at s^6 , by rod s^2 , with lever s^3 , pivoted at s^7 . Lever s^3 is slotted at s^8 to engage pin s^9 on a sliding rod s^{10} , provided with a link s^{20} , having an offset at s^{11} to engage a block s^{12} , which is provided with collar l and is loose upon shaft b . A male disk s^{14} is secured to shaft b and is adapted to be engaged by female pulley c , which is loose upon shaft b and is moved in and out of engagement with disk s^{14} by the offset on link s^{10} , (Fig. 2.) When, therefore, treadle s is depressed, shaft b will rotate, said treadle being held down by lever r , provided with a spring r^{10} , whose pressure tends to force the lower end of lever r inwardly against the action of the pins k' , k^2 , to keep said lever in engagement with the seat or recess on said treadle. In a web s^{15} of treadle s is a link s^{16} , to which is attached a spring s^4 , whose other end is secured to a spindle w , screwthreaded into the bottom of an elongated adjusting nut w' , into the top of which is threaded another spindle provided with a yoke w^2 having a sleeve w^3 adjustably mounted upon a spindle x having the adjusting nut x' , said spindle x being suspended in hangers on lever m . Lever m is held on stud h^6 by a pin y in slot y' , and is attached to a hanger z , at z' , which is secured to stud i on shaft g . This construction, it will be observed, furnishes an adjustable pressure of the heel upon the burnisher, the tension being lighter upon the heel seat than upon the top-lift, and, at the same time, by spring s^4 , tends to pull treadle s upwardly when pins k' , k^2 on cam k displace lever r to stop the machine, (Fig. 4.)

The operation of the apparatus as thus far described will now be understood. Assuming the parts to be in the position shown in Fig. 4, the treadle being up, the female friction pulley will be out of engagement with the male disk, and the machine stopped. The shoe is inserted and the jack returned to place with the heel against the tool. Treadle s is now depressed, and held so, by lever r , moving pulley c outwardly and starting shaft b , which causes the burnishing tool through pulley d , belt d' , pulley d^2 and shaft d^3 , to revolve. Shaft h^{11} is also started, which actuates segment h^5 to cause the oscillation of shaft g , by which the heel is rotated. Through belt n^4 shaft o is actuated and the cam revolved to raise and lower the heel, so that the entire surface of the heel is presented to the revolving tool. When, however, the cam completes a half-revolution, pin k' or k^2 will strike lever r , displacing the lower end thereof from its seat in the treadle, which then rises in response to the tension of spring s^4 , and, throwing the friction pulley out, stops the entire

machine, the burnishing of one heel being completed. It may, however, be desirable to touch up portions of the heel without going through the entire automatic operation last described. To this end another treadle t is fulcrumed on shaft t' , and carries lug t^2 , which engages treadle s . A lever u is fulcrumed at u' , and is provided with pin u^3 to engage the slotted end of hanger z , which, as described, is secured to stud i , and said lever u has cam surface u^2 to engage treadle t . Depression of treadle t will, by lug t^2 , depress treadle s and start the burnisher. Worm o^6 will, also, be thrown out of gear as the retracting bar o^{10} is acted upon by cam v on shaft t' , and the cam k , therefore, prevented from revolving. Lever u will be raised, and with it the hanger z and the jack, thus permitting the heel to be applied to the tool at any desired point.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a burnishing machine, in combination with burnishing mechanism including a revolvable burnisher and gearing for positively rotating it, the main shaft, a female pulley loosely mounted thereon, a male disk fixed thereto, a loose block, a sliding rod having an offset for engaging said block, treadle s , pivoted lever s^3 , and adjustable rod s^2 connecting said treadle and lever, substantially as and for the purposes set forth.

2. In a burnishing machine, in combination, with the jack and mechanism whereby it is operated, the hanging shaft, the pivoted bear-

ing therefor, the spindle f^8 movable on the post and having a recess therein, and a spring-actuated lever operating to engage said recess when the treadle is drawn out.

3. In a burnishing machine, the vertically-movable jack, in combination with means whereby it may be raised automatically, and with treadle t whereby it may be raised at will, the shaft o journaled in pivoted bearings and having a worm-wheel thereon, cam k having two cam surfaces and pins thereon and rotated through gear p and the worm-wheel, treadle s , lug t^2 for engaging said treadle, and mechanism for disengaging the worm-wheel and gear p , comprising spindle o^8 , retracting bar o^{10} and cam v , substantially as and for the purposes set forth.

4. In a burnishing machine, means whereby the burnisher may be set in motion independent of the rotation of the jack, comprising, in combination, treadle t , lug t^2 thereon, treadle s , the clutch mechanism, intermediate mechanism between the treadle s and the clutch mechanism, worm-wheel o^6 , gear p , spindle o^8 , retracting bar o^{10} and cam v , substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of April, A. D. 1892.

ALBION L. F. MITCHELL.

Witnesses:

C. F. BROWN,
JONATHAN ALLEN.