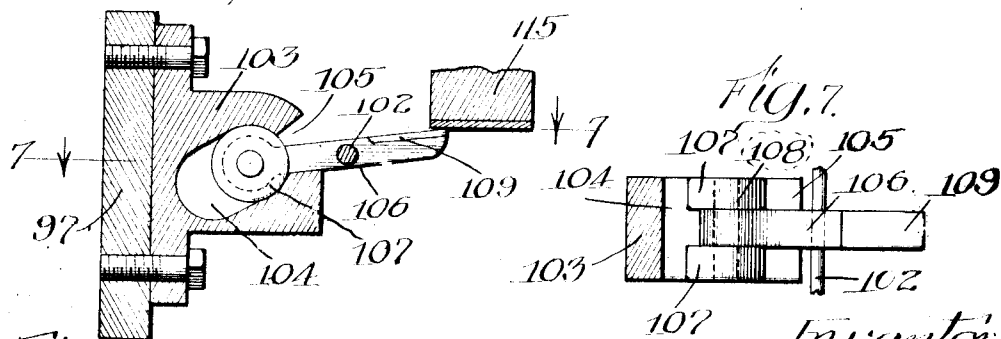
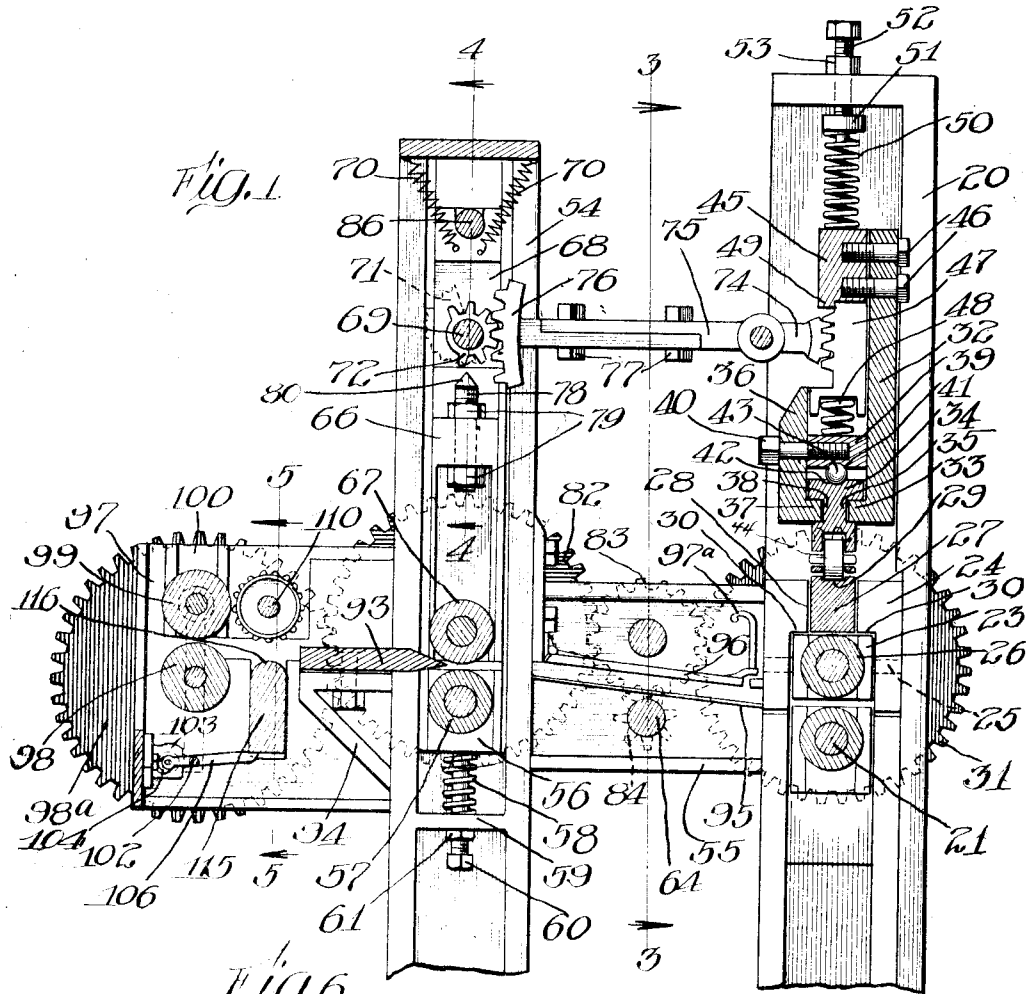


P. J. LAPHAM.
LEATHER SKIVING MACHINE.
APPLICATION FILED OCT. 27, 1906.

1,050,218.

Patented Jan. 14, 1913.

4 SHEETS-SHEET 1.



Witnesses:
J. J. Donahue
J. H. Lockman, Jr.

Inventor:
Paul J. Lapham
by Brown & Sons, Attorneys

P. J. LAPHAM.
LEATHER SKIVING MACHINE.
APPLICATION FILED OCT. 27, 1906.

1,050,218.

Patented Jan. 14, 1913.

4 SHEETS—SHEET 2.

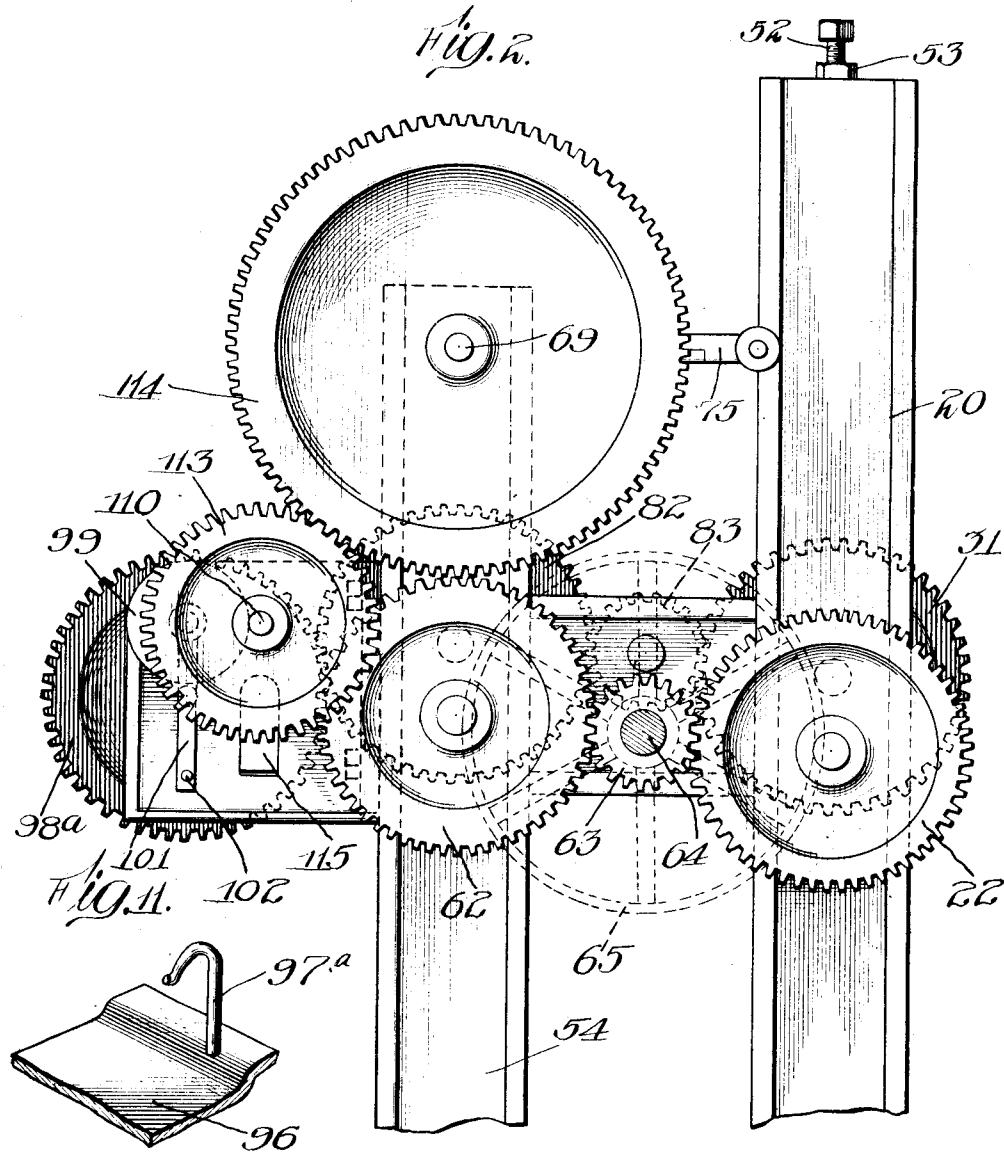


Fig. 11. 96 97^a

Fig. 12. 71 73 69 81

Witnesses:
G. V. Douarud.
J. H. Jochum, Jr.

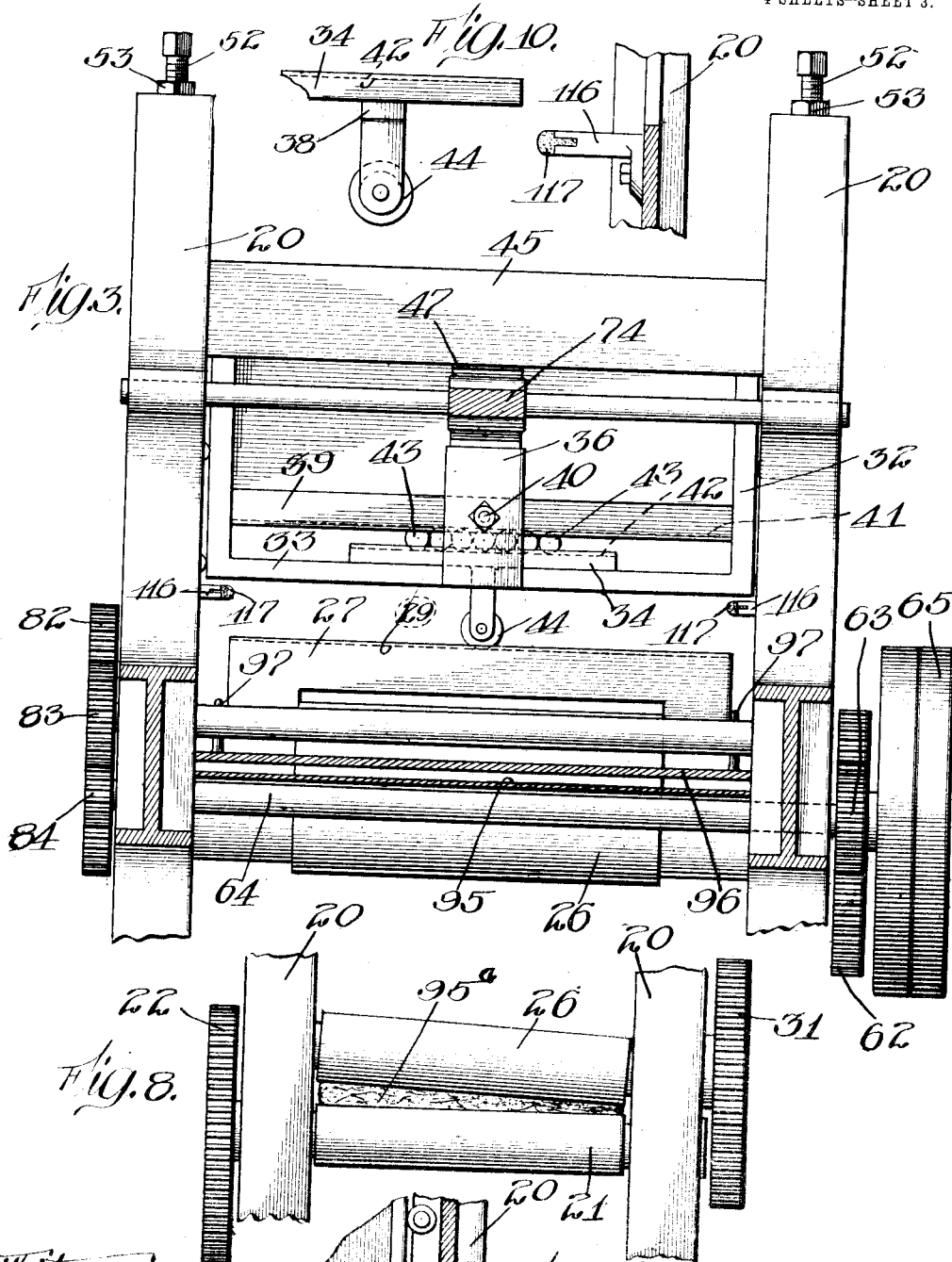
Inventor:
Paul J. Lapham,
by Brown & Lupton, Attorneys

P. J. LAPHAM.
LEATHER SKIVING MACHINE.
APPLICATION FILED OCT. 27, 1906.

1,050,218.

Patented Jan. 14, 1913.

4 SHEETS—SHEET 3.



Witnesses:
G. V. Donnell
J. A. Jochem, Jr.

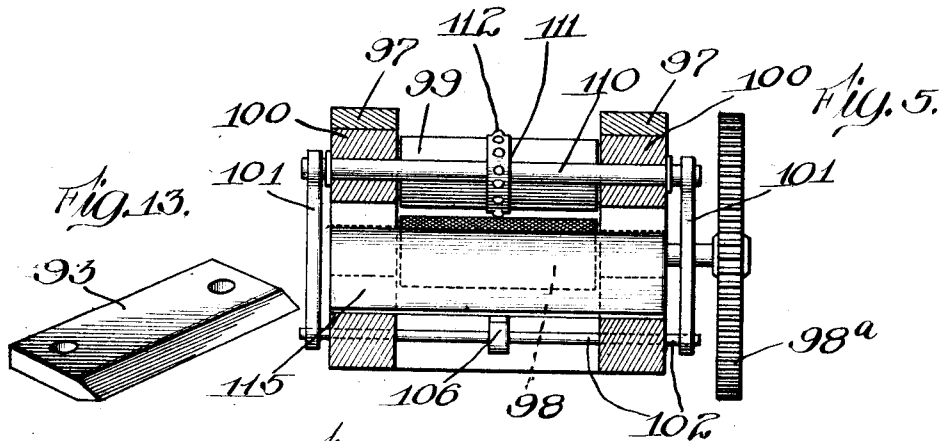
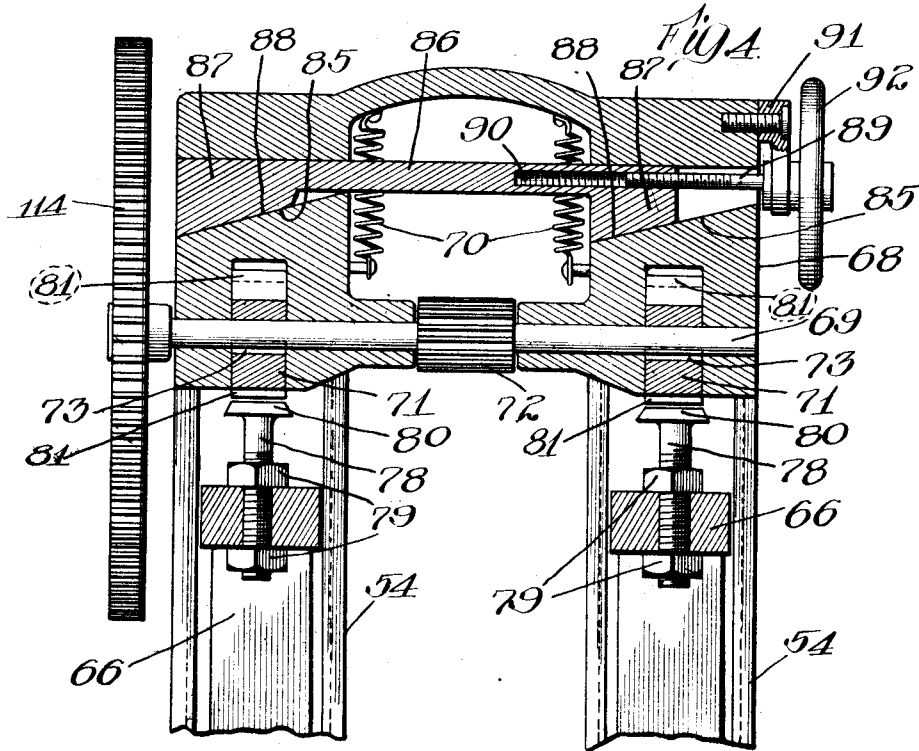
Inventor:
Paul J. Lapham
by Brown & Smith, Attorneys

P. J. LAPHAM.
LEATHER SKIVING MACHINE.
APPLICATION FILED OCT. 27, 1906.

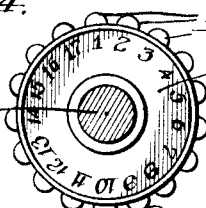
1,050,218.

Patented Jan. 14, 1913.

4 SHEETS—SHEET 4.



Witnesses:
G. U. Douras,
J. H. Jochum, Jr.



Inventor:
Paul J. Lapham
by Brown & Ashby & Co. Attorneys

UNITED STATES PATENT OFFICE.

PAUL J. LAPHAM, OF GENOA, ILLINOIS, ASSIGNOR TO LACENE MANUFACTURING COMPANY, OF MANCHESTER, NEW HAMPSHIRE, A CORPORATION OF MAINE.

LEATHER-SKIVING MACHINE.

1,050,218.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed October 27, 1906. Serial No. 340,889.

To all whom it may concern:

Be it known that I, PAUL J. LAPHAM, a citizen of the United States, residing at Genoa, Dekalb county, and State of Illinois, have invented certain new and useful Improvements in Leather-Skiving Machines, of which the following is a full, clear, and exact specification.

This invention relates to improvements in leather skiving machines for trimming or skiving sections or parts of leather used in the manufacture of boots and shoes and other articles, and the primary object of the same is to provide an improved machine of this character for skiving or trimming the sections or parts of leather to a uniform thickness.

A further object is to provide an improved machine of this character which will skive or trim a section or part of leather to the thickness of its thinnest side, and which will be automatically set by the insertion into the machine of the section or part of leather to be skived.

A further object is to provide an improved machine of this character which may be automatically adjusted by the insertion of the section or part of leather to be skived, and which will be locked against further adjustment while the latter is in the machine.

A further object is to provide a machine of this character containing an improved means for identifying or marking the sections or parts of a uniform thickness.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed, and shown in the accompanying drawings illustrating an exemplification of the invention, and in which—

Figure 1 is a longitudinal sectional view of the machine constructed in accordance with the principles of this invention. Fig. 2 is a side elevation showing the gear or operating mechanism. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a sectional view on line 4—4 of Fig. 1. Fig. 5 is a sectional view on line 5—5 of Fig. 1. Fig. 6 is a detail sectional view of the operating mechanism for the marking die or

mandrel. Fig. 7 is a detail sectional view on line 7—7 of Fig. 6. Fig. 8 is a detail view showing the manner in which the receiving rollers will be tilted or canted by the insertion of the section or piece of leather of uneven thickness. Fig. 9 is a detail view partly in section of the regulating carriage-frame. Fig. 10 is a detail view of the regulating carriage or slide, and the bumper for limiting its movement. Fig. 11 is a detail view of the closure for the leather guide or way. Fig. 12 is a detail view of the regulating cam. Fig. 13 is a detail perspective view of the skiving knife or cutter. Fig. 14 is an elevation of the marking die.

Referring more particularly to the drawings, the same reference numerals designate similar parts throughout the several views.

In this exemplification of the invention, which will now be described as a boot and shoe sole skiving machine, the numeral 20 designates two upright supporting standards, suitably spaced from each other. Journaled between these standards at a convenient height from the base thereof and in suitable stationary bearings, is a roller 21. Secured to the shaft of this roller 21, preferably on the outside of one of the standards 20, is an operating gear-wheel 22. Located above the bearings of the roller 21 are bearings 23 which are preferably pivotally supported in an adjustable frame 24 by means of suitable trunnions 25. A roller 26 is supported by a frame 27 between the standards 20, and the extremities of the roller 26 are journaled in the bearings 23, in such a position that the roller 26 will be spaced slightly above the roller 21 and parallel therewith.

The adjustable frame 24 is provided with a slot or aperture 28 opening through the top thereof, and in which the top of the frame 27 is located, and the upper face of this frame 27 is preferably recessed or grooved as at 29 to form a track or way for a purpose to be hereinafter set forth. The adjustable frame 24 is preferably provided with shoulders 30 which extend over and in the path of the upward movement of the bearings 23 and against which the said bearings abut, when the roller 26 is raised. An operating gear wheel 31 is secured to the shaft of the roller 26, preferably on the outside of the standard 20 opposite the gear wheel 22 of the roller 21.

A suitable member 32 is arranged for sliding movement between the standards 20 above the roller 26, and said member is provided with a forwardly projecting flange 33.

5 A carriage 34 is provided with a recessed portion 35 adapted to receive the flange 33 of the member 32, and said carriage is held in position with relation to the member 32 by means of the removable section or portion 36, which is provided with a projecting flange 37 adapted to enter a similar recess 38 in the carriage 34, and on the opposite side thereof. The flanges 33 and 37 are preferably arranged in line with each other

10 and the said member 36 is spaced from the member 32 by means of the spacing block 39, and is held in position in any suitable manner, preferably by means of the bolt or screw 40 passing through the member 36

15 and into the spacing block or member 39. This spacing block or member 39 is preferably located at a point intermediate the top and the bottom of the member 36 and is spaced slightly above the top of the carriage

20 34.

The adjacent faces of the carriage 34 and the spacing block or member 39 are provided with recesses 41, 42, which cooperate with each other to form a race-way for suitable

25 anti-friction balls or rolls 43. Journaled in the bottom of the carriage 34 and in position to rest and move in the recess or groove 29 is a suitable roller 44.

Secured to the member 32 above and

30 spaced from the member 36 is a block or member 45, which is held in position in any desired or suitable manner, such as by means of bolts or screws 46 passing through the sliding member 32 and into the block or

35 member 45. A rack or member 47 is supported for independent movement by the member 32 in such a position that the lower extremity thereof will preferably stand between the members 32 and 36. A suitable

40 yielding member, such as a spring 48, is disposed between the rack or member 47 and the spacing block or member 39, and serves to normally hold the rack or member 47 raised, in such position that the upper

45 end thereof will abut or engage the block or member 45; and the upper end of this rack or member 47 is held from displacement in any suitable manner, preferably by means of an overhanging lip or flange 49

50 on the block or member 45.

The sliding member 32 is normally held in such a position that the roller 26 will be in close proximity to the roller 21, by means of a suitable yielding member

55 60, such as a coil spring or the like, one end of which preferably rests upon the upper edge of the block or member 45 and the other end engages a suitable flange or collar 51 on an adjusting screw or bolt 52

65 which preferably passes through the uprights

or standards 20. By adjusting this screw or bolt 52 the tension of the yielding member or spring 50 may be varied, as will be understood, and said screw or bolt is held in its adjusted position in any suitable manner, preferably by means of a jam nut 53.

Located preferably slightly in advance of the uprights or standards 20 and spaced from each other, are similar uprights or standards 54. These two pairs of standards are connected to each other in any suitable manner, preferably by means of spacing side bars 55. Suitable bearings 56 are mounted for sliding movement in the standards 54, and journaled in these bearings is a roller 57. These bearings are yieldingly supported by means of a spring or yielding member 58, one end of which engages the bearings 56 and the other end rests upon a suitable support 59 on the standards 54, a

70 75 80 85 90

suitable rod or bolt 60 being secured to the bearing 56, and passing through the spring or member 58 and the support or projection 59, and said rod or bolt may be held in its adjusted position by means of the jam nut 61.

Bearings 56 are supported between the standards 20 by yielding members or springs 58, so that the normal position of the roller 57 will be slightly above the corresponding roller 21 located between the standards 20.

A suitable operating gear 62 is secured to the shaft of the roller 57, preferably on the outside of one of the standards 54, and in line with the operating gear 22 of the roller 21; and located between these two

95 100 105 110

gears 22 and 62 is a pinion 63 which is secured on a driving shaft 64, and which meshes with the two gears 22, 62, for transmitting a rotary motion to the rolls 21 and 57 when the driving shaft is operated. Motion may be transmitted to this driving shaft 64 in any suitable manner, preferably by means of a belt engaging a driving pulley 65 secured to said shaft 64.

A frame or member 66 is mounted for sliding movement in each of the standards 54 and located between these standards is a roller 67 which is parallel with and spaced slightly above the roller 57. The ends of the roller 67 are journaled in suitable bearings supported by the sliding frames or members 66. Suitable bearings 68 connected to form a cross head are slidably mounted upon the standards 54 and spaced above

115 120 125

the frame or member 66, so as to extend between the standards, and journaled in the cross head or bearings is a shaft 69. These bearings 68 are yieldingly supported in any suitable manner, preferably by means of springs 70, one end of which is secured to the bearing 68 and the other end to the supports or standards 54.

Secured to the shaft 69 adjacent each end thereof, and preferably in close proximity

130

to the sliding frames or members 66, are cam-shaped racks or segments 71, and located at a point intermediate the racks or segments 71 and secured to the shaft 69 is a pinion wheel 72. The racks or segments 71 may be secured to the shaft 69 in any suitable manner, preferably by means of a key 73. The pinion 72 serves as a means to prevent lateral displacement of the shaft 69. This pinion 72 is preferably located at a point intermediate the standards 54 and in a direct line with the sliding rack or member 47 located between the standards 20.

Pivotally supported by a transverse rod on the standards 20 see Figs. 1 and 3, and in such a position as to engage the teeth on the rack or member 47 is a toothed segment 74, and projecting from this segment 74 toward the supports or standards 54 is an arm 75. A similarly toothed segment 76 is supported by the arm 75, preferably by means of the bolts 77, and is disposed opposite to the segment 74 in such a manner that the teeth thereof will engage the teeth of the pinion 72.

Secured to and projecting above each of the frames 66 is an adjustable member 78, preferably in the form of a screw or bolt which is held in position in any suitable manner, such as by means of nuts 79 engaging the said member on each side of the top of the frame 66. These bolts or members 78 are located in direct lines with the rack or segment cams 71, and are preferably provided with extended heads 80 in the form of knife edges. These heads 80 are adapted to engage and enter the notches 81 in the rack or segment cams 71, when the rollers 67 and the frames 66 are raised in a manner to be hereinafter set forth. Secured to the end of the roller 67, preferably on the outside of the standard 54, and in a direct line with the operating gear 31 of the roller 26, is a similar operating gear 82, and disposed between these gears 31 and 82, and meshing therewith, is a pinion or gear wheel 83, and said pinion or gear wheel derives its motion from a pinion or gear wheel 84, which is secured to the driving shaft 64 and which meshes with the pinion or gear wheel 83. Thus it will be seen that when motion is transmitted to the driving shaft 64, the respective gear wheels will cause the cooperating rollers 26 and 21, 67 and 57, to rotate in opposite directions, while the corresponding rollers 26, 67 and 21, 57 will rotate in the same direction.

Any suitable means may be provided for adjusting the bearings 68 in which is mounted the shaft 69, in order to change the relation of the shaft 69 with the normal position of the sliding members or frames 66. A suitable and efficient means for accomplishing this purpose will now be described. The upper faces of the bearings 68 are

preferably inclined, as at 85, and in the same direction. A member 86, preferably provided with enlarged ends 87 having inclined faces 88 is located between the bearings 68, and the tops of the standards 54, in such a position that the inclined faces 88 of the ends 87 will rest against and engage the inclined faces 85 of the bearings 68. When the member 86 is drawn to one side to cause the inclined faces thereof to ride upon the inclined faces 85 of the bearings 68, the bearings will be depressed against the tension of the yielding members or springs 70, and when the member is retracted the tension of the yielding members 70 will draw the bearings 68 back to their normal position. A suitable and efficient means for operating the sliding member 86 comprises a threaded shaft 89, one end of which is adapted to enter a threaded recess 90 in the member 86, and the other end may be supported by any suitable hanger or bearing 91, and preferably projects beyond the side of one of the supports or standards 54, and secured to this projecting end is a suitable operating wheel or member 92.

A suitable cutter or knife 93 is supported by arms or brackets 94 on the standards 54, in such a position that its cutting edge will be located in close proximity to the periphery of, and slightly beyond the roller 57.

Assuming the parts of the machine to be in the position as shown in Fig. 1 of the drawing, the operation of this part of the machine is as follows: If the piece of leather 95, such as a shoe sole, is of a uniform thickness, such as illustrated in Fig. 8 of the drawings, the machine will be automatically set and a surplus portion equal to the difference in the thickness of the thinnest edge of the leather 95^a and the thickest edge thereof, will be skived or cut off from the lower face thereof. The machine being in operation, and the rolls 21, 26 rotating in a direction which would tend to draw the leather between them when the edge thereof is inserted, the leather will be drawn between the rollers. The roller 26 being pivotally mounted in the sliding bearings 23, the end thereof adjacent the thick portion of the leather will be raised or elevated, as shown in Fig. 8. When one end of the roller 26 is raised and the roller assumes an inclined position, the frame or member 27 will also assume an inclined position. The pressure of the spring or member 50 upon the sliding member 32 causes the roller 44 on the carriage 34 to always remain in contact with the frame or member 27, and when the said frame 27 is inclined, the carriage through the action of gravity and the pressure of the spring 50, will gravitate or move down the incline to the lowest portion of the frame 27. When the carriage 34 has assumed this po-

sition, the sliding member 32 will be raised to an extent determined by the thickness of the uneven leather which is engaged. As the member 32 is raised, the rack or member 47 will be also raised, the spring 48 being of sufficient strength to hold the upper edge of said rack or member 47 in engagement with the member 45, and will rock the segment 74. As the segment 74 is rocked by the upward movement of the rack or member 47, the segment 76 will be also rocked, but in an opposite direction to the segment 74, and will rotate the shaft 69 through the medium of the pinion 72. The rack or segment cam being secured to the shaft 69 will be also rotated to bring the corresponding notches or recesses 81 in the peripheries thereof in a direct line with the heads 80 of the members 78 on the sliding frames or members 66. After the leather has passed through the rollers 57, 21 and the rack or segment cam has been properly set, and the leather in its continued forward movement, engages the rollers 57, 67, the roller 67 will first be elevated until the heads 80 on the members 78 enter the adjacent notches or recesses 81 on the rack or segment cam 74. When these heads reach the base of these notches or recesses, the upward movement of the roller 67 will be checked, and in the thick portion of the piece of leather which is in the machine is still too great to pass through the space thus formed between the rollers 57, 67, the lower roller 57 will be depressed against the tension of the spring 58 to a sufficient degree to permit the leather to pass between the rollers. The cutter or knife 59 being located in close proximity to these last rollers, will skive the thick portion from the lower face of the leather. Owing to the fact that the roller 67 has been raised above the cutter to an extent less than the thickest portion of the leather, all of the portion of the leather below the cutting edge of the knife or cutter 59 will be skived or trimmed off. After the leather has passed through the rollers 67, 57, the spring 58 will return the roller 57 to its normal position, and the roller 67 will return by gravity to its normal position.

The two pairs of rollers are located at a distance from each other equal to the length of the shortest piece of leather to be skived in order that the forward end of the leather will pass between the two rollers 57, 67, before the rear extremity thereof has passed from between the rollers 21, 26.

Any suitable means may be provided to direct the leather from the rollers 21, 26 and between the rollers 57, 67, and also to prevent the leather from turning up or curling. A suitable and efficient means for accomplishing this result comprises a guide-way between the standards 20 and 24, having a

base or bottom 55, which is preferably in line with the tops of the rollers 21, 57, when the latter are in their normal position. This guide is also provided with a hinged top or lid 56 by means of which access may be had to the guide when desired, and suitable handles 97 may be provided for raising the top or lid.

The passage of the edge of the leather between the two rollers 67, 57, will lock the transmission mechanism by means of the bolts or members 78 and the rack or segment cam 74, so that the grading operation of these rollers cannot be thereafter affected by any movement of the front rollers 21, 26 while the stock is passing on through between said rollers 67, 57 and being skived or shaved. One of the distinguishing features of this machine is that it measures or grades for the forward end of the sole or leather piece as distinguished from grading with reference to measuring the rear or following end. Should it so happen that the leather beyond the edge which is between the two rollers 67, 57, is of a greater thickness than that portion, the excess thickness will raise roller 26, and as the segments 74 and 76 are locked by means of the pinion 72 which is on the shaft 69, the rack or member 47 will remain stationary and the sliding member 32, together with the carriage 34 and the member 21 in which the roller 26 is journaled, and also the frame 24 will be raised against the tension of the spring 48 which will permit the excess thickness to pass between the rollers 26, 21, although the rollers 67, 57, and the segments 74 and 76 are in a locked position. After the excess thickness has passed between the rollers 26, 21, the springs 50 and 49 will cause the sliding member 32 and its associated parts to return the roller 26 to its relatively adjusted position. Should it so happen that a piece or portion of leather is passed between the rollers 26, 21 which is made of a uniform thickness throughout, the machine will be engaged and locked in its position in the same manner, but the piece of leather would pass between the rollers 67, 57, without being cut or skived, except in the fact that the roller 67 will be raised a distance equal to the thickness of the leather passed between these two rollers, and as the spring 58 is of sufficient strength to hold the roller 57 in its elevated position under normal conditions, and no pressure being exerted upon this roller by the leather passing there-through, no portion of it will be skived or cut.

This exemplification of the invention is constructed in order to conform to the scales according to what is known as "full sizes" as contradistinguished from "half sizes," and in order to accomplish this end the recesses or depressions 81 in the periphery of the rack

or segment cams 71 are graduated to the full sizes—that is to say, the first notch being of a depth equal to the smallest thickness of a sole; the second notch would be 1/48th of an inch deeper than the first, and the third 1/48th of an inch deeper than the second, and so on, the thickness of shoe soles being graduated or regulated 1/48th of an inch. Thus if it is desired to skive a piece of leather of sufficient thickness to produce a shoe sole of a thickness equal to 12/48ths or 13/48ths of an inch, the shaft 69 would be rotated by the segment 76 in a manner already set forth, until the 12th or 13th notch, as the case may be, is brought into a direct line with the knife edge of the heads 80 of the members 78.

If the edge of the heads 78 should strike the inclined sides of any one of the notches, it will be forced into that notch or recess causing the sole to be skived to the thickness represented by the said notch.

With a machine of this construction, boot and shoe soles of varying thickness may be skived from a single stock or assortment, and as the soles pass through the machine they are deposited, as usual, in a common pile. When it is desired to sort the soles it has usually been accomplished by some one measuring the various soles and sorting them according to lot or thickness. In order to obviate this task of measuring each of the soles, and to identify or mark each of the respective soles as it passes through the machine so that they may be easily assorted by their identification number or mark, a suitable marking or identifying means, which will now be described, is employed in connection with this machine, and is automatically operated by the respective sole as it passes therethrough, the same not being herein claimed specifically, as it forms the subject matter of a divisional application.

Secured to the standards 54 and projecting beyond the cutter or knife 93 are suitable brackets or supports 97. Journaled between these brackets or supports in suitable bearings, and in such a position that the upper portion of its periphery will be substantially in a line with the upper edge of the cutter or knife 93 is a roller 98. A similar roller 99 is located between the arms or brackets 97 parallel with and above the roller 98, and the extremities of this roller 99 are journaled in suitable sliding bearings 100. Connected to the extremities of the journals of the roller 99 and depending therefrom, preferably on the outside of the arms or brackets 97, are links 101, the free extremities of which are connected in any suitable manner preferably by means of the bar or rod 102.

Secured in any suitable manner between the arms or brackets 97, preferably to the forward ends thereof, is a projection or

member 103, which is provided with an inclined slot or recess 104 having an opening 105 through the front thereof. An arm 106 is supported by one end by means of rollers 107 located on each side thereof, and connected by means of a shaft 108 passing through the rollers and the end of the arm 106. These rollers are adapted to rest and move within the recess or slot 104 in the projection or member 103 in such a manner that the forward extremity of the arm 106 will project through the opening 105. This arm is connected in any suitable manner to the rod or bar 102 at a point intermediate the extremities of the arm 106, and preferably adjacent the end to which the rollers 107 are connected. A suitable wear-plate 109 may be provided upon the upper face of the forward extremity of the arm 106, if desired.

The ends of a shaft 110 are journaled in the arms or brackets 97 and extend in a direction parallel with the rollers 67 and 99, and said shaft is preferably located substantially in a direct line with the roller 99 when the latter is in its normal position. Secured to this shaft 110, preferably at a point mid-way between the arms or brackets 97, is a die wheel 111, provided on its periphery with a series of projecting dies 112. A gear-wheel 113 is secured to one end of the shaft of the die wheel 110, preferably on the outside of one of the arms or brackets 97, and meshing with this gear wheel 113 is a gear wheel 114 which is secured to the shaft 69, and which is also located on the outside of the standard 54.

Slidably mounted between the arms or brackets 97, and spaced from the die wheel 111, is a mandrel or hammer 115. This hammer is preferably provided with a rounded upper face 116, and is adapted to rest upon the wear-plate 109 on the extremity of the arm or finger 106 when the latter is in an elevated position. The normal position of the arm or finger 106 is retracted—that is, the rollers 107 will stand in the bottom of the slot or recess 104, when the roller 99 is in its normal position, so that the extremity of the arm or finger 106 preferably will be out of engagement with the lower face of the hammer or mandrel 115.

The gear wheels 114 and 113 are so proportioned with relation to the shaft 69 and the rack or segment cams 71 that when the machine is set by the insertion of a piece of leather in the manner already set forth, the rotation of the shaft 69 will set the die wheel 111 in the same relative position, that is, if the thickness of the leather to be skived is 13/48ths of an inch in thickness the rack or segment cams will be set to the position to bring the 13/48ths of an inch notch in a direct line with the heads 80 of the members 78, as already described, and at the same

time the gears 113, 114 will rotate the die wheel 111 so as to bring the numeral 13 in a direct line or position above the hammer or mandrel 115. As the leather passes between the rollers 67, 57, it is forced forward over the knife or cutter 53 by the last said rollers, and into a position between the die wheel 111, and the mandrel or hammer 115. As soon as the forward extremity of the leather or shoe sole reaches a point adjacent to and passes between the rollers 98 and 99, the roller 99 will be suddenly raised by the impact of the edge of the leather, and will raise the arm or finger 106 causing the rollers 107 to ride up the inclined slot or recess 104, and toward the opening 105 therein, which will cause the extremity of the arm 106 to pass under the mandrel or hammer 115 and throw the latter upwardly against the leather with a forcible impact, and will drive the leather against the die 111 which is directly above the hammer or mandrel, causing an impression of its figure to be made upon the sole. The leather is drawn between the rollers 98 and 99 by means of the roller 98, motion being transmitted thereto by means of a gear 98^a which meshes with and is driven by the gear 82. Thus it will be seen that, while the skiving knife 93 and feed rolls 57, 67 are positively holding the rear end of the piece, the forward end is grasped and positively pulled forward by the rolls 98, 99 and then immediately the hammer or mandrel 115 is raised, while the leather is thus held taut at its opposite ends, and delivers a blow against the leather which results in a clear die-impression of the marker 111. By having the parts arranged as stated, the marking takes place while the trimming of the leather is progressing. The cutting or evening mechanism holds the setting mechanism locked until the marker has marked the leather. By having the marker arranged to mark the leather at a portion of the leather which has already been skived or evened, the mark is sure to be clear and accurate, as distinguished from being applied to the leather before it is evened, in which case the marking might be blurred or imperfect by striking the leather at a specially uneven point. A further result of my construction is that the marking of all the leather pieces necessarily takes place at a predetermined distance from the front end of the piece. After the leather has passed between the rollers 98 and 99, the roller 99 and the hammer or mandrel 115 will return by gravity to their normal position, and the rollers 107 will move to the bottom of the recess or slot 104, causing the extremity of the arm 106 to pass from beneath the hammer or mandrel 115, which will permit the mandrel or hammer 115 and the arm 106 to assume a proper position with relation to each other, so that the mandrel or hammer 115 will be thrown for-

wardly again by the insertion of the next piece of leather. At the same time that the mandrel 115 and the roller 99 return to their normal position, the rollers 26 and 57 will also return to their normal position, and the segment 76 will rotate the shaft 69 to return the die wheel 111 to its normal position. It will thus be seen that this machine will be automatically set by the first insertion of the leather between the receiving rollers, and at the same time will lock the machine to prevent the further adjustment of the regulating rollers which stand adjacent the cutter to prevent the leather from being unevenly skived. The carriage 34 being mounted in such position as to travel or gravitate in a direction parallel with the receiving roller, will quickly adjust itself in response to the varying thickness of the leather, so that before the thin piece of the leather reaches the regulating rollers the machine will be in such a position as to lock these regulating rollers by the insertion of the thin portion between the receiving rollers 67 and 57.

In order to prevent the carriage 34 from striking the sides of the member 32, which would jar the machine, and tend to dislocate the parts, suitable brackets 116 may be provided, and secured thereto are bumpers 117 which are arranged within the path of movement of the carriage 34, and adapted to be engaged thereby when the carriage travels the entire length of the receiving rollers 26.

In order that the invention might be fully understood, the details of an embodiment thereof have been thus specifically described, but

What I claim is:—

1. In a machine of the class described, means for responding to the varying thickness of a leather piece, including separable receiving members, one of which is yieldingly supported, a sliding frame pivotally supporting the opposite ends of said yielding member, means for acting upon the leather piece, and connecting mechanism from the latter to said yielding member for limiting the operation of said latter in accordance with the movement of said yielding member in response to the leather piece.

2. In a machine of the class described, separable receiving members relatively movable, means providing a track movable with one of said members, a motion receiving and transmitting mechanism provided likewise with a track, an intermediate device mounted between and to travel on said two tracks, and freely movable on said tracks lengthwise of said members, the entrance of an uneven piece of stock between said members tending to move said tracks out of parallelism and thereby shift said intermediate device toward one end thereof, means for acting upon the leather piece, and connecting mechanism from the latter to

said motion receiving and transmitting mechanism for transmitting the movements thereof to said acting means.

3. In a machine of the class described, 5 separable receiving members relatively movable, means for acting upon the leather piece in response to said receiving members, the said acting means being located at such a distance from said receiving means as to 10 engage the leather piece while the latter is still engaged by said receiving means, intervening connecting mechanism for limiting the operation of said acting means on the leather in accordance with said receiving means and means, actuated by the acting means when engaged by the leather 15 piece, for locking the connecting mechanism and receiving members against further operation while said acting means remains so engaged. 20

4. In a machine of the class described, separable receiving members relatively movable, means for acting upon the leather piece in response to said receiving members, and 25 motion transmitting mechanism from one thereof to the other, including a member extending lengthwise of the machine and rack and pinion means at the opposite ends thereof, means at the forward end for actuating the adjacent rack and pinion 30 means in response to the relative movement of said receiving members, and means actuated by the rack and pinion means at the rear end for correspondingly limiting the operation of said acting means. 35

5. In a machine of the class described, means for acting upon a leather piece, including relatively separable members, a yieldingly supported position-regulating device for limiting the separation of said 40 members, and a sliding wedge for adjusting the position of said device.

6. In a machine of the class described, means for acting upon a leather piece, including relatively separable members, a yieldingly supported position-regulating device for limiting the separation of said 45 members, a sliding wedge for adjusting the position of said device, and a hand wheel and screw for moving said wedge. 50

7. In a machine of the class described, means for acting upon a leather piece, including relatively separable members, a position-regulating device for limiting the 55 separation of said members, including a movable cam, and an engaging head moved by said members to engage said cam, said cam and head having cooperating surfaces, adapted to interlock upon said engagement. 60

8. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers, one of which 65 is also adjustably supported, a stop, means

operatively related to the adjustable regulating roller for engaging the stop to limit the adjustment of the roller, and means operated by the adjustment of the receiving roller for setting said stop.

9. In a machine of the class described, the 70 combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers cooperating therewith, one of which is also adjustably supported, said receiving roller being 75 adjusted by the insertion of the material, and means whereby the adjustment of the regulating roller will be limited by the thinnest side of the material between the receiving 80 rollers.

10. In a machine of the class described, the combination of the receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers cooperating therewith, one of which is also 85 adjustably supported, said receiving roller being adjusted by the insertion of the material, means whereby the adjustment of the regulating roller will be limited by the thinnest side of the material between the 90 receiving rollers, and means for permitting a further adjustment of the receiving roller after the regulating roller has been adjusted.

11. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers, one of which 95 is also adjustably supported, an adjustable stop, means operatively related to the adjustable regulating roller and adapted to engage the stop, means for adjusting the stop, means operatively related to the adjustable receiving roller for operating the 100 stop adjusting means, and yielding means disposed between the last said means and the stop adjusting means to permit a further adjustment of the said receiving roller when the regulating roller is adjusted. 105

12. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers cooperating with the cutter, one of which is adjustably 110 supported, said receiving roller being adjusted by the insertion of the material, a member operatively related to said roller and adapted to assume a position over the thinnest side of the material when the roller 115 is adjusted, and means controlled by the receiving roller and the position of the said member for limiting the adjustment of the regulating roller. 120

13. In a machine of the class described, 125 the combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers cooperating with the cutter, one of which is adjustably supported, said receiving roller being ad- 130

justed by the insertion of the material, a gravity member operatively related to said roller and adapted to assume a position over the thinnest side of the material when the roller is adjusted, and means controlled by the receiving roller and the position of the said member for limiting the adjustment of the regulating roller.

14. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a cutter, regulating rollers cooperating with the cutter, one of which is adjustably supported, said receiving roller being adjusted by the insertion of the material, a member operatively related to said roller and adapted to assume a position over the thinnest side of the material when the roller is adjusted, means controlled by the receiving roller and the position of the said member for limiting the adjustment of the regulating roller, and means for permitting an independent adjustment of receiving roller after the regulating roller has been adjusted.

15. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a track operatively related to the adjustable roller, a member slidingly mounted on the track, a cutter, regulating rollers one of which is adjustable, an adjustable stop, means operatively related to the adjustable regulating roller and adapted to engage the stop, said member being adapted to automatically move upon the track to assume a position over the thinnest side of the material between the receiving rollers, and means controlled by the member for adjusting the stop.

16. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a track operatively related to the adjustable roller, a member slidingly mounted on the track, a cutter, regulating rollers, one of which is adjustable, an adjustable stop, means operatively related to the adjustable regulating roller and adapted to engage the stop, said member being adapted to automatically move upon the track to assume a position over the thinnest side of the material between the receiving rollers, means controlled by the member for adjusting the stop, and a yielding member disposed between the first said member and the last said means, whereby an independent movement may be given to the first said member after the regulating roller has been adjusted.

17. In a machine of the class described, the combination of receiving rollers one of which is adjustably supported, means whereby said roller will engage the thinnest portion of the material passed therebetween, a track operatively related to said roller, a cutter, regulating rollers, one of which is

adjustable, an adjustable stop, means operatively related to the regulating roller and adapted to engage the stop, a movable member, an operative connection between said member and the stop for adjusting the latter, a carriage movable on the track and adapted to automatically assume a position over the thinnest side of the material, means for supporting the carriage, and means disposed between the carriage and the movable member whereby the position of said carriage on the track will control the movement of said member.

18. In a machine of the class described, the combination of receiving rollers, one of which is adjustably supported, means whereby said roller will engage the thinnest portion of the material passed therebetween, a track operatively related to said roller, a cutter, regulating rollers, one of which is adjustable, an adjustable stop, means operatively related to the regulating roller and adapted to engage the stop, a movable member, an operative connection between said member and the stop for adjusting the latter, a carriage movable on the track and adapted to automatically assume a position over the thinnest side of the material, means for supporting the carriage, and yielding means disposed between the carriage and the movable member whereby the position of said carriage on the track will control the movement of said member, said yielding means being adapted to permit an independent movement of the carriage on the track after the regulating roller has been set.

19. In a machine of the class described, the combination of receiving rollers, one of which is pivotally supported, a track operatively related to said roller, a gravity member movable on the track, said roller being adapted to engage the thinnest side of the material, and said gravity member being adapted to assume a position over said thin side, a cutter, regulating rollers, one of which is adjustable, a stop for limiting the adjustment of the last said roller, a movable support for the gravity member, a member yieldingly supported by the last said support, and means operated by the last said member when the support is moved, to adjust the stop, said support and gravity member being adapted to be moved against the tension of the second said member, after the regulating roller has been adjusted.

20. In a machine of the class described, the combination of receiving rollers, one of said rollers being pivotally supported, a track operatively related to said roller, a carriage, a roller on said carriage engaging the track, a support for the carriage, a cutter, regulating rollers, one of which is adjustably supported, a stop for limiting the adjustment of said roller, means for adjusting said stop, a member movably supported

by the carriage support and adapted to move the stop adjusting means, and a yielding member disposed between the carriage support and the movable member, whereby under normal conditions the said member will move with the support, and said yielding member being adapted to permit the support to move independently of the member when the regulating roller has been adjusted.

21. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a track operatively related to and parallel with the adjustable roller, a carriage movable on the track and adapted to gravitate to the lowest point of said track, a cutter, regulating rollers, one of which is adjustable, a stop adapted to be engaged by the last said roller to limit the adjustment thereof, a pinion operatively related to the stop, a rack engaging the pinion, a yielding support for the carriage, a movable member on the support, said member being provided with teeth, a rack operatively related to the first rack and engaging the teeth on the said member, and yielding means disposed between the member and the said support for causing said member to move with the support under normal conditions.

22. In a machine of the class described, the combination of receiving rollers, one of which is adjustably and pivotally supported, a track operatively related to and parallel with the adjustable roller, a carriage movable on the track and adapted to gravitate to the lowest point of said track, a cutter, regulating rollers, one of which is adjustable, a stop adapted to be engaged by the last said roller to limit the adjustment thereof, a pinion operatively related to the stop, a rack engaging the pinion, a yielding support for the carriage, a movable member on the support, said member being provided with teeth, a rack operatively related to the first rack and engaging the teeth on the said member, yielding means disposed between the member and the said support for causing said member to move with the support under normal conditions, and means for operating all of said rollers in unison in any of their positions.

23. In a machine of the class described, the combination of spaced standards, receiving rollers journaled therebetween, one of said rollers being adjustably and pivotally supported, a supporting frame for said roller, a carriage slidingly mounted on said frame, a support for the carriage, means for holding the carriage in engagement with the supporting frame, a rack movably mounted upon the carriage support, a spring disposed between the last said support and the rack, a second pair of standards arranged contiguous to the first

standards, a cutter, adjustable regulating rollers journaled between the last said standards, a shaft also journaled between said standards and above the rollers, graduated stops on the shaft, supporting frames for one of said rollers, means on the frames adapted to engage the stops, a pinion on the shaft, and a pivoted member between the pairs of standards, said members being provided with toothed extremities adapted to respectively engage the rack and the pinion.

24. In a machine of the class described, the combination of spaced standards, receiving rollers journaled therebetween, one of said rollers being adjustably and pivotally supported, a supporting frame for said roller, a carriage slidingly mounted on said frame, a support for the carriage, means for holding the carriage in engagement with the supporting frame, a rack movably mounted upon the carriage support, a spring disposed between the last said support and the rack, a second pair of standards arranged contiguous to the first standards, a cutter, adjustable regulating rollers journaled between the last said standards, a shaft also journaled between said standards and above the rollers, graduated stops on the shaft, supporting frames for one of said rollers, adjustable members on the frames provided with enlarged heads, adapted to engage the stops, a pinion on the shaft and a pivoted member between the pairs of standards, said member being provided with toothed extremities adapted to respectively engage the rack and the pinion.

25. In a machine of the class described, the combination of receiving rollers, one of which is adjustable, a cutter, regulating rollers, one of which is also adjustable, a notched cam, means operatively related to the last said roller and adapted to enter one of the notches in the cam to limit the adjustment of said roller, and means controlled by the adjustment of the receiving roller for moving the cam to position one of the notches to receive the last said means and permit the regulating roller to be correspondingly adjusted.

26. In a machine of the class described, the combination of receiving rollers, one of which is adjustable, a cutter, regulating rollers, one of which is also adjustable, a notched cam, means operatively related to the last said roller and adapted to enter one of the notches in the cam to limit the adjustment of said roller, means controlled by the adjustment of the receiving roller for moving the cam to position one of the notches to receive the last said means and permit the regulating roller to be correspondingly adjusted, and means for also bodily adjusting the cam with relation to the regulating roller.

27. In a machine of the class described, the combination of receiving rollers, one of which is adjustable, a cutter, regulating rollers, one of which is also adjustable, bearings located above the last said rollers, yielding means for supporting the bearings, a shaft journaled in the bearings, a graduated stop on said shaft, means operatively related to the adjustable receiving roller and the shaft for rotating the latter to position the stop, means operatively related to the adjustable regulating roller adapted to engage the stop, and means engaging said bearings for adjusting the same with relation to the regulating rollers and against the tension of said yielding supporting means.
28. In a machine of the class described, the combination of receiving rollers, one of which is adjustable, a cutter, regulating rollers, one of which is also adjustable, bearings located above the last said rollers, yielding means for supporting the bearings, said bearings being provided with an inclined face, a shaft journaled in the bearings, a graduated stop on said shaft, means operatively related to the adjustable receiving roller and the shaft for rotating the latter to position the stop, means operatively related to the adjustable regulating roller adapted to engage the stop, a member provided with inclined faces engaging the inclined faces on the bearings, and means for moving said member to cause the faces to adjust the bearings.
29. In a machine of the class described, relatively movable receiving members, means for acting upon the leather piece, and means for transmitting to said acting means the measuring adjustments of said receiving members, including automatic means mounted to shift toward that end of the receiving members which, at any given moment, are measuring a thin edge of the leather piece.
30. In a machine of the class described, relatively movable receiving members, means for acting upon the leather piece, and means for transmitting to said acting means the measuring adjustments of said receiving members, including automatic means mounted to shift toward that end of the receiving members which, at any given moment, are measuring a thin edge of the leather piece, and a vertically reciprocable frame having a normally spring-upheld member for transmitting the changes in vertical position of said frame.
31. In a machine of the class described, relatively movable receiving members, means for acting upon the leather piece, and means for transmitting to said acting means the measuring adjustments of said receiving members, including automatic means mounted to shift toward that end of the receiving members which, at any given moment, are measuring a thin edge of the leather piece, a vertically reciprocable frame having a normally spring-upheld member for transmitting the changes in vertical position of said frame, and an adjustable spring tension device for regulating the normal downward pressure of said frame.
32. In a machine of the class described, relatively movable receiving members, means for acting upon the leather piece, and means for transmitting to said acting means the measuring adjustments of said receiving members, including a yieldingly-supported vertically-movable rack mounted above said receiving members and actuated by the movements of the latter.
33. In a machine of the class described, relatively movable receiving members, means for acting upon the leather piece, and means for transmitting to said acting means the measuring adjustments of said receiving members, including a vertically movable frame mounted above said receiving members and moved thereby, and a yieldingly-supported rack mounted in said frame and movable therewith.
34. In a machine of the class described, vertical uprights, regulating rollers, frames carrying said rollers and mounted in said uprights for relative vertical movement toward and from each other, a knife mounted approximately between said rollers, yielding means for maintaining one of said rollers normally adjacent said knife, an adjustable wedge device mounted in the frame carrying the other roller, a notched cam for receiving said wedge device, and automatic mechanism, responsive to the presence of an uneven piece of leather, for setting said cam.
35. In a machine of the class described, relatively movable leather-receiving members, means to act upon the leather piece, means to transmit to the latter the movements of said members in response to the leather piece, and means actuated by the leather piece at said acting means in position to be acted on to lock said transmitting means in its adjustment.
36. In a machine of the class described, receiving members for receiving a leather piece, means for acting on the leather piece, means actuated by the engagement of the leather piece with said receiving members for responding to the movements of the leather piece and transmitting the same to said acting means, and locking means, actuated by the leather piece when in position to be acted upon by the acting means, to lock said transmitting means in its adjustment, said responding and transmitting means containing means then permitting the rear or following end of the leather piece to go through the machine unmeasured.
37. In a machine of the class described, leather trimming mechanism for cut-

ting an uneven piece of leather to a uniform thickness, setting mechanism for limiting the operation of said trimming mechanism in accordance with the leather piece, a
 5 marker for marking the leather piece at a portion thereof which has already been cut and prior to the completion of the cutting of the entire piece, means for setting said
 10 marker to correspond with said setting mechanism, and means responsive to said trimming mechanism for locking said setting mechanism while the cutting is progressing and the marking is taking place.

38. In a machine of the class described, cutting mechanism and marking mechanism, the latter including means for operating the marking mechanism while the leather piece is held at its opposite ends by the cutting mechanism and the marking mechanism respectively.
 20

39. In a machine of the class described, marking mechanism, including a marker and feed rollers, combined with trimming mechanism, including a cutter and feed
 25 rollers, the feed rollers of said two mechanisms being located a distance from each other approximately equal to the length of the shortest piece of leather to be acted upon, and said marking mechanism including means for effecting the marking while
 30 the leather piece is held adjacent its opposite ends by the said rollers respectively.

40. In a machine of the class described, marking mechanism, including a marker and feed rollers, combined with trimming mechanism, including a cutter and feed
 35 ers, the feed rollers of said two mechanisms being located a distance from each other approximately equal to the length of the shortest piece of leather to be acted upon, and said marking mechanism includ-
 40

ing means for effecting the marking while the leather piece is held adjacent its opposite ends by the said rollers respectively, and automatic setting mechanism common
 45 to both the trimming mechanism and the marking mechanism.

41. In a machine of the class described, marking mechanism, including a marker and feed rollers, combined with trimming
 50 mechanism, including a cutter and feed rollers, the feed rollers of said two mechanisms being located a distance from each other approximately equal to the length of the shortest piece of leather to be acted
 55 upon, and said marking mechanism including means for effecting the marking while the leather piece is held adjacent its opposite ends by the said rollers respectively, automatic setting mechanism common to
 60 both the trimming mechanism and the marking mechanism, and means actuated by the trimming mechanism for locking said setting mechanism against movement until after the marking has been accomplished.
 65

42. In a machine of the class described, means for cutting a leather piece absolutely even in thickness at the spot to be marked, and means for then marking said leather piece at said evened spot including auto-
 70 matic mechanism for operating the aforesaid cutting means and marking means in timed relation in the order mentioned.

In testimony whereof I have signed my name to this specification, in the presence of
 75 the subscribing witnesses, on this 15th day of October A. D. 1906.

PAUL J. LAPHAM.

Witnesses:

CHAS. HOLTYREN,
 CHAS. E. SAUL,
 ELLIS CONFER.