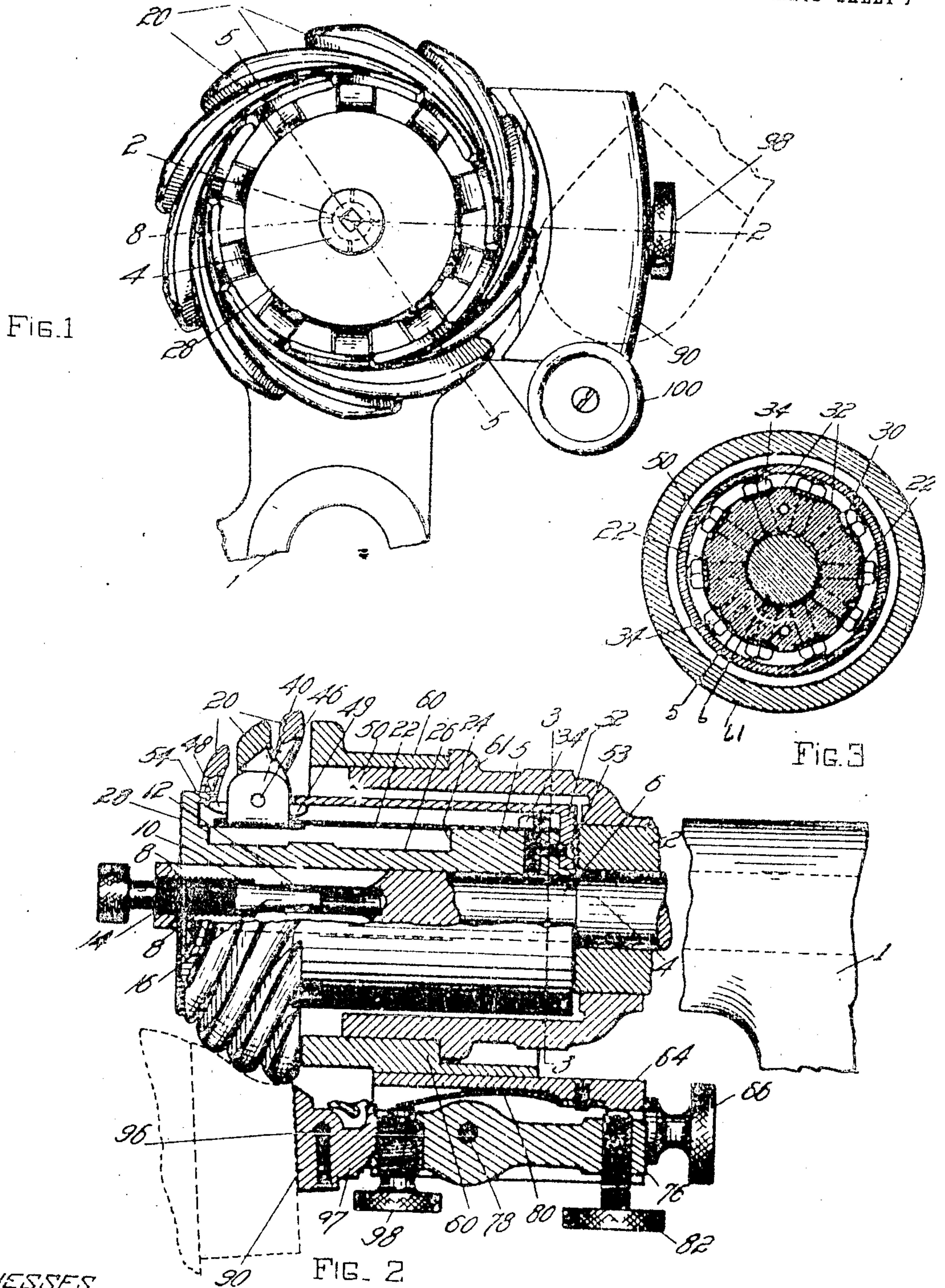


C. PEASE.  
BURNISHING MACHINE.  
APPLICATION FILED JUNE 18, 1904.

959,880.

Patented May 31, 1910

2 SHEETS—SHEET 1



WITNESSES.

Arthur L. Russell  
Elizabeth C. Coyle

INVENTOR:

Charles Pease  
By his Attorney,  
Nelson Howard



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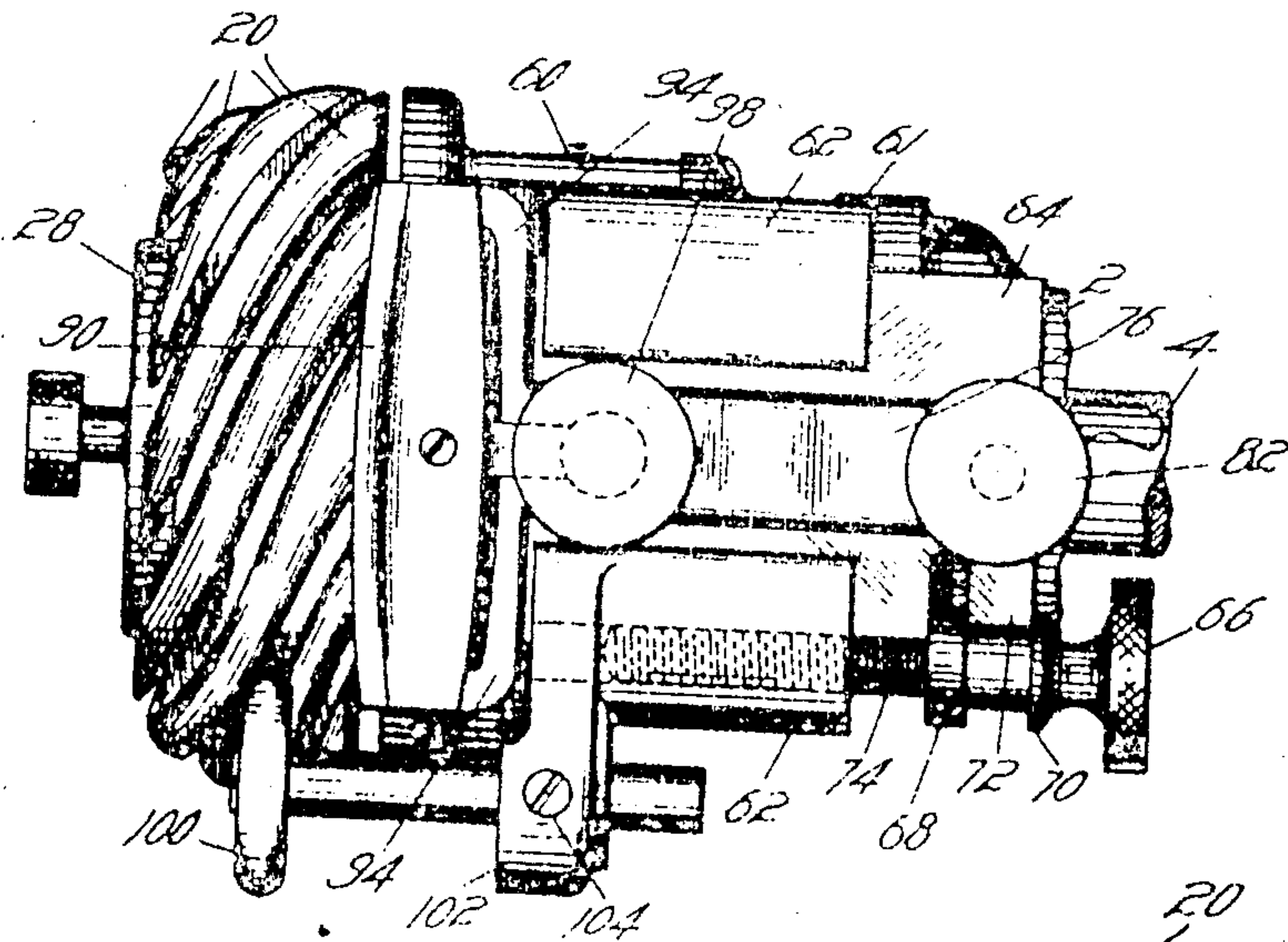


FIG. 4

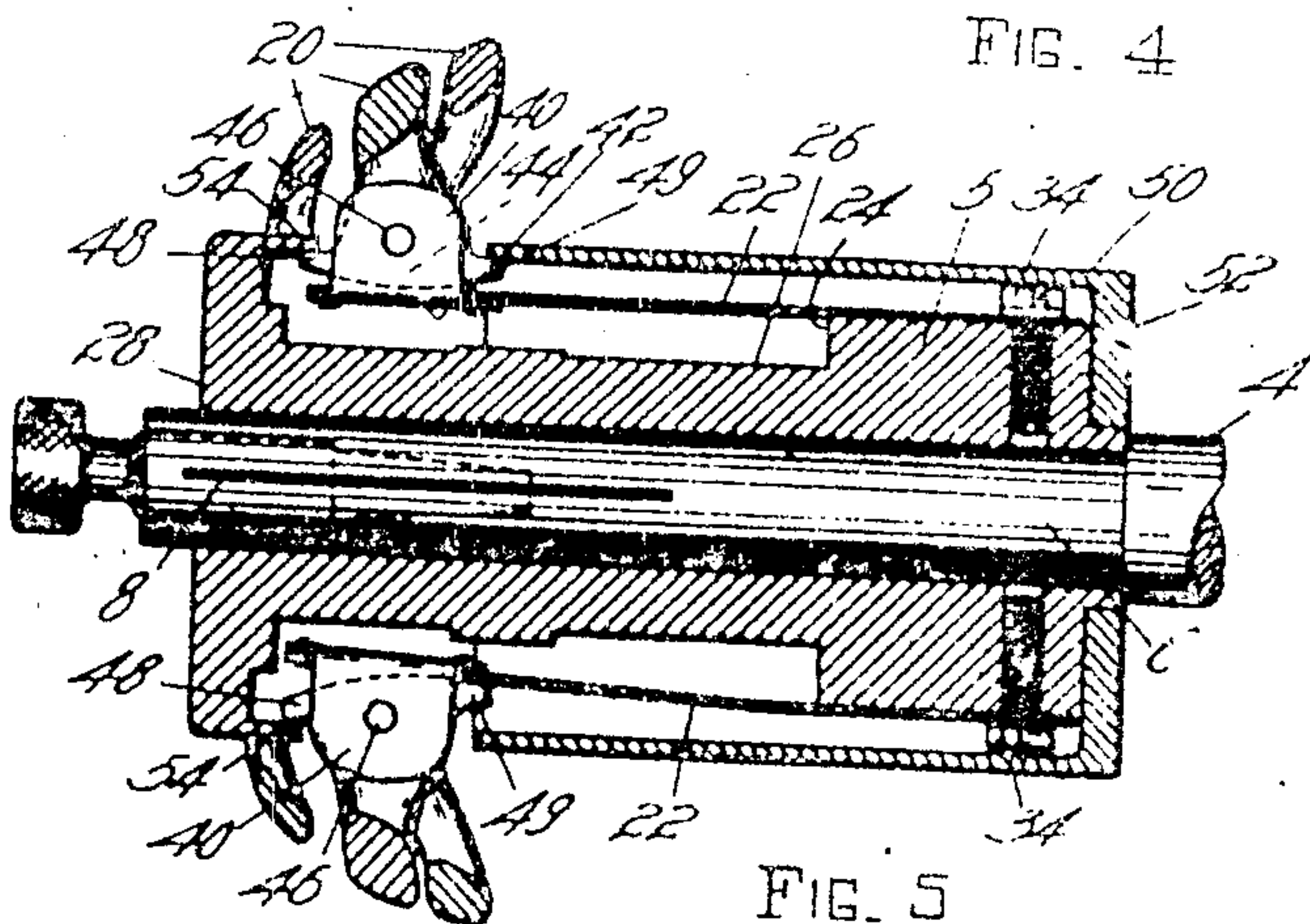


FIG. 5

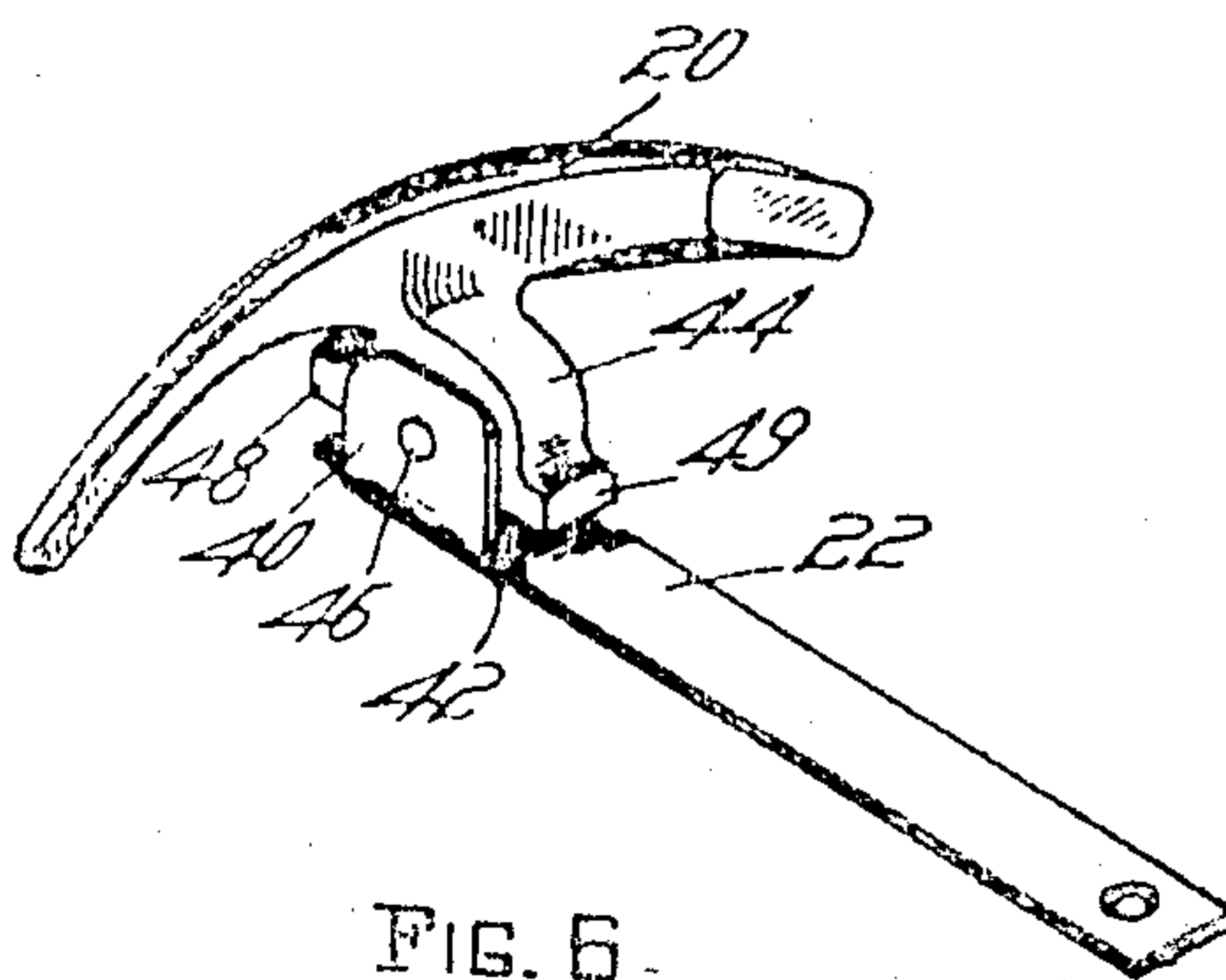


FIG. 6

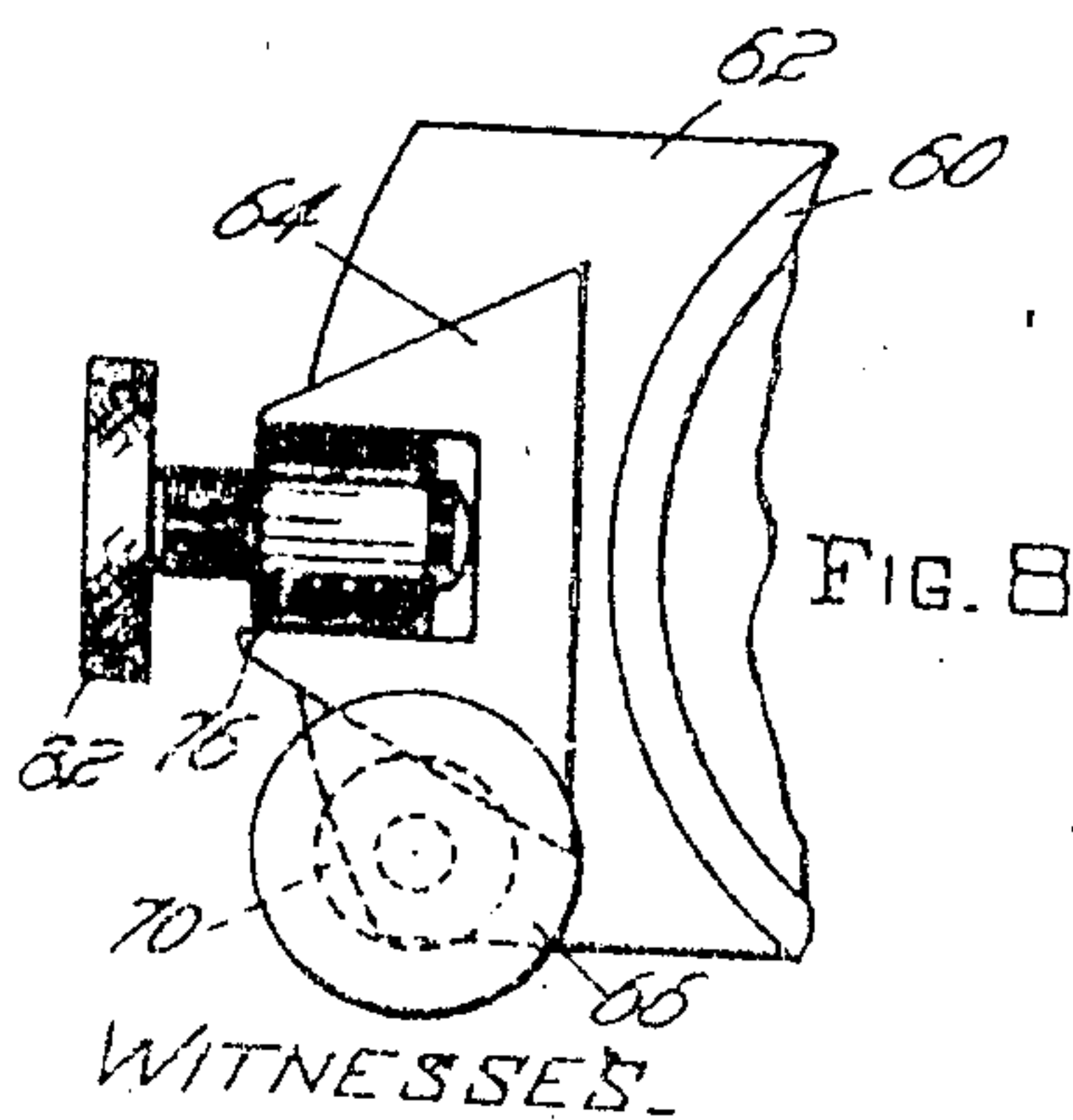


FIG. 8

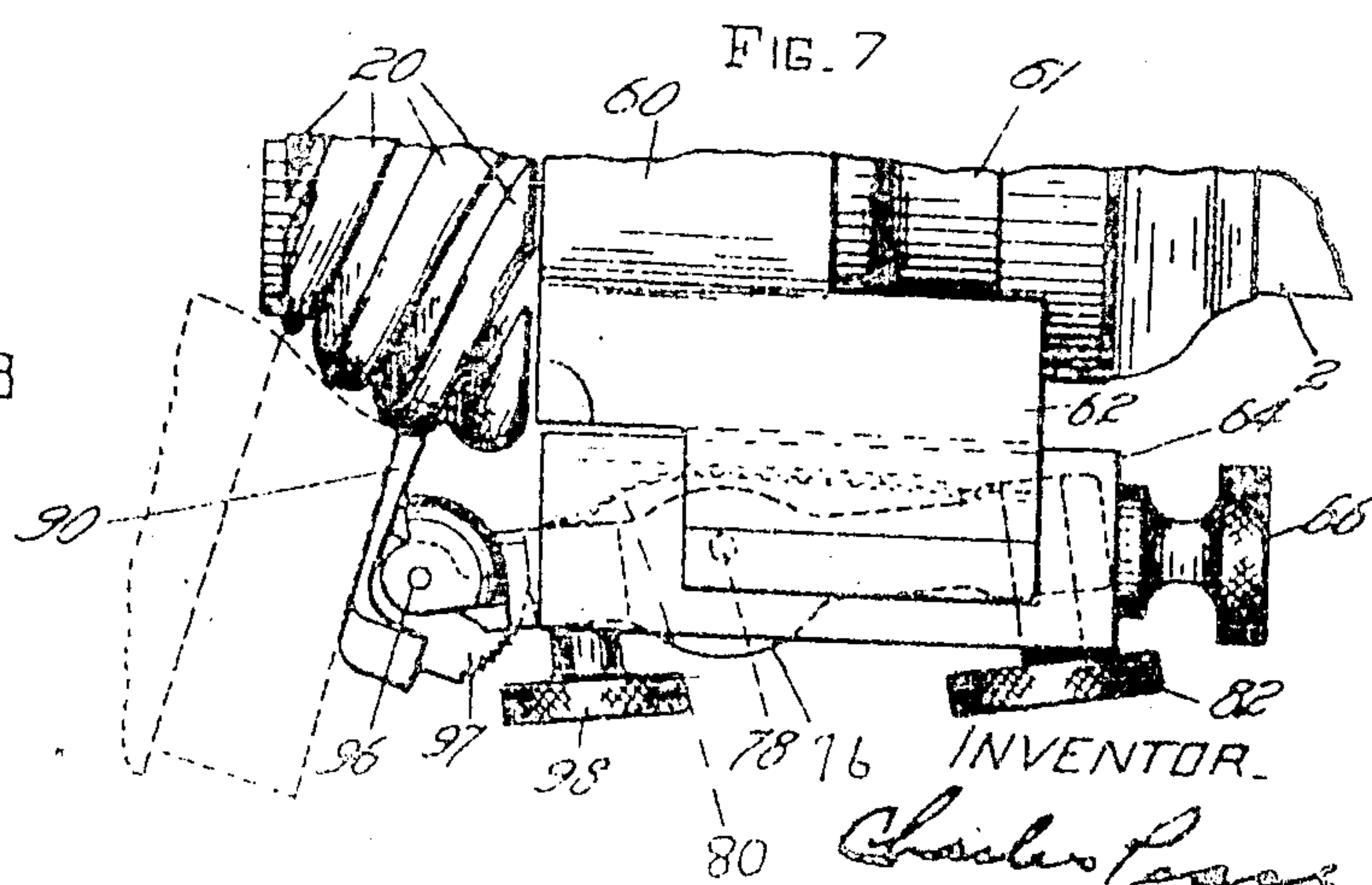


FIG. 7

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Elizabeth C. Conner

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By his Attorney  
Nelson Howard



# UNITED STATES PATENT OFFICE.

CHARLES PEASE, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED-EXPEDITE FINISHING COMPANY, OF BERWICK, MAINE, A CORPORATION OF MAINE.

## BURNISHING-MACHINE.

959,880.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed June 18, 1904. Serial No. 213,191.

*To all whom it may concern:*

Be it known that I, CHARLES PEASE, a citizen of the United States, residing at Salem, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Burnishing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for finishing leather and particularly to machines adapted for use in finishing the surfaces of the heels and soles of boots and shoes.

The object of the invention is particularly to improve the construction of the burnishing or other finishing tools used in machines of this class and to provide an improved rest having capacity for adjustment to enable heels varying in shape to be properly supported thereby in position to be acted upon by the same tool.

An important feature of the invention consists in a burnishing or other finishing tool, comprising a carrier and a plurality of work members forming the working face of the tool, in which the work members are yieldingly mounted and are normally held in position to form a regular or uniform working face for the tool notwithstanding variations or lack of uniformity in the yielding supporting means.

In the embodiment of the invention herein illustrated the work members, which are shown as having relatively long acting faces extending across the working face of the burnishing tool and collectively forming such working face, are pivotally connected to leaf springs which tend normally to press them outwardly from the carrier, and the work members are provided with means coacting with fixed means on the carrier for limiting the extent to which the work members are pressed outwardly by the springs and also for determining the angular position of the work members relatively to their pivots. By accurately shaping said two co-acting means the work members will be held by the springs yieldingly in position to form

a regular or uniform working face irrespective of variations in the shape or strength of the springs, due, for example, to warping or twisting of the springs, uneven tempering, or changes in the shape of the springs during use.

Another very important feature of the invention is that, in the construction herein shown, the work members are supported so that they may rock or tip with relation to their sustaining means, whereby the working face of the tool may conform to the surface of the work presented to it, as, for instance, if the contour of the work is different from that of the working face; and also, if the work is so presented as to engage only one edge of the working face, the work members may tip and, as herein shown, also yield, so as to conform to the position as well as the contour of the work and therefore engage the work with the entire width of the working face of the tool.

The invention is herein shown as embodied in a machine comprising a rotary burnishing tool having the working face on the circumference of the tool; but the invention is obviously not limited to this form of tool, and some features of the invention also may be employed to advantage in tools intended for other purposes than burnishing and analogous uses.

Still another feature of the invention is an improved work rest adapted to be so adjusted as to assist the operator in properly presenting the work to the burnishing tool.

Other features of the invention, including certain details of construction and combinations of parts, will be hereinafter described and pointed out in the claims.

Figure 1 of the drawings is an end view of the portions of a burnishing machine with which the present invention is concerned. Fig. 2 is a view partly in section on line 2—2 of Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 2. Fig. 4 is a side elevation. Fig. 5 is a section on line 5—5 of Fig. 1. Fig. 6 is a detail of one work member and its supporting spring. Fig. 7 is a plan view arranged particularly to show the shoe rest and its relation to the burnishing tool. Fig. 8 is a detail of the shoe rest in rear elevation.



The invention is herein shown as embodied in a machine adapted for burnishing or finishing the edges of heels of boots and shoes. The machine comprises a frame 1, a portion only of which is shown in Figs. 1 and 2, the frame having bearings 2 for a shaft 4 upon which the burnishing tool is secured for rotation therewith. The burnishing tool is shown as comprising a carrier 5, hereinafter more fully described, said carrier being in the form of a sleeve adapted to fit on a reduced portion 6 of the shaft 4. The reduced portion of the shaft is provided between its ends with slots 8, which, as shown, do not extend to the end of the shaft, and with a central, longitudinal bore comprising a screw-threaded portion 10 and a smooth portion 12 of less diameter than the threaded portion. A bolt having a screw-threaded portion 14 and a tapering end portion 16 is adapted to be screwed into the bore, its tapered portion 16 engaging the shoulder formed at the outer end of the portion 12, and thereby expanding the slotted portion of the shaft to cause it to engage the carrier 5 frictionally for firmly securing and accurately centering the burnishing tool on the shaft. By locating the slots 8 between points within the ends of the shaft as shown the enlargement of the shaft produced by the expanding device is greatest approximately midway between the ends of the slotted portion of the shaft, instead of at its end, as would be the case did the slots extend to the end of the shaft. By reason of the present construction the tool is more accurately centered and more firmly held in position than would be the case if the expansion of the shaft were greatest at the end of the shaft.

The burnishing tool here shown as embodying the invention comprises, besides the carrier 5 above mentioned, a plurality of work members 20 which are mounted on the carrier for rotation therewith. The work members are so connected to the carrier as to be capable of movement inwardly and outwardly relative to the carrier and also to have other movements as will be described. The work members are herein shown as supported upon leaf springs 22, although of course they might be yieldingly supported by other means if desired. With these ends in view the carrier 5 is formed with a portion 24 of relatively large diameter, a reduced portion 26, and a flanged outer end 28. The portion 24 is provided with longitudinal grooves 30 separated by ribs 32, see Fig. 3, the grooves forming seats in which the rear portions of the springs 22 fit snugly, while the ribs hold the springs securely against lateral movement, that is, movement in the direction of the width of the springs. Clamping bolts 34 extending

through the springs and into the carrier 5 bind the springs firmly in place within the grooves 30.

In accordance with the present invention the work members are movably mounted on the springs 22 and to this end the springs are each provided near their free, front ends with outstanding ears 40, which, as hereinafter shown, are formed on a clip 42 secured to the spring. Between the ears 40 is arranged the foot 44 of a work member 20, which, as shown, is connected to the ears by means of a pivot pin 46. The work members may, however, be mounted on the springs in any other suitable manner which will permit of a rocking or tipping movement of the work members.

The angular position of the work members with relation to the pivots 46, or with relation to the springs 22, is determined by providing the feet 44 of the work members with forwardly and backwardly extending lugs 48, 49 which are arranged for engagement with positioning means supported by the carrier. As shown, a sleeve 50 is arranged outside the carrier and is secured thereto by screws 53 which pass through a flange 52 of the sleeve into the rear end of the carrier as illustrated in Fig. 2. The front end of the sleeve 50 incloses and engages the lugs 49 on the feet of the work members, while the lugs 48 are engaged by a lip 54 on the inner or rear face of the flanged end 28 of the carrier. The sleeve 50 and the lip 54 by engagement with the lugs 48, 49 upon opposite sides of the work member determine not only the outermost position of the several work members toward which they are pressed by the springs, but also determine the position of each work member with relation to its pivot 46 and supporting spring 22. It will thus be seen that said sleeve and lip form positioning means which by engagement with the work members determines the normal position of said members, and by insuring a uniform normal position for the several work members insures a regular and even working face for the tool. It will also be understood that the springs serve to hold the work members yieldingly outwardly against said positioning means, but permit the work members to be forced inwardly toward the carrier by pressure of the work against the working face of the tool. The movable connection formed by the pivot 46 between each work member and its supporting spring also permits each work member to rock or tip against the pressure of the spring, as shown on the lower side of Fig. 5, while the elasticity of the spring enables each work member to tip slightly in a direction at right angles to the direction of its movement about the pivot 46. This capacity of the work



members for rocking or tipping as well as for yielding inwardly is of great importance in that it enables the working face of the tool to adapt itself to the contour of the work pressed against it. Another important advantage which is obtained by mounting the work members so that they may rock or tip in the direction of the width of the tool is that said work members, which are shown as having relatively long heads presenting acting faces extending obliquely across the working face of the tool, will readily adapt themselves to the position of the work if the work is not squarely presented to the tool by the workman but is pressed against one edge of the tool with greater force than against the other edge.

The machine is preferably provided with rests to assist the workman in properly presenting the work to the burnishing tool. The rests are herein shown as sustained by a collar 60 which encircles a forward extension 61 of one of the shaft bearings 2, said extension 61 being preferably chambered out to extend over the rear portion of the burnishing tool, as shown in Fig. 2. The collar 60 may be adjusted circumferentially about the shaft to locate the rests at the desired height and it has a lateral extension 62 in which is formed a guideway extending longitudinally of the shaft 4. The guideway is provided with undercut side walls, see Fig. 8, to hold in place a slide 64 which may be adjusted along the guideway toward and from the burnishing tool by means of a screw bolt 66. The bolt is provided with collars 68 and 70 which embrace a portion 72 of the slide, and with a threaded section 74 which enters a threaded aperture in one of the extensions 62, as shown in Fig. 4, whereby rotation of the bolt will cause a longitudinal movement of the slide. The slide is provided with a longitudinal groove or opening, see Figs. 2 and 8, in which is located a lever 76 pivoted to said slide 64 by a transverse pin 78, as shown most clearly in Fig. 2. A spring 80 is secured to the inner wall of the groove or opening and presses the front end of the lever outwardly. The position in which the lever is held by the spring is controlled by an adjusting screw 82 mounted in the rear end of the lever and bearing on the slide to rock toward the burnishing tool the front end of the lever and the tread rest 90 carried thereon, as will be described.

The front end of the lever is forked as shown in Fig. 4 and each fork is provided with an arm 94 which extends laterally and then forwardly. The tread rest 90 is mounted between the forwardly extending portions of the arms 94, being connected thereto by the pivot pin 96, see Figs. 2 and 7. The tread rest has a rearwardly extended arm 97 located between the forks of the

lever 76 and formed as a segment provided with teeth to be engaged by the threads of a screw 98 mounted to turn loosely in a smooth opening in the lever. Rotation of the screw acts to rock the tread rest about its pivot pin 96 for inclining its shoe supporting face with relation to the plane in which the burnishing tool rotates.

It will be understood that by manipulating the adjusting screw 66 the tread rest may be moved longitudinally of the shaft to different positions with relation to the width of the tool and thus adapt it for supporting heels of different height in proper position to be acted upon by the burnishing tool, as illustrated in Figs. 2 and 7, thus rendering it unnecessary to change the burnishing tool for heels of different height as the operator has heretofore frequently been obliged to do.

By means of the adjusting screw 82 the tread rest may be moved nearer to or farther from the working face of the tool. This capacity for adjustment enables the tread rest to be positioned at the desired distance from the working face of the tool. If the burnishing tool employed is a "molded" tool, that is, of greater diameter in one portion of its width than another, as in the example here illustrated, it will usually be desirable to adjust the tread rest toward or from the working face of the tool by the screw 82 after having adjusted it in the direction of the width of the tool by the screw 66. By means of these adjustments the tread rest may be positioned at the desired distance from the working face of any portion of a tapered or molded tool. The angular adjustment of the tread rest about the pivot pin 96, which is effected by the screw 98 for varying the inclination of the shoe supporting face of the tread rest to the plane of rotation of the burnishing tool, is of particular importance in that it enables shoe heels differing in pitch, or the inclination of their edges relatively to the plane of the treads, to be properly supported for the action of the burnishing tool, as illustrated in Figs. 2 and 7. By the use of the tread rest of this invention a single molded burnishing tool may be used upon heels of widely varying shape and the necessity heretofore found for changing the burnishing tool for one of a different shape to accommodate heels of different height or pitch is obviated. A rest 100 for the edge of the heel is adjustably supported in a depending arm 102 of the collar 60, being secured in adjusted position therein by a locking screw 104.

The manner of using the invention has been fully disclosed in describing the construction of the embodiment of the invention herein shown and explaining the advantages of the invention.

Having set forth the nature of my inven-



tion and having specifically described a construction embodying the several features thereof in a preferred form, I claim as new and desire to secure by Letters Patent in the United States—

1. A device of the class described, comprising a work member, a yielding support upon which said work member is movably mounted, and means cooperating with said work member for determining its normal position.

2. A device of the class described, comprising a work member, a yielding support upon which the work member is pivotally mounted, and unyielding means for determining the normal position of the work member with relation to its pivot.

3. A device of the class described, comprising a work member, a yielding support for the work member, a pivotal connection between the work member and the support arranged to permit tipping of the work member transversely of the working face of the work member, and unyielding means for determining the normal position of the work member.

4. A device of the class described provided with supporting means and having a working face comprising a plurality of work members mounted upon the supporting means and normally free for independent rocking transversely of said working face.

5. A device of the class described provided with supporting means and having a working face comprising a plurality of work members yieldingly mounted upon the supporting means and normally free for independent rocking transversely of said working face.

6. A device of the class described having a working face comprising a plurality of work members arranged normally to rock freely transversely of said working face, combined with means for supporting the work members and means for determining the normal position of said work members.

7. A device of the class described, comprising a work member, a yielding support to which said work member is pivotally connected, a rotatable carrier therefor and means engaging said work member on either side of said pivotal connection for limiting the movement of the member about the pivot and determining its normal position.

8. A device of the class described, comprising a carrier, a plurality of work members, yielding supports mounted on the carrier, a connection between the work members and said yielding support, and means for engaging the work members upon each side of said connection for determining the position of the work members.

9. A device of the class described, comprising a carrier, a plurality of work mem-

bers, supporting means mounted on the carrier and yieldingly pressing the work members outwardly, and stops arranged to be engaged by the work members on each side of their points of engagement with said supporting means.

10. A device of the class described, comprising a carrier, a plurality of leaf springs secured to the carrier, work members, a connection between the springs and the work members constructed and arranged to permit the work members to rock upon the springs, and means for determining the normal position of said work members.

11. A device of the class described, comprising a carrier, a plurality of leaf springs secured to the carrier, work members pivotally connected to the springs for rocking movement thereon, and means engaging the work members upon either side of said pivotal connection for determining the position of the work members.

12. In a device of the class described, a carrier, a plurality of work members, and yielding means intermediate the carrier and the work members for supporting the latter, combined with means separate from said work members and independent of said yielding means constructed and arranged to insure a uniform normal position of the several work members with relation to the carrier.

13. In a device of the class described, a carrier, a plurality of work members, springs arranged intermediate the carrier and the work members and movably connected with the latter for pressing said work members outwardly, combined with means for limiting the outward movement of the work members and determining the relation of the work members to the springs at their point of connection therewith.

14. In a machine of the class described, a carrier, a plurality of work members, and springs arranged intermediate the carrier and the work members and pivotally connected with the latter for pressing said work members outwardly, combined with means for limiting the outward movement of the work members and determining the angular position of the work members with relation to their pivots.

15. In a machine of the class described, the combination with a rotary burnishing device, of a rigidly supported tread rest, and means for adjusting the tread rest to present its work-supporting face in positions of different inclination to the plane of rotation of the burnishing device.

16. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest presenting an unobstructed surface over which the work may be moved, means for adjusting the tread



rest longitudinally of the axis of rotation of the burnishing device, and means for adjusting said tread rest angularly to positions of different inclination to the plane of rotation of the burnishing device.

17. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, means for adjusting the tread rest radially toward and from the axis of rotation of the burnishing device, and means for adjusting it angularly to positions of different inclination to the plane of rotation of the burnishing device.

18. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, means for adjusting the tread rest longitudinally of the axis of rotation of the burnishing device, means for adjusting said tread rest radially toward and from said axis of rotation, and means for adjusting it to positions of different inclination to the plane of rotation of the burnishing device.

19. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, and supporting and adjusting means therefor comprising a collar adjustable circumferentially about the axis of rotation of the burnishing device, a slide movable on the collar longitudinally of said axis of rotation, a lever carried by said slide and supporting the tread rest, means for adjusting said lever to move the tread rest radially toward and from the burnishing device, and means for adjusting the tread rest to positions of different inclination to the plane of rotation of the burnishing device.

20. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, and supporting and adjusting means therefor comprising a slide movable longitudinally of the axis of rotation of the burnishing device, a lever carried by said slide and supporting the tread rest, means for adjusting said lever to move the tread rest toward and from the burnishing device, and means for adjusting the tread rest angularly to positions of different inclination to the plane of rotation of the burnishing device.

21. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, and supporting and adjusting means therefor comprising a slide movable longitudinally of the axis of rotation of the burnishing device, a lever carried by said slide and supporting the tread rest, and means for adjusting said lever to move the tread rest radially with relation to the axis of rotation of the burnishing device.

22. In a machine of the class described, the combination with a rotary burnishing device, of a tread rest, and supporting and

adjusting means therefor comprising a lever arranged longitudinally of the axis of rotation of the burnishing device and supporting the tread rest, means for adjusting said lever to move the tread rest radially toward and from said axis of rotation, and means for adjusting the tread rest angularly to positions of different inclination to the plane of rotation of the burnishing device.

23. In a machine of the class described, the combination with a rotatable tool, of a shaft having a portion adapted to receive the tool, said shaft having also a central longitudinal opening and being provided with slots extending between points within the ends thereof, and means arranged to expand the slotted portion of the shaft for centering and securing the tool thereon, said machine having provision whereby the expanding means can be withdrawn to permit the removal of the tool from the shaft.

24. In a machine of the class described, the combination with a rotatable tool, of a shaft having a portion adapted to receive the tool, said shaft being provided between the ends of its tool receiving portion with slots and being further provided with a central longitudinal opening, and a device arranged to be adjusted in one direction in said opening for expanding the tool receiving portion of the shaft intermediate the ends of the slots, said device being arranged to be adjusted in the opposite direction for permitting the tool-receiving portion of the shaft to contract.

25. In a machine of the class described, the combination with a tool, of a shaft having a portion adapted to receive the tool, said shaft being provided with slots extending between points within the ends thereof and with a central longitudinal opening extending from one end of the tool-receiving portion, screw threads formed in the walls of said opening, and an expanding device comprising a screw-threaded portion to be received in the threaded portion of said opening, and a tapering portion for engaging and expanding the slotted portion of the shaft.

26. In a machine of the class described, the combination with a rotatable shaft and a tool mounted thereon comprising a carrier and a plurality of independent yielding work-rubbing members secured to the carrier, said members having longitudinal acting faces extending obliquely across the working surface of the tool and overlapping and adapted to tip or yield laterally.

27. In a machine of the class described, the combination with a rotary wax applying wheel, of a tread rest, a pivoted lever arranged to maintain said tread rest in a position adjacent to the periphery of said wheel and having provision for permitting

angular adjustment of said tread rest to positions of different inclination to the plane of rotation of said wheel, said lever being mounted to permit sliding movement longitudinally of the axis of rotation of said wheel for effecting adjustment of the tread rest widthwise of said wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES PEASE.

Witnesses:

ELIZABETH C. COUPE,  
ARTHUR L. RUSSELL.