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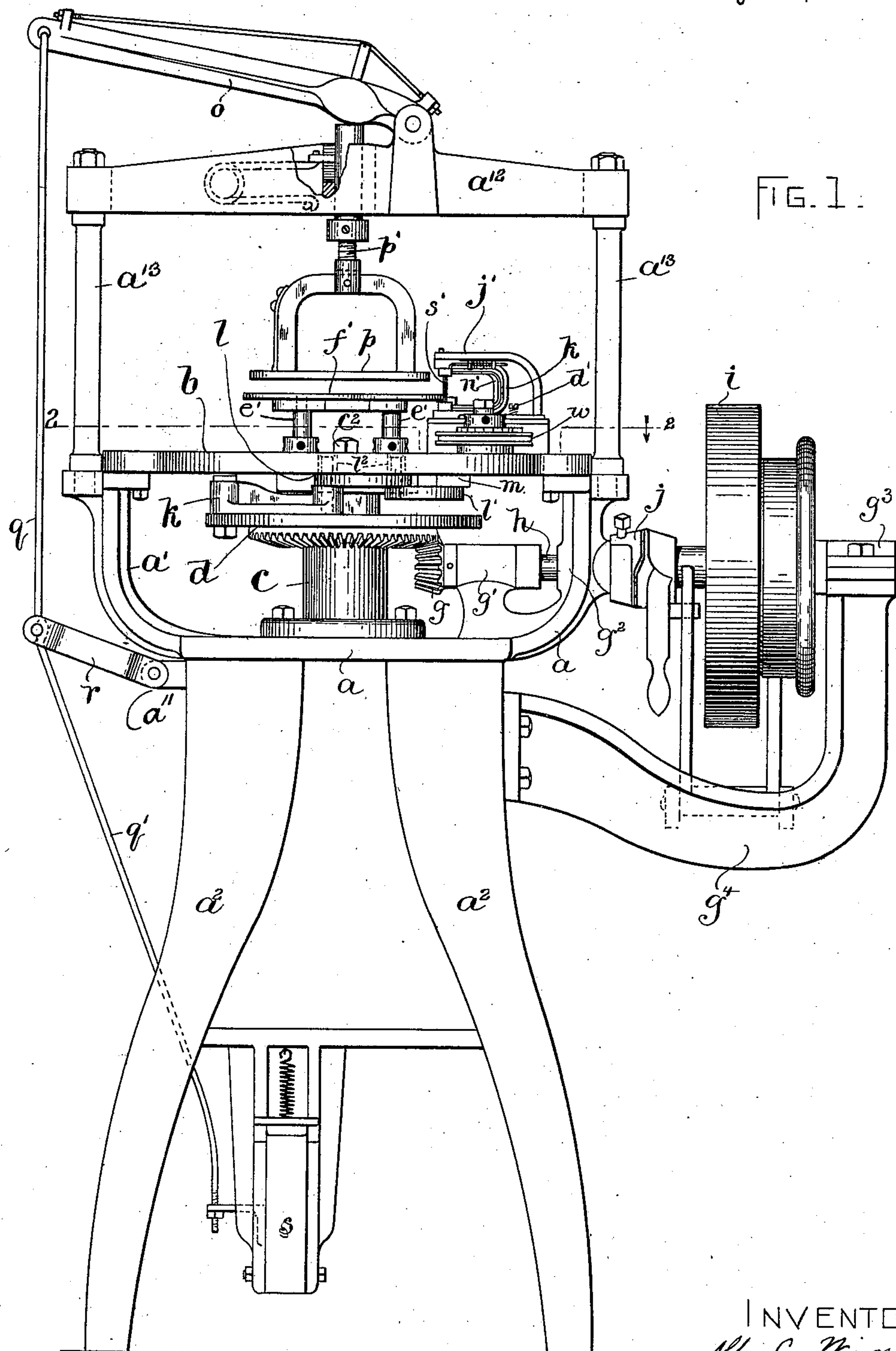
3 Sheets—Sheet 1.

A. C. WINN.

## ROUNDING OUT MACHINE FOR BOOT OR SHOE SOLES.

No. 564,169.

Patented July 14, 1896.



WITNESSES

WITNESSES.  
A. S. Harrison.  
Rollin A. Bell.

INVENTOR:

Ally C. Minn.  
by Wright Brown & Quincy  
Ally

(No Model.)

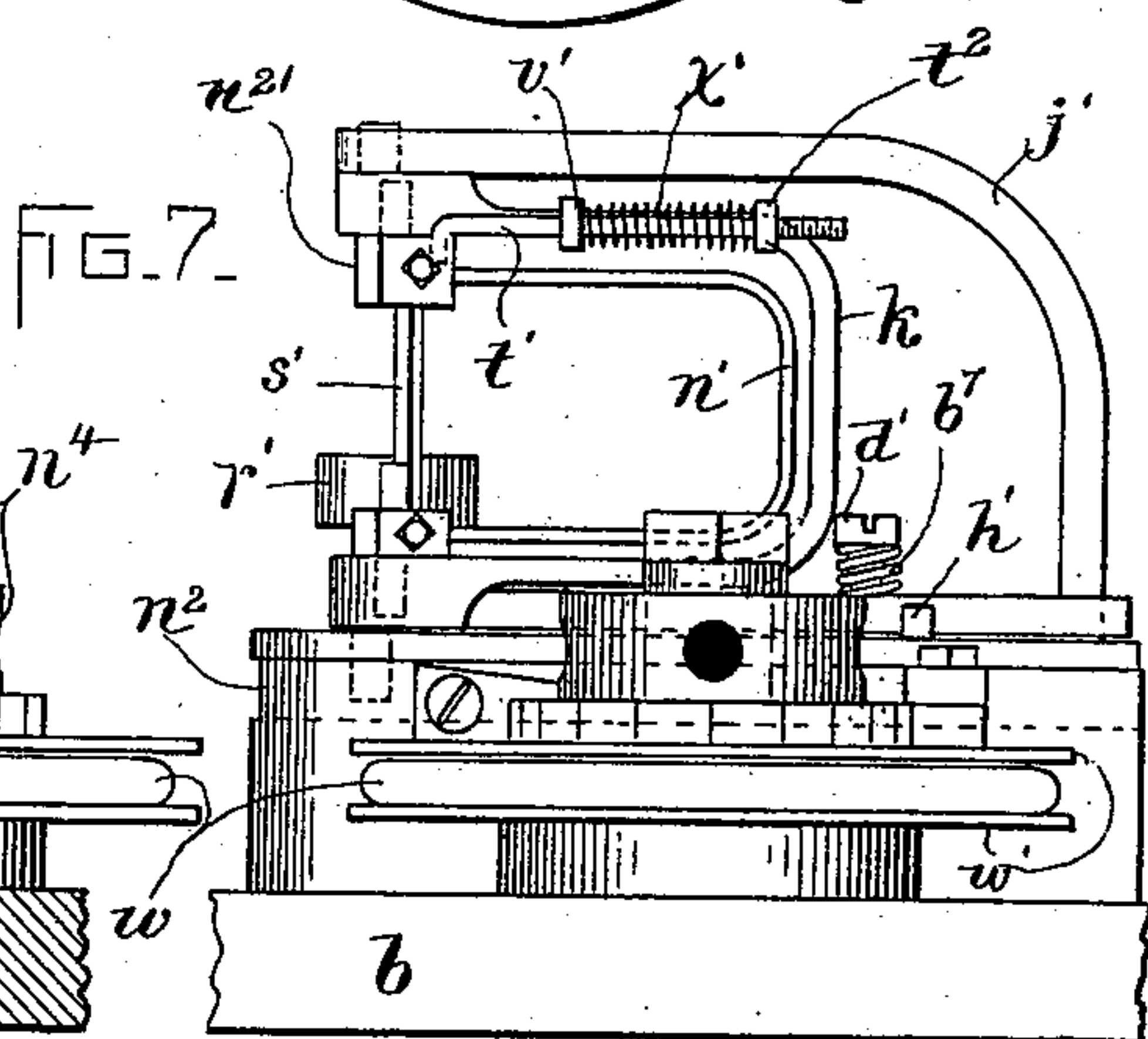
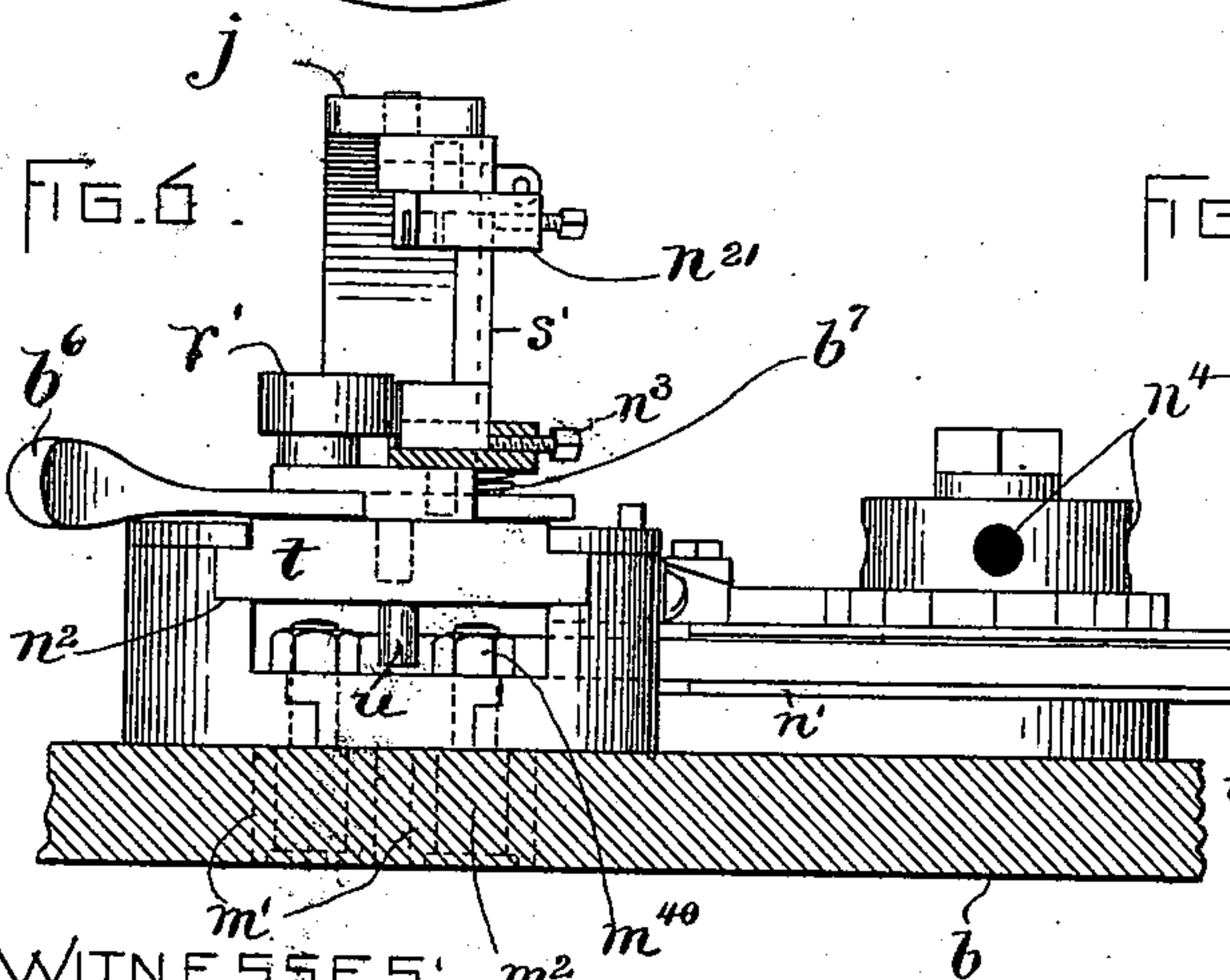
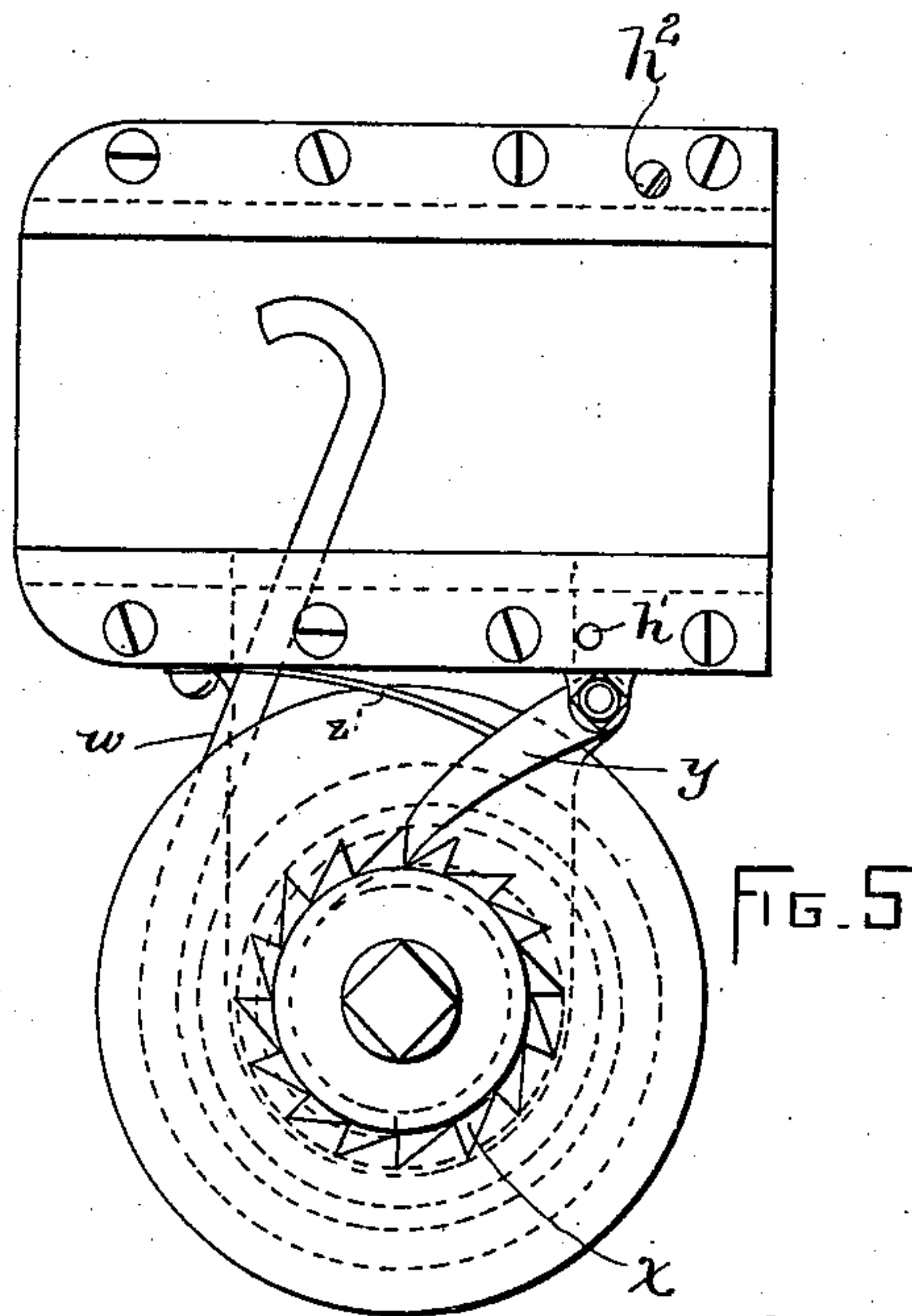
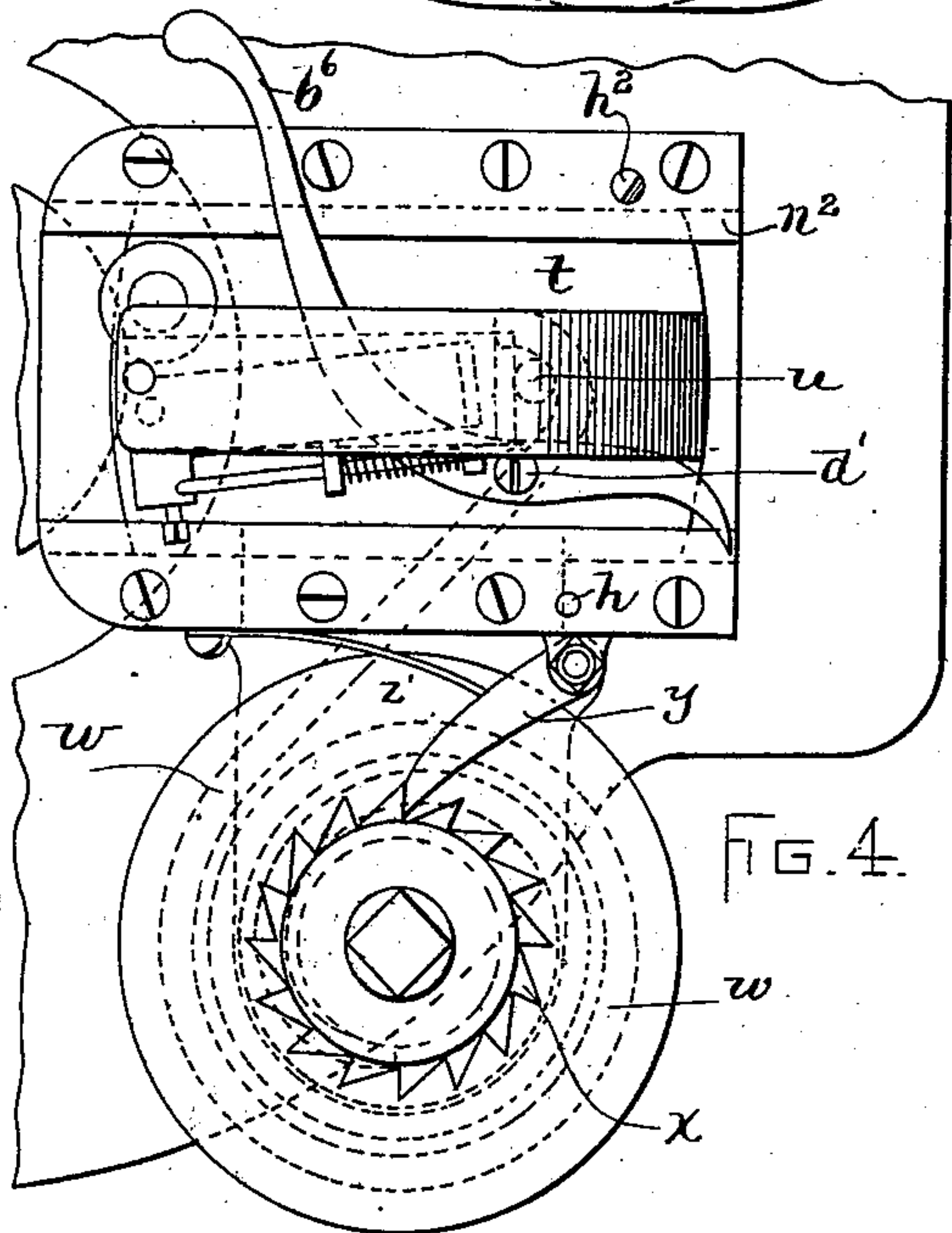
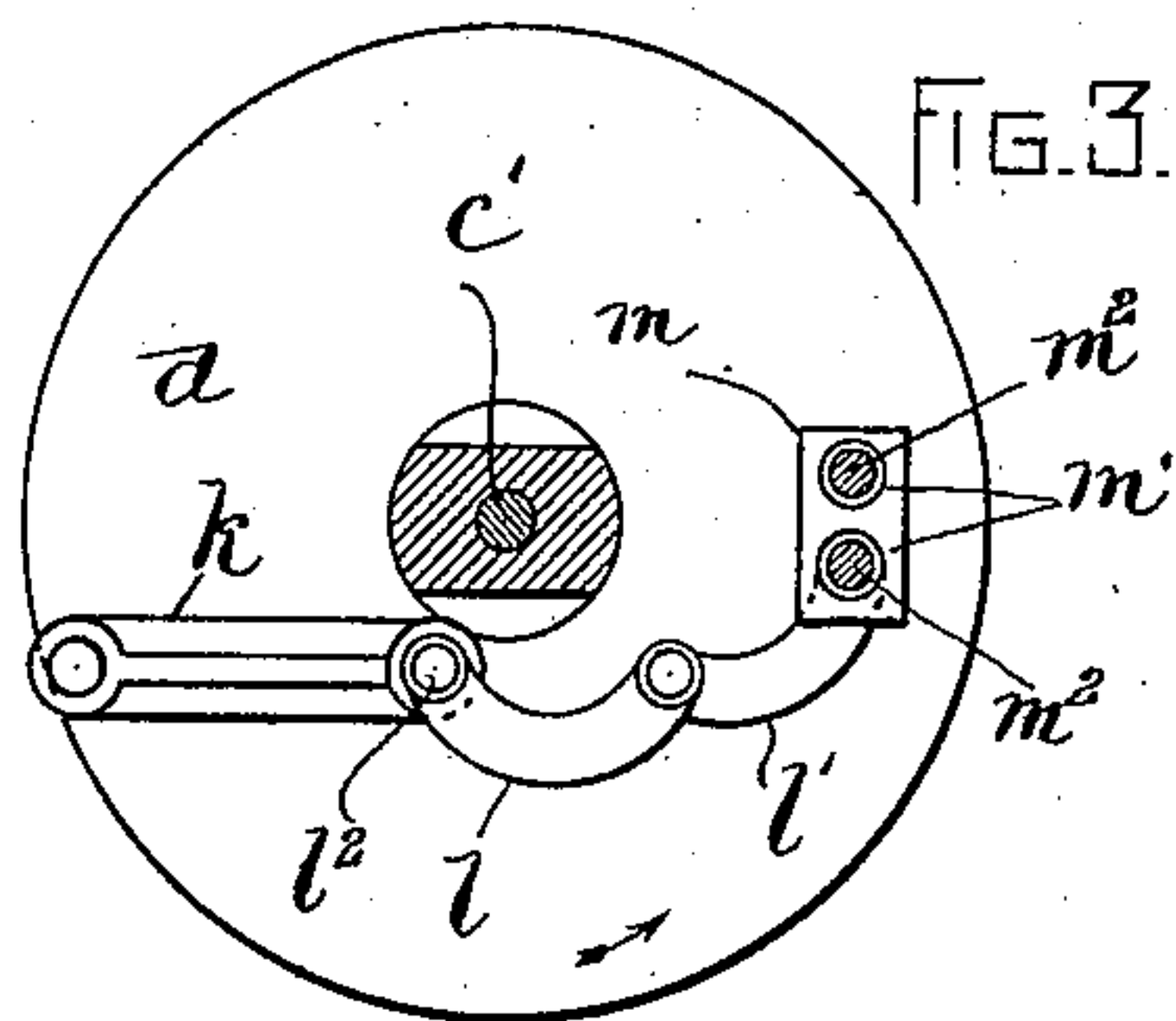
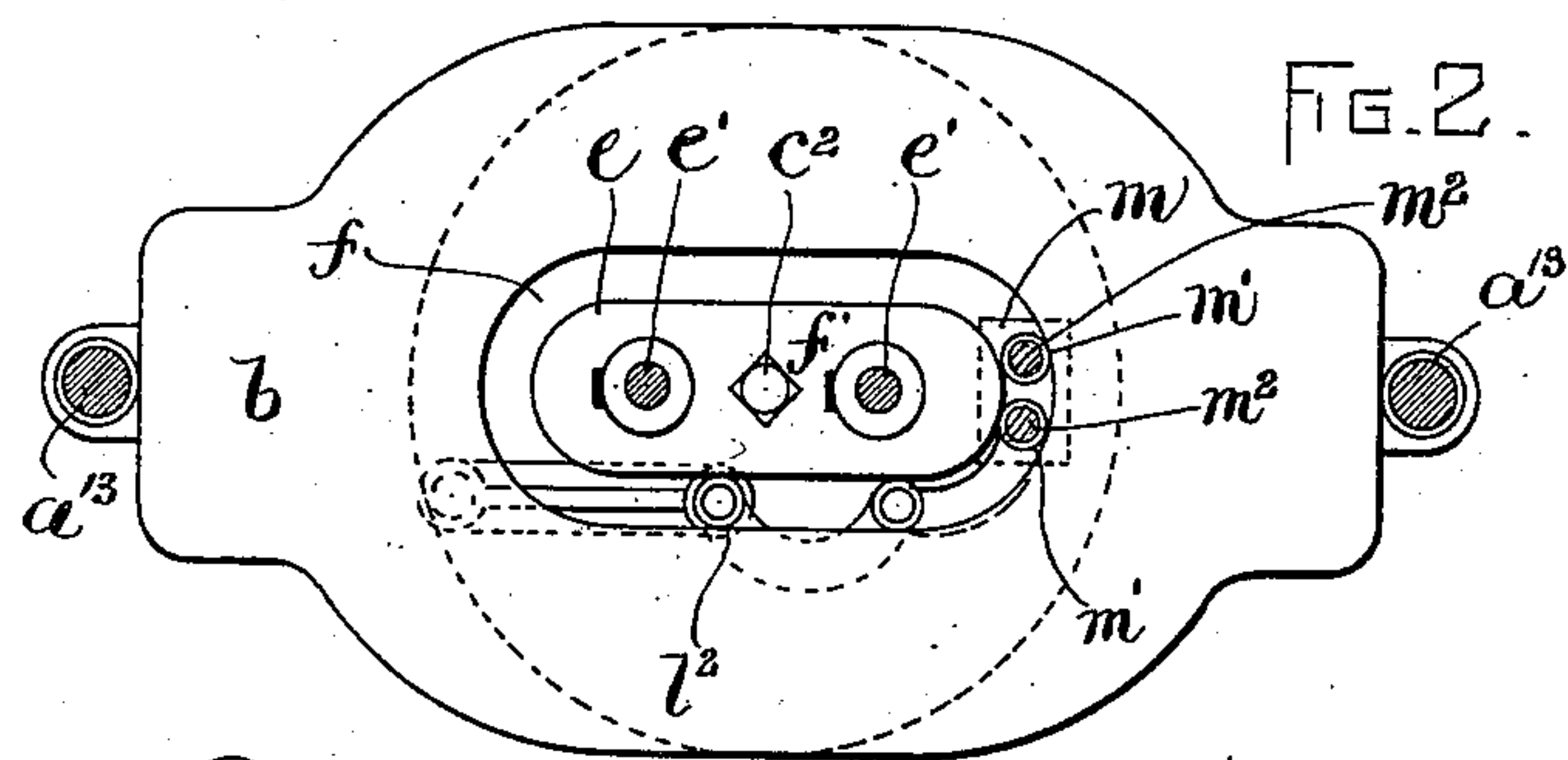
3 Sheets—Sheet 2.

A. C. WINN.

ROUNDING OUT MACHINE FOR BOOT OR SHOE SOLES.

No. 564,169.

Patented July 14, 1896.



WITNESSES:  
A. D. Hanson.  
Rollin A. Bell.

INVENTOR:  
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Attys.



(No Model.)

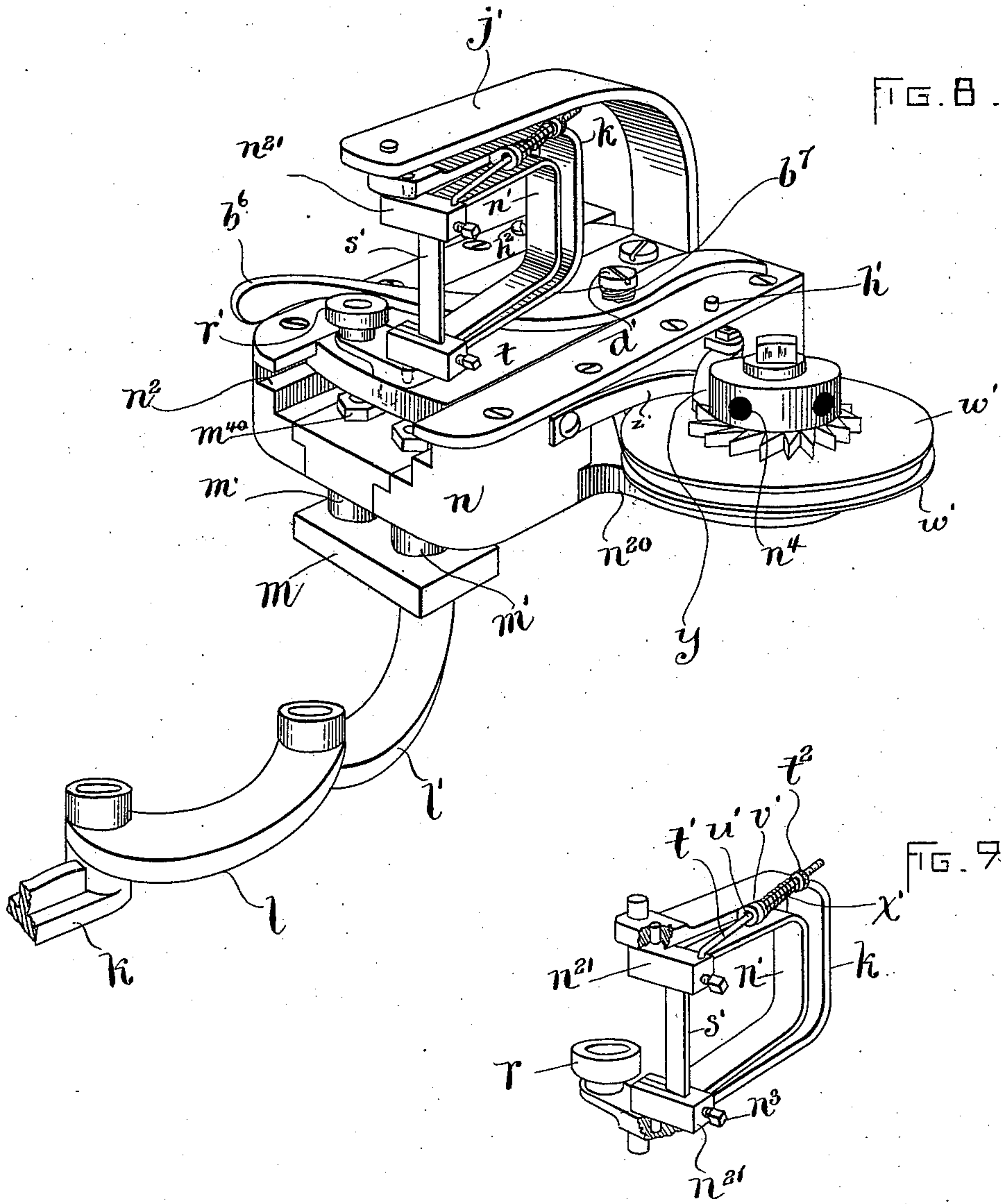
3 Sheets—Sheet 3.

A. C. WINN.

ROUNDING OUT MACHINE FOR BOOT OR SHOE SOLES.

No. 564,169.

Patented July 14, 1896.



WITNESSES:

A. D. Harrison  
Rollin Abell.

INVENTOR:

A. C. Winn  
by Wright Brown & Quincy  
Atty.



# UNITED STATES PATENT OFFICE.

ALBY C. WINN, OF HAVERHILL, MASSACHUSETTS.

## ROUNDING-OUT MACHINE FOR BOOT OR SHOE SOLES.

SPECIFICATION forming part of Letters Patent No. 564,169, dated July 14, 1896.

Application filed July 20, 1895. Serial No. 556,588. (No model.)

*To all whom it may concern:*

Be it known that I, ALBY C. WINN, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Rounding-Out Machines for Boot or Shoe Soles, of which the following is a specification.

This invention relates to a new and useful improvement in machines for rounding out boot and shoe soles; and it consists in the novel features of construction and relative arrangement of parts hereinafter fully described in the specification, clearly illustrated in the drawings, and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this application, in which like characters indicate like parts wherever they occur.

Figure 1 represents a front elevation of a machine constructed in accordance with my invention. Fig. 2 represents a horizontal sectional view taken on the line 2 2 of Fig. 1, looking in the direction of the arrow. Fig. 3 represents a top plan view of a rotation-gear and the links carried thereby. Fig. 4 represents a top plan view of the carriage, sliding plate, and knife-carrier. Fig. 5 represents a top plan view of the carriage. Fig. 6 represents a front elevation of the carriage, sliding plate, and knife-carrier. Fig. 7 represents a side elevation of the same. Fig. 8 represents a perspective view of the carriage, sliding plate, knife-carrier, and the links connecting the knife-carrier with the disk, the latter not being shown. Fig. 9 represents a detail perspective view of the knife-carrier.

$a$  represents a base-plate having an arm  $a'$  at each end, said base-plate being supported by legs  $a^2$ . To the upper end of the arms  $a'$  is secured a plate or table  $b$ , having a longitudinal opening with rounded ends in its center.

From the center of the base-plate  $a$  rises a hollow standard  $c$ , in which is secured a short shaft  $c'$ . At its upper end this shaft has a reduced portion arranged in a plate  $e$  and secured thereto by a nut  $c^2$ , thereby supporting said plate in the center of the opening in the table  $b$ . The plate  $e$  has the general shape of the opening in the table  $b$ , but is

smaller than the said opening, thereby forming a path or slot  $f$  between the sides of said plate  $e$  and the sides of the opening in the said table  $b$ .

$d$  represents a beveled gear loosely mounted upon the shaft  $c'$ , resting upon the standard  $c$ . The top of this gear is flat, the teeth of the gear being on the under side.  $g$  is a pinion in gear with the bevel-wheel  $d$ , said pinion being mounted upon a shaft  $h$ , carried in bearings  $g'$ ,  $g^2$ , and  $g^3$ , the latter being supported by an arm  $g^4$ , secured to the legs  $a'$ , as shown. Upon this shaft  $h$  between the bearings  $g^2$   $g^3$  is mounted the driving-pulley  $i$ , friction-clutch  $j$ , and brake.

To the upper side of the bevel-wheel  $d$  is fulcrumed an arm  $k$ , the outer end of which is connected to a curved link  $l$ , which is at its outer end connected to another curved link  $l'$ , to the outer end of which is secured a block  $m$ , to which the carriage  $n$  is attached. The curved link  $l$  is, at each end where fulcrumed, provided on its upper side with rollers  $l^2$ , that work in the groove or slot or path  $f$ , and the block  $m$  is fitted with two rollers  $m'$   $m'$ , that also work in said slot or path  $f$ .

To the upper surface of the plate  $e$  are secured two standards  $e' e'$ , that support a pattern-plate  $f'$ , which is of the form it is desired to cut the sole, the leather to be cut being held thereon by means of a clamp  $p$ , which is pivoted to a boss on the end of a rod  $p'$ , that passes up through a cross-head  $a^{12}$ , carried by standards  $a^{13}$ , secured to the top of the arms  $a'$ , and to the cross-head  $a^{12}$  is fulcrumed a lever  $o$ , that rests upon the rod  $p'$ , and to the outer end of this lever is connected a rod  $q$ , the lower end of which is attached to a lever  $r$ , fulcrumed in lugs  $a^{11}$  on the legs  $a^2$ , the said lever  $r$  being by a rod  $q'$  connected to a treadle  $s$ , so that when the operator presses upon the treadle the clamps  $p$  will be brought down and hold the leather to be cut.

To the block  $m$  is attached the front end of the carriage  $n$  by means of bolts  $m^2$ , that pass through the carriage and rollers  $m'$  into said block  $m$ , and are secured by nuts  $m^{40}$ . The upper side of the carriage  $n$  is formed with grooves  $n^2$ , in which is mounted a sliding plate  $t$ . To the under side of said plate  $t$



near its rear end is secured a bar  $u$ .  $w$  is a coiled spring, the outer end of which is in contact with said bar  $u$ , and its inner end is secured to the hub of a ratchet-wheel  $x$ , carried by an arm or side extension  $n^{20}$  of the carriage  $n$ . The upper end of the hub of the ratchet-wheel  $x$  is provided with holes  $n^4$ , so that it can be turned to adjust the tension of the spring  $w$  to carry the plate  $t$  forward.

The said wheel  $x$  is held in place by a pawl  $y$ , mounted upon a stud on the arm or extension  $n^{20}$ , a spring  $z'$  holding the pawl  $y$  in contact with the ratchet-wheel  $x$ . The spring  $w$  is inclosed between two plates  $w' w'$  to keep pieces of leather or other articles from interfering with its action, one of said plates being secured to the arm  $n^{20}$  and the other to the hub of the ratchet-wheel  $x$ . The outer end of the spring  $w$  passes through a slot in the side wall of the carriage  $n$ .

In order to draw and hold the sliding plate  $t$  back when a sole has been cut, or a fresh piece of leather is to be put in place, I employ a hand-lever  $b^6$ , fulcrumed at  $d'$  to the plate  $t$ , one end of which lever is in contact with a stud  $h'$  on the carriage  $n$ , so that by drawing the outer end of the lever  $b^6$  back it will carry the plate  $t$  with it, and when the lever  $b^6$  has passed over a cam-shaped stud  $h^2$  it is held fast, thus holding the sliding plate  $t$  away from the pattern-plate  $f'$ . Upon the lever  $b^6$  being released a spring  $b^7$ , secured at one end to the fulcrum of the lever  $b^6$  and the other end to a stud on said lever, draws the lever  $b^6$  back to the normal position, thus releasing the same and allowing the plate  $t$  to be pushed forward by the action of the spring  $w$ .

To the rear of the sliding plate  $t$  is secured a bent arm  $j'$ , that extends to the front of said plate, and fulcrumed to said arm  $j'$  and plate  $t$  is a saddle-shaped piece of metal  $k$ , in which saddle is fulcrumed another saddle-shaped piece of metal  $n'$ , formed at its outer end with blocks or pieces  $n^{21}$  for holding the knife  $s'$ , said knife being adjusted and held to its work by means of set-screws  $n^3$ . The lower piece  $n^{21}$  is also fitted with a roller  $r'$ , that works against the pattern-plate  $f'$  in advance of the knife  $s'$  and adjusts the same to the required inclination, and the upper piece or block  $n^2$  is fitted with a bar  $t'$ , that passes through an eye  $u'$  in a piece  $v'$ , secured to the saddle-frame  $k$ , said bar  $t'$  being screw-threaded at its outer end and fitted with a nut  $t^2$ , a spiral spring  $x'$  being placed on said bar  $t'$  between the eye  $u'$  and the nut  $t^2$  to draw back the saddle-frame  $n'$ , so that the roller  $r'$  and the edge of the knife  $s'$  will be kept in contact with the pattern-plate  $f'$ .

The operation is as follows: The leather to be rounded out is placed upon the pattern-plate  $f'$ . The operator then depresses the treadle  $s'$ , thus bringing the clamp  $p$  down and holding the leather on the pattern-plate. Motion is then communicated to the shaft  $h$  from the pulley  $i$  through the chuck  $j$ , thus

causing the pinion  $g$  to rotate and communicate motion to the beveled gear  $d$ , and with it the arm  $k$ , which, by the links  $l l'$  being connected to the block  $m$ , to which the carriage  $n$  is attached, the latter is caused to rotate around the pattern-plate  $f'$ , being guided by the rollers that work in the slot  $f$ , and as the knife  $s'$  is carried by the saddle-shaped frames  $n' k'$ , fulcrumed so as to be free to turn in any direction, the knife readily adjusts itself to the form of the pattern-plate  $f'$ , so that a sole can be cut having a square or other shaped toe, as may be required. The double link permits the knife to have a slow motion at the heel and toe portion and a comparatively rapid motion at the other parts.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. In a sole-rounding machine, in combination, a carriage, a block confined to movement in an elliptical path, and connected to said carriage, a rotary member or gear, an arm fulcrumed upon said gear, a link pivoted to said block, and a second link pivoted at one end to the end of said first-mentioned link, and at its other end to the end of said arm, substantially as and for the purpose set forth.

2. A carriage for rounding-out machines, consisting of a base-piece with upwardly-projecting side walls each having a groove therein, a sliding plate working in said grooves, an arm secured to the rear of the sliding plate, two saddle-shaped pieces or frames, one fulcrumed within the other, and the outer one fulcrumed to the arm and sliding plate, and the inner one carrying the knife, substantially as and for the purpose set forth.

3. In a carriage for sole-rounding machines, in combination, a sliding plate, a saddle-shaped frame fulcrumed to said plate, a second saddle-shaped frame, fulcrumed to said first-named frame, a knife fast to said second-named frame, and a yielding connection between said frames, substantially as and for the purpose set forth.

4. In a carriage for sole-rounding machines, in combination, a pattern, a sliding plate, a saddle-shaped frame fulcrumed to said plate, a second saddle-shaped frame fulcrumed to said first-named frame, and arranged to carry a knife, yielding connections between said saddle-shaped frames, and means upon the first-named frame for engaging the pattern to control the movement of the knife, substantially as and for the purpose set forth.

5. In a rounding-out machine, a lever secured to a rotating disk, a curved link attached to said lever, and another curved link secured at one end to the first link, and at its outer end to a block to which the carriage is secured, said links and block having roll-



ers that work in a groove in the table, substantially as and for the purpose set forth.

6. In a carriage for sole-rounding machines, in combination, two saddle-shaped frames 5 fulcrumed one within the other, a rod connected at one end to the upper side of said inner frame, an eye on the outer frame through which said rod passes, a nut upon the free end of said frame, a spring arranged on said 10 rod, between said nut and eye, whereby the inner frame is drawn back to throw the knife into contact with a pattern-plate, substantially as and for the purpose set forth.

7. In a rounding-out machine, a knife 15 mounted in a pivoted saddle-shaped frame, the cutting edge of which is held in position by means of a rod attached to one side of the upper edge of said frame, and passing through an eye in an outer saddle-shaped frame, a 20 spring upon said rod, the tension of which can be adjusted by a nut to hold the knife in position, substantially as and for the purpose set forth.

8. In a rounding-out machine, two saddle- 25 shaped frames mounted one within the other, the inner frame carrying a knife that is ad-

justable therein by set-screws, and the front lower portion or base of the outer frame carrying a roller adapted to work against the pattern-plate in advance of the knife, the 30 cutting edge of the knife being held on a line with the front of said roller, substantially as and for the purpose set forth.

9. In a rounding-out machine, a block to which the carriage is attached, said block 35 having two rollers working in a groove in the table, two curved links connecting said block to a lever secured to a rotating disk, the links being fitted with rollers to work in the slot in the table whereby said block is carried 40 around, and the carriage is free to adapt itself to the shape of the pattern-plate, thus producing a square or other shaped toe, substantially as and for the purpose set forth.

In testimony whereof I have signed my 45 name to this specification, in the presence of two subscribing witnesses, this 11th day of July, A. D. 1895.

ALBY C. WINN.

Witnesses:

LE ROY V. ROY,  
HARRY J. COLE.