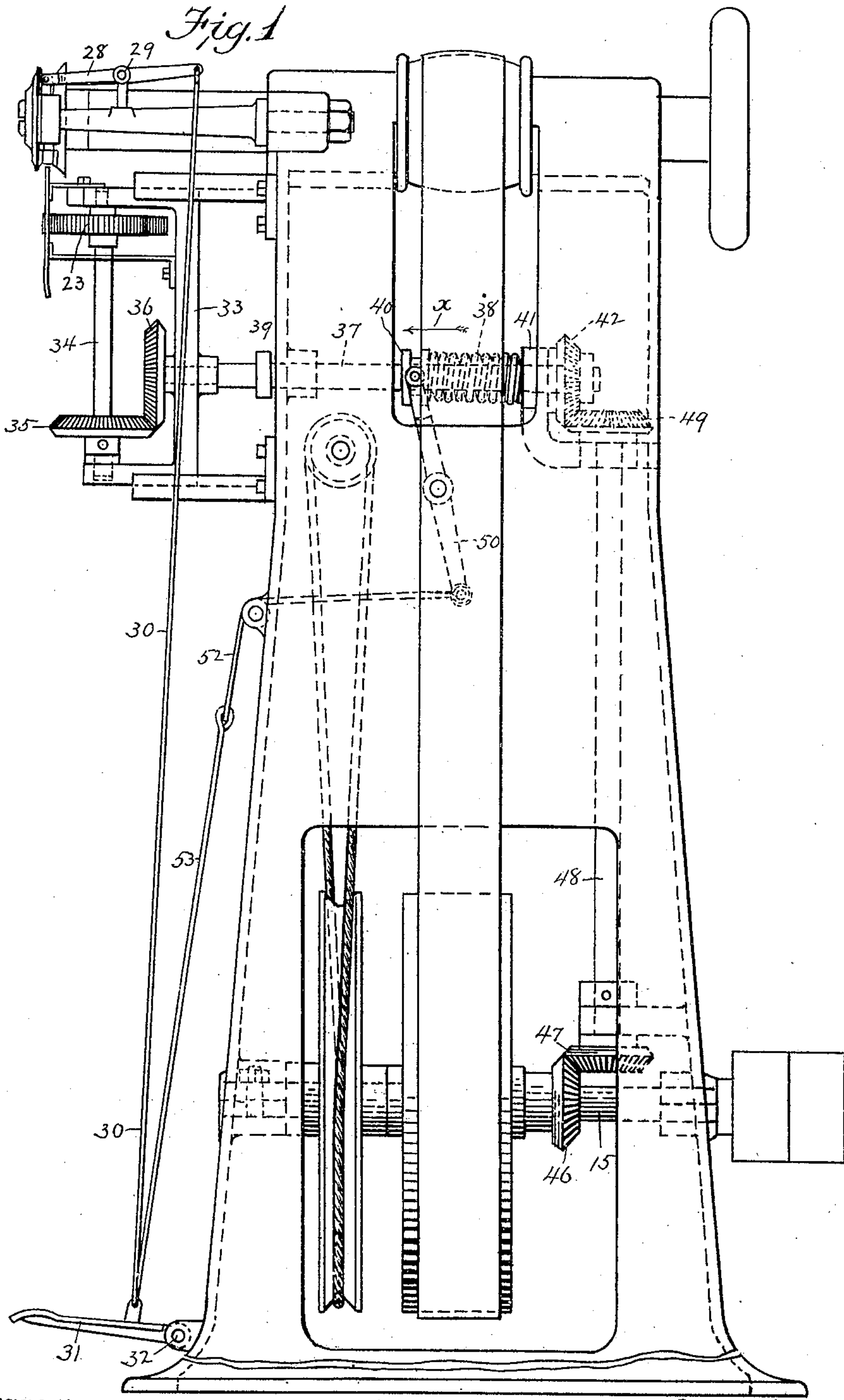


920,488.

C. W. MUSSO.  
SOLE EDGE TRIMMING MACHINE.  
APPLICATION FILED JULY 22, 1908.

Patented May 4, 1909.  
3 SHEETS—SHEET 1.



Witnesses:  
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Inventor:  
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Fig. 2.

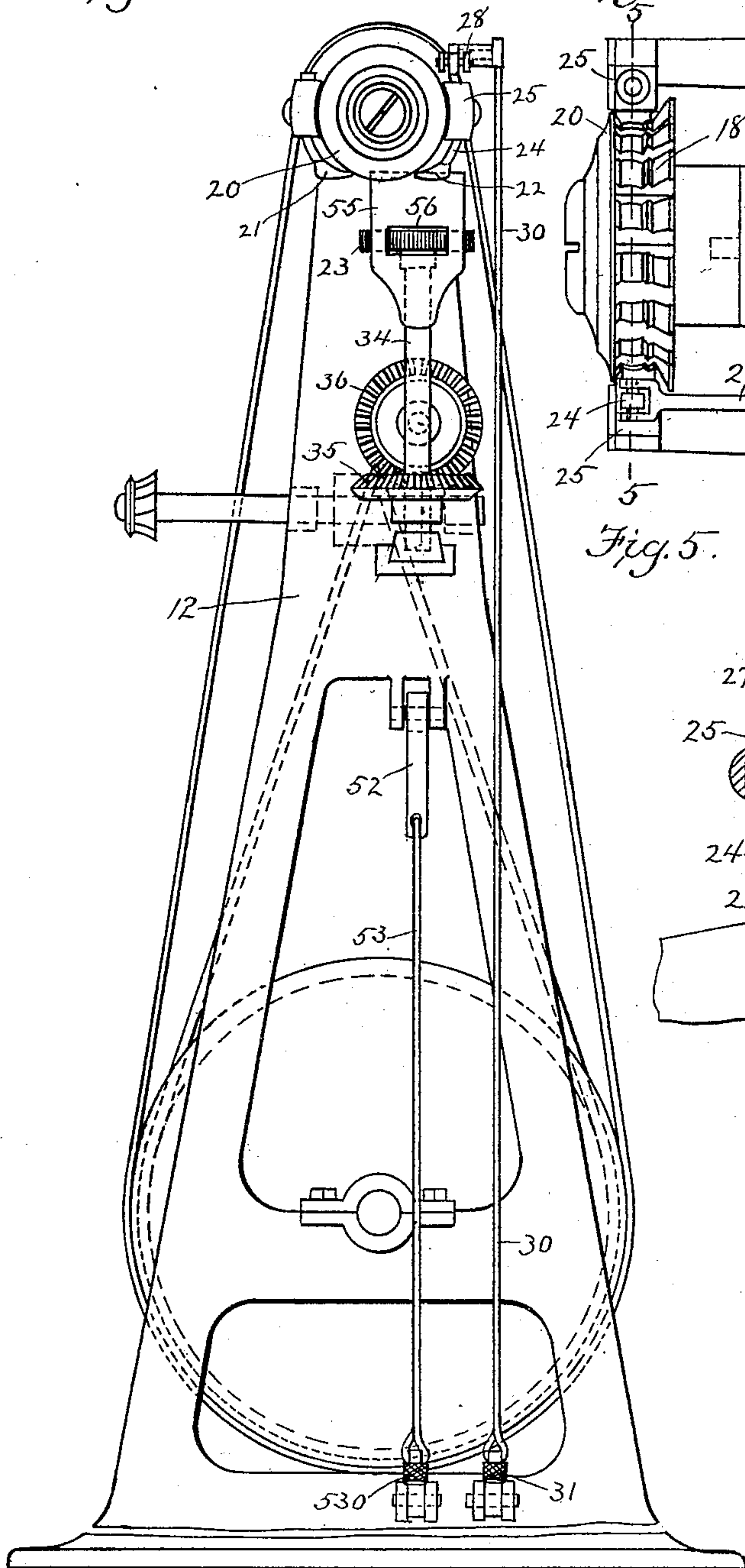


Fig. 4.

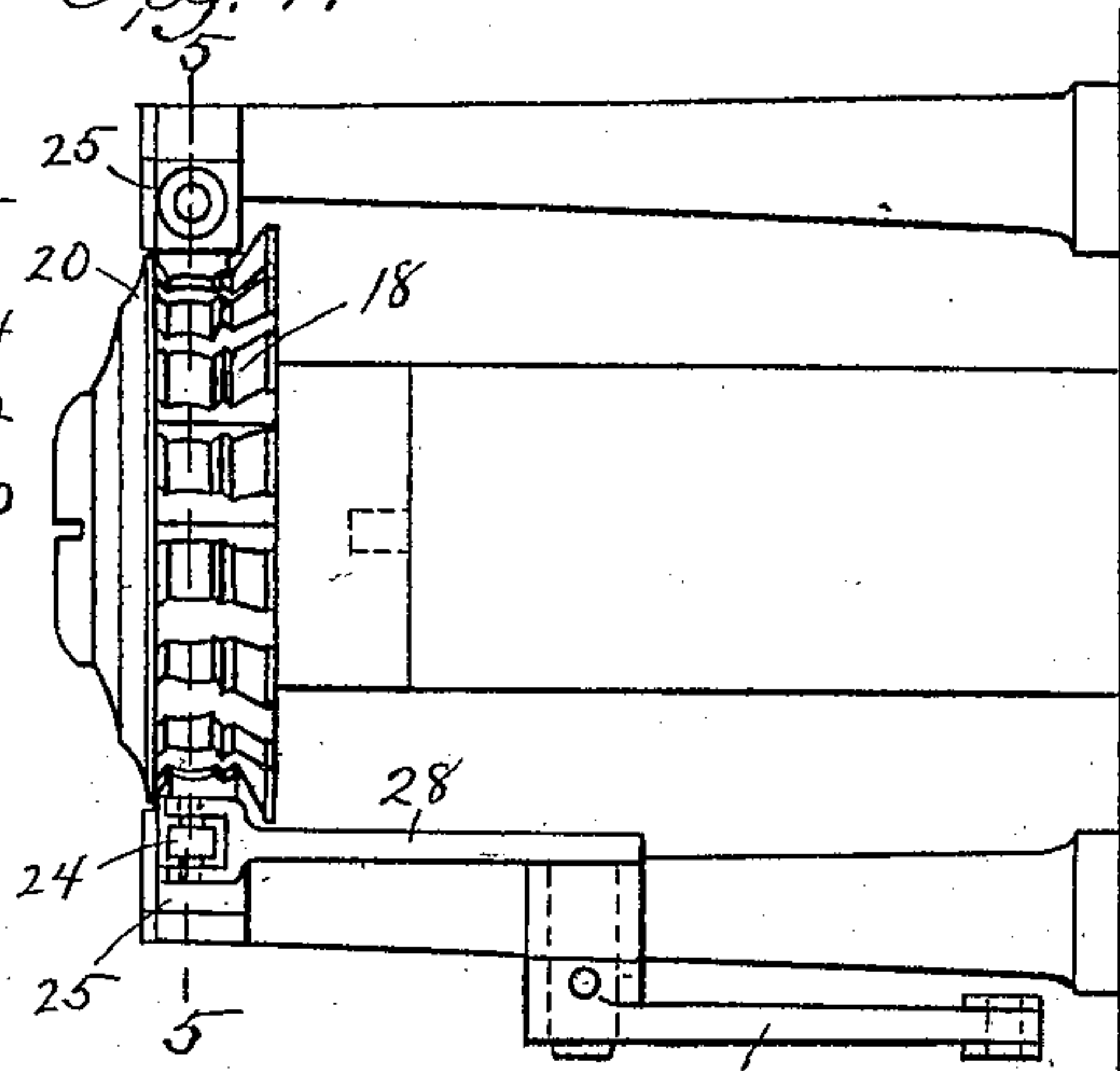


Fig. 5.

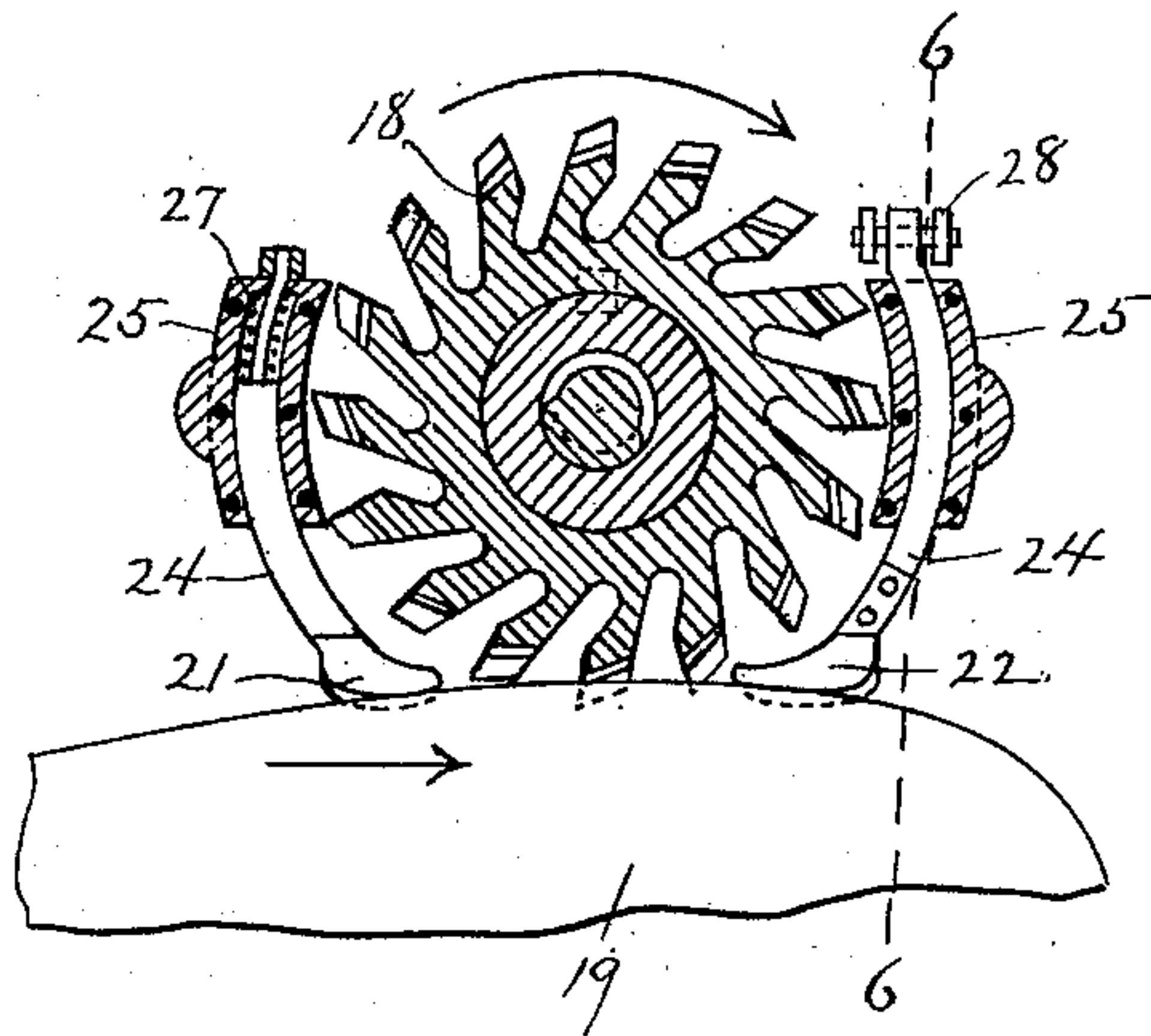
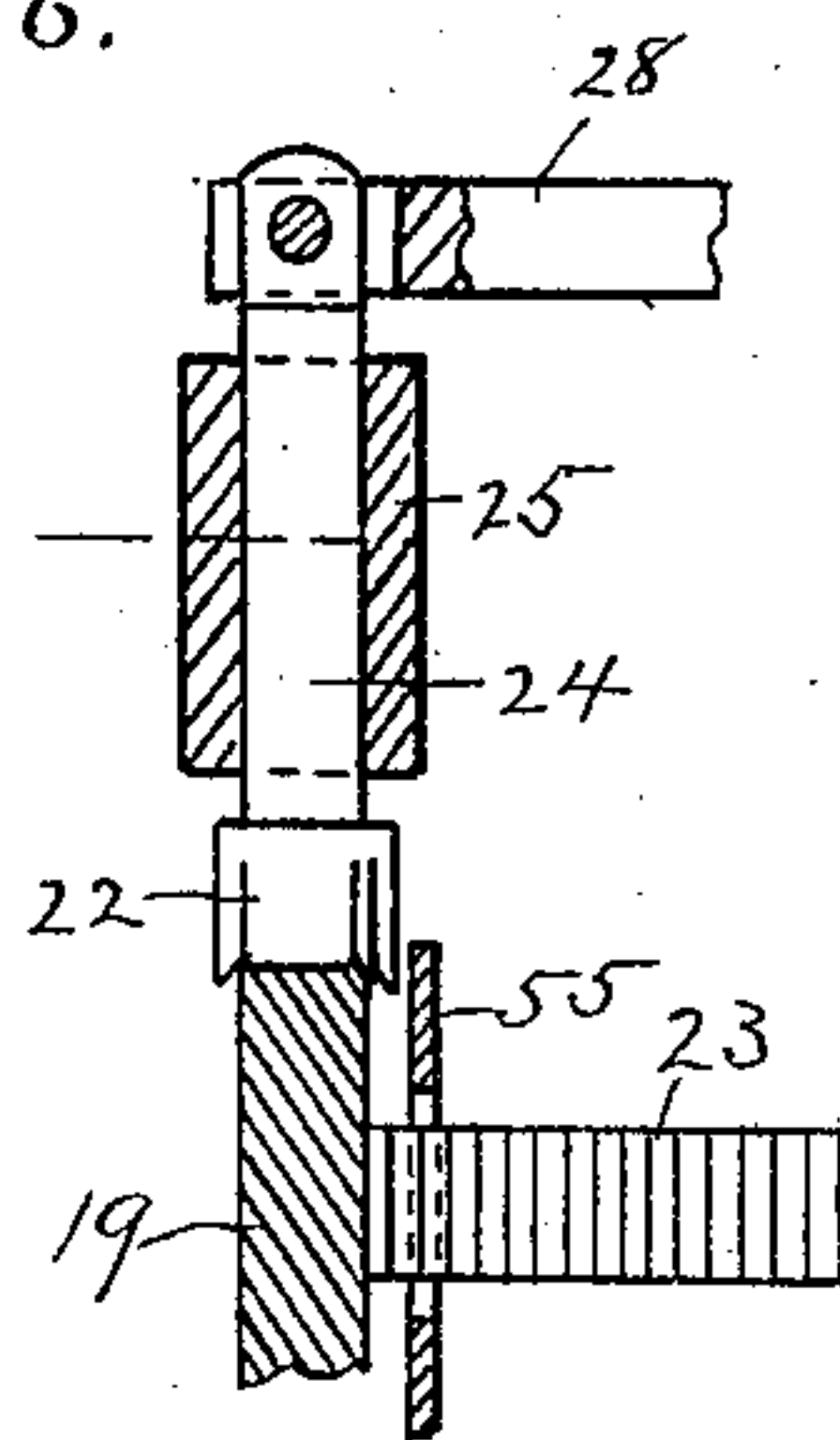


Fig. 6.



Witnesses:

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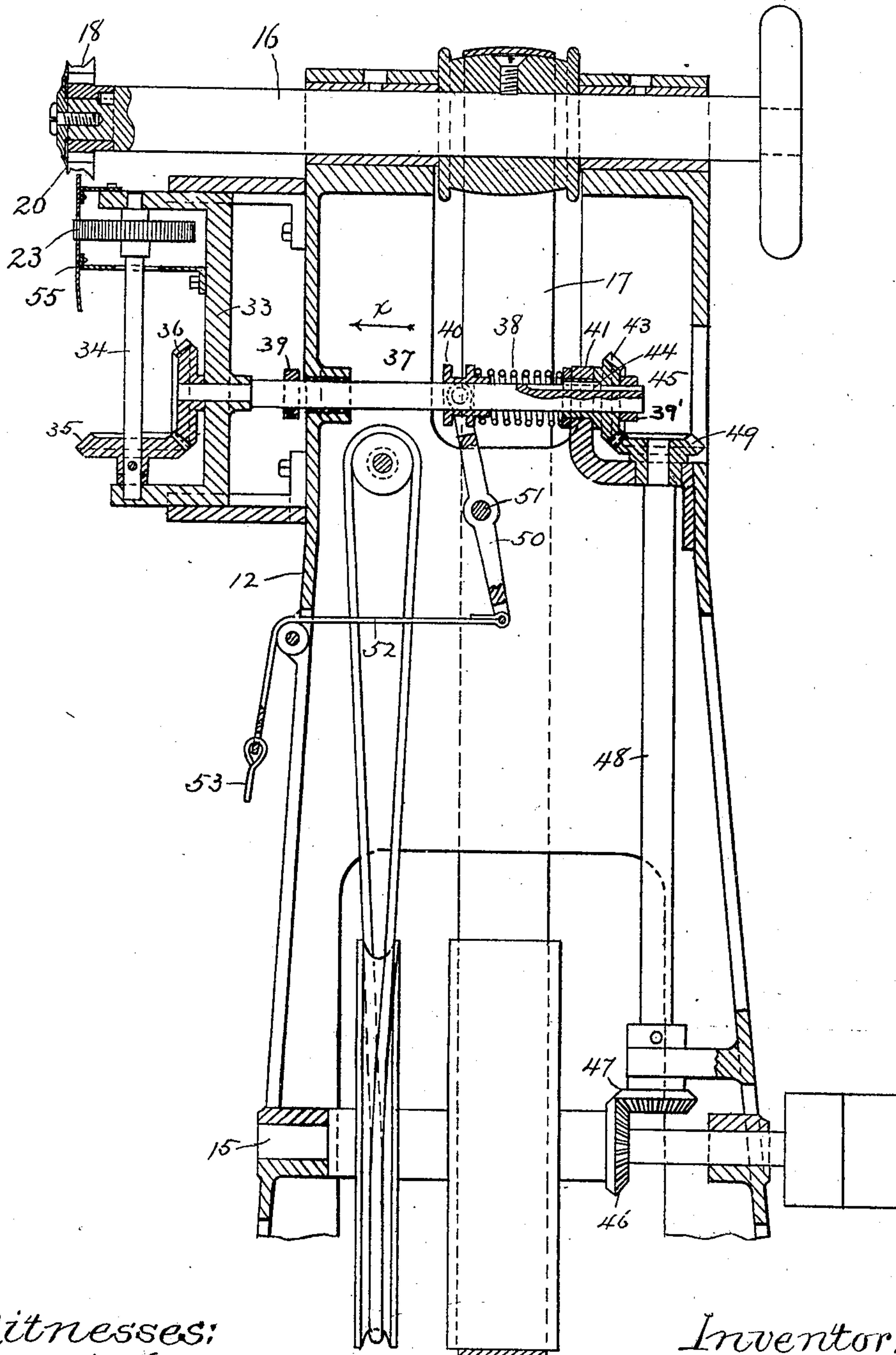
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

CHARLES W. MUSSO, OF LYNN, MASSACHUSETTS.

## SOLE-EDGE-TRIMMING MACHINE.

No. 920,488.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed July 22, 1908. Serial No. 444,735.

*To all whom it may concern:*

Be it known that I, CHARLES W. MUSSO, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole - Edge-Trimming Machines, of which the following is a specification.

This invention relates to a sole edge trimming machine having a rotary molded cutter adapted to trim the edge of a sole, and give the same the desired form in cross section, the cutter having at its outer end a thin-edged upper guard adapted to bear on the upper edge of the sole and protect the upper. In machines of this character, the sole to be trimmed is held by the hands of the operator and presented to the cutter.

The present invention has for its object to provide means for automatically feeding the sole to determine the rapidity of the trimming action, and to provide improved means for regulating the depth of cut, so that in a machine embodying my invention, the trimming is more accurately performed than heretofore, with less labor on the part of the operator, and less liability of error on account of lack of skill and judgment on the part of the operator.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—Figure 1 represents a side elevation of an edge trimming machine embodying my invention. Fig. 2 represents an end elevation of the same. Fig. 3 represents a side elevation of the machine partly in section. Fig. 4 represents a top view showing the rotary cutter and the supports for the edge rests. Fig. 5 represents a section on line 5—5 of Fig. 4. Fig. 6 represents a section on line 6—6 of Fig. 5.

The same reference characters indicate the same parts in all the figures.

In the drawings, 12 represents the supporting frame or standard of a sole edge trimming machine.

15 represents the trimming shaft journaled in bearings in the lower portion of the standard, and 16 represents the cutter shaft journaled in bearings in the upper portion of the standard, and driven by a belt 17 running on pulleys affixed to the shafts 15 and 16.

18 represents the rotary cutter which is of the ordinary form, and comprises a hub af-

fixed to the shaft 16, and cutters projecting in an approximately radial direction from the hub, the outer ends of the cutters being molded to impart the desired form to the edge of a sole 19 presented to the cutter.

20 represents the usual upper guard which accompanies the cutter, said guard being a thin-edged plate affixed to the end of the shaft 16, this edge overlapping the outer ends of the cutting edges of the cutter 18, and being adapted to enter the crease between the welt, or inner edge of the sole, and the upper.

In machines of this character as usually heretofore employed, the movement of the sole, while it is being trimmed, is effected wholly by the hands of the operator, who holds the shoe in engagement with the guard 20, and has to depend upon his own skill and judgment to exert proper pressure on the sole edge against the cutter, and to move the sole to cause the cut to progress along the edge thereof.

In carrying out my invention, I provide attachments for a machine of this character whereby the labor and the exercise of judgment on the part of the operator are reduced to the minimum, said attachments including a pair of edge rests 21, and 22, located at opposite sides of the acting portion of the cutter, and adapted to bear on the edge of the sole, as shown in Figs. 5 and 6, and a feed wheel 23 located below the cutter, and adapted to bear upon the tread face of the sole, and to impart thereto a predetermined feed movement, so that the operator, in presenting the shoe to the cutter, is required only to press the edge of the sole against the rests 21 and 22, and the tread face of the sole against the feed wheel 23, the operation of the machine being in other respects practically automatic. The edge rests 21 and 22 are shaped to fit the edge of the sole, as indicated in Fig. 6, and each is movable preferably in the arc of a circle, which is concentric with the axis of the cutter, so that when the rests are projected, the distance between them is decreased, and when they are retracted, the distance between them is increased. As here shown, each rest has a segmental shank 24, these shanks being movable in fixed segmental guides 25 mounted on the frame of the machine at opposite sides of the cutter. A spring 27 acts on the shank of the rest 21, and yieldingly projects



the same, the said rest being adapted to yield by the pressure of the sole against it. The shank of the rest 22 is connected with a forked lever 28 which is pivoted at 29 on a fixed support on the frame of the machine, and is connected by a rod 30 with a treadle 31 pivoted at 32 to the base of the frame. When the treadle is depressed, the lever 28 is moved to raise or retract the rest 22, and when the treadle is released, a spring hereinafter described acts to raise the treadle, and through the rod 30, move the lever 28 in the direction required to project the rest 22.

The feed wheel 23 is mounted on an axis arranged substantially at right angles with the axis of the cutter 18, said axis being supported by a slide or carrier 33, which is movable in the directions required to permit an endwise movement of the feed wheel, or in other words, a movement at right angles with the axis of the feed wheel, the feed wheel being therefore adapted to be projected toward the plane of the guard 20, and retracted or moved backwardly from said plane. In this embodiment of my invention, the feed wheel is attached to a vertical shaft 34 which is journaled in bearings in the carrier 33, and is provided with a bevel gear 35. Said gear meshes with a similar gear 36 affixed to a shaft 37, which is adapted to slide horizontally in bearings in the frame of the machine, and is normally pressed in the direction indicated by the arrow *x* in Fig. 1 by a spring 38. The spring 38 is interposed between a collar 40 attached to the shaft 37, and a fixed bracket 41 which forms one of the bearings for the shaft 37.

42 represents a bevel gear which is rotatively engaged with the bracket 41, and has a key 44 which engages a groove 45 in the shaft 37, a sliding and rotative engagement being thus provided between the shaft 37 and the gear 43, whereby the shaft is permitted to move endwise while maintaining its rotative engagement with the gear 43.

The driving shaft 15 is provided with a bevel gear 46 meshing with a gear 47 on a vertical shaft 48, which has a gear 49 meshing with the gear 43. A driving connection is thus established between the driving shaft 15 and the feed wheel 23. The spring 38 normally forces the shaft 37 endwise in the direction indicated by the arrow *x*, and as said shaft is engaged with the carrier 33, the carrier is caused to move with the shaft. The spring 38 therefore normally projects the carrier and the feed wheel 23 toward the plane of the cutter carrier.

50 represents a lever which is fulcrumed at 51, and which has a forked end engaged with a groove in the collar 40. The opposite end of the lever 50 is connected by a strap 52 and a rod 53 with a treadle 530, (Fig. 2). When this treadle is depressed, it imparts movement to the lever 50 in the direction

required to move the shaft 37 in the direction opposite that indicated by the arrow *x* in retracting the carrier 33 and the feed wheel 23.

It will be seen from the foregoing that the operator is enabled by depressing the treadle 31 to hold the edge rest 22 at various adjustments relative to the edge of the sole 19. It will also be seen that the operator is enabled by depressing the treadle 530 to hold the feed wheel at various adjustments relatively to the face of the sole, said adjustments corresponding to the thickness of the sole, and to the amount of material which it is desired to remove therefrom.

The carrier 33 is preferably provided with a face plate or guard 55 having a slot 56 through which a portion of the feed wheel 23 projects, the said face plate surrounding the acting portion of the feed wheel and being in close proximity thereto, so that it prevents the operator from tipping or inclining the sole too far in any direction.

The improvements herein described, and particularly the edge rests, the feed wheel or feeding device, and the face plate or guard, enable the operator to trim the shoe without removing it from the cutter. Heretofore, in all rotary edge trimming machines, the operator has to present the edge of the sole twice to the cutter, and is obliged to remove the shoe from the cutter several times during the trimming operation in order to make a finished edge; whereas, with my improved machine, as above stated, no removal of the shoe from the cutter is required. The said improvements also enable the operator to have at all times an unobstructed view of the sole edge while it is being trimmed.

While I have referred to the feeding member or device as a feed wheel, I do not limit myself to a wheel feed, as any other suitable device for mechanically moving or feeding a sole in the required direction during the trimming operation may be employed in connection with a rotary cutter without departing from the spirit of the invention.

The edge rest 22 bears on a portion of the sole edge which has been trimmed by the cutter, and is molded to conform accurately to the shape of the trimmed edge, and of the cutting edges of the cutter. It is desirable, therefore, whenever the cutter is removed, and another of different form is substituted for it, to make a corresponding substitution in the nature of the rest 22. I therefore provide means for detachably mounting the rest 22 so that it may be removed, and different shaped rests used interchangeably.

In practice, the face plate or guard 55 will be normally held by the spring 38 in close proximity to the guard 20 on the cutter, and is adapted to be moved back from said position by the pressure of the sole against it, the spring 38 holding the upper edge of the sole



in contact with the guard 20. The shaft 37 is moved endwise by the described movements of the face plate 55. Stops 39 and 39' may be provided to limit said movements, said stops being here shown as collars affixed to the shaft. The stop 39 abuts against a portion of the frame to limit the inward movement of the shaft 37, and prevent the face plate from striking the inner end of the cutter, while the stop 39' abuts against the gear 43 to limit the outward movement of the shaft and prevent the face plate from actually touching the guard 20.

The feeding device 23 may have a yielding periphery of rubber or other suitable material adapted to frictionally engage the tread face of the sole without marring or indenting the same.

I am aware that a sole edge trimmer having a nonrotating cutter or cutters has before been provided, with a feed wheel to engage the face of the sole and move the latter in contact with the non-rotating cutter to cause the trimming action. I am not aware, however, that the combination with a sole edge trimmer of a sole engaging feed wheel to engage the face of the sole and a rotating cutter has ever been employed.

I claim:

1. A sole edge trimming machine comprising a rotary cutter having a substantially horizontal axis of rotation, a feeding device arranged to bear on the tread face of a sole whose edge is presented upward to the cutter to enable the operator to watch the progress of the work, means for moving said device to impart a feed movement to the sole, and means whereby the device may be wholly removed from the plane of travel of the tread face of the sole, whereby the sole may be fed by the feed device or by hand.

2. A sole edge trimming machine comprising a rotary cutter having a substantially horizontal axis of rotation, a feeding device arranged to bear on the tread face of a sole whose edge is presented upward to the cutter to enable the operator to watch the progress of the work, said feeding device being adapted to yieldingly support the sole, means for moving said device to impart a feed movement to the sole, and means for retracting the feeding device out of the plane of travel of the tread face of the sole, whereby the sole may be fed by the feed device or by hand.

3. A sole edge trimming machine comprising a rotary cutter having a substantially horizontal axis of rotation, edge guides located at opposite sides of the cutter, and adapted to engage a sole edge presented to the cutter, means for adjustably supporting said rests, a feed device arranged to bear on the tread face of said sole whose edge is presented upward to the cutter to enable the operator to watch the progress of the work, and means whereby the feed device may be

wholly removed from the plane of travel of the tread face of the sole whereby the sole may be fed by the feed device or by hand.

4. A sole edge trimming machine comprising a rotary cutter, edge rests located at opposite sides of the cutter, and adapted to engage a sole edge presented to the cutter, means for yieldingly projecting one of the rests, and means controlled by the operator for projecting and retracting the other rest.

5. A sole edge trimming machine comprising a rotary cutter, edge rests located at opposite sides of the cutter, and adapted to engage a sole edge presented to the cutter, means for yieldingly supporting one of the rests, and means controlled by the operator for adjusting the other rest.

6. A sole edge trimming machine comprising a rotary cutter, edge rests located at opposite sides of the cutter, and adapted to engage a sole edge presented to the cutter, said rests having segmental shanks, and fixed segmental guides in which said shanks are movable.

7. A sole edge trimming machine comprising a rotary cutter, edge rests located at opposite sides of the cutter, and adapted to engage a sole edge presented to the cutter, said rests having segmental shanks, fixed segmental guides in which said shanks are movable, a spring adapted to yieldingly project one of the rests, and means controlled by the operator for projecting and retracting the other rest.

8. A sole edge trimming machine comprising a rotary cutter having a substantially horizontal axis of rotation, a rotary feed wheel arranged to bear on the tread face of a sole presented edge upward to the cutter to enable the operator to watch the progress of the work, a movable carrier having bearings for the shaft of the feed wheel, mechanism for rotating the feed wheel shaft under different adjustments of the carrier, means for yieldingly holding the carrier in a projected position, and means controlled by the operator for retracting the carrier out of the plane of travel of the tread face of the sole, whereby the sole may be fed by the feed wheel or by hand.

9. A sole edge trimming machine comprising a rotary cutter, a feeding device arranged to bear on the tread face of a sole presented to the cutter, means for yieldingly holding the feeding device in a projected position, edge rests located at opposite sides of the cutter, means for yieldingly projecting one of the rests, and means controlled by the operator for retracting the feeding device and the other rest.

10. A sole edge trimmer comprising a rotary cutter, a feeding device adapted to engage the tread face of a sole whose edge is presented to the cutter, and a guard adjacent to the feeding device to prevent the tilting



of the sole on the feeding device, the feeding device and guard being yieldingly supported and adapted to yield simultaneously.

11. A sole edge trimming machine comprising a rotary cutter, edge rests located at opposite sides of the cutter and adapted to engage a sole edge presented to the cutter, one of said rests being molded to engage the trimmed portion of the sole edge, and de-

tachably supported so that differently formed 10 rests may be used interchangeably.

In testimony whereof I have affixed my signature, in presence of two witnesses.

CHARLES W. MUSSO.

Witnesses:

P. W. PEZZETTI,  
M. L. MATHISON.