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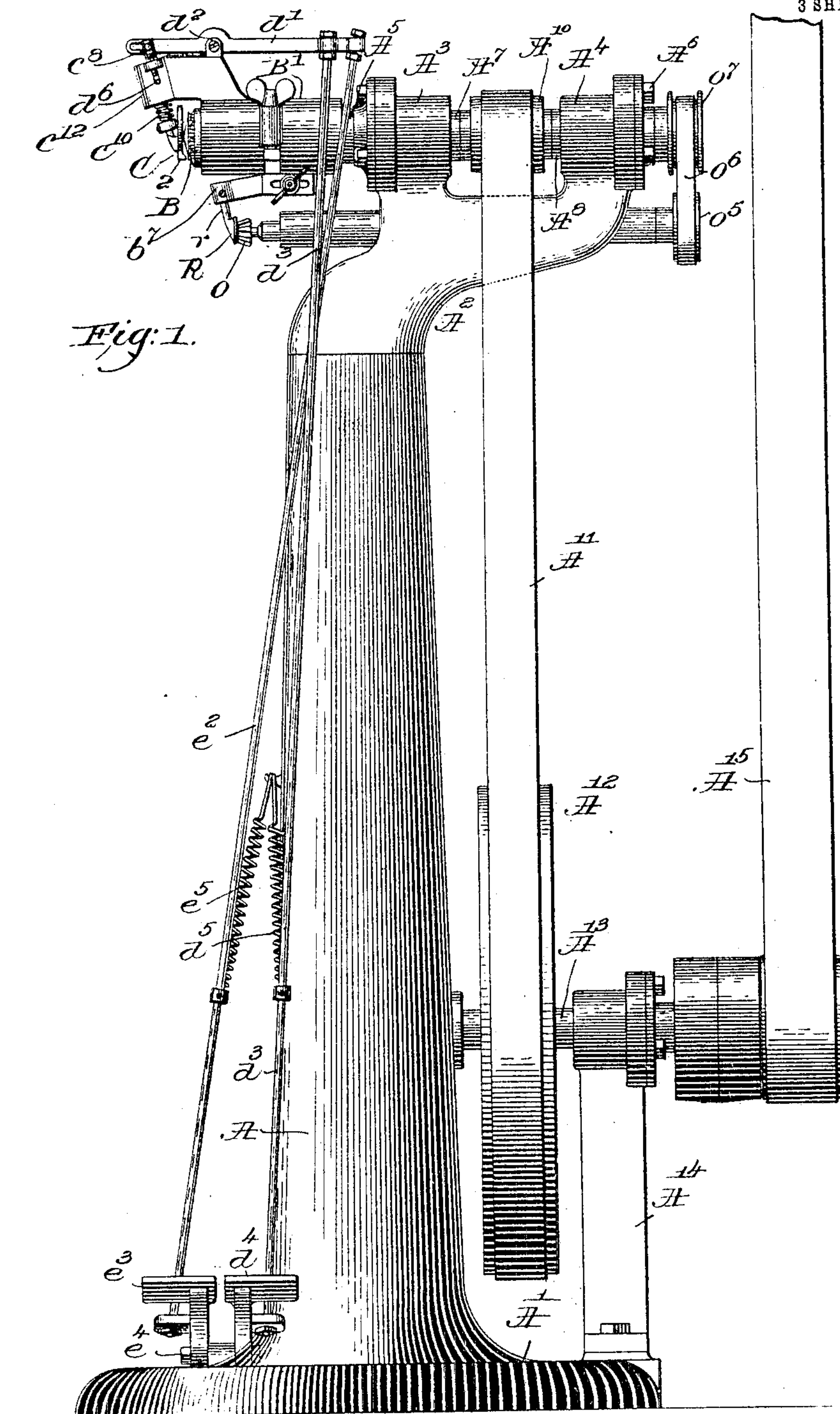
PATENTED SEPT. 5, 1905.

B. F. MAYO.

TRIMMING MECHANISM FOR LEATHER, &c.

APPLICATION FILED MAR. 3, 1900.

3 SHEETS—SHEET 1.



witnesses:
Fred S. Grunhof.
W. C. Lumsford

Inventor
Benjamin F. Mayo.
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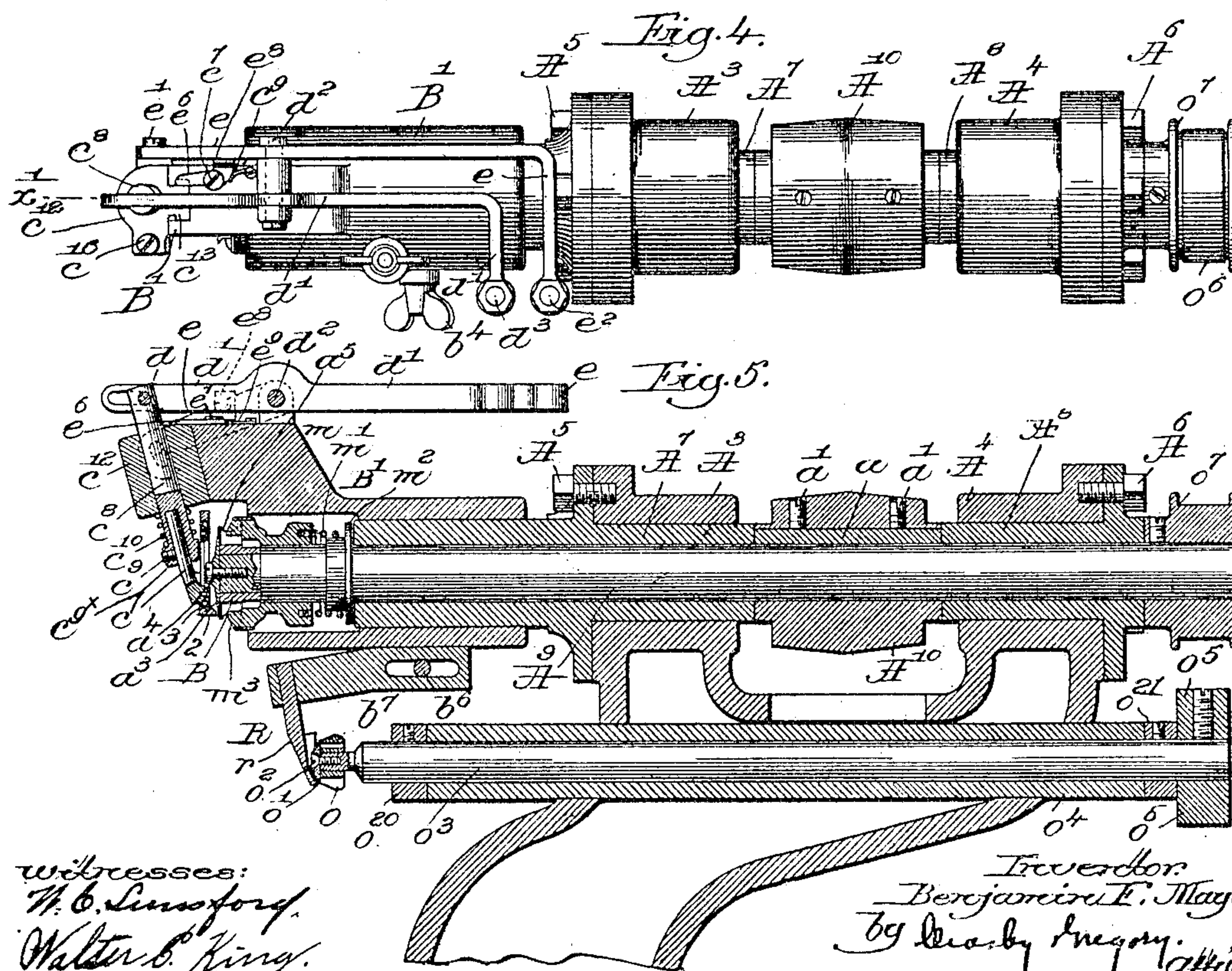
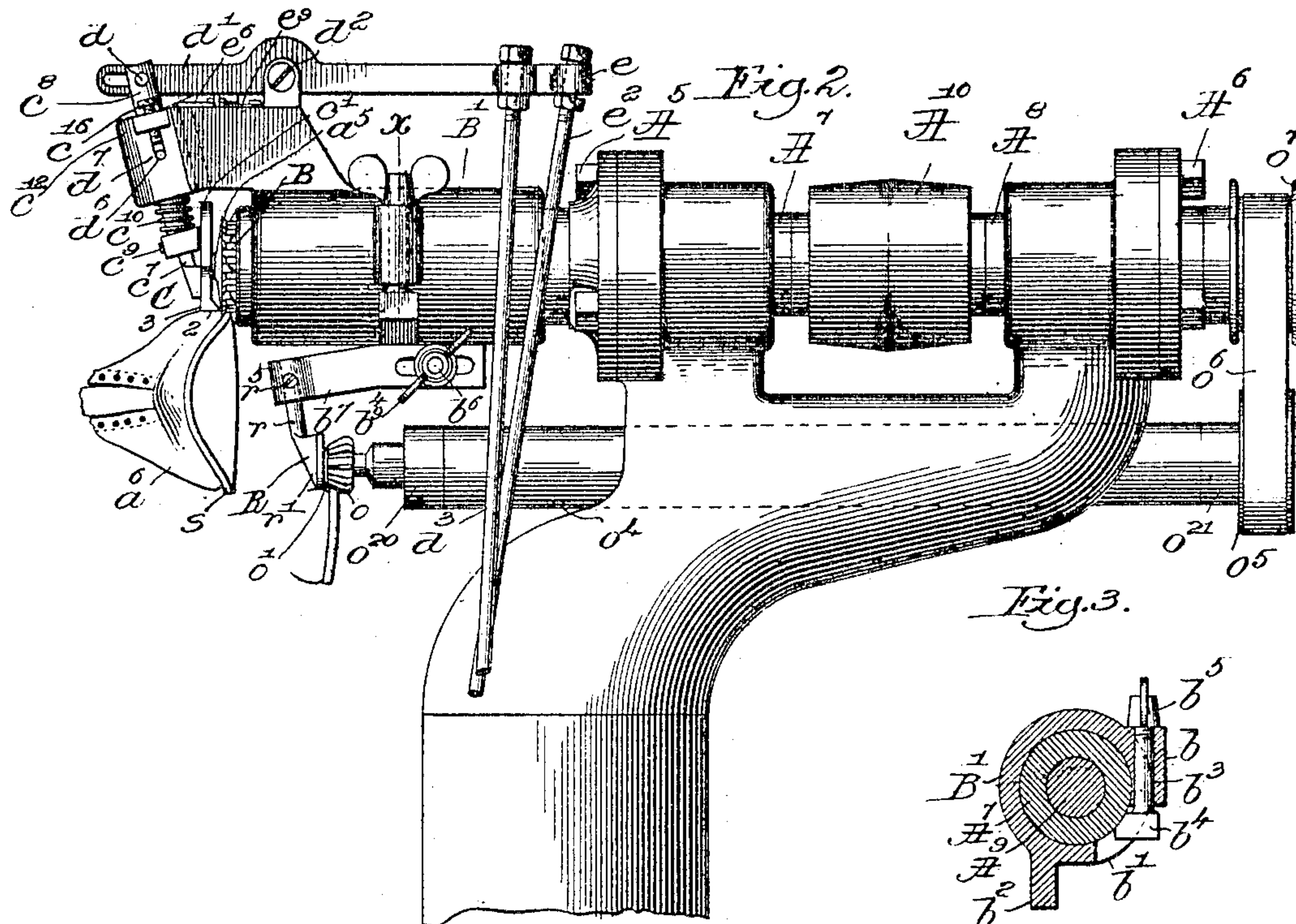
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3 SHEETS—SHEET 2.



witnesses:
H. C. Linsford.
Walter C. King.

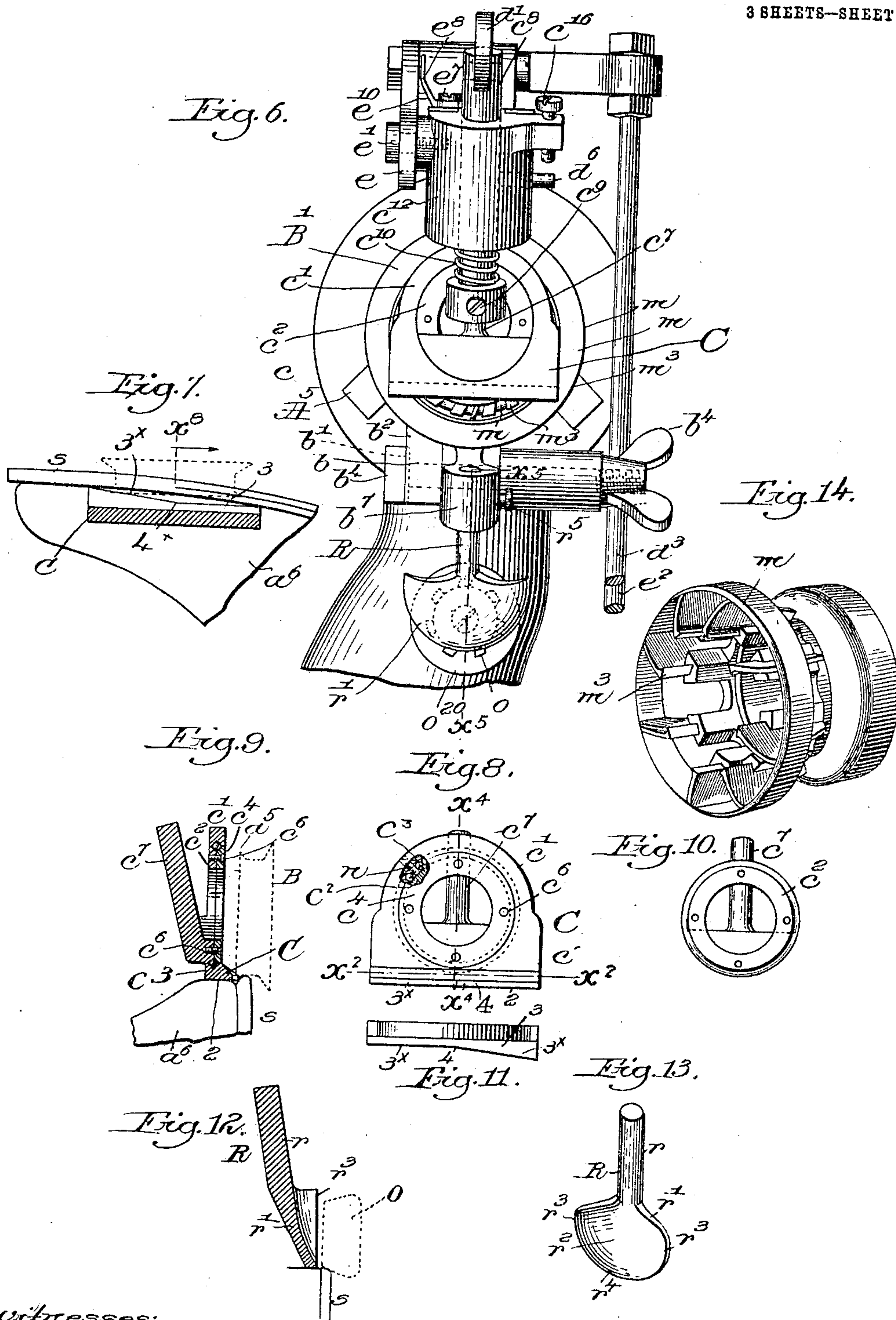
Inverdor.
Benjamin F. Mayo,
by George Gregory attys.

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3 SHEETS—SHEET 3.



witnesses:
W. C. Simonsford.
Walter C. King.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

TRIMMING MECHANISM FOR LEATHER, &c.

No. 798,616.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed March 3, 1900. Serial No. 7,255.

To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented an Improvement in Trimming Mechanism for Leather, &c., of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a novel machine by which to trim leather and the like, my invention, as herein represented, being embodied in a machine for trimming the edges of the soles of boots and shoes; but the invention is not limited to sole-edge trimming, as it is capable of advantageous use for other purposes.

The more important features of my invention center largely in a novel device which co-operates with the shoe the sole of which is to be trimmed, said device being designated hereinafter by the term "gage." This gage performs the function of an edge-gage when it contacts with the upper to determine the extent that the sole shall project beyond the upper and the function of a guide when it contacts with the surface of the sole next the upper to prevent the rand-lip of the cutter cross-cutting, notching, or indenting the edge of the sole.

As I have herein chosen to illustrate my invention, the edge-gage and the guide are integral, and while this may be preferable it is not indispensable, as the edge-gage and the guide may be entirely independent one of the other without departing from my invention.

The edge-gage will preferably present an acting face of a length substantially equal to or greater than the semidiameter of the rotatable cutter. This insures an extended bearing of the gage on the upper and avoids any liability of marring the upper, such as might exist if the gage had a short acting face. Preferably, and as herein shown, the gage is pivotally supported, and I have found in practice that its acting face, along which the work is guided as the shoe is moved under the cutter, should be of considerable length in order to render the gage sufficiently stable to prevent it from turning in a direction to throw its acting face out of operative position as the shoe is moved forward in contact

with the gage while the trimming is progressing. For the purpose of defining what is meant by a "long acting face" as applied to the gage I have referred to the semidiameter of the cutter as a "standard" and have in the following description and in some of the claims described the gage as having an acting face of a length "greater than the semidiameter of the cutter" with which the gage is employed. The acting face of the edge-gage contacting with the upper will preferably be of such length that when the end of the said gage meets an obstruction, such as the edge of a toe-tip, which would tend to tip or turn the edge-gage, the line of contact of said gage with the upper is long enough to maintain said gage in operative position

Constructing the gage with a long bearing-surface to engage the upper is an important feature of my invention. If the gage were constructed so that only a small portion of its acting face could engage the upper at one time, any irregularity in the surface of the upper contacting with the gage would cause a corresponding irregularity in the edge of the sole, and thus the proper contour of the edge of the sole would not be preserved and the shoe would be damaged. By forming my gage with a long bearing-surface I obviate this difficulty and maintain the proper contour of the sole despite any irregularities in that portion of the upper which contacts with the gage, for the acting face of the gage which bears upon the upper is so long that it insures the proper position of the shoe with relation to the cutter, notwithstanding any irregularity in the portion of the upper which may be at a given time in contact with the face of the gage.

The gage may have a ring-shaped shank embracing a circular bearing which for the best results will be nearly equal to the diameter of the cutter, and I may to overcome friction interpose between the shank and the bearing antifriction means, as balls; yet for some classes of trimming—such as heavy work, where nicety of trimming is not required—the gage may be held stationary or prevented from tipping by some suitable locking device.

Should the edge-gage present a short acting face to contact with the upper, said gage when meeting an obstruction, as the edge of

a toe-tip, would be tipped to occupy such an angle that the shoe held against said gage by the operator would be thrown away from the cutter, so that the cutter would fail to act properly in trimming the sole edge. In the use of my novel gage the upper adjacent to that portion of the edge of the sole which is being acted upon by the blades of the rotating cutter will contact with preferably the part of the acting face of the gage which is nearest its axis of rotation, and consequently the operator may hold the shoe pressed firmly against the gage, and the gage may tip somewhat during the trimming operation; but with the shoe forced against the gage at the proper point thereof in such tipping the gage cannot move or tip sufficiently far to suddenly take the part of the shoe being trimmed out of the range of action of the blades of the cutter.

The edge-guide, or the part of the gage sustaining the surface of the sole next the upper, is inclined with relation to the plane in which the cutter rotates, so that said guide acts as the shoe is being moved and trimmed to keep out of the path of movement of the rand-lip of the cutter all portions of the sole except the part being acted upon by the cutter, and in this way said rand-lip is prevented from cross-cutting, notching, or marring the sole edge.

The gage, as my invention is herein represented, is adapted to be moved readily into either of two working positions to thereby determine the distance that the sole edge may project beyond the upper, it being desirable in some shoes that the extent of projection of said edge may be more at one than at the other side of the shoe, and I have also provided means whereby the gage may be moved to occupy an inoperative position.

My improved gage in its most practical form is too long to support the upper during the trimming of the edge of the sole in the shank of the shoe, and consequently to trim the sole edge in the shank I employ a shank-gage and an auxiliary trimming-cutter, which are herein represented as sustained in operative position below the shaft carrying the rotating cutter used to trim the sole about the fore part.

Figure 1, in front elevation, represents a trimming-machine containing my invention in one of the best forms now known to me. Fig. 2 is an enlarged front side elevation showing the upper part of the machine represented in Fig. 1, said figure showing part of a shoe in position to be trimmed. Fig. 3 is a section in the line x , Fig. 2. Fig. 4 is a top or plan view of the parts shown in Fig. 2. Fig. 5 is a section longitudinally of the machine in the line x' , Fig. 4. Fig. 6 is an enlarged elevation of the machine looking at it from the left, Fig. 2. Fig. 7 is a sectional detail in the line x^2 , Fig. 8, showing the act-

ing part of the edge-gage against the side of the sole extended beyond the upper, the cutter being also represented by dotted lines. Fig. 8 is a detail of the bearing and gage sustained thereby. Fig. 9 is a section of Fig. 8 in the dotted line x^4 , said figure also showing part of a shoe in full lines and the cutter by dotted lines. Fig. 10 shows a part of the bearing with its face-ring detached. Fig. 11 represents the gage inverted from the position, Fig. 8. Fig. 12 is a section of the shank-gage employed in the shank on the dotted line x^5 , Fig. 6. Fig. 13 is perspective view of the shank-gage. Fig. 14 is a perspective view of the sleeve carrying the feather-edger.

The column A has a suitable foot A' to stand on the floor. Said column sustains at its upper end a head A², having suitable usual bored arms A³ A⁴, in which are inserted and secured by set-screws A⁵ A⁶ usual bearings A⁷ A⁸, in which is mounted the cutter-carrying shaft A⁹, provided with a belt-receiving pulley A¹⁰, surrounding said shaft between the inner edges of said bearings, said shaft being driven by a belt A¹¹, actuated from a driving-wheel A¹², fast on a shaft A¹³, mounted in a suitable bearing A¹⁴ and actuated from a belt A¹⁵, driven from any suitable counter-shaft. The pulley A¹⁰ is secured to said shaft by means of a block a , resting in a suitable groove in said pulley and acted upon by set-screws a' , and by loosening the set-screws the shaft may be easily slid in the direction of its length through said pulley to enable the cutter B, of usual construction and carried by said shaft, to project more or less from the open end of the holder B', herein represented as a casting fitted over the bearing A⁷. (See Fig. 5.)

The holder B' has an ear b (see Fig. 3) and a notch b' , the ear receiving through it a clamping-bolt b^3 , having a head b^4 , which enters the notch b' and contacts with the bearing A⁷, and by turning the nut b^5 the holder may be firmly clamped upon the said bearing in any desired position in which it may be placed with relation to the end of the shaft A⁹, such adjustment being desirable at times according to the size of the cutter employed, the adjustment of the holder obviating adjustment of the shaft, as stated.

The cutter B surrounds the reduced end of the shaft A⁹, and its inner end meets a shoulder near the end of said shaft, (see Fig. 5,) and a rand-guide a^3 is then applied to the outer face of the cutter, after which a screw a^4 is extended through a hole in the rand-guide and enters a threaded hole in the end of the shaft A⁹, said screw setting the said rand-guide and cutter in operative position. The cutter has a rand-lip a^5 at its edge next the upper a^6 of the shoe, said lip entering the rand-crease at one side of the rand-guide, and beveling the upper edge portion of the sole. Both the rand guide and lip travel in said crease, the rand-guide preventing the contact of said

rand-lip with the upper. In the use of this kind of rotary cutter in trimming the edge of a sole the sole edge is frequently cross-cut, notched, or marred by the action against it of the rand-lip in advance of the regular trimming cut, and many attempts have been made to obviate this trouble; but in no instance known to me has provision been made to successfully overcome this difficulty. One of the chief objects of this invention is to obviate the trouble of cross-cutting, notching, or marring the sole edge in advance of trimming the same by the blades of the rotary cutter, and I have successfully accomplished my purpose by the employment of a gage, which I will now describe.

I have herein represented my novel gage C in one of the best forms now known to me. It presents a long bearing-face 2 to contact with the upper a^b and constitute an edge-gage, against which the operator may firmly press the upper of the shoe held in his hand while trimming the edge of the sole. By constructing the edge-gage with a long bearing-face 2 I obviate any danger of destroying the proper contour of the edge of the sole by reason of irregularities in the surface of the upper contacting with the gage. If only a small portion of the bearing-face of the gage contacted with the upper at a given time, any irregularities or unevenness in the surface of the upper would cause a corresponding irregularity in the contour of the edge of the sole. For example, a break between the vamp of the shoe and a thick toe-cap would cause a movement of the shoe which would move the sole toward or from the cutter and cause a break in the edge of the sole. Where a gage with a long bearing-face is used, however, this difficulty never arises, for, as will be obvious on viewing Figs. 7 and 8, that portion of the face of the gage which actually contacts with the upper at a given time is so long that the position of the shoe is not suddenly changed, and hence the action of the cutter upon the sole edge will be only slightly affected by any irregularity in the upper. So far as this feature of my invention is concerned, it is not essential that the gage be pivotally mounted, as the advantages of the long bearing-face can, to a great degree, be secured in a stationary or non-rotative gage.

The acting face of the gage is herein shown as I prefer to construct it; but the same advantages might be secured even though the acting face of the gage were not straight, so long as the face bears on the shoe for a considerable distance or at points on each side of the portion of the sole being acted upon. For example, this face might be formed in an arc of a large circle, or it might be elliptical in shape or of any other contour, so long as it was so formed that a long bearing-surface would be afforded, a considerable portion of which would be in contact with

the shoe at the same time. Also the gage might, if preferred, be so constructed that only the ends of the long bearing-surface contact with the shoe and still be within and secure the advantages of my invention. The essential thing for this feature of my invention is providing points of contact for the shoe with the gage, which are somewhat removed from the point where the cutter is operating.

The position of the gage with relation to the circular path in which the blades of the cutter travel determines the width of sole edge which shall project beyond the upper. Said gage also has a cooperating portion 3, constituting a guide to bear against the upper surface of the sole s next to the upper, said guide having its face, as at 3^x , inclined, preferably, (see Fig. 7,) with relation to the plane in which the cutter rotates. In the form in which I prefer to construct this guide its acting face is cut away between its ends to form a recess or an angle 4. (See Fig. 7.) The object of so cutting away the face of the guide is to permit its being placed nearer the cutter B. If the guide were constructed with its acting face straight, it would not be possible to place it as near the cutter B as is possible with the construction shown in Fig. 7, for the rand-guide would be in the way. When the face is cut away as shown in Fig. 7, the rand-guide enters the angle 4.

As herein represented, the cutter is supposed to be rotating in the direction of the arrow, Fig. 7, the gage 2 at such time resting upon the upper a^b , having a sole s attached thereto, (see Fig. 9,) the guide 3 at such time sustaining against its inclined face, shaped to present a plurality of contact-points 3 and 3^x , the surface of the sole extended from the upper, as represented in Fig. 7, and in this position the blades of the cutter act to cut the sole in the line w^s , Fig. 7. In accordance with this invention the inclined part 3^x of the face of the edge-guide acts against the part of the sole in advance of the cutting-point in the line w^s , or the point where the blades of the cutter meet and trim the sole, and so holds and directs said sole that it approaches the cutting-point at an angle to the plane in which the cutter rotates, and the edge of the sole in advance of the cutting-point is kept out of the plane in which the rand-lip rotates, and consequently said lip can under no conditions meet, cross-cut, notch, or mar the edge of the sole.

As shown in Fig. 7, the edge of the sole in advance of the point where it is being trimmed is held sufficiently to one side of the plane of rotation of the rand-guide to place the upper side of the sole wholly to one side or to the right of the plane of rotation of the rand-lip of the cutter, viewing Figs. 1 and 2, so that a given point of the sole edge is not in position where the rand-lip can act upon it until

it is opposite the recess or point 4 in the line e^8 , (see Fig. 7,) where the trimming is to take place, and hence all injury to the sole edge by the rand-lip of the cutters is prevented.

5 The gage C when the same is to be free to oscillate, as I prefer, may have a shank c' , provided with a hole to make of said shank a ring, and said ring may surround a circular bearing or raceway c^2 , and preferably I inter-
10 pose between said shank and raceway anti-friction means, which may be balls c^3 , said balls being retained in working position by a ring-washer c^4 , held in place by screws c^6 . The bearing or raceway has, as herein repre-
15 sented, a stem c^7 , which enters a shank c^8 , where it is held by a suitable set-screw or device c^9 . Said shank enters a hole in a movable member c^{12} , having, as herein represented, (see Fig. 4,) a T-shaped flange c^{13} , which
20 enters a correspondingly-shaped groove in the holder B'. This groove is made in an inclined face of the holder, so that said movable member in its movements may travel in an inclined plane or a plane intersecting the
25 plane in which the rand-guide rotates, this inclined movement of the movable member c^{12} being provided in order that it, together with the gage and bearing, may be raised with relation to the axis of rotation of the cutter
30 without the gage contacting with the outer or inclined face of the rand-guide. The spring c^{10} , surrounding the shank c^8 , has a bearing on the shoulder c^{9x} of the shank c^8 , and at its other end on the movable member c^{12} , said
35 spring thus acting normally to depress the shank and gage. The upper end of the shank c^8 has a stud d , which is embraced by the slotted end of a lever d' , pivoted at d^2 , and having its opposite end connected to a rod d^3 , at-
40 tached at its lower end to a suitable actuator, (shown as a treadle d^4 ,) a spring d^5 , connected with the said rod and with the column, acting normally to keep the outer end of said treadle elevated and the gage C in its lowest position,
45 said position being determined by or through a stud d^6 , extended from the shank c^8 and resting in the bottom of a slot d^7 made in the movable member.

The operator may put the shoe in position
50 to be trimmed to provide for a wide edge without moving the treadle d^4 ; but when the sole edge has been partially trimmed and it is desired to produce a narrower edge then the operator will through the treadle lift the
55 shank c^8 and the gage against the tension of spring c^{10} , putting the acting face of the gage nearer the axis of rotation of the cutter.

Obviously it will be understood that the entire sole edge may be trimmed to project
60 uniformly from the upper with either a narrow or a wide edge; but should the operator desire to leave a narrow edge during the first portion of the operation of the machine he would then depress the treadle when starting

the trimming operation, releasing the treadle 65 when the wider edge was desired.

To determine the distance of the gage from the axis of rotation of the cutter, and therefore the width of the sole projecting from the upper, I have combined with the machine an
70 adjusting screw or device c^{16} , which meets the stud d^6 in the movement of the face of the gage toward the axis of rotation of the cutter, and by moving this adjusting device the minimum width of the sole projecting from the
75 upper may be determined.

The stud or fulcrum d^2 serves to sustain, as herein represented, a second lever e , slotted at its outer end, as represented by dotted lines in Fig. 5, said slotted end embracing a stud-
80 screw e' , inserted in the movable member c^{12} , and the opposite end of said lever has connected with it a rod e^2 , which in turn is extended down to and connected with an actuator e^3 , represented as a treadle pivoted at e^4 ,
85 said pivot serving as a common pivot, as herein represented, for both treadles, a suitable spring, as e^5 , connected with said rod e^2 and to said treadle, acting normally to keep the upper end of said slot in contact with said stud e . 90

The spring e^{20} is of sufficient strength to substantially overbalance the pressure put upon the gage through the exertions of the operator in holding the work against the gage during the trimming operation. For the best
95 results the movable member c^{12} should be maintained in one uniform position during the trimming operation, and for this purpose I have herein represented a locking device e^6 , having the form of a lever pivoted at e^7 and
100 having an upwardly-inclined arm e^8 , said lever being acted upon normally by a spring e^9 , which causes said lever to overlap a portion of the movable member and maintain it in position during the trimming operation. 105
Whenever for any reason it is desired to move the gage into inoperative position, then the movable member will have its position changed with relation to the holder, and to do this the operator will move the treadle e^3 and
110 turn the lever e . During the first part of the movement of said lever a pin or projection e^{10} , (see Fig. 6,) carried by said lever, meets the upwardly-extended arm e^8 of the device e^6 and turns it from its locking position with relation to the movable member, and thereafter
115 the lower end of the slot in the lever e meets the stud e' and moves the movable member on or with relation to the holder, putting it in such position that a cutter or rand-guide may
120 be removed from the shaft and another cutter or guide applied to the shaft. The removal of the foot of the operator from the treadle e^3 restores the movable member automatically to its normal position, where it will
125 be at once engaged by the device e^6 and be there maintained in its operative position throughout the trimming operation.

Herein I employ with the cutter B a feather-
edging device shown as a sleeve m , (see Figs.
5 and 14,) surrounding the shaft A^9 loosely,
so as to be slid thereon longitudinally of said
5 shaft. The inner end of this sleeve rests
against a spring m' , the opposite end of said
spring resting against a collar m^2 , (see Fig.
5,) preferably fixed on said shaft. The front
end of the feather-edger has a series of pro-
10 jections m^3 , which in practice enter the spaces
between the extended blades of the cutter, as
provided for in United States Patent, Re-
issue No. 11,770, dated September 5, 1899.

In some cases in connection with heavy
15 work or for other purposes it is desirable to
restrain the rotation of the gage C upon or
with relation to the bearing c^2 , and to effect
this I may employ a locking device n , repre-
sented in Fig. 8 as a screw extended through
20 a hole in the shank of the guide and entering
the groove which receives the balls, said screw
being turned in far enough to abut its end
against the rigid part c^2 of the bearing.
Whenever the end of said screw is not abutted
25 against the bearing, then the shank of the gage
may move about the bearing.

From an inspection of the drawings Figs.
6 and 8 it will be seen that the gage C is of
such length and shape that it could not be
30 used to contact with the upper in the shank
of the shoe as the edge of the sole is being
trimmed in the shank, and consequently I
have provided the machine herein described
with an extra cutter, as o , having coöperating
35 with it a suitable rand-guide o' , said cutter be-
ing held by a screw o^2 on the tapered journal of a
shaft o^3 , mounted in, preferably, a long tubular
bearing o^4 , which may be of brass, said shaft at
its right-hand end, viewing Figs. 1, 2, 4, and
40 5, having attached to it a pulley, as o^5 , which
is surrounded in practice by a belt o^6 , which
embraces a pulley o^7 , fixed on the end of the
main shaft A^9 , so that said shaft in its rota-
tion through said belt rotates the substan-
45 tially parallel shaft o^3 with it and rotates its
attached cutter.

To sustain the shoe properly in position
while being acted upon by the shank-trim-
ming cutter o , I provide a shank-gage R,
50 (shown in Figs. 1, 2, and 5 and enlarged in
Figs. 6 and 12 and detached in Fig. 13,) said
shank-gage being composed of a device pre-
senting a stem r , having a broadened lower
end r' (see Fig. 13) concaved at one side, as
55 at r^2 , the edges r^3 at the opposite sides of said
concave standing in a plane substantially par-
allel with the plane in which the shank-trim-
ming cutter o rotates, the under side of said
broadened portion being convexed or rounded,
60 as at r^4 , (see Figs. 6 and 13,) to bear upon
the upper in the shank of the shoe. The
stem r in this shank-gage is adjustably held
by a stud-screw r^5 in a hole in the front end
of a bar r^7 , slotted at one end and embracing

a stud-screw b^6 , on which is applied a clamp- 65
ing-nut b^9 , held in a rib b^2 of the sleeve B'.

The shaft o^3 is provided with suitable col-
lars o^{20} and o^{21} , fixed thereto by set-screws,
said collars preventing longitudinal movement
of the shaft in the sleeve o^4 . 70

As already described, the gage C has a cir-
cular bearing, preferably a large one, as here-
in represented, and preferably it has its act-
ing face so formed with relation to the center
of said bearing that a part of said face (des- 75
ignated in the drawings as 4^x) will be nearer
the center of said bearing than the other por-
tions of said face. The result of so forming
and mounting the gage is that when the shoe
is held against said gage it can only be sup- 80
ported against the part which is nearest the
center of the bearing. As the shoe is turned
about the cutter the gage will turn so that
the shoe will always be held against said part 85
 4^x , and consequently a uniformity in the
width of the sole projecting from the upper
will be maintained.

Having described my invention, what I
claim as new, and desire to secure by Letters 90
Patent, is—

1. In a machine of the class described, a cut-
ter, and oscillatory means for guiding a shoe,
said means having coöperating contact-sur-
faces for engaging the work at the same time
in advance of the point where the cutter is 95
operating and also in the rear of the point
where the cutter is operating.

2. In a machine of the class described, a ro-
tatable cutter, and an oscillatory gage having
an extended guiding-face to contact with the 100
shoe at the same time at points separated by
a substantial distance and located on each side
of a line intersecting the axis of rotation of
the cutter and substantially perpendicular to
the edge of the sole. 105

3. A rotatable cutter and a gage to bear
against the upper and determine the width of
sole projecting from the upper, said gage pre-
sented a long bearing-surface for engaging
the upper simultaneously at points separated 110
by a substantial distance, whereby the proper
contour of the edge of the sole is insured not-
withstanding irregularities in the surface of
the upper contacting with said gage.

4. In a machine of the class described, a ro- 115
tatable cutter, a rand-guide, and independent
means to contact with and guide the surface
of the sole next the upper.

5. In a machine of the class described, a ro-
tatable cutter, and a guide having a plurality of 120
contact-surfaces to engage the surface of the
sole next the upper at points in advance of and
behind the point where the cutter is operating.

6. A guide to engage the surface of the sole
next the upper and presenting at its face a re- 125
cess, combined with a rotatable cutter which
meets and trims the edge of the sole opposite
said recess.

7. A rotatable cutter, and a guide to contact with the upper surface of the sole and recessed at its face, said face presenting at one side said recess a surface inclined with relation to the plane of rotation of said cutter.

8. In a machine of the class described, a rotatable cutter and a gage having a face to support the upper of the shoe and a face to engage the surface of the sole next to the upper and serve as a guide for the shoe to be trimmed.

9. In a machine of the class described, a cutter, and a gage against which the work may be supported, said gage being movable about a center and having a work-guiding face comprising a portion nearer the said center than the portions on either side thereof, whereby the work can be supported on that portion only of the guiding-face of the gage which is nearest the said center.

10. In a machine of the class described, a rotatable cutter, a gage having contact-surfaces to engage the upper of the shoe both before and behind the place where the cutter is operating and having a face to engage the surface of the sole next to the upper, and means to change the position of said gage.

11. In a machine of the class described, a rotatable cutter, a rand-guide and a guide to engage the surface of the sole next the upper, the latter guide having its acting face cut away to afford clearance for the rand-guide.

12. In a machine of the class described, a rotatable cutter, a gage having a face to bear against the upper of the shoe, and a guide shaped to guide the sole in a vertical plane at an angle to the vertical plane in which the cutter rotates.

13. In an edge-trimming machine, a rotatable cutter for trimming the edge of a sole, in combination with a gage for bearing against the upper to guide the shoe for determining the width of the sole edge left by the cutter, said gage having an acting face adapted to engage the upper simultaneously at points separated by a substantial distance whereby a substantially uniform width of sole edge will be left by the cutter notwithstanding irregularities in the guiding-surface of the upper.

14. An edge-trimming machine, comprising a rotatable cutter, and a gage to bear against the upper of the shoe, for determining the width of sole projecting from the upper said gage having its acting face which is to be in contact with the shoe being trimmed of a length greater than the semidiameter of the cutter.

15. An edge-trimming machine of the class described, comprising a rotatable cutter and a gage to bear against the upper of the shoe, said gage having its acting face of a length greater than the semidiameter of the cutter, and a guide presenting its acting face in a plane inclined to the plane in which the cutter rotates.

16. In a machine of the class described, a rotatable cutter, and a gage cooperating with the upper to position the work with relation to the plane of rotation of the cutter, said gage presenting a guiding-face to contact with the upper surface of the sole, and said face occupying during the trimming operation a position inclined with relation to said plane of rotation.

17. In a machine of the class described, a rotatable cutter and means for guiding a shoe, said means having a contact-surface for engaging the sole of the shoe in advance of the point where the cutter is operating and also having a contact-surface for engaging the sole in the rear of the point where the cutter is operating, said contact-surfaces being in a vertical plane at an angle to the vertical plane in which the cutter rotates.

18. In a machine of the class described, a bearing, and a gage pivotally mounted on said bearing, combined with a rotatable cutter, said gage being shaped to provide contact-surfaces for engaging a shoe simultaneously on opposite sides of said bearing.

19. In a machine of the class described, a circular bearing, a gage to act against the upper and having a shank supported by said bearing, said gage having a contact-surface for engaging a shoe on one side of said bearing and a contact-surface for simultaneously engaging the shoe on the other side of said bearing.

20. In a machine of the class described, a circular bearing, a cutter, and a guide having a shank supported by said bearing and having independent surfaces to contact with the upper surface of the sole next the upper in advance of and behind the point at which the cutter is operating.

21. A rotatable cutter, a circular bearing, a tipping gage movable about said bearing, and means under control of the operator to move said bearing and gage toward and from the axis of rotation of said cutter.

22. In a machine of the class described, a circular bearing, a gage having a shank fitting said bearing and having on its periphery a long acting face shaped to engage a shoe at points on each side of said bearing at the same time.

23. In a machine of the class described, a rotatable cutter, a gage to bear against the upper of the shoe, said gage also presenting a guide to engage the surface of the sole next the upper, the acting face of said guide during the operation of trimming being inclined with relation to the plane in which the cutter rotates, means to maintain said gage in a position to insure one width of edge, and means to change the position of said gage for the production of an edge of a different width.

24. In a machine of the class described, a movable member, a shank thereon sustaining at its lower end a tipping gage, means to lock

said member in its normal position, and means to move said gage with relation to said member.

25. In a machine of the class described, a holder, a member movably mounted on said holder, and a gage sustained by said member, combined with means for rigidly securing said member in desired position with relation to said holder, and means under control of the operator and arranged for operation while the machine is running for releasing the securing means and actuating said member to move the gage into inoperative position.

26. In a machine of the class described, a movable member, means for normally holding said member against movement, a gage carried by said member and arranged to have a limited amount of movement with relation thereto for assuming different operative positions, and means under control of the operator for moving said member and gage during the operation of the machine to put the gage into inoperative position.

27. In a machine of the class described, a rotatable cutter, a holder, a member movably mounted on said holder, a gage carried by said member, a device for locking said member in position on said holder to maintain the gage in operative relation to the cutter, and independent means for releasing said locking device and thereafter moving said member and gage to put the gage into inoperative relation to the cutter.

28. A rotatable cutter-carrying shaft, a cutter carried thereby, a holder, a movable member adapted to slide in said holder, a bearing having a shank guided by said movable member, a gage mounted on said bearing and having a long bearing-surface located at an angle to the plane in which the cutter rotates and serving as an edge-guide, a spring acting normally to move said gage in one direction, and means under the control of the operator to move said gage in opposition to said spring.

29. In a machine of the class described, a rotatable cutter, a gage having a face to bear against the upper of the shoe, and having an edge-guide with its acting face occupying an inclined position with relation to the plane in which the cutter rotates during the trimming operation, and means to move said gage that it may occupy a position more or less distant from the axis of rotation of said cutter.

30. In a machine of the class described, a rotatable cutter, a gage, and means to move said gage vertically away from the work in a plane inclined to the plane in which the cutter rotates during the operation of trimming.

31. A rotatable cutter having a rand-cutting lip, a bearing, a gage pivotally mounted on said bearing and presenting a plane face to act against the upper, and a second plane face inclined with relation to the plane in which

said cutter revolves, and a rand-guide entering between the rand-lip of the cutter and the inclined face of said gage.

32. In a machine of the class described, a rotatable cutter, a pivotally-mounted gage having an extended plane face to contact with the work, and means to restrain said gage from pivotal movement.

33. In a machine of the class described, a rotatable cutter, a tipping gage arranged to contact with the shoe on each side of the point where the cutting is taking place, a spring-pressed device to sustain said tipping gage, and means to move said device and gage in opposition to said spring to determine the width of sole left projecting from the upper.

34. In a machine of the class described, a rotatable cutter, and a gage having an acting face to contact with the upper, said acting face being in a right line and being of a length in excess of the semidiameter of the cutter.

35. A guide presenting an extended face to contact with the shoe at two or more points distant one from the other in the direction of the length of the edge of the sole, said face being recessed, combined with a rotatable cutter to meet and trim the edge of the sole opposite said recess.

36. In a machine of the class described, a cutter and oscillatory means for guiding a shoe, said means having a contact-surface for engaging the sole of the shoe in advance of the point where the cutter is operating and having a contact-surface for engaging the sole in the rear of the point where the cutter is operating, said means also being cut away to afford a clearance between said contact-surfaces.

37. In a machine of the class described, a cutter and oscillatory means for guiding a shoe, said means having a contact-surface for engaging the work in advance of the point where the cutter is operating and also having a contact-surface for engaging the work in the rear of the point where the cutter is operating, said means also being cut away to afford a clearance between said contact-surfaces.

38. A machine for trimming the edges of soles, comprising a shaft, a rotatable cutter and an edge-gage having a contact-face to engage the upper surface of the sole in advance of the point where it is being trimmed to keep the part of the sole edge adjacent to the point where the cutter is operating out of the reach of the cutter.

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

BENJAMIN F. MAYO.

Witnesses:

GEO. W. GREGORY,
MARGARET A. DUNN.