Dec. 13, 1927.

1,652,694

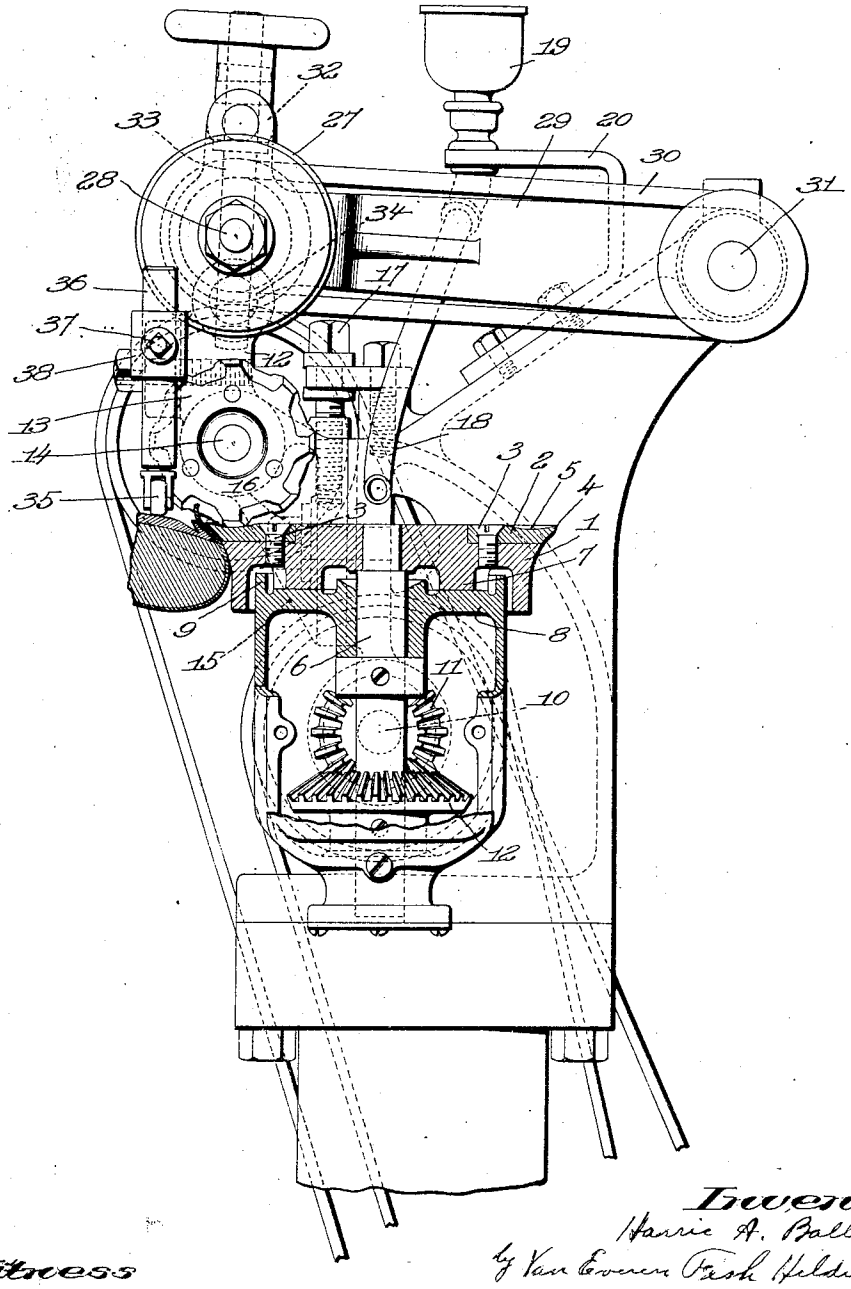
H. A. BALLARD

UPPER TRIMMING MACHINE

Filed Aug. 4, 1923

4 Sheets-Sheet 1

Fig. 1.



Inventor
Harrie A. Ballard
by Van Everen Fish Holdrith & Carey
Attys.

Witness
Jas. J. Maloney.

Dec. 13, 1927.

1,652,694

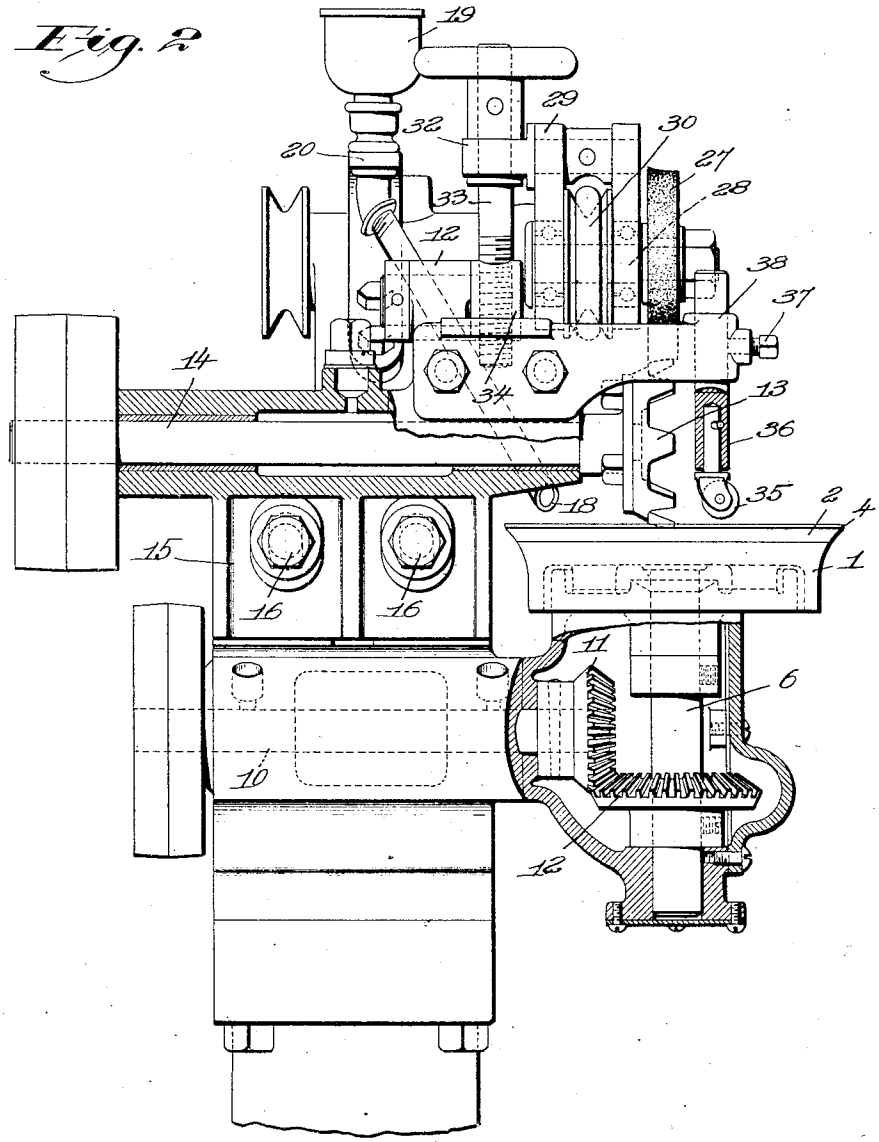
H. A. BALLARD

UPPER TRIMMING MACHINE

Filed Aug. 4, 1923

4 Sheets-Sheet 2

Fig. 2



Witness
Jas. J. Maloney.

Inventor
Harrie A. Ballard
by Van Everen Frost Heldreth & Berry
Attys

Dec. 13, 1927.

1,652,694

H. A. BALLARD

UPPER TRIMMING MACHINE

Filed Aug. 4, 1923

4 Sheets-Sheet 3

Fig. 3

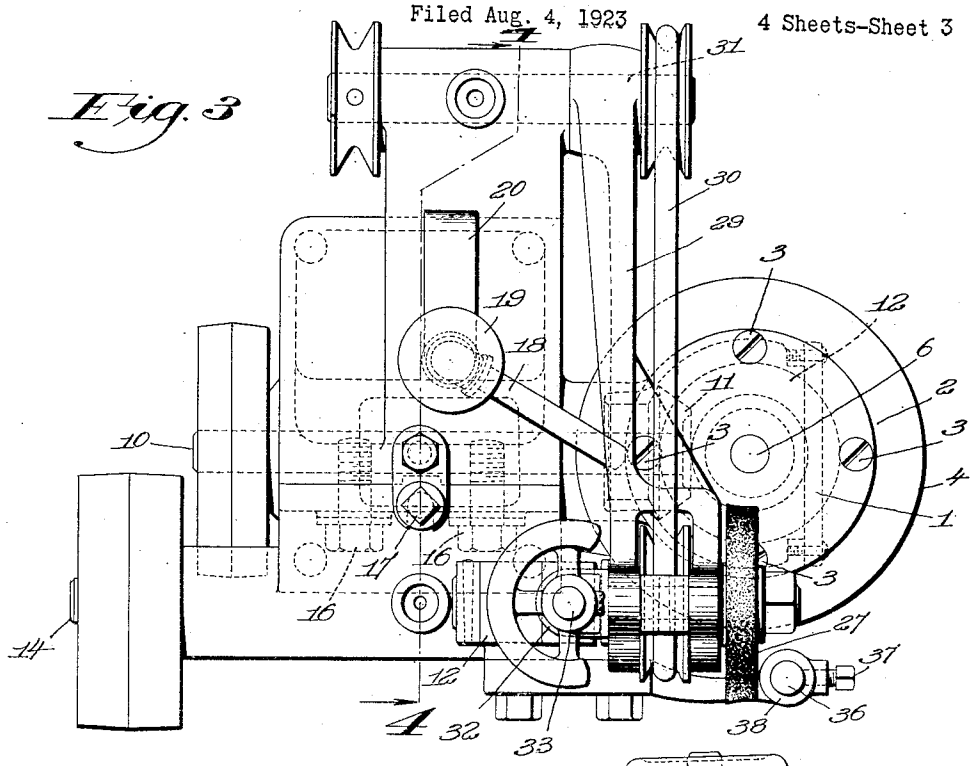
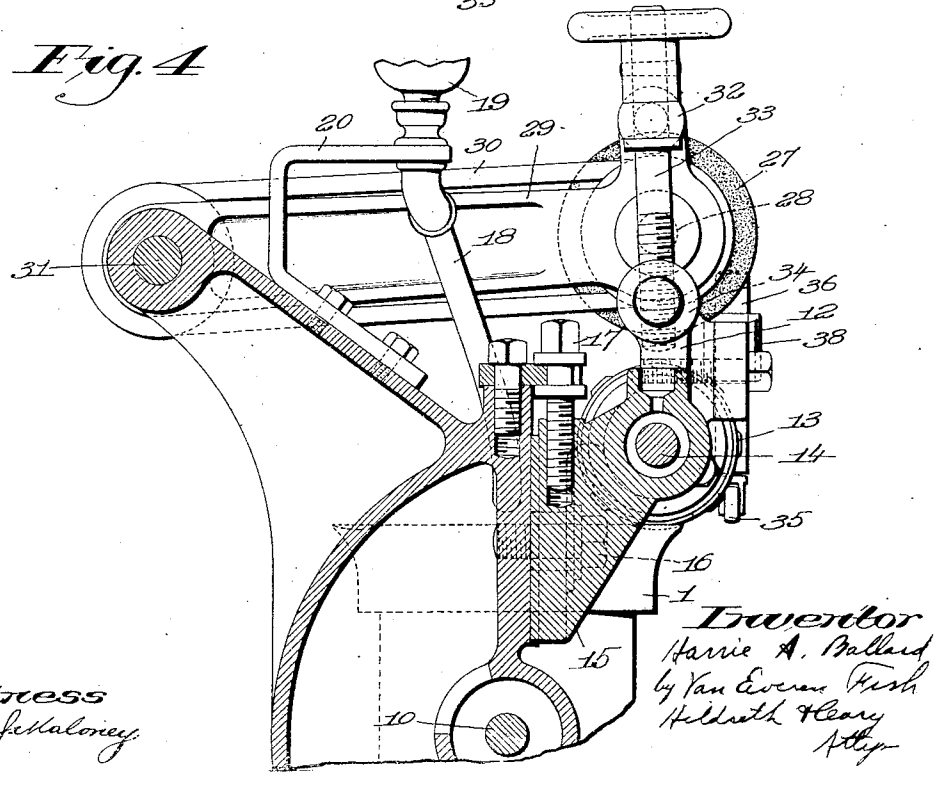


Fig. 4



Witness
Jas. F. Maloney.

Inventor
Harrie A. Ballard
by Van Everen Fish
Hildreth & Leary
Attys

Dec. 13, 1927.

1,652,694

H. A. BALLARD

UPPER TRIMMING MACHINE

Filed Aug. 4, 1923

4 Sheets-Sheet 4

Fig. 5

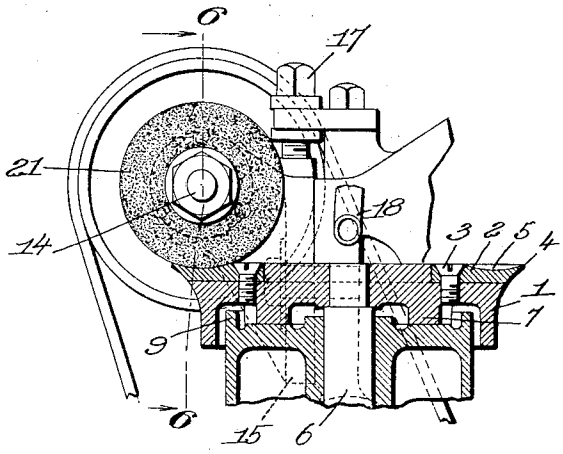
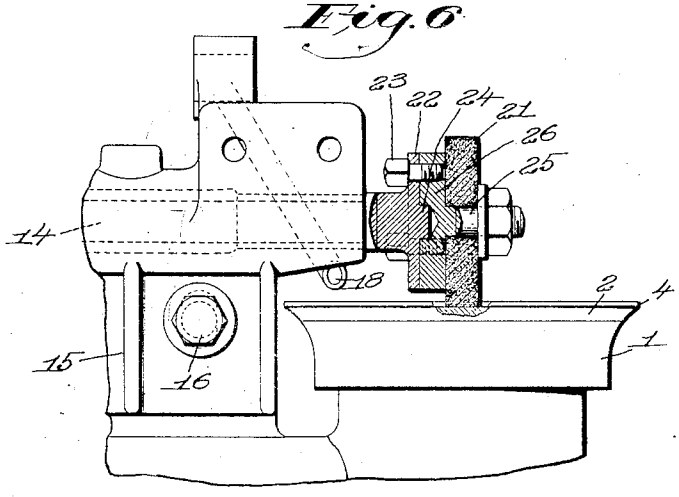


Fig. 6



Witness
Jas. J. Maloney.

Inventor
Harris A. Ballard
by Van Evans Fish Holdrich Reavy
Attys

Patented Dec. 13, 1927. 1,652,694

UNITED STATES PATENT OFFICE.

HARRIE A. BALLARD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

UPPER-TRIMMING MACHINE.

Application filed August 4, 1923. Serial No. 655,698.

The present invention relates to upper or vamp trimming machines and is herein shown as embodied in an upper trimming machine adapted to be used in the manufacture of shoes to trim off the surplus material at the edges of the upper and lining, particularly at the toe of the shoe, after the lasting operation to prepare the shoe for the operation of the inseam sewing machine.

The object of the invention is to provide a simple and efficient upper trimming machine of the type above referred to, and with this object in view the invention consists in certain novel constructions, combinations and arrangements of parts herein described and claimed.

An important feature of the invention is a work support adapted to contact with the upper of a shoe, preferably at a point where the upper is supported by the last, and provided with an edge adapted to co-operate with a trimming cutter arranged to work across said edge. As shown this work support is in the form of a roll arranged so that the trimming cutter works across its upper end.

Another feature of the invention is the combination with a trimming cutter of a rotating roll arranged to bear against the last supported upper to feed or tend to feed the shoe. This feature of the invention is embodied in the illustrated machine by the provision of means for rotating the work supporting roll above referred to.

The trimming cutter as shown is tubular in form and is arranged to rotate about an axis extending substantially in the direction of feed. The upper surface of the work supporting roll inside of its edge is hollowed out or concaved to form a surface over which the trimming cutter sweeps and with which it has an extended contact. In order to lubricate the contacting surface of the cutter and roll and also to provide the cutter and roll with a film of oil to prevent the stiffening material used in certain kinds of stock from adhering to them, means are provided for delivering the required amount of oil to the upper surface of the roll.

It is sometimes desirable to true up the surface at the upper end of the work supporting roll, either when the part bearing said surface is first assembled in the machine or when said part becomes worn or injured by use, and to permit this to be done in a simple and efficient manner the trimming cutter is removably mounted upon its shaft and a grinding wheel of the same diameter as the trimming cutter is provided which can be substituted in the machine for the cutter.

A grinding disk which can be moved into and out of contact with the trimming cutter by the operator is provided, and a work rest or foot is arranged so as to contact with the sole of the shoe and assist the operator in guiding the shoe through the machine.

The invention will be clearly understood from an inspection of the accompanying drawings in which Fig. 1 is a view in front elevation, partly in section, of an upper trimming machine embodying the invention; Fig. 2 is a view in side elevation, partly in section, of the machine; Fig. 3 is a plan view of the machine; Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3 looking in the direction of the arrows; Fig. 5 is a view in front elevation, partly in section, of certain of the parts illustrated in Fig. 1, but with a grinding wheel substituted for the trimming cutter, and Fig. 6 is a view in side elevation, partly in section, of the parts illustrated in Fig. 5.

The work supporting roll is indicated at 1. This roll is arranged to rotate about a vertical axis and its peripheral surface is shaped to bear against the upper of a shoe, as indicated in Fig. 1, in which a lasted shoe is shown in section in position to be operated upon by the machine. The roll is substantially frusto-conical in shape with its larger end directed upwardly, the surface being somewhat concave, however, to permit an extended contact of the roll with the shoe upper as indicated in Fig. 1. The peripheral surface of the roll bears against the upper below the insole where the upper is supported by the last and extends upwardly over the edge of the insole into a position to support the projecting edges of the vamp and lining against the thrust of the trimming cutter to be described. The roll supports and guides the shoe as it passes through the

machine and also smooths out the upper and tends to work the upper over the last and into the shoulder of the insole. The upper end of the roll is formed by a removable ring 2 seated in a recess in the roll and held therein by screws 3. This ring is provided with an edge 4 which cooperates with the edge of the trimming cutter in severing the vamp and lining of a shoe. The upper surface of the ring 2 inside of the edge 4 is hollowed out, as indicated at 5, to provide a surface across which the trimming cutter sweeps, as will be hereinafter described. The roll 1 is secured to the upper end of a vertical shaft 6 and is provided on its lower surface with an annular flange 7 which rests upon the upper surface of the portion 8 of the machine frame in which the shaft 6 is journaled. The portion 8 of the machine frame is provided with a circular flange 9 which extends upwardly into a recess in the roll above the lower surface of the flange 7. An extended bearing for the roll 1 is thus provided and an enclosing chamber for the bearing which will retain an adequate amount of lubricating oil. The vertical shaft 6 is driven from a horizontal power shaft 10 through intermeshing bevel gears 11 and 12 secured respectively to the shafts 10 and 6 and located in an oil containing chamber formed in the portion 8 of the machine frame.

The trimming cutter, indicated at 13, is of general tubular or cup-shaped form and is secured upon the forward end of a shaft 14 so arranged that the cutter rotates about an axis extending in the direction in which the shoe is fed through the machine. The cutter is notched, as clearly shown in Figs. 1 and 2, and the leading edge of each notch is bevelled to form a cutting edge so that the cutter is provided with a plurality of cutting edges lying in the external surface of the cutter. The cutter is so arranged that its cutting edges sweep across the upper edge of the roll 1 formed by the edge 4 of the ring 2 and across the concave upper surface 5 of the ring which is formed in an arc of the circle in which the edges of the cutter travel. Upon an inspection of Fig. 1 it will be noted that the axis of the cutter passes above and somewhat within the upper edge of the roll. The cutter has an extended contact with the upper surface of the roll. To permit this extended contact and to afford clearance, the cutter 13 is somewhat frusto-conical in shape, its peripheral surface being backed off from its extreme forward edge towards the axis of the cutter. To enable the trimming cutter to be adjusted so that its cutting edges will cooperate properly with the upper edge of the roll 1, the shaft 14 of the cutter is journaled in a bracket 15 which is secured to the frame of the machine so as to be capable of vertical adjustment. The bracket 15 is secured to the machine frame by screws 16 passing through slots in the bracket and is adjusted vertically by means of an adjusting screw 17.

The means for delivering oil to the upper surface of the roll to lubricate the contacting surfaces of the cutter and roll and provide the cutter and roll with a film of oil to prevent adherence thereto of rosin, asphalt or other stiffening material used in certain kinds of shoe stock consists of a tube 18, the lower end of which is located just above the concave surface 5 of the ring 2 and the upper end of which is connected to an oil cup 19 supported in a bracket 20 of the machine frame.

The ring 2 of the work supporting roll 1, when originally placed in the machine or when worn or injured in use, may require regrinding or truing up, and to permit this to be done after the ring is assembled in the machine, or without removing the ring from the machine, a grinding disk, indicated at 21, (see Figs. 5 and 6) is provided which is substituted in the machine for the trimming cutter 13. To permit this substitution to be made the cutter is removably secured to a flange 22 at the forward end of the shaft 14 by means of screws 23 passing through holes in the flange and screwing into the back plate of the cutter which is provided with a central perforation to receive a centering projection 24 at the forward end of the shaft. The grinding wheel 21 is of the same diameter as the trimming cutter and is mounted upon a stud 25 projecting centrally from a face plate 26. This face plate is provided with a central recess to receive the centering projection 24 on the shaft 14 and with screw threaded holes to receive the screws 23.

To enable the operator to sharpen the trimming cutter whenever it may be necessary, the illustrated machine is provided with a grinding disk, indicated at 27. This disk is secured to a shaft 28 mounted in a radius arm 29 and driven by a belt 30 passing over belt pulleys upon the shaft 28 and upon a power driven shaft 31 which forms a pivotal support for the radius arm 29. At its forward end the radius arm 29 is provided with a lug 32 which is engaged by an adjusting rod 33, the lower end of which has a threaded engagement with a block 34 pivotally mounted on the bracket 12 secured to the bracket 15 of the machine frame. The radius arm 29 and the grinding disk carried thereby are thus supported by the pivoted block 34 and adjusting rod 33, so that the grinding disk can be readily moved into and out of contact with the trimming cutter by turning the adjusting rod.

A shoe is presented to the machine, as indicated in Fig. 1, and in order to assist the operator in guiding the shoe a sole rest, indicated at 35, is provided. This sole rest

consists of a roll mounted in the lower end of a rod 36 secured by a set screw 37 so as to be capable of vertical adjustment in the bracket 38.

The nature and scope of the present invention having been indicated and the illustrated embodiment of the invention having been specifically described, what is claimed is:—

1. In an upper trimming machine, a roll arranged to bear with its peripheral surface against the shoe upper, means for rotating the roll in the direction to feed the shoe, and a cutter working across the upper edge of the roll to trim the upper and lining.

2. In an upper trimming machine, a frusto-conical roll having its end of larger diameter directed upwardly and arranged to bear with its peripheral surface against the shoe upper, means for rotating the roll in the direction to feed the shoe, and a cutter working across the upper edge of the roll to trim the upper and lining.

3. In an upper trimming machine, a roll arranged to rotate about a vertical axis and to bear against the last supported upper, and a tubular cutter working across the upper end of the roll from within the edge of the sole outwardly and rotating about an axis extending substantially in the direction of feed.

4. In an upper trimming machine, a feed roll bearing against the last supported upper and acting to feed the shoe by its engagement with the upper, and a cutter for trimming the projecting edges of the upper and lining.

5. In an upper trimming machine, a work support, past which the shoe is fed, shaped to bear against the last supported upper and provided with an edge in the plane of cut, and a cutter working across said edge from within the edge of the sole outwardly to trim the projecting edges of the upper and lining.

6. In an upper trimming machine, a work support, past which the shoe is fed, shaped to bear against the last supported upper and provided with an edge in the plane of cut, and a tubular cutter working across said edge from within the edge of the sole outwardly to trim the projecting edges of the upper and lining and rotating about an axis extending substantially in the direction of feed.

7. In an upper trimming machine, a tubular trimming cutter, and a work engaging roll across the end of which the cutter works arranged to bear against the last supported upper and provided with a surface concaved to substantially fit the cutter.

8. In an upper trimming machine, a work engaging roll arranged to bear against the last supported upper and a tubular trimming cutter working across the end of the roll, said roll being arranged to support the work against the thrust of the cutter.

9. In an upper trimming machine, a trimming cutter and a work engaging roll across the end of which the cutter works provided with a removable ring presenting an edge to cooperate with the cutter.

10. In an upper trimming machine, a work engaging roll, a tubular trimming cutter working across the end of the roll, said roll being arranged to support the work against the thrust of the cutter, and means for supplying oil to the co-operating edges of the roll and cutter.

11. In an upper trimming machine, a work engaging roll, a trimming cutter working across the end of the roll and having an extended contact therewith, and means for supplying oil to the end surface of the roll.

12. In an upper trimming machine, a tubular trimming cutter, a work engaging roll across the end of which the cutter works provided with a surface concaved to substantially fit the cutter, and means for supplying oil to the concaved surface of the roll.

13. In an upper trimming machine, a work engaging roll, and means for interchangeably supporting a trimming cutter and a grinding wheel in position to work across and in contact with the end of the roll.

14. In an upper trimming machine, a member provided with an edge to cooperate with a trimming cutter, and means for interchangeably supporting the cutter and a grinding wheel in position to work across and in contact with said edge.

15. In an upper trimming machine, a work engaging roll and a cutter working across the end of the roll and rotating about an axis extending substantially perpendicular to the axis of the roll and within but adjacent the edge of the roll.

16. In an upper trimming machine, a work engaging roll arranged to bear against the last supported upper and a cutter working across the end of the roll from within the edge of the sole outwardly and rotating about an axis substantially perpendicular to the axis of the roll.

HARRIE A. BALLARD.