

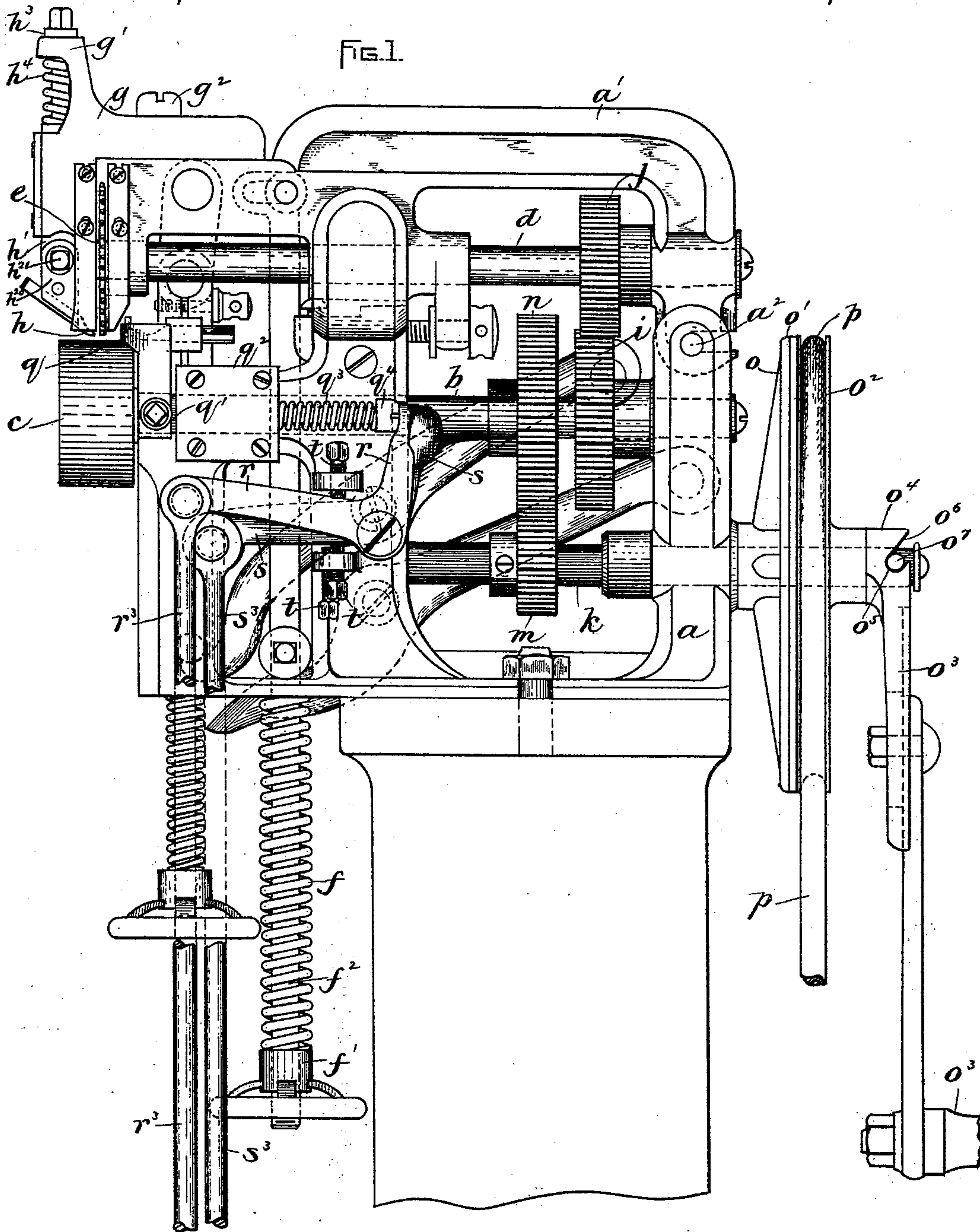
(No Model.)

3 Sheets—Sheet 1.

C. P. STANBON.
SOLE CHANNELING MACHINE.

No. 500,438.

Patented June 27, 1893.



WITNESSES:

Katharine E. Brown.
A. D. Harrison.

INVENTOR:

C. P. Stanbon
G. Knight Brown Woodley
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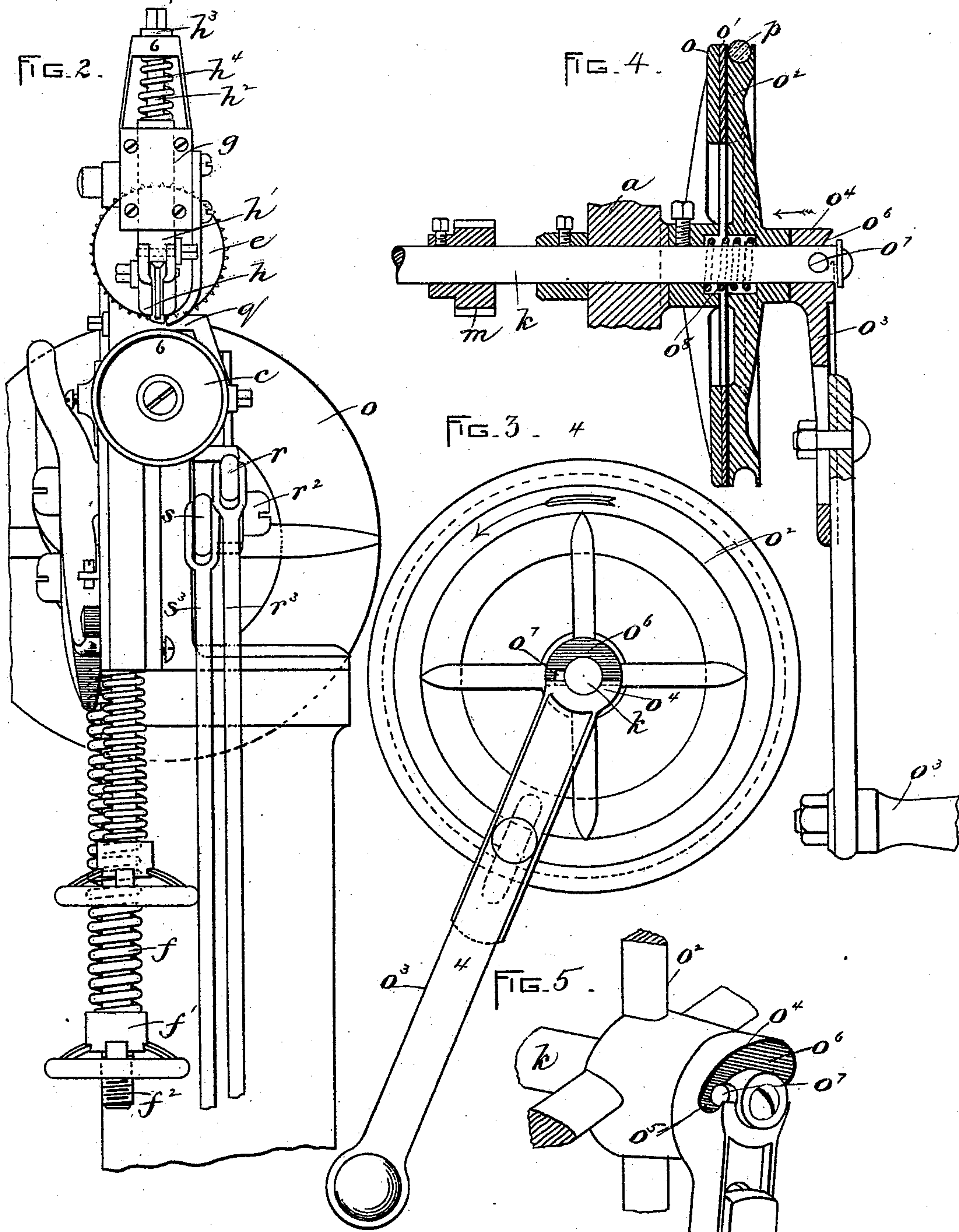
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WITNESSES:
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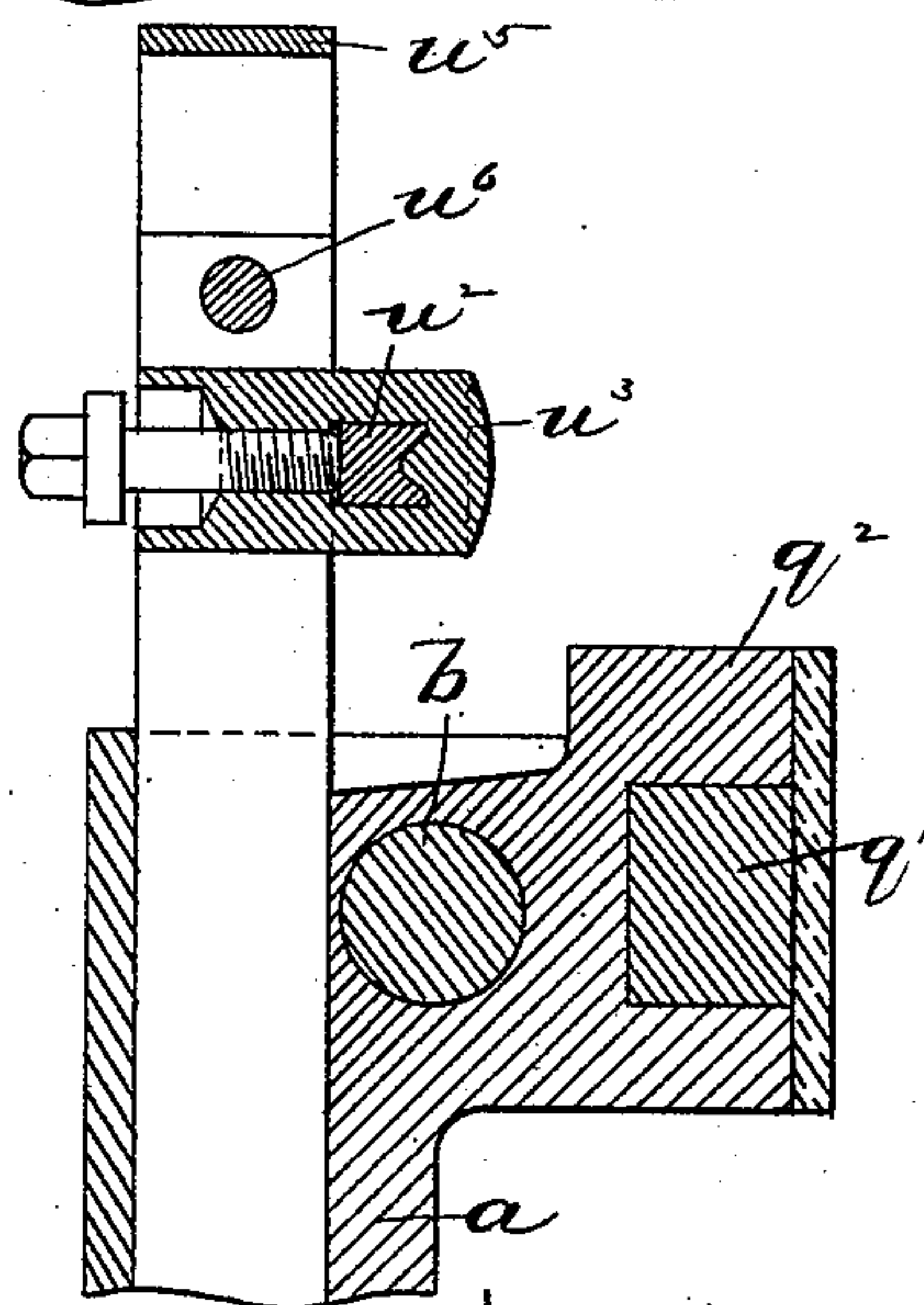
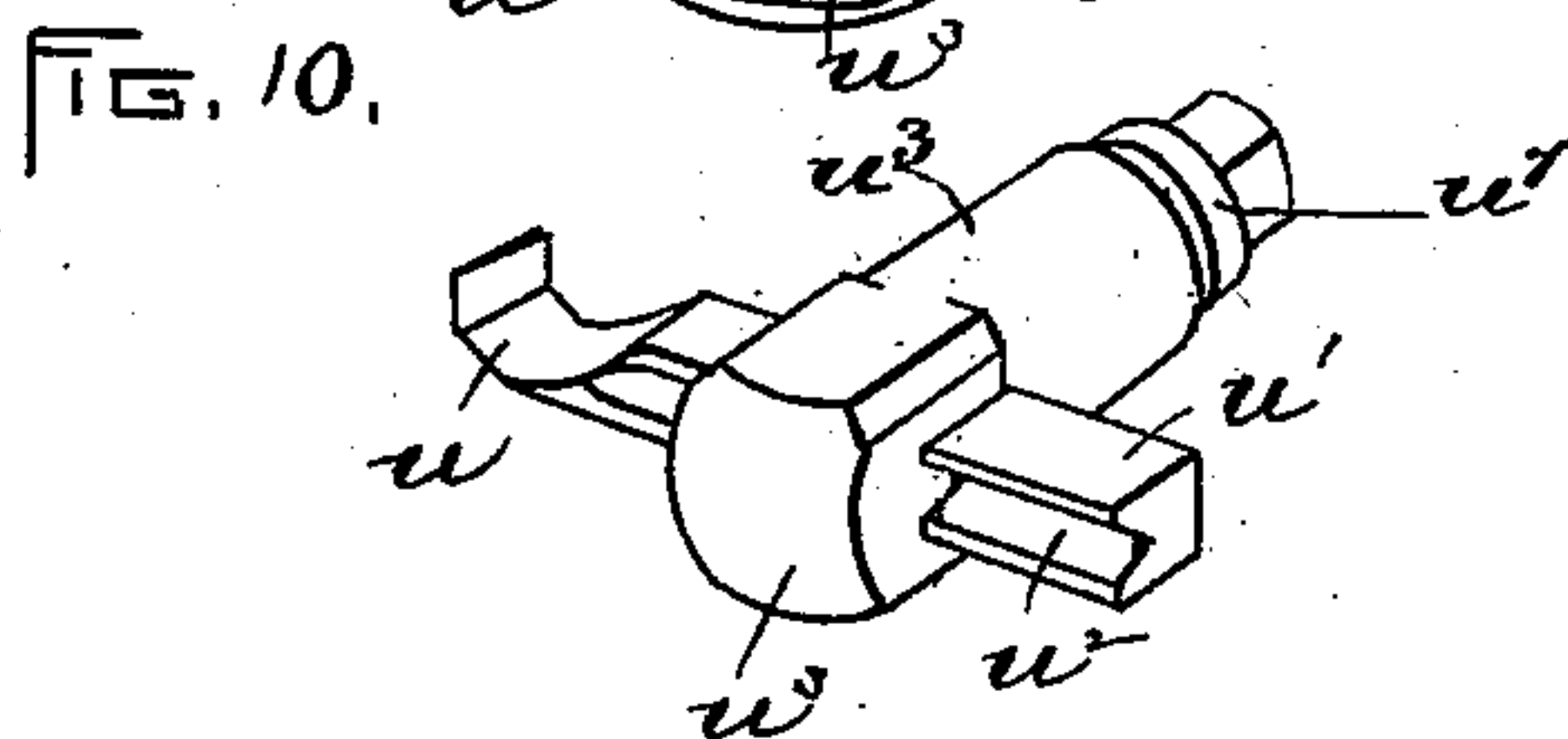
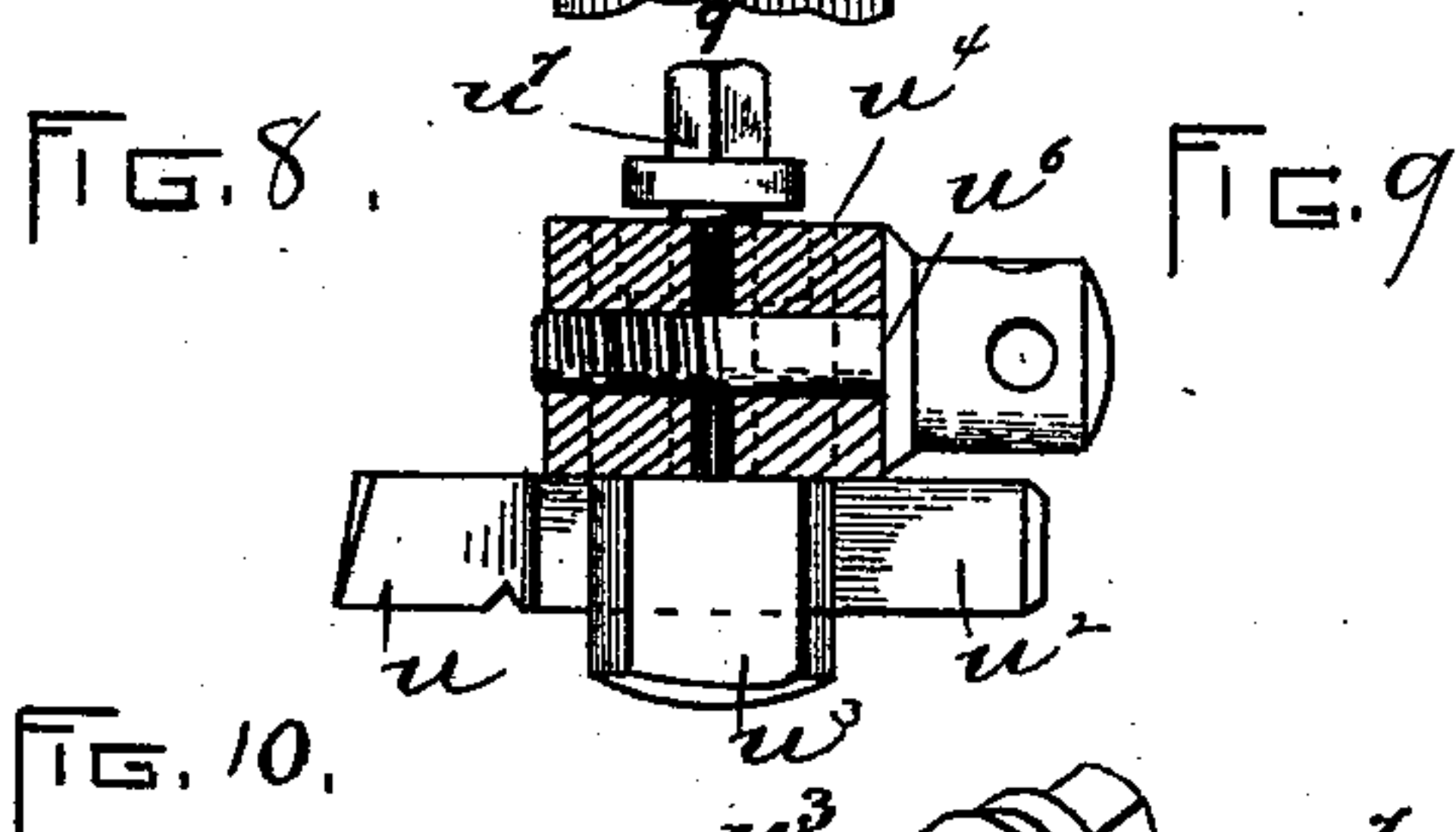
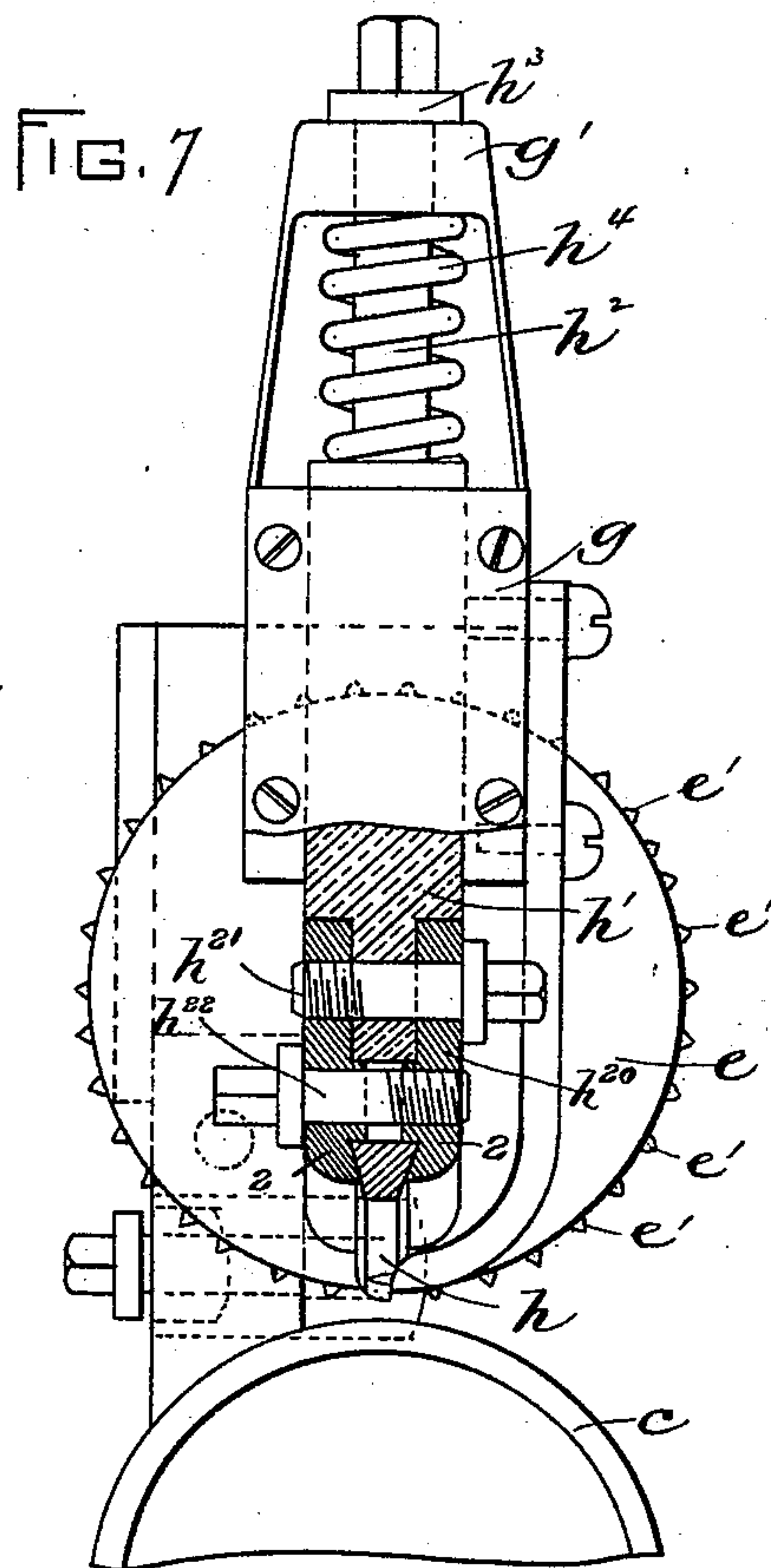
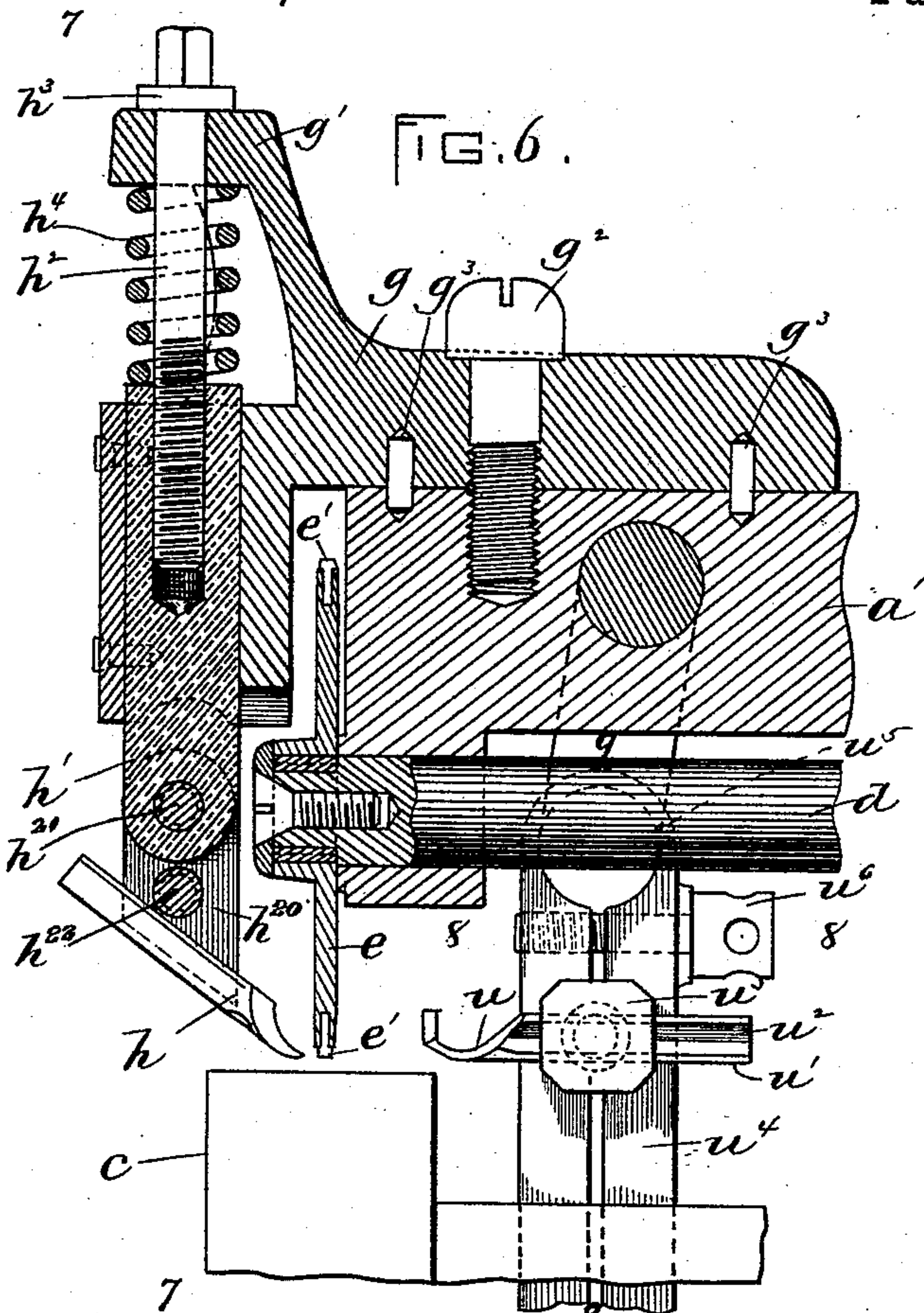
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No. 500,438.

Patented June 27, 1893.



WITNESSES:
Katharine E. Brown.
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INVENTOR:
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UNITED STATES PATENT OFFICE.

CHARLES P. STANBON, OF SAUGUS, MASSACHUSETTS.

SOLE-CHANNELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 500,438, dated June 27, 1893.

Application filed February 4, 1893. Serial No. 460,933. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. STANBON, of Saugus, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Channeling Machines, of which the following is a specification.

This invention relates to that class of machines for channeling soles of boots and shoes, in which the channeling-knife is located over a positively-driven bed-roll which supports the sole while it is being channeled, and in which the work is fed by a feed-roll located beside the knife and acting on the upper surface of the sole.

The invention has for its object to provide certain improvements in a machine of this class, relating particularly to the means for holding and adjusting the channeling-knife, to the means for adjusting the gage which determines the distance between the channel and the edge of the sole, to the means for adjusting the trimming knife, and to means whereby the operator is enabled to control the action of the machine by alternately stopping and starting the feed and bed rolls in order that the feed movement may be retarded when the channeling-knife is operating upon the toe portion of the sole.

To these ends, the invention consists in the several improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification: Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents an end elevation of the same. Fig. 3 represents an elevation of a portion of the end of the machine opposite that shown in Fig. 2. Fig. 4 represents a section on line 4—4, Fig. 3. Fig. 5 represents a perspective view of a part of the construction shown in Figs. 3 and 4. Fig. 6 represents a vertical section on line 6—6, Fig. 2. Fig. 7 represents a section on line 7—7, Fig. 6, looking toward the right. Fig. 8 represents a section on line 8—8, Fig. 6. Fig. 9 represents a section on line 9—9, Fig. 6. Fig. 10 represents a perspective view of one of the channeling-knives.

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

In the drawings: *a* represents the fixed por-

tion of the supporting-frame, having bearings in which is journaled the shaft *b*, supporting the bed-roll *c* upon which the sole is supported while being channeled.

a' represents the top portion of the frame, which is pivoted at *a*² to the fixed portion *a*, and is adapted to swing vertically.

In the swinging frame *a'* is journaled the shaft *d*, to which is affixed the feed-roll *e*, said feed-roll, as here shown, being a disk, provided with radial sockets, in which are removably inserted bits or teeth *e'*, the outer ends of which are sharpened. The object of this construction of feed-roll is to enable the teeth to be made of stronger and more durable material than the body of the wheel, so that they may be made comparatively slender and therefore make very small holes in the material on which they act. The teeth are preferably made of Stub's steel wire. When the teeth become worn, they can be removed and new ones substituted for them.

A downward yielding pressure is imparted to the swinging frame *a'*, by means of a spring *f*, interposed between the fixed frame *a*, and nut *f'* on a rod *f*² which is connected at its upper end with the frame *a*. This construction, however, is not new with me, and forms no part of the present invention.

To the outer end of the swinging frame *a'* is secured a head or holder *g*, which supports the diagonally-arranged channeling-knife *h*. Said knife is secured to an arm *h*²⁰ which is pivotally connected to a vertical slide *h'*, the arm *h*²⁰ being composed of two clamping pieces 2 2 (Fig. 7) connected with the slide by a bolt *h*²¹ which serves as a pivot on which the arm *h*²⁰ may be turned to vary the inclination of the knife *h*. The bolt *h*²¹ is screw threaded at one end, its thread being engaged with an internal thread in one of the pieces 2, the other end of the bolt having a head bearing on the other piece 2. The pieces 2 2 are connected and caused to clamp the knife *h* by a bolt *h*²², the inner sides of the pieces having grooves which fit the beveled sides of the knife. When the bolt *h*²¹ is turned outwardly, the arm *h*²⁰ is loosened so that it may be turned on said bolt to vary its inclination and that of the knife *h* so that the knife may be set at any desired angle, the knife being secured at the desired adjustment by tightening the bolt.

The slide h' is fitted to move in a socket in the holder g , and is engaged with a screw-threaded bolt h^2 , the head h^3 of which bears on the upper side of an arm g' formed on the holder g . The rotation of the screw h^2 raises or lowers the slide h' and knife h as the case may be. The spring h^4 , interposed between the arm g' and the upper end of the slide h' , prevents loose upward movement of the slide and knife.

The holder g is secured to the frame a by means of a screw g^2 and dowel-pins g^3 g^3 (Fig. 6), said holder being readily removable from the machine by removing the screw g^2 . This construction enables the knife h which has already been properly adjusted, to be readily removed from the machine when it is desired to use only the inner knife u hereinafter referred to and afterward replaced in exactly the same position as before. It is a matter of some difficulty to properly adjust the knife h , the services of a skilled mechanic being required for the operation. It will be seen, therefore, that the holder g and the means provided for detachably securing it to the machine, enable an ordinary shoe-factory operative to remove and replace the knife h without difficulty.

The shafts b and d are connected by gears i, j , so that they are rotated simultaneously in opposite directions, power being communicated to the shaft b and from a shaft k , journaled in bearings in the frame a and connected with the shaft b by gears m, n .

An important feature of my invention is the means which I shall next describe whereby the operator is enabled to quickly disconnect the shaft k from the driving-shaft that impels it, and as quickly re-establish the connection, so that, when the toe portion of the sole is being channeled, the operator may give the sole an intermittent movement, so to speak, or may stop the same very briefly and at short intervals of time, so that he can guide the sole while the toe portion is being channeled, without liability of injuring the sole. Heretofore it has not been considered advisable to drive sole-channeling machines by power, owing to the fact that it is necessary for the operator to feel his way, so to speak, around the toe, the feed movement being necessarily slower at this point than is necessary or desirable when the straighter side portions of the sole are being channeled. In carrying out this part of my invention, I provide the shaft k with a disk o rigidly affixed to the shaft, the said disk constituting one member of a friction clutch, and being preferably provided with a face or washer o' of yielding material. Beside the disk o is loosely mounted on the shaft another disk or pulley o^2 , on which runs the driving-belt p . The pulley o^2 , besides being loose upon the shaft k , is laterally movable thereon toward and from the disk o .

o^3 represents a crank or handle, formed on a hub o^4 , which is fitted loosely upon the shaft k ,

and is provided with a beveled slot o^5 (Figs. 1 and 5), one side o^6 of which constitutes a cam, which bears upon a stud or pin o^7 affixed to and projecting from the shaft k . A spring o^8 (Fig. 4), interposed between the disk o and the pulley o^2 , normally presses said pulley away from the disk o and presses the cam o^6 against the stud o^7 , so that the pulley o^2 is normally loose upon the shaft k , and therefore does not impart movement thereto. In the operation of the machine, the operator, grasping the crank o^3 , turns the same in the same direction that the pulley o^2 is being rotated, and at a rate slightly in excess of the rate of motion of the pulley o^2 , thus causing the action of the cam o^6 on the stud o^7 to give the hub o^4 and disk o a movement in the direction indicated by the arrow in Fig. 4, thus forcing the inner side of the pulley o^2 against the yielding washer o' affixed to the disk o , and causing the disk o and shaft k to rotate with the pulley o^2 . When the operator moves the crank o^3 at a slower rate than the movement of the pulley o^2 , the above-described action of the cam o^6 on the stud o^7 ceases, and the spring o^8 throws the pulley o^2 out of engagement with the disk o , so that the rotation of the shaft k and of the bed-roll c and feed-roll e ceases. It will be seen, therefore, that the operator has a ready means of quickly and briefly stopping the feed movement and as quickly starting the same, so that he can make the movement as slow as may be desired in channeling the toe.

q represents the gage or guide, which bears upon the edge of the sole and limits the distance between the channel made by the knife h and the edge of the sole. Said gage is formed to project over the inner end of the bed-roll c , and is affixed to a horizontally-movable slide q' , fitted to move in a guide q^2 on the frame a . The slide q' and gage q are normally held at their maximum distance from the knife h by means of a spring q^3 , interposed between the guide q^2 and the head of a rod or bolt q^4 (Fig. 1), affixed to the slide q' and movable therewith through one end of the guide q^2 .

r represents a bell-crank lever, mounted to oscillate upon a screw or stud r^2 , one of its arms resting upon the head of the stud q^4 , the other arm of said lever being connected by a rod r^3 with a treadle (not shown) at the base of the machine.

s represents another bell-crank lever, also mounted to oscillate upon the stud r^2 , and having one of its arms bearing upon the end or arm of the lever r which bears upon the stud q^4 , its other arm being connected by a rod s^3 with a treadle (not shown).

The levers r and s are adapted to oscillate, their oscillating motion being limited by stop-screws t , arranged above and below said levers, as shown in Fig. 1, the screws being arranged to give the lever r a longer movement than the lever s , so that, when the lever r is moved by the depression of the rod r^3 and the

treadle connected therewith, a maximum forward movement is imparted to the gage q , through the stud q^4 and slide q' , thus bringing the gage to its position nearest to the knife.

5 When the lever s is moved by the depression of its rod s^3 and the treadle connected therewith, the lever r simply acts to transmit the movement of the lever s to the slide and gage, the limited movement of the lever s causing it to

10 give the gage a shorter movement than that imparted by the lever r . It will be seen, therefore, that the operator, by moving one lever or the other, can adjust the gage to a position nearer to or farther from the knife h .

15 It is desirable, in channeling the shank portion, to locate the channel farther from the edge in channeling the fore-part, and this I am enabled to easily do by the described devices for adjusting the gage.

20 u represents a knife, adapted to channel the edge of the sole, said knife having a shank u' , provided with a groove u^2 , and inserted in a correspondingly-shaped socket formed in a stud u^3 . Said stud is detachably secured to

25 a clamp u^4 , composed of two parts, which are connected by a flexible neck u^5 (Figs. 6 and 9), and are adjustably bound together by a screw u^6 , which enables the two parts of the clamp to grasp or release the stud u .

30 The stud u^3 is arranged at right angles with the shank u' and is movable endwise in the socket when the latter is expanded. This construction enables the knife u to be adjusted laterally to compensate for wear of its

35 cutting edges. By loosening the screw u^6 the clamp u^4 is allowed to expand and release the stud u^3 thus permitting the operator to move the stud outward and the knife u forward as far as may be required by the wear thereof,

40 the knife being then secured by tightening the screw. I am thus enabled to keep the cutting edge directly over the center of the bed roll c which is very important for the practical working of the machine.

45 A set screw u^7 in the stud u^3 bears on the back of the shank u' and holds it securely in place. The shank is movable endwise in the socket when the screw u^7 is loosened, so that the knife u is adapted to be adjusted so

50 as to project to any desired extent over the bed roll.

I claim—

1. In a sole-channeling machine, the combination of a supporting-frame, a knife-holder

55 detachably secured to said frame in a fixed position and having a vertical socket, a knife-carrying slide vertically adjustable in said socket, an arm pivoted to the lower end of said slide and depending therefrom, said arm

60 being adjustable to different angular positions, and a knife clamped to said arm.

2. In a sole-channeling machine, the combination of a supporting-frame, a knife-holder

65 detachably secured to said frame in a fixed position and having a vertical socket, a knife-

carrying slide vertically adjustable in said socket, a pair of arms pivoted to the lower end of said slide and adjustable to different angular positions, and a knife clamped between said arms.

3. In a sole-channeling machine, the combination with work feeding and channeling devices, of a shaft operatively connected with the feeding devices, a power-driven loose pulley on said shaft, a crank loose on the shaft,

75 and means controlled by said crank whereby said pulley may be engaged with the shaft, as set forth.

4. In a sole channeling machine, the combination with channeling and work feeding

80 devices, of a shaft operatively connected with the work feeding devices, a disk affixed to said shaft, a power driven pulley loosely mounted on said shaft beside said disk and normally separated from the disk, a hub or

85 collar loosely mounted on the shaft beside the pulley, said collar having a cam surface bearing on a projection on the shaft and a crank or handle whereby the collar may be turned by the operator to force the pulley into en-

90 gagement with the disk, as set forth.

5. In a sole channeling machine, the combination with channeling and work feeding devices, of an edge gage movable at right angles with the direction of the feed, a slide

95 fixed to said gage, a fixed guide for said slide, a stud connected with the slide, a spring on said stud adapted to retract the slide, a bell crank lever r bearing on one end of the stud, a bell crank lever s bearing on the lever r , one

100 of said levers having a shorter movement than the other, and means for moving said levers to force the gage forward against the retracting pressure of the spring, as set forth.

6. In a sole-channeling machine, the combination with a bed-roll and feed-roll, of a

105 trimming-knife, a stud or holder with which the shank of said knife is engaged, and a clamp composed of two arms connected by a flexible neck, and a screw extending through

110 said arms, the knife-holding stud being adjustably secured between the arms of the clamp, substantially as and for the purpose described.

7. In a sole channeling machine, the combination with the bed roll and feed roll, of the

115 knife u having a grooved shank, the stud u^3 slotted to receive said shank and having a shank holding set screw, and the clamp u^4 having means for holding and releasing the

120 stud, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of February, A. D. 1893.

CHARLES P. STANBON.

Witnesses:

A. D. HARRISON,
W. S. MCLEOD.