April 12, 1949. H. E. ELLIOTT ET AL 2,466,798

SHOE UPPER TRIMMING MACHINE

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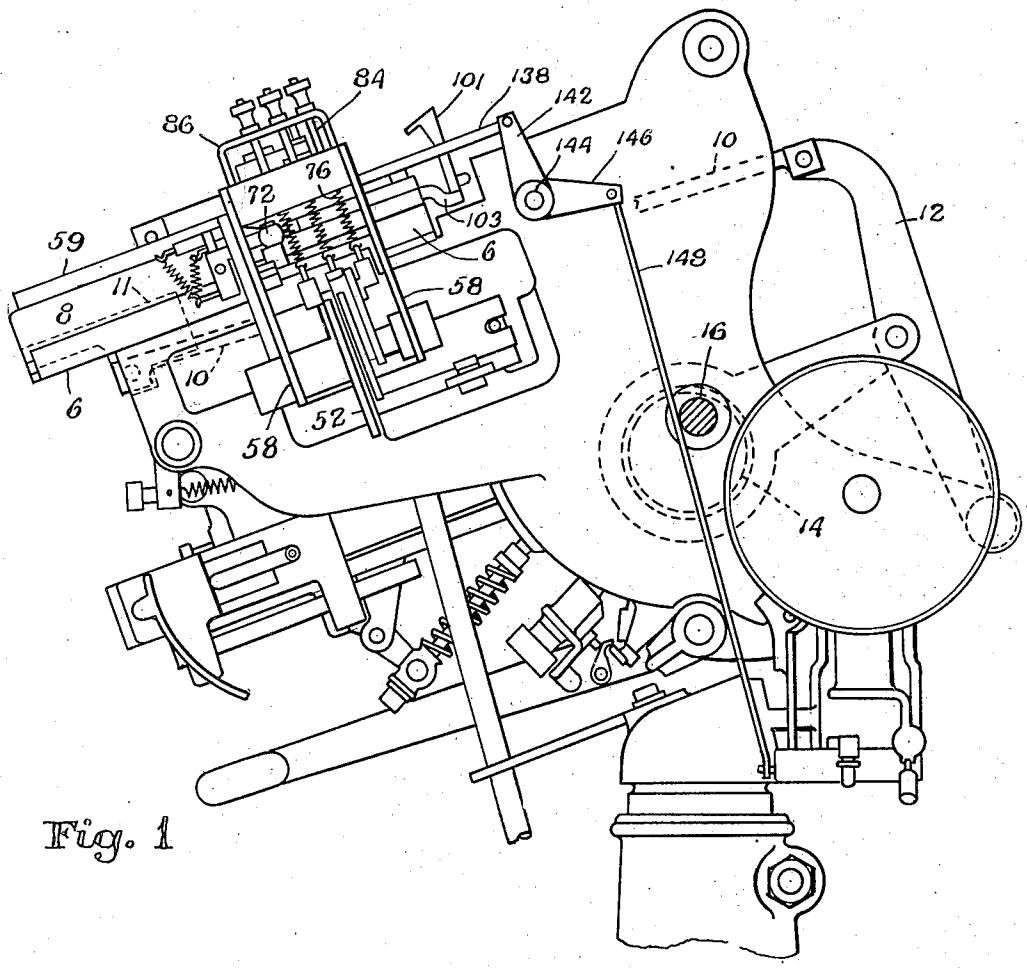


Fig. 1

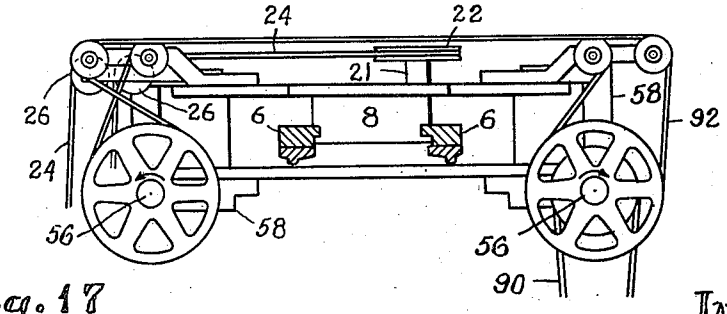


Fig. 17

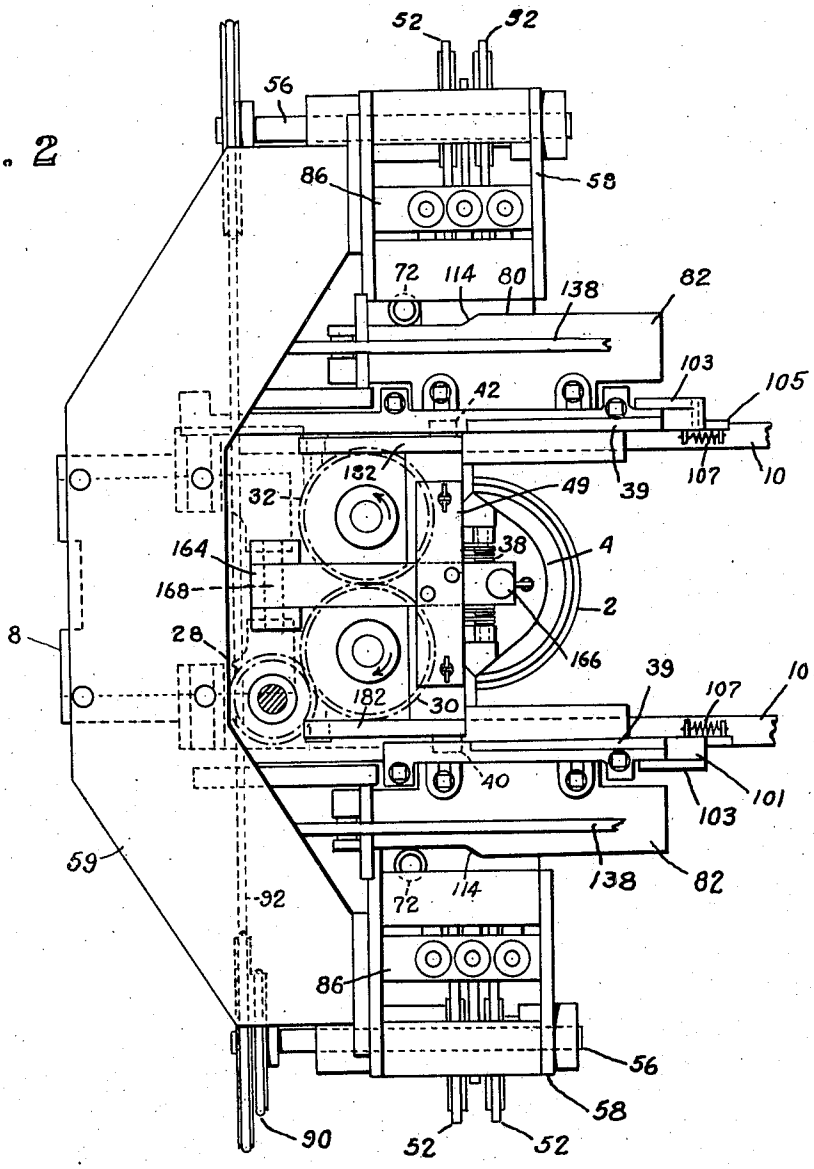
Inventors
Harold E. Elliott
Ernest Moore
by Clemens & Cahill
their Attorney

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SHOE UPPER TRIMMING MACHINE

Filed March 3, 1948 6 Sheets-Sheet 2

Fig. 2



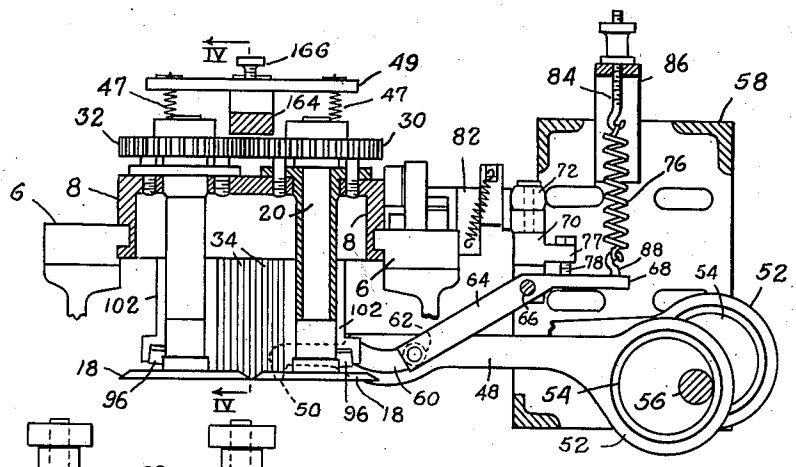
Inventors
Harold E. Elliott
Ernest Moore
by their Attorney

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Filed March 3, 1948 6 Sheets-Sheet 3

Fig. 3



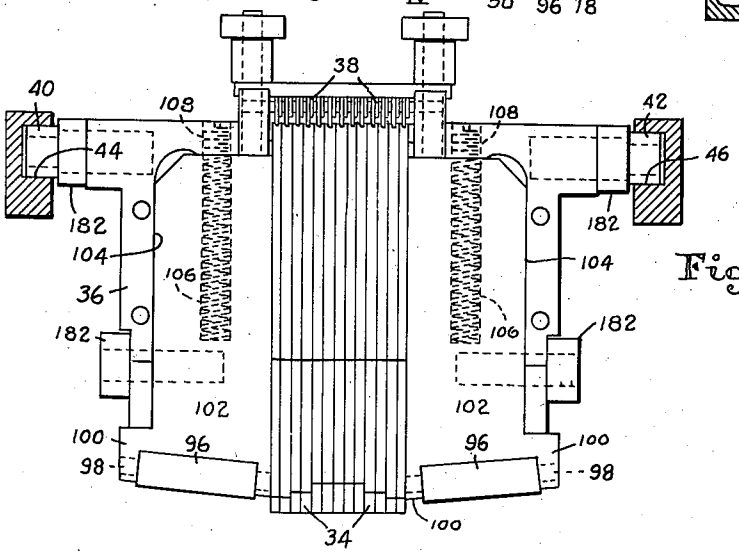


Fig. 5

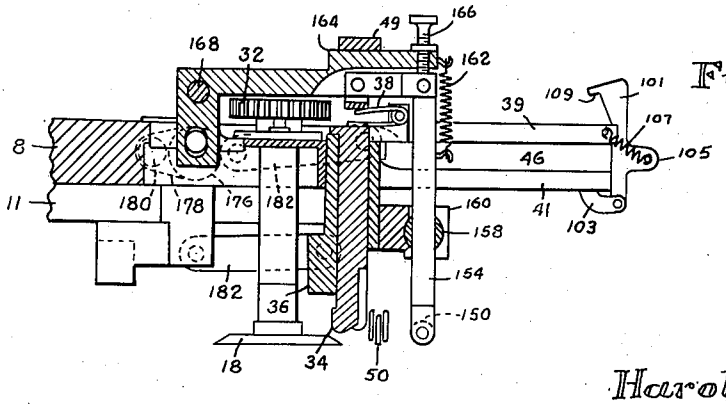


Fig. 4

Inventors
Harold E. Elliott
Ernest Moore
by
their Attorney

April 12, 1949. H. E. ELLIOTT ET AL 2,466,798

SHOE UPPER TRIMMING MACHINE

Filed March 3, 1948 6 Sheets-Sheet 4

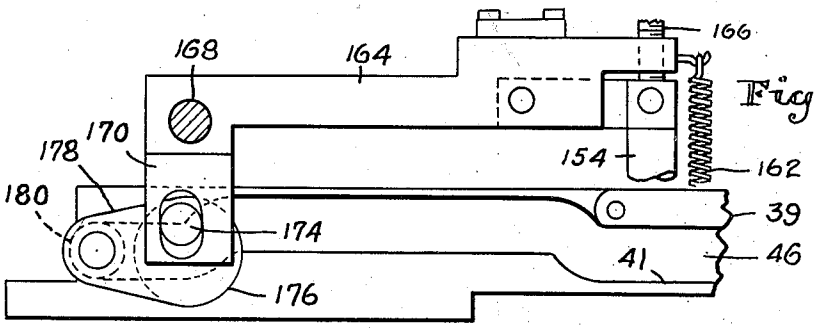


Fig. 16

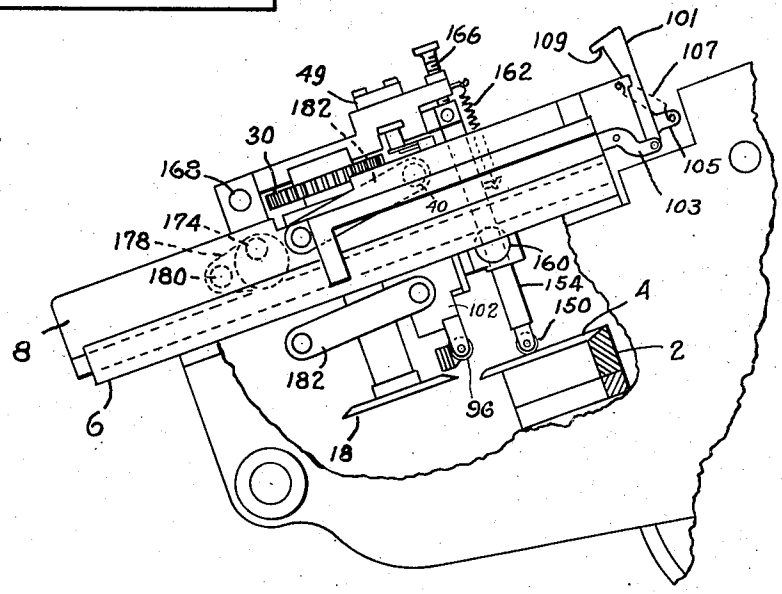


Fig. 6

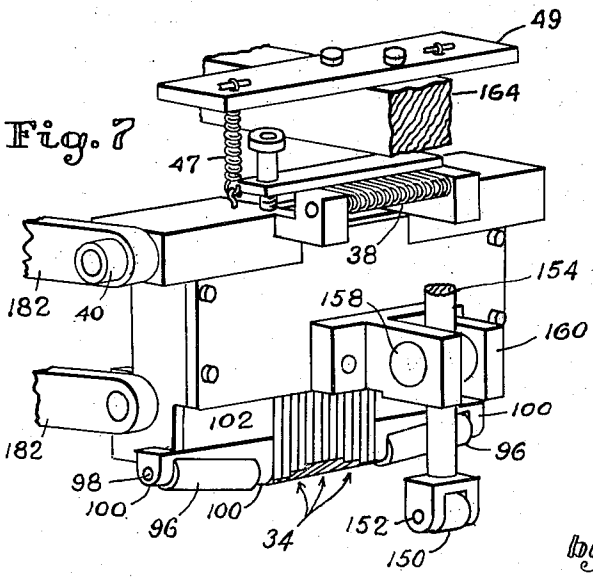


Fig. 7

Inventors
Harold E. Elliott
Ernest Moore
by
their Attorney

April 12, 1949. H. E. ELLIOTT ET AL 2,466,798

SHOE UPPER TRIMMING MACHINE

Filed March 3, 1948 6 Sheets-Sheet 5

Fig. 8

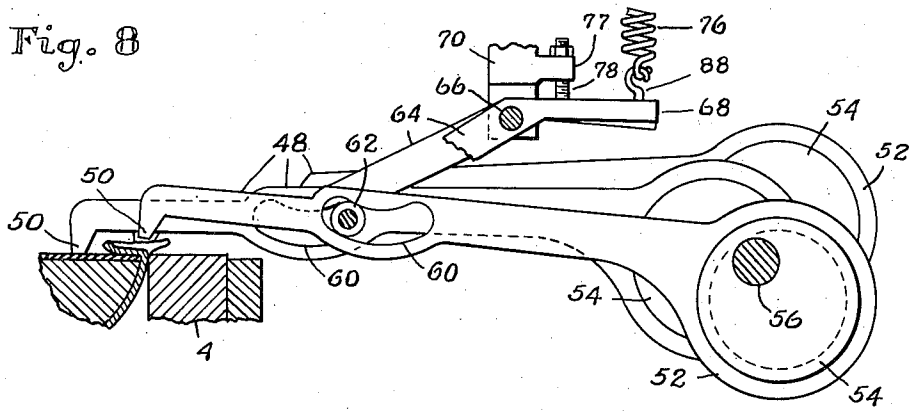


Fig. 9

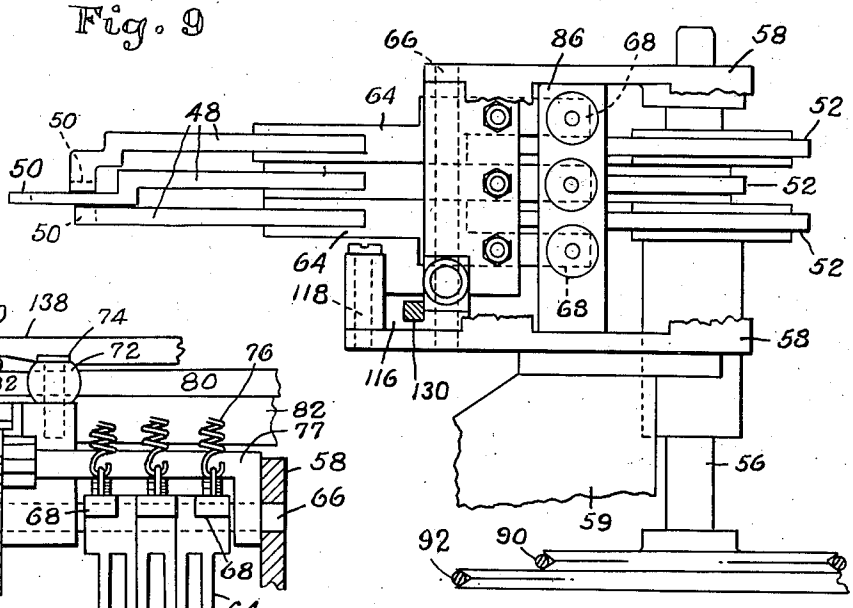


Fig. 14

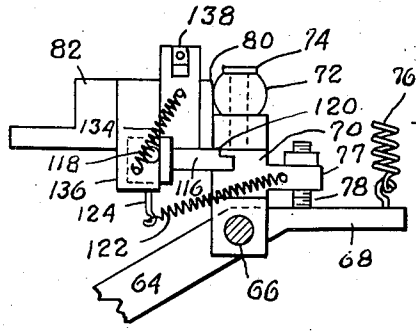


Fig. 13

Inventors
Harold E. Elliott
Ernest Moore
by
their Attorney

April 12, 1949. H. E. ELLIOTT ET AL 2,466,798

SHOE UPPER TRIMMING MACHINE

Filed March 3, 1948 6 Sheets-Sheet 6

Fig. 10

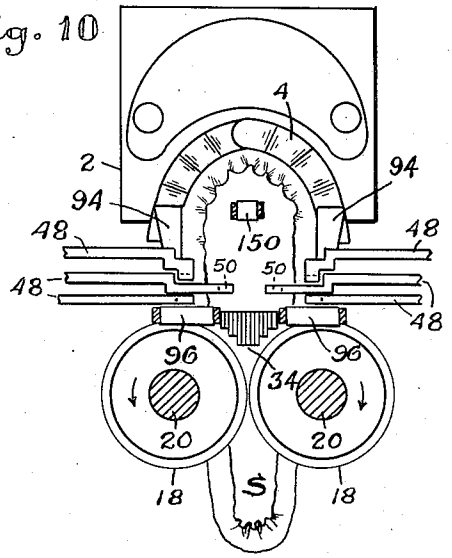


Fig. 11

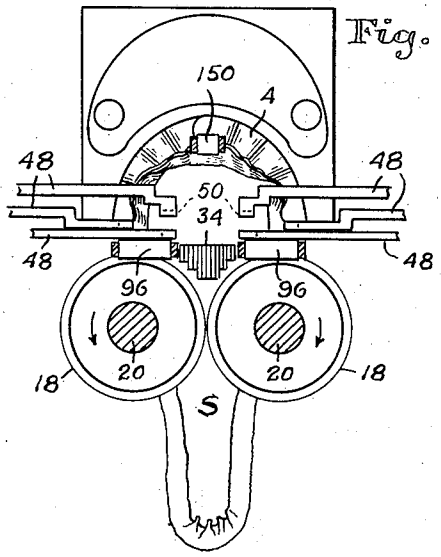


Fig. 12

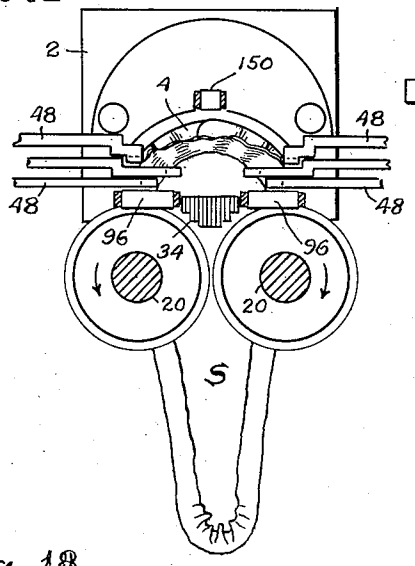


Fig. 15

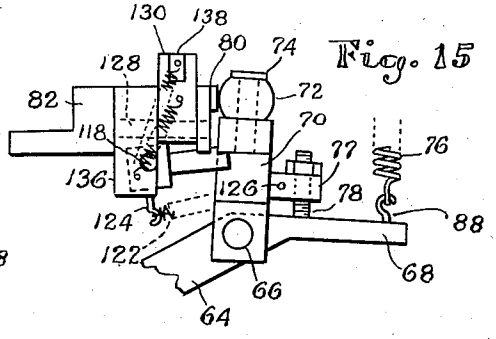
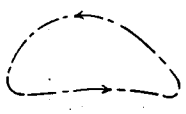


Fig. 18



Inventors
Harold E Elliott
Ernest Moore
by
their Attorney

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2,466,798

UNITED STATES PATENT OFFICE

2,466,798

SHOE UPPER TRIMMING MACHINE

Harold Ernest Elliott and Ernest Moore, Leicester, England, assignors to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application March 3, 1948, Serial No. 12,738
In Great Britain March 18, 1947

11 Claims. (Cl. 12—83.5)

1

This invention relates to trimming machines and is illustrated herein as applied to a machine for trimming the linings of partially fabricated shoes. The term "linings," as used, includes all layers of shoe upper material except the outer layer, for example, a doubler and a toe stiffener. In machines of this type a partially fabricated shoe is mounted on a support and remains stationary in the machine with its bottom facing up while a trimming knife preceded by shoe upper spreaders moves lengthwise of the shoe and above it from the ball region across the toe end, and in a single sweep severs a strip from the margin of the lining after that lining with the corresponding margin of the outer layer of the upper has been folded outward by the spreaders and laid lining side up on a cutting block, with which machines of this type are usually provided. The cutting block has a recess in which the toe portion of the shoe is received.

The purpose of such a trimming operation is to eliminate unnecessary bulk of lining material from the toe area of the shoe upper, thus facilitating the lasting of the toe portion of the shoe upper and furthermore facilitating the securing of that lasted toe portion to the insole.

The sequence of shoemaking operations prior to this trimming operation includes side lasting as far forward as the tip line and removal of the pulling-over tacks from the toe portion ahead of that line. Since the overlasted margins of the upper are fastened to the insole at the tip line by tacks, a vigorous effort is required to turn these margins out ahead of the tip line and lay them down on the cutting block in readiness for the trimming operation.

It is therefore an object of the invention to provide improved means by which the margins of the shoe upper overlying the insole are raised around the toe portion of the shoe from the insole, turned outward, and wiped with downward pressure against the cutting block.

To this end and in accordance with a feature of the invention, the illustrated machine is provided with scrapers or wipers in the form of bars which are located at opposite sides of the machine and are arranged to make repeated outward movements while in engagement with the upper margin so as to raise the upper margin and turn it outward upon the cutting block. These scrapers or wipers are carried by a reciprocating slide and, accordingly, they are reciprocated in the machine with the slide while at the same time being moved in closed orbital paths transversely of the direction of reciprocation.

2

One or more scrapers or wipers may be located at each side of the machine. The scrapers at the right-hand side of the machine are arranged to force the right-hand lasting margin of the shoe upper to the right, and the scrapers located at the left-hand side of the machine are arranged to force the left-hand lasting margin to the left. The action of the scrapers on the opposite margins of the shoe upper precedes the trimming operation.

In accordance with another feature of the invention the illustrated machine is provided with a pair of flat, circular, disk knives which are carried on the above-mentioned slide that carries the scrapers. There is provided a power-driven knife-operating mechanism arranged to rotate the knives in opposite directions such that one of the knives will sever the right-hand margin of the lining and the other knife will sever the left-hand margin of the lining. The draw cut due to rotating the knives as they advance over the toe portion of the shoe is especially effective for trimming linings made of textile materials. To insure the best results the knives are rotated in directions that enable their cutting segments to move away from the perimeter of the insole toward the perimeter of the outturned margin of the upper, thereby tensioning that margin widthwise away from the insole.

These and other features of the invention will now be described in detail with reference to the accompanying drawings and will be pointed out in the appended claims.

In the drawings,

Fig. 1 is a view in side elevation of a shoe-upper trimming machine in which the present invention is embodied;

Fig. 2 is a plan view of the machine shown in Fig. 1;

Fig. 3 is a front view of part of the machine;

Fig. 4 is a section along the line IV—IV of Fig. 3;

Fig. 5 is a rear view of upper-pressing fingers;

Fig. 6 is a view in side elevation of part of the machine;

Fig. 7 is a perspective of the upper-pressing fingers illustrated in Fig. 5;

Fig. 8 is a front view of bars serving to lift the margin of the shoe upper and turn it outward;

Fig. 9 is a plan view of the bars illustrated in Fig. 8;

Figs. 10 to 12 are plan views of the bars, upper-pressing fingers and knives in operation upon a shoe presented to the machine;

Figs. 13 to 15 are views of means for control-

ling the movement of the bars illustrated in Fig. 8;

Fig. 16 is a detailed view of part of the machine as illustrated in Fig. 6;

Fig. 17 is a front view of part of the machine showing the driving pulleys; and

Fig. 18 shows the path traced out by the front end of one of the bars shown in Fig. 8.

The illustrated machine is a shoe-upper trimming machine of the type disclosed in U. S. Patent 2,260,483 issued October 28, 1941, on an application filed in the name of W. T. B. Roberts, and includes a shoe support (not shown) and a heel end abutment (not shown) which serve to hold the shoe bottom-up in the machine. As in the machine of the above-mentioned patent there is provided a cutting block 2 (Figs. 2, 6, 10 to 12) which is hollowed out to receive the toe portion of the shoe S to be trimmed. The cutting block 2 has a sloping upper face 4 for supporting the marginal portion of the shoe upper when that portion is turned outward away from the shoe bottom in position for the trimming operation.

For trimming the marginal portion of the shoe upper after that portion has been turned outward, the illustrated machine is provided with two knives to be described. These knives and other operating instrumentalities of the machine, as will be described, are mounted on a slide 8 (Figs. 1 to 4 and 6) which is reciprocated in a guideway 6 provided in the machine frame, by rods 10 (Fig. 1). The rods 10 connect a block 11 on the underside of the slide 8 with a power-operated lever 12. The lever 12 is rocked about a fixed fulcrum by an eccentric 14 mounted on a power-driven cam shaft 16. The knives, already mentioned, are disk knives 18 arranged in side-by-side relation and located in the same horizontal plane. Each knife is secured to the lower end of a vertical shaft 20 (Fig. 3) rotatably mounted in the slide 8. The two shafts 20 are arranged equidistant from the longitudinal center line of the slide in such a way that the cutting edges of the two knives almost touch each other on a line connecting the axes of the shafts 20. The distance between the shafts 20 is approximately equal to the width of the toe portion of a shoe of average size. Thus a shoe presented to the two knives 18 is trimmed simultaneously at opposite sides by those portions of the knife edges which extend from the meeting point or point of closest approach of the knives 18 to a point directly rearward of the shafts 20 (as seen from the front of the machine).

The knives 18 are positively rotated in opposite directions, the arrangement being such that the right-hand knife (as seen from the front of the machine) is rotated in a clockwise direction (as seen from above) and the left-hand knife is rotated in a counterclockwise direction. For rotating the knives in this manner the following mechanism is provided. A short stem 21 (Fig. 17) is fixed in the slide 8 and has a pulley 22 rotatably mounted thereon. The pulley is rotated by a belt 24 from a suitable source of power. The belt also runs over two idler pulleys 26 which serve the purpose of preventing excessive slackness or tautness of the belt as the slide 8 is reciprocated. The pulley 22 has a pinion 28 (Fig. 2) integral with it and the pinion 28 meshes with a larger pinion 30 (Fig. 3) on the upper end of the shaft 20 of the right-hand knife 18. The shaft 20 for the left-hand knife has a pinion 32 on its upper end of the same size as the pinion 30 and meshing with it.

For the purpose of depressing the outturned upper margin in front of the knives 18 during their cutting stroke the machine is provided with thirteen fingers 34 (Figs. 3 and 5) which are mounted for vertical movement in a carrier plate 36. The carrier plate 36 is secured to the slide 8. The central one of the fingers 34 lies directly behind the meeting point of the two knives (as seen from the front of the machine) and the other fingers at either side of the central finger are located as illustrated in Figs. 10 to 12 to follow the curved edges of the two trimming knives 18. Each finger 34 is urged downward relatively to the carrier plate 36 by a spring 38 (Figs. 4, 5 and 7). The fingers 34 are arranged to be raised out of contact with the work when the slide 8 is in its initial forward position. Just after the slide 8 has commenced its operative rearward movement, the fingers are lowered into contact with the work by cam rolls 40, 42 (Figs. 2 and 5) provided at opposite sides of the carrier plate 36. These cam rolls extend into cam tracks 44, 46 (Figs. 4, 5 and 16) provided in the machine frame and extending rearwardly in the machine. The cam tracks 44, 46 are so designed that they will locate the carrier plate 36 and thus the fingers 34 in the desired vertical positions during the reciprocation of the slide 8.

Lowering and raising of the fingers 34 upon movement of the cam rolls 40, 42 along the cam tracks 44, 46 is made possible in that the carrier plate 36 is supported on parallel links 182 (Figs. 4 to 7), arranged at opposite sides of the plate and pivotally connecting the plate with the slide 8.

The cam tracks 44, 46 have pivotally mounted upper sections 39 (Figs. 2, 4 and 16) forming the upper walls of the cam tracks. Members 41 form the fixed lower walls of the cam tracks. Springs 47 (Fig. 3) connect the carrier plate 36 with a cross plate 49 on a stop lever, to be described, and tend to raise the carrier plate 36, thus urging the cam rolls 40, 42 against the upper sections 39 of the cam tracks 44, 46.

The machine is also provided at its opposite sides with transversely movable wipers or scrapers in the form of bars 48 (Figs. 3, 8, 9 to 12), there being three bars 48 at each side of the machine. The bars 48 are carried by the slide 8 and serve the purpose of raising the marginal portion of the shoe upper from the insole of the shoe S and turning that portion outward over the sloping upper surface of the cutting block 2. The front ends of the bars 48 move transversely of the machine and the shoe supported therein in a closed irregular path illustrated in Fig. 18 and are provided with downwardly extending projections 50 (Fig. 8). Each projection 50, when the bar is at the inner limit of its movement toward the longitudinal median line of the shoe, rests upon and is spring-pressed against the insole well inwardly of the overlying marginal portion of the shoe upper. The bars 48 are arranged fairly close to and rearwardly of the pressing fingers 34 (as seen from the front of the machine).

Each bar 48 is arranged to be drawn outward, i. e. laterally of the shoe and away from the longitudinal median line of the shoe, and returned inward a number of times during the operative stroke of the slide 8. The projection 50 on each bar 48 is thereby caused to move outward along the surface of the insole until it engages the overlying marginal portion of the upper at that side of the toe, whereupon it lifts that margin away from the insole, turns it outward and presses it firmly against the cutting block 2.

The three bars 48 at each side of the slide 8

perform this upper raising operation successively. Each bar has its outer end formed as an eccentric sheave 52 which surrounds an eccentric 54. The three eccentrics at one side of the slide 8 are secured on a shaft 56 rotatably mounted in brackets 58. The brackets are provided on a lateral extension 59 (Fig. 2) of the slide 8. The arrangement at the other side of the slide 8 is the same. The three eccentrics 54 at each side of the machine are displaced from each other 120° about the axis of the shaft 56, thus staggering the operation of the bars.

To support each bar 48 and control its in and out movements, a curved slot 60 (Fig. 3) therein is engaged by a roll 62 carried by the lower end of a link 64. The three links 64 for the three bars 48 at each side of the machine are pivotally mounted on a rod 66 which is parallel to the shaft 56 and is supported in the brackets 58. The heightwise position of each roll 62 is adjustable and to that end each link 64 has a laterally extending tailpiece 68 which is pulled by a spring 76 against a setscrew 78 carried in a flange 77 provided on a yoke member 70. The yoke member 70 is also pivotally mounted on the rod 66 and carries a cam roll 72 (Figs. 3, 13 to 15) freely rotatable on a pin 74 in the yoke member 70. The spring 76 in urging the tailpiece 68 against the setscrew 78 also urges the roll 72 against a cam face 80 provided on a cam member 82 fixed in the machine frame. The cam face 80 therefore controls the angular position of the yoke member 70 and thus of the links 64 about the rod 66 (see Figs. 13 to 15). The springs 76 are connected at their upper ends to hooks 84 on a bridge member 86 (Fig. 3) secured to one of the brackets 58, and at their lower ends to hooks 88 in the tailpieces 68. Normally the three rolls 62 at each side of the machine are held in such positions, by the means just described, that they are somewhat higher than the axis of the shaft 56 (see Fig. 3). By reason of the shapes of the slots 60 in the bars 48 the projection 50 of each bar has imparted to it on each rotation of its eccentric 54 a movement in a path indicated in Fig. 18. In particular, each projection when moved inward toward the longitudinal median line of the shoe is held a considerable distance above the marginal portion of the upper. It is then moved down into engagement with the insole and then back in a substantially horizontal path toward its initial position. During the latter movement, as already described, it engages the marginal portion of the upper, raises it from the insole, and turns it outward upon the face 4 of the block 2. A single revolution of the shaft 56 will impart such movements successively to the three bars 48 at one side of the machine and the movements of the three bars are displaced or staggered, in time, a period corresponding to 1/3 of one revolution of the shaft 56. The two shafts 56 at opposite sides of the machine are driven by pulleys and belts 90, 92 (Fig. 17) from an electric motor (not shown) and the driving arrangement is such as to enable the shafts 56 to travel back and forth with the slide 8. On movement of each bar 48 toward its initial position during which movement the upper margin is raised and turned over, the projection 50 of the bar 48 will be raised somewhat against the action of the spring 76 as the projection rides over the outturned upper margin, thus pressing that margin down against the cutting block 2 (see Fig. 8).

It will be seen, therefore, that when the slide 8 is moving rearward on its operative stroke, the three bars 48 at each side of the shoe will be moving rearward with the slide and will simultaneously be rapidly reciprocated laterally of the machine along paths of the shape indicated in Fig. 18. Thus during the rearward movement of the slide 8 each portion of the upper margin along each side of the toe portion will be repeatedly operated upon by the bars 48.

Those portions of the upper margin which lie immediately in front of the pulling-over tacks will naturally be restrained by these tacks from being turned outward. There may not be sufficient looseness or extensibility in the upper margin adjacent to the tacks to permit that margin to be turned outward beyond the shoe bottom onto the cutting block 2. In order to support such porions of the upper margin, nevertheless, the cutting block 2 is provided at its heelward end with thin ears 94 (Fig. 10), the upper faces of which constitute a prolongation of the upper face 4 of the block 2 toward the heel end of the supported shoe. The ears 94 extend also inward toward the longitudinal median line of the block 2. Thus the ears are located, when a shoe is presented to the machine, over the margin of the shoe bottom adjacent to the pulling-over tacks to support the outturned upper margins in that region.

In order to give increased assurance that the upper margin at opposite sides of the toe portion of the shoe will be properly lying on the cutting block 2 and the ears 94 when the knives 18 begin to trim and also in order to restrain the upper margin from rising during the short interval of time between the operation of the bars 48 thereon and the operation of one of the knives 18 thereon, the illustrated machine is provided with a pair of rollers 96 (Figs. 3, 5 and 10) which are arranged to move along the outturned upper margin and to press it firmly upon the cutting block 2 in advance of each knife 18. Each roller 96 is arranged close to one side of the fingers 34 and is located immediately in back of the knife 18 (as seen from the front of the machine). Thus, the roller fits substantially into the narrow space between the knife 18 and the nearest one of the bars 48 (see Fig. 10). The axes of the rollers are somewhat inclined, as illustrated in Fig. 5, the angle of inclination corresponding substantially to the angle of the sloping face 4 of the block 2. Each roller is freely rotatable on a pin 98 held in ears 100 provided on a vertically movable slide 102 mounted in a guideway 104 in the carrier plate 36. The slide 102 is depressed to cause the rollers 96 to press against the turned-out upper margin by a spring 106 seated in a bore in the slide 102 and bearing at its upper end against an adjustable screw 108 in the plate 36. The vertical movements of the slides 102 are limited in both directions by studs (not shown) in the plate 36, which studs engage vertical slots (not shown) provided in the slides 102.

Toward the end of the cutting stroke of the knives 18 the thirteen fingers 34 and the two rollers 96 which, as described, are all supported on the carrier plate 36, are raised and then are held raised during the return movement of the slide 8 into initial position. As already indicated, the upper sections 39 (Figs. 4 and 16) of the cam tracks 44, 46 are pivotally mounted and more specifically they are pivotally secured to the machine frame at their forward ends, as illustrated best in Fig. 16. The two sections 39 are maintained parallel to the lower sections 41 by latches

101 (Figs. 4 and 6) against the tension of the springs 47 which tend to pull the carrier plate 36 upward, thus tending to swing the two sections 39 upward. The latches 101 are pivotally mounted on brackets 103 secured to the rear ends of the lower track sections 41. A projection 105 of each latch is connected by a spring 107 to the corresponding track section 39. Just prior to the completion of their rearward movement, the cam rolls 40, 42 strike the latches 101, thus releasing the upper track sections 39. The springs 47 now can raise the carrier plate 36, thereby causing the track sections 39 to swing up about their pivots until these sections engage projections 109 on the latches 101. During the following forward movement of the slide 8 into initial position, the cam rolls 40, 42 move along the now inclined track sections 39 with the fingers 34 and rollers 96 well above and out of engagement with the toe end portion of the shoe. When the rolls 40, 42 have been moved forward beyond the pivots of the track sections 39, these sections are again pulled down into engagement with the latches 101 by the springs 107 and are once again parallel with the lower track sections 41.

It is also desirable that the three bars 48 at each side of the slide 8 shall occupy raised positions while the slide 8 is returning to its initial position so that they shall not contact the upper at that time. Moreover, it is desirable that they shall be automatically lowered into operative position as the slide 8 commences a new operative movement rearwardly in the machine. To this end the above-mentioned cam faces 80, along which the cam rolls 72 on the yoke members 70 run, have each an outwardly sloping portion 114 (Fig. 2) so arranged that the yoke members 70 will be tilted outward as the slide 8 approaches the end of its rearward movement (see Fig. 15). The tilting of the yoke members 70 in turn causes a rocking movement of the links 64, thus lifting the rolls 62 and the bars 48. As the bars are so lifted they pivot about their operating eccentrics 54.

The bars 48 are held in their raised positions by latching fingers 116 (Figs. 9, 13 to 15) pivotally mounted on the brackets 58. Each finger 116 is pivotally mounted on a rod 118 (Fig. 9) and the outer end of each finger normally lies beneath a shoulder 120 formed on the yoke member 70 below the pivot of the latter. A tension spring 122 connecting a hook 124 on the finger 116 with a pin 126 on the yoke member 70 urges the outer end of the finger upward opposite the shoulder 120 when the yoke member 70 is tilted outward as above described, thus retaining the yoke member 70 in its tilted position and accordingly holding the bars 48 in their raised inoperative positions while the slide 8 returns to its initial position.

To release the bars 48 from their inoperative positions as the slide 8 commences a new operating stroke the fingers 116 are connected to a clutch-controlling treadle (not shown) which the operator depresses when he initiates a new power operation of the machine. To this end there is provided a two-armed lever 130, 132 (Fig. 14), which is pivoted on a stud 128 secured in the fixed cam member 82. The horizontal arm 132 of the lever engages the finger 116 and is held in engagement therewith by a spring 134 (Fig. 13) connected to a lug 136 on the fixed member 82. The vertical arm 130 of the lever is forked and supports a link 138. The link 138 has a

shoulder 140 engaging the front face of the arm 130. Each link is pivotally connected to an arm 142 (Fig. 1) of a bell crank lever. The bell crank lever is rotatably mounted on a rod 144 secured in the machine frame. The other arm 146 of the bell crank lever is connected by a rod 148 to the clutch-tripping mechanism of the machine in such a way that the rod 148 is pulled down when the clutch is being tripped by the depression of the treadle. Thus the arms 130 of the two levers are rocked to release the fingers 116.

The release of the fingers 116 takes place just before the rearward movement of the slide 8 begins. Upon release of the fingers 116 the yoke members 70 are again allowed to swing into their initial positions in which the rolls 72 engage again the cam faces 80. Thus, the projections 50 of the bars 48 are lowered into a position in which they are ready to perform their operation as soon as the knives 18 commence to move toward the toe end of the shoe. Very shortly thereafter the rollers 96 and the fingers 34 are also lowered into operative position by the cam tracks 44, 46.

The illustrated machine is preferably also provided with an insole-engaging roll 150 (Figs 6 and 7), the purpose of which is to assist in preventing the toe end of the shoe from being raised during the trimming operation. The roll 150 is rotatably mounted at 152 on the bifurcated lower end of a vertical rod 154 which passes through and is guided for vertical movement in a bore provided in a circular boss 158 (Fig. 4) rotatably mounted in a lug 160 on the carrier plate 36. A tension spring 162 connecting the rod 154 with a stop lever 164 maintains the rod in engagement with an adjusting screw 166 carried by the lever 164. Adjustment of the screw will, therefore, adjust the heightwise position of the roll 150 relatively to the knives 18 and the other operating instrumentalities of the machine.

The stop lever 164 extends over the carrier plate 36 and is pivotally mounted at its forward end on a pin 168 (Fig. 4) secured in the slide 8. A downwardly extending arm 170 of the lever 164 has a short slot engaged by a pin 174 (Fig. 16) eccentrically mounted on the end of a shaft 176 mounted in the slide 8. On the opposite end of the shaft 176 is secured a short arm 178 carrying a cam roll 180 which during the reciprocation of the slide 8 moves along the forward portion of the cam track 46. This cam track has a short sloping portion which is arranged in such a position that the cam roll 180 moves along that sloping portion when the roll 150 is approaching the marginal portion of the upper, thus turning the shaft 176 and lifting the stop lever 164. This causes the roll 150 to be raised to such a position that it passes over the outturned upper margin on the cutting block 2 without interfering with that margin as the slide 8 completes its rearward movement and also when the slide 8 begins its reverse movement into initial position.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, movable scrapers located at opposite sides of the supported shoe, and power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while moving as a unit longitudinally of the shoe so as to raise progressively

the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block.

2. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, a reciprocating slide supporting said cutting means, movable scrapers carried by the slide and located at opposite sides thereof, and power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while moving as a unit with the slide longitudinally of the shoe so as to raise the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block.

3. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, a slide adapted to reciprocate in the longitudinal direction of the supported shoe, a pair of rotary knives supported on the slide, means for so rotating the knives in opposite directions that each knife severs one of the opposite margins of the upper in a direction away from the longitudinal median line of the shoe, movable scrapers carried by the slide and located at opposite sides thereof, and power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while moving with the slide longitudinally of the shoe and ahead of the knives so as to raise the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block.

4. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, a slide adapted to reciprocate in the longitudinal direction of the supported shoe, a pair of rotary knives supported on the slide, means for so rotating the knives in opposite directions that each knife severs one of the opposite margins of the upper in a direction away from the longitudinal median line of the shoe, power-operated scrapers carried by the slide and located at opposite sides thereof, and means for reciprocating the scrapers in a closed orbital path transversely of the supported shoe while the scrapers are moving with the slide longitudinally of the shoe to cause the scrapers to raise the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block.

5. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, a slide adapted to reciprocate in the longitudinal direction of the supported shoe, a pair of rotary knives supported on the slide, means for so rotating the knives in opposite directions that each knife severs one of the opposite margins of the upper in a direction away from the longitudinal median line of the shoe, and a plurality of scrapers asociated with each knife and arranged to make repeated movements transversely of the supported shoe while moving with the slide longitudinally of the shoe so as to raise the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block ahead of the trimming action of the knives thereon.

6. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, movable scrapers located at opposite sides of the supported shoe, power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while so moving as a unit longitudinally of the shoe as to raise progressively the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block, and yielding means acting on the scrapers to cause them to press the turned-out upper margin against the cutting block.

7. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, movable scrapers located at opposite sides of the supported shoe, power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while so moving as a unit longitudinally of the shoe as to raise progressively the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block, and rollers adapted to move with the scrapers in the longitudinal direction of the shoe just in advance of the knives to hold the turned-out upper margin against the cutting block.

8. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, a reciprocating slide supporting said cutting means, scrapers carried by the slide and located at opposite sides thereof, power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while so moving as a unit with the slide longitudinally of the shoe as to raise the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block, and rollers carried by the slide and located at opposite sides thereof between the knives and the scrapers, the rollers being adapted to hold the turned-out upper margin against the cutting block in advance of the knives during their cutting stroke.

9. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, movable scrapers located at opposite sides of the supported shoe, power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while so moving as a unit longitudinally of the shoe as to raise progressively the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block, and means for automatically raising the scrapers out of contact with the shoe upper on completion of the trimming operation.

10. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, cutting means for trimming the lining of the shoe thus supported, movable scrapers located at opposite sides of the supported shoe, power-operated means for causing the scrapers to make repeated movements transversely of the supported shoe while so moving as a unit longitudinally of

the shoe as to raise progressively the opposite margins of the toe portion of the upper from the shoe bottom and turn said margins outward against the cutting block, rollers adapted to move with the scrapers in the longitudinal direction of the shoe just in advance of the knives to hold the turned-out upper margin against the cutting block, and means for automatically raising the rollers out of contact with the shoe upper on completion of the trimming operation.

11. In a shoe upper trimming machine, a cutting block adapted to support the toe portion of a partially fabricated shoe presented bottom up thereto, a slide adapted to reciprocate in the longitudinal direction of the supported shoe, cutting means supported on the slide and adapted to trim the shoe upper margin on operative movement of the slide toeward of the the shoe, scrapers

carried by the slide and located at opposite sides thereof, power-operated means for causing the scrapers to raise the opposite margins of the shoe upper from the shoe bottom and to turn said margin outward against the cutting block, means for automatically raising the scrapers out of contact with the shoe upper on completion of the toeward movement of the slide, means for holding the scrapers in their raised positions on heelward movement of the slide, and means for automatically releasing the scrapers from their raised position on initiation of another toeward movement of the slide.

HAROLD ERNEST ELLIOTT.
ERNEST MOORE.

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