Z. BEAUDRY.

SOLE EDGE BURNISHING MACHINE.

APPLICATION FILED NOV. 12, 1904. RENEWED JAN. 11, 1909.

931,558.

Patented Aug. 17, 1909.

3 SHEETS—SHEET 1.

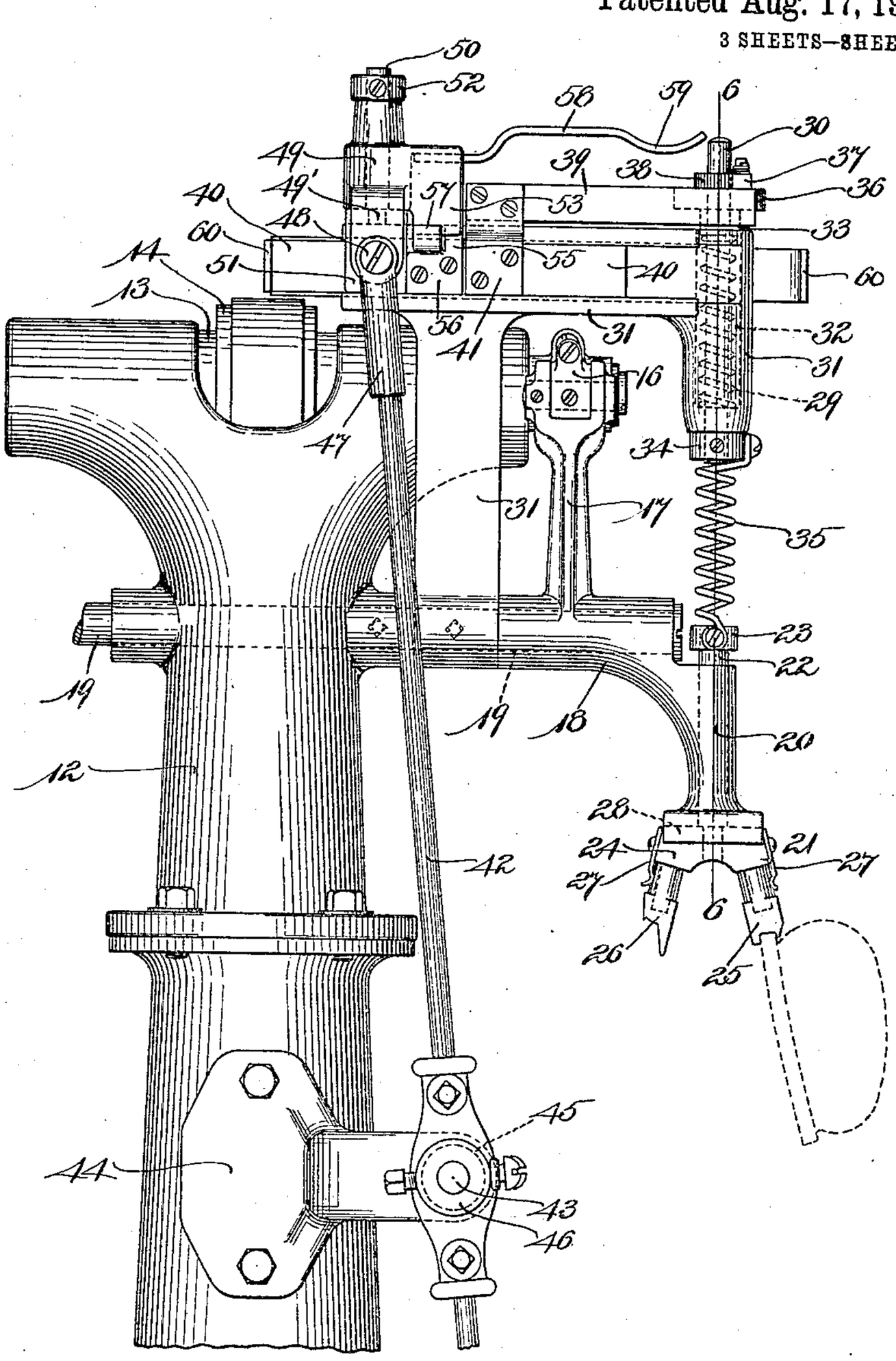

Fig. 1.

Witnesses:
Sydney C. Taft.
H. E. Savage.

Inventor:
Zotique Beaudry.
by his Attorney
Charles N. Fowling.

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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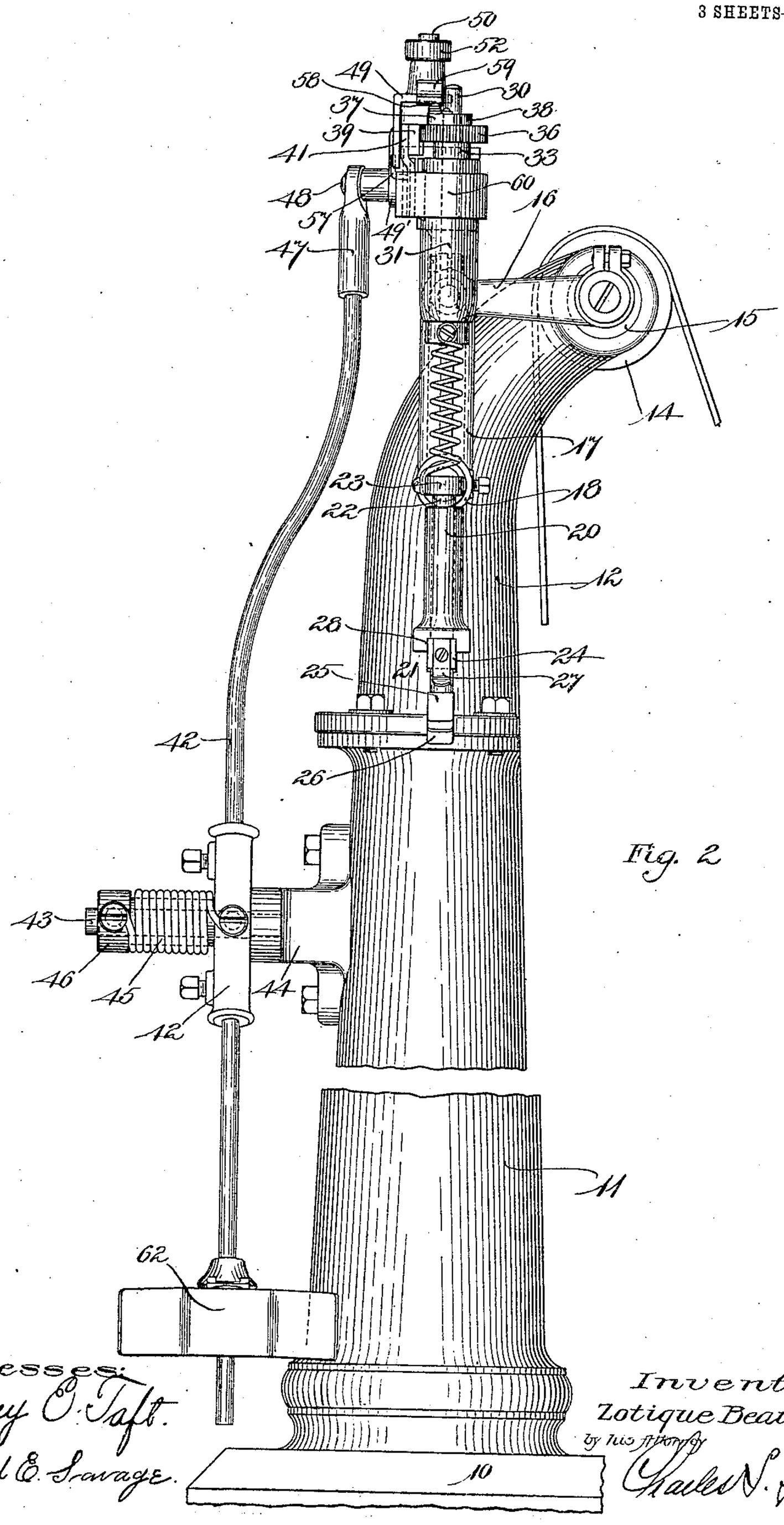

Fig. 2

Witnesses:
Sydney O. Taft.
Howard E. Savage.

Inventor:
Zotique Beaudry.
by his Attorneys
Gould N. Gooding.

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

Z. BEAUDRY.

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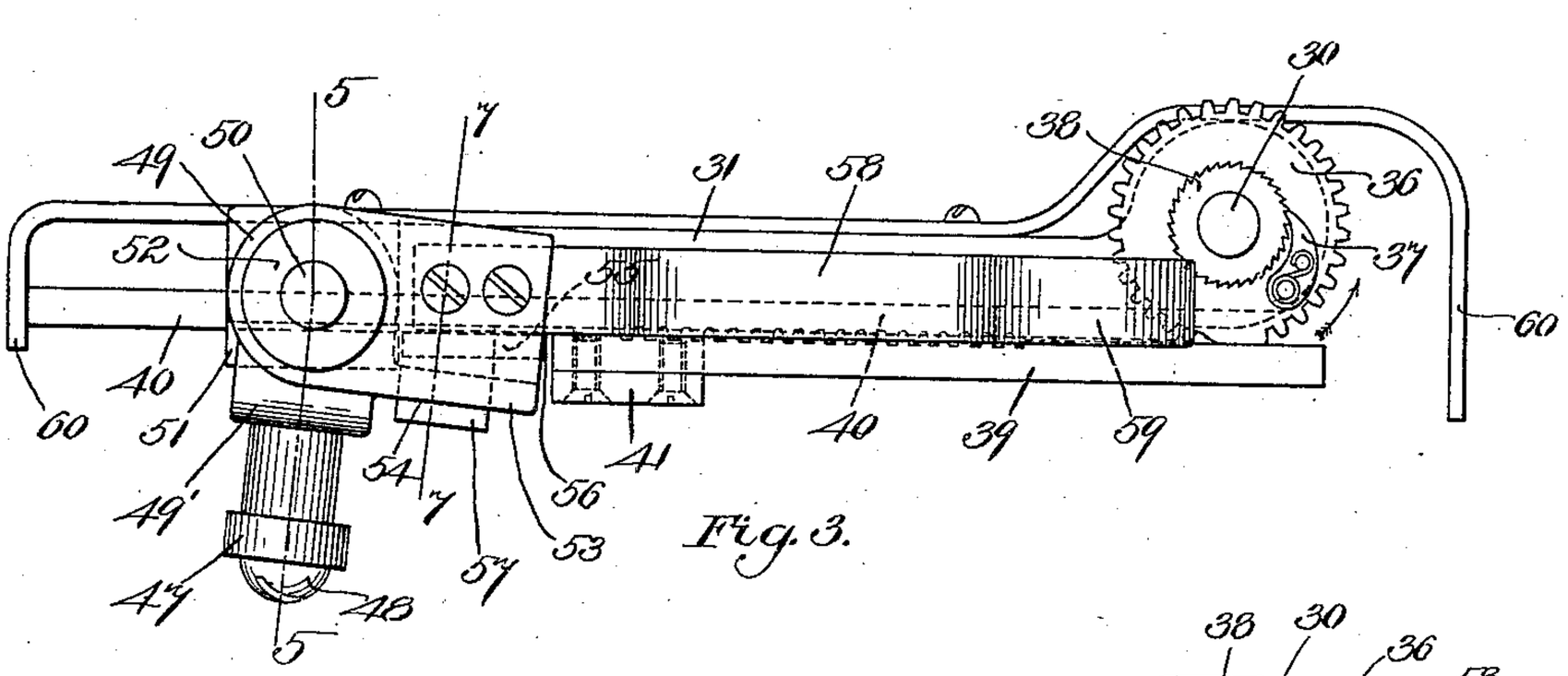

Fig. 3.

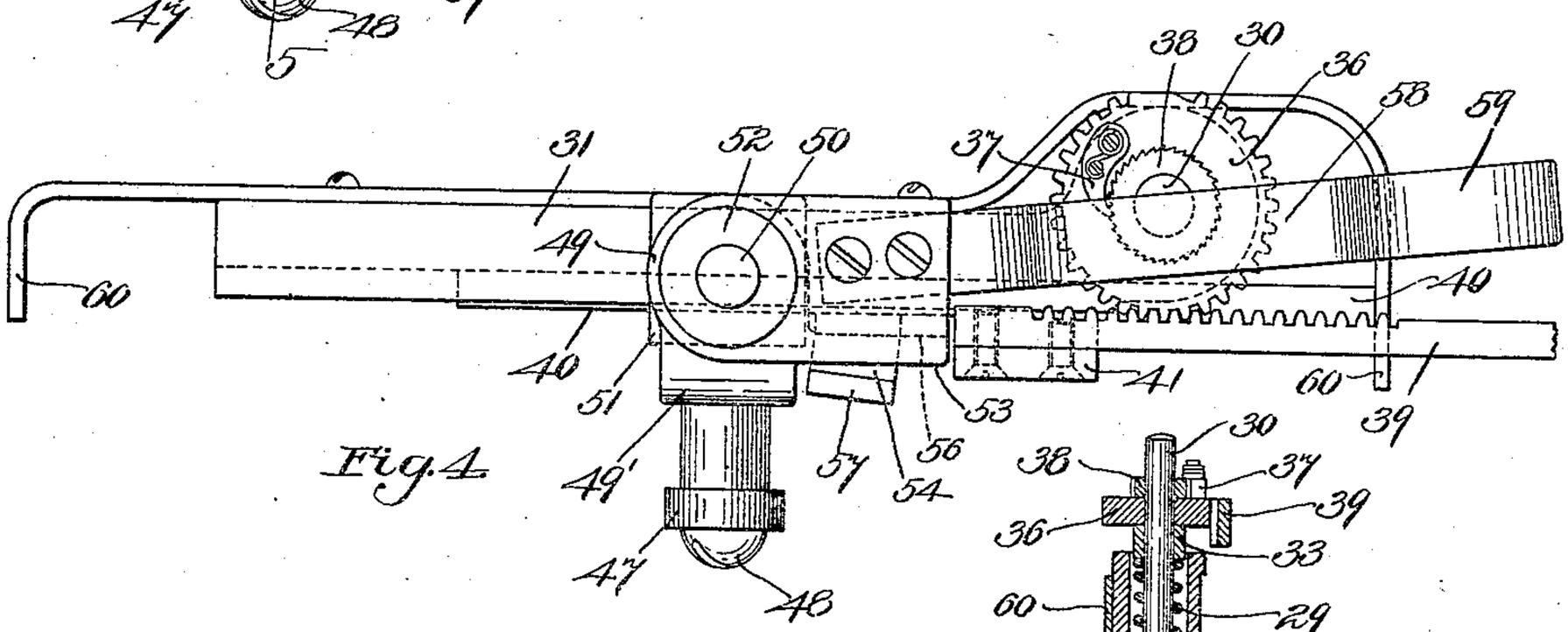

Fig. 4.

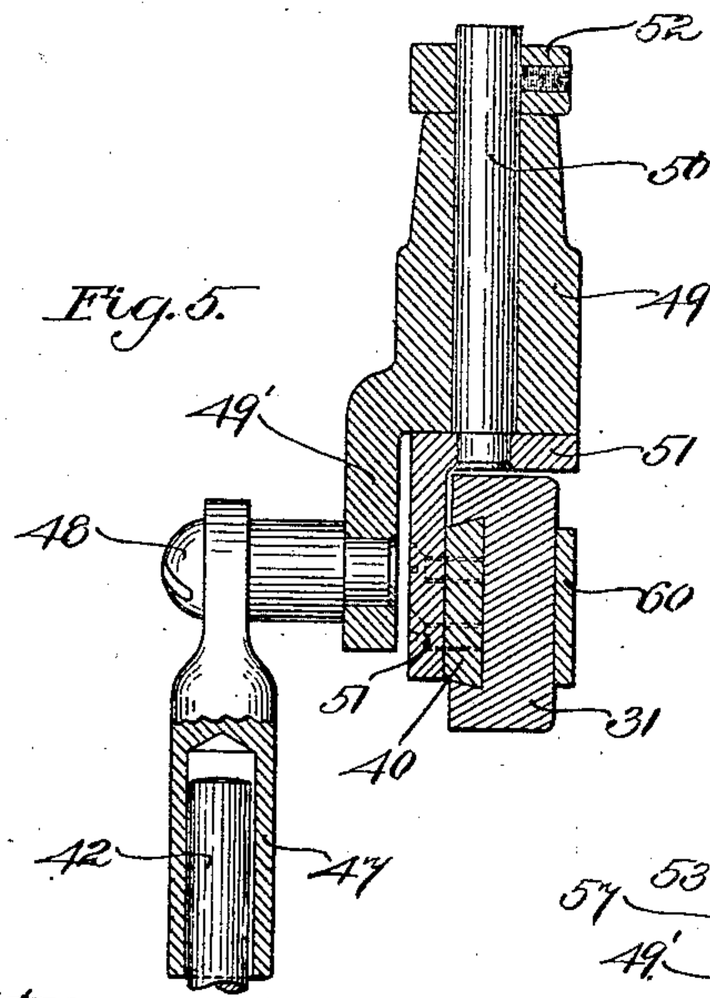

Fig. 5.

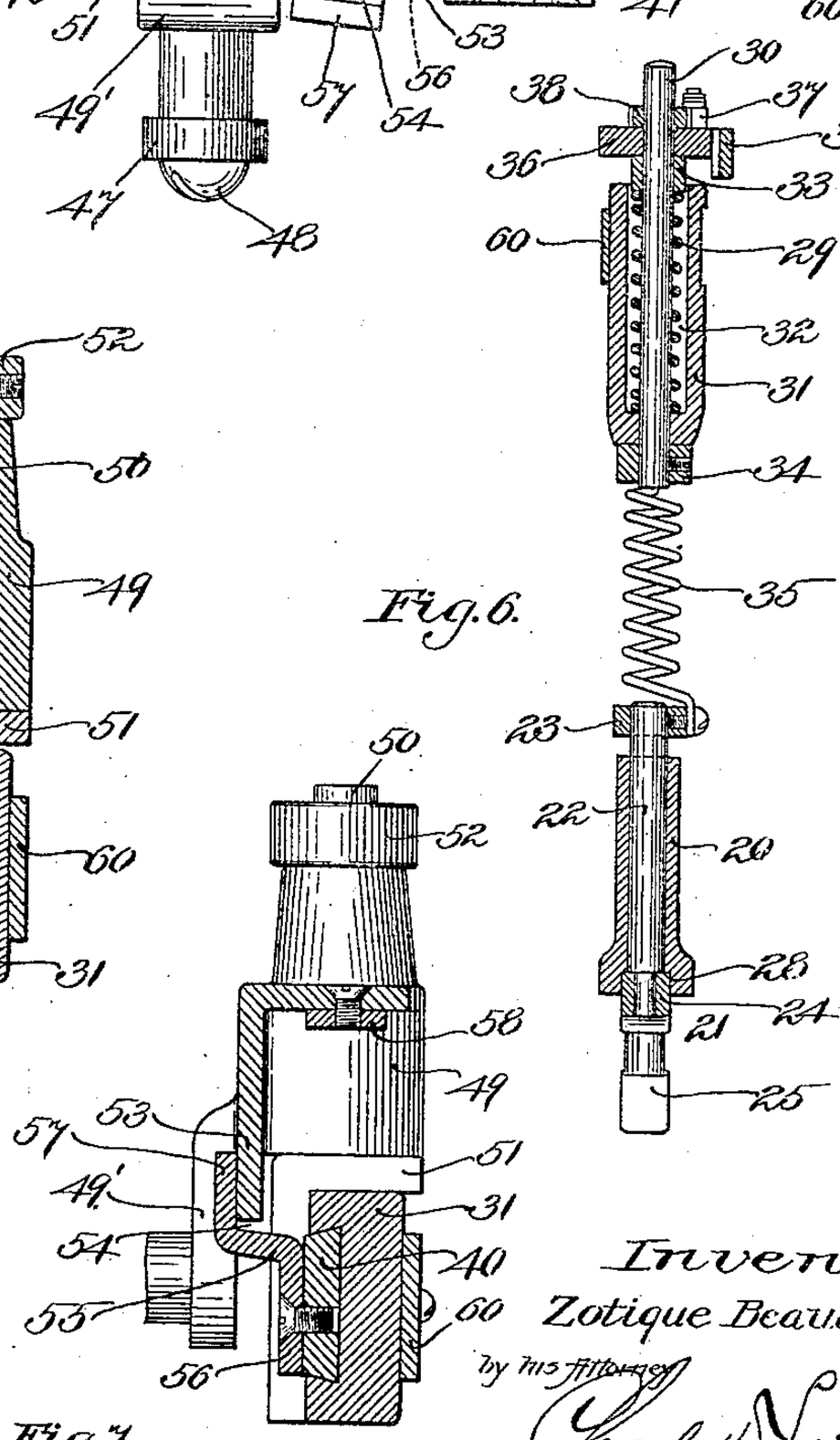

Fig. 7.

Fig. 6.

Witnesses:
Sydney E. Taft.
Howard E. Savage.

Inventor:
Zotique Beaudry.
by his Attorney
Charles N. Fooding

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ZOTIQUE BEAUDRY, OF LYNN, MASSACHUSETTS.

SOLE-EDGE-BURNISHING MACHINE.

No. 931,558. Specification of Letters Patent. Patented Aug. 17, 1909.

Application filed November 12, 1904, Serial No. 232,470. Renewed January 11, 1909. Serial No. 472,144.

To all whom it may concern:

Be it known that I, ZOTIQUE BEAUDRY, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Sole-Edge-Burnishing Machines, of which the following is a specification.

This invention relates to machines for burnishing the edges of the soles of boots and shoes, the object of the invention being to provide a machine comprising in its construction a fore part edge burnishing iron and a shank edge burnishing iron and mechanism to substitute one of said irons in place of the other without the operator being obliged to take either hand away from the shoe in order to actuate said mechanism, said mechanism being actuated preferably by a knee lever, although a lever actuated by the foot of the operator could be used if desired in place of said knee lever.

The advantages secured by my improved edge burnishing machine consist in the large amount of work which may be performed by said machine for a given amount of labor expended by the operator thereof as compared with machines as at present constructed in which the operator is obliged to use his hands to substitute one tool in place of another.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings:—Figure 1 is a left hand side elevation of my improved sole edge burnishing machine, a shoe being illustrated in dotted lines in its proper relation to one of the burnishing irons of said machine, a portion of the column of the machine being broken away to save space in the drawings. Fig. 2 is a front elevation of the same, also broken away to save space. Figs. 3 and 4 are plan views in different positions of the mechanism by means of which the tool carrier is reciprocated and rotated. Fig. 5 is a section, partly in elevation, taken on line 5—5 of Fig. 3 looking toward the left in said figure. Fig. 6 is a section, partly in elevation, taken on line 6—6 of Fig. 1, looking toward the right in said figure. Fig. 7 is a section taken on line 7—7 of Fig. 3 looking toward the left in said figure.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is a base, 11 a column, and 12 the head of my improved burnishing machine.

13 is the main driving shaft journaled to rotate in bearings in the head 12 and rotated by means of a pulley 14 fast thereto. To the front end of the driving shaft 13 is fastened an eccentric 15 which is connected by an arm 16 to an arm 17 on a rocker frame 18. The rocker frame 18 is journaled to rock upon a shaft 19 fast to the head 12 and has a downwardly depending arm 20 in which is journaled a tool carrier 21, consisting of a vertical shank 22, a collar 23 fast to the upper end of said shank, and a cross-bar 24 to which is attached a fore part burnishing iron 25 and a shank burnishing iron 26, said fore part and shank burnishing irons being attached to said cross-bar by springs 27, 27 in a manner well known to those skilled in this art. The cross-bar 24 is formed to fit in a recess or groove 28 formed in the lower part of the arm 20 and is held in said recess by a spring 29 which encircles a spindle 30 adapted to slide vertically and to rotate in a bracket 31 fast to the head 12. The spring 29 is contained in a recess 32, the upper end of said spring bearing against a collar 33 fast to said spindle and the lower end thereof bearing against the bottom of said recess. A collar 34 fast to the lower end of said spindle limits the distance to which said spindle can be raised by the spring 29. The lower end of said spindle is connected by a spring 35 to the collar 23. A rotary motion is imparted to the spindle 30 and, through the spring 35, to the tool carrier 21 by an intermittent gear 36 loosely mounted upon said spindle 30. A pawl 37 is pivotally supported upon the gear 36 and engages a ratchet 38 fast to the spindle 30. A rotary motion is imparted to the intermittent gear 36 by an intermittent rack 39 which is fastened to a slide 40 by means of a bracket 41. The slide 40 is adapted to be reciprocated in ways formed in the bracket 31 and has a reciprocatory motion imparted thereto by a lever 42 pivoted to a pin 43 fast to a bracket 44, the bracket 44 being fastened to the column 11. A torsional spiral spring 45 holds the lever 42 in the position illustrated in the drawings, one end of

said spring being fastened to said lever, the other to a collar 46 fast to the pin 43. The upper end of the lever 42 is cylindrical in form and fits loosely in an arm 47 pivoted to a stud 48 fast to a downwardly depending arm 49′ integral with the holder 49, said holder 49 adapted to swivel or rock upon a vertical pin 50 fast to a bracket 51 which, in turn, is rigidly fastened to the slide 40 (see Fig. 5). The holder 49 is prevented from being pushed upwardly on the pin 50 by a collar 52 fast to said pin. Said holder is further provided with a flange 53 which projects downwardly into a recess 54 formed in the top of a stop bracket 55 fast to the slide 40. Said stop bracket 55 consists of a plate 56 with an ear 57 formed thereon and between said ear and plate is located the recess 54 into which the flange 53 projects. When the parts are in the position illustrated in Fig. 3, the flange 53 rests against the ear 57 and when the parts are in the position illustrated in Fig. 4 the flange 53 rests against the plate 56, as hereinafter more fully described.

A cam-shaped finger 58 is fastened to the holder 49 and projects forwardly therefrom or toward the right (Fig. 1) adjacent to the upper end of the spindle 30 when the parts are in the position illustrated in said Fig. 1. The right hand end of said cam-shaped finger is provided with a downward bend 59. A top plate 60 is provided to limit the extent to which the slide 40 can be moved by the lever 42 in either direction. At the lower end of the lever 42 is pivoted, at 61, an arm 62 formed in parts adjustable one upon the other in order that the same may be adjusted to suit the convenience of the operator.

The general operation of my improved edge burnishing machine is as follows: The operator holds the shoe in the position illustrated in dotted lines (Fig. 1) with the edge of the fore part of the sole of the shoe bearing against the iron 25, and after burnishing the edge of the fore part the operator brings the shank iron 26 into the position previously occupied by the fore part iron by pushing with the knee upon the arm 62, thus rocking the lever 42 upon its pivot 43, rotating the holder 49 upon the pivot 50, and moving said holder in the first part of the rocking motion of said lever from the position illustrated in Fig. 3 to that illustrated in Fig. 4, the flange 53 moving from contact with the ear 57 to contact with the plate 56. During this first portion of the movement of the lever and the rocking of the holder, it will be seen that the cam-shaped finger 58 will be rocked, together with said holder, into alinement with the spindle 30, and when the flange 53 contacts with the plate 56 the bracket 55 and slide 40, which, as a matter of fact, are rigidly fastened together and act as one piece, will be moved toward the right from the position illustrated in Figs. 1 and 3 to the position illustrated in Fig. 4. During the first part of this movement, the downward bend 59 of the finger 58 contacts with the upper end of the spindle 30 and pushes the same downwardly against the action of the spring 29, thus forcing the cross-bar 24 upon the tool-carrier 21 out of the recess or groove 28, so that said tool carrier is free to rotate upon the rocker frame 18. As soon as this point is reached the gear teeth upon the rack 39 mesh with the gear teeth formed upon the intermittent gear 36 and impart a rotary motion thereto in the direction of the arrow (Fig. 3) thus rotating the spindle 30, the spring 35 and the tool carrier to which the lower end of said spring is attached, and bringing the shank edge burnishing iron 26 into the position formerly occupied by the fore part burnishing iron.

In Fig. 3 the slide 40 is shown at its extreme position toward the left, while in Fig. 4 said slide is shown in its extreme right hand position, the stop plate 60 serving to limit the extent of motion of said slide. In the movement of the slide hereinbefore described toward the right from the position indicated in Fig. 1, it will be seen that as soon as the downwardly bent portion 59 of the finger 58 passes beyond the top of the spindle 30, said spindle will be forced upwardly by the spring 29 as soon as the rotation of said spindle and tool carrier hereinbefore described has taken place and returned the cross-bar 24 to its position in the groove 28, thus locking the tool carrier to the rocker frame. Upon the return movement of the lever 42, which movement is actuated by the torsional spring 45, the cam-shaped finger 58 will be drawn forwardly to clear the spindle 30 by means of the holder 49 which rocks upon the pin 50 from the position shown in Fig. 4 to that shown in Fig. 3 as soon as the return movement of the slide 40 commences, so that upon the return movement of the slide, the spindle 30 and the tool carrier connected thereto by means of the flexible connection 35 are not given a reciprocatory motion. Said spindle 30, together with the tool carrier and its flexible connection 35, are also stationary as to rotary motion upon the return of said slide from the position illustrated in Fig. 4 to that illustrated in Fig. 3, the pawl 37 moving backwardly over the teeth of the ratchet 38 without rotating the same.

It will be understood that the spring 35 acts as a flexible connection between the spindle 30 and the shank 22 of the tool carrier 21 so that in the several motions of the machine during the burnishing operation, the tool carrier is perfectly free to rock upon the pivotal shaft 19, and yet said spring 35 acts as a convenient and cheap means of rotating said tool carrier, hereinbefore de-

scribed, when it is desired to substitute one of the burnishing irons in place of the other. The action of substituting one of the burnishing irons for the other, hereinbefore described, is practically instantaneous and the advantage derived from the mechanism resides in the fact that the operator can devote his entire attention to the burnishing of the edge of the sole of the shoe and use both hands to handle the shoe, while at the same time when he arrives at the portion of the edge of the sole of said shoe where he desires to change one iron for the other, he makes said change by pressing his knee upon the lever, so that when the moment comes for the change to be made it is practically instantaneous and no loss of time is caused in thus changing the irons.

It will be understood that the spring or flexible connection between the tool carrier 21 and the spindle 30 is sufficiently flexible to allow the rocker frame to rock upon the shaft 19, but is rigid enough so that when the spindle 30 is pushed downwardly by the cam-shaped finger 58 the shank 22 will be forced downwardly and the cross-bar 24 moved out of the groove 28, as hereinbefore described, and also when the rotary motion of the spindle 30, hereinbefore described, takes place, said spring is sufficiently rigid to rotate the shank 22 of the tool carrier 21, as hereinbefore described.

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

1. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, one of said parts formed to directly interlock with the other and movable relatively thereto, whereby said parts may be unlocked one from the other, mechanism to rotate said tool carrier embodying a reciprocatory and rotatable member, and a spiral spring one end of which is fastened to said rotatable member and the other end thereof to said tool carrier.

2. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, one of said parts formed to directly interlock with the other, and mechanism to rotate said tool carrier.

3. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, one of said parts formed to directly interlock with the other, mechanism to move one of said parts relatively to the other to unlock said parts one from the other, and mechanism to rotate said tool carrier.

4. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, one of said parts formed to directly interlock with the other, mechanism to move one of said parts relatively to the other to unlock said parts one from the other, mechanism to rotate said tool carrier, and a flexible connection between said last named mechanism and tool carrier, said flexible connection permanently fastened to said tool carrier.

5. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, a projection upon one of said parts constructed to project into a recess provided in the other of said parts and lock said carrier against rotation, mechanism to move one of said parts relatively to the other until said tool carrier is free to rotate upon said rocker arm, and mechanism to rotate said tool carrier.

6. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, one of said parts formed to interlock directly with the other, mechanism to move one of said parts relatively to the other to unlock said parts one from the other, mechanism to rotate said tool carrier, and a lever adapted to actuate said mechanisms.

7. In a sole edge burnishing machine, a rocker frame, a tool carrier adapted to be reciprocated and rotated thereon, and instrumentalities to impart alternately a reciprocatory and rotary motion to said tool carrier.

8. In a sole edge burnishing machine, a rocker frame, mechanism to impart a rocking motion thereto, a tool carrier rotatable thereon, mechanism to impart a reciprocatory motion thereto, a spindle journaled to rotate upon a stationary portion of said machine, mechanism to impart a rotary motion to said spindle, and a flexible connection fast to said spindle at one end thereof and to said tool carrier at the other end thereof, whereby said tool carrier is successively reciprocated, rotated and rocked.

9. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable thereon, a spindle journaled to rotate upon a stationary portion of said machine, a flexible connection from said spindle to said tool carrier, a pinion and rack mechanism operatively connected to rotate said spindle, and a lever adapted to impart a reciprocatory motion to said rack.

10. In a sole edge burnishing machine, a rocker frame, a tool carrier adapted to be reciprocated and rotated thereon, a spindle adapted to be reciprocated and rotated upon a stationary support, a connection between said spindle and tool carrier, a pinion and rack mechanism operatively connected to rotate said spindle, and mechanism to impart a reciprocatory motion to said spindle.

11. In a sole edge burnishing machine, a rocker frame, a tool carrier adapted to be reciprocated and rotated thereon, a spindle adapted to be reciprocated and rotated upon a stationary support, a connection between said spindle and tool carrier, and instrumentalities adapted to impart alternately

a reciprocatory and rotary motion to said spindle and through said connection to said tool carrier.

12. In a sole edge burnishing machine, a rocker frame, a tool carrier adapted to be reciprocated thereon, a spindle adapted to be reciprocated upon a stationary support, a connection between said spindle and tool carrier, and a cam-shaped finger adapted to engage said spindle and impart a reciprocatory motion thereto.

13. In a sole edge burnishing machine, a rocker frame, a tool carrier adapted to be reciprocated thereon, a spindle adapted to be reciprocated upon a stationary support, a connection between said spindle and tool carrier, a slide, a holder pivoted to said slide, a lever connected to said holder, and a cam-shaped finger fast to said holder adapted to engage said spindle and impart a reciprocatory motion thereto.

14. In a sole edge burnishing machine, a rocker frame, a tool carrier rotatable and slidable thereon, mechanism to rotate and mechanism to reciprocate said tool carier, and a yielding connection, one end of said connection permanently fastened to said first mechanism and the other end thereof permanently fastened to said tool carrier.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ZOTIQUE BEAUDRY.

Witnesses:

CHARLES S. GOODING,

ANNIE J. DAILEY.