

Sept. 4, 1928.

1,682,810

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MACHINE FOR OPERATING ON SHOES

Filed Aug. 22, 1921

Fig.1.

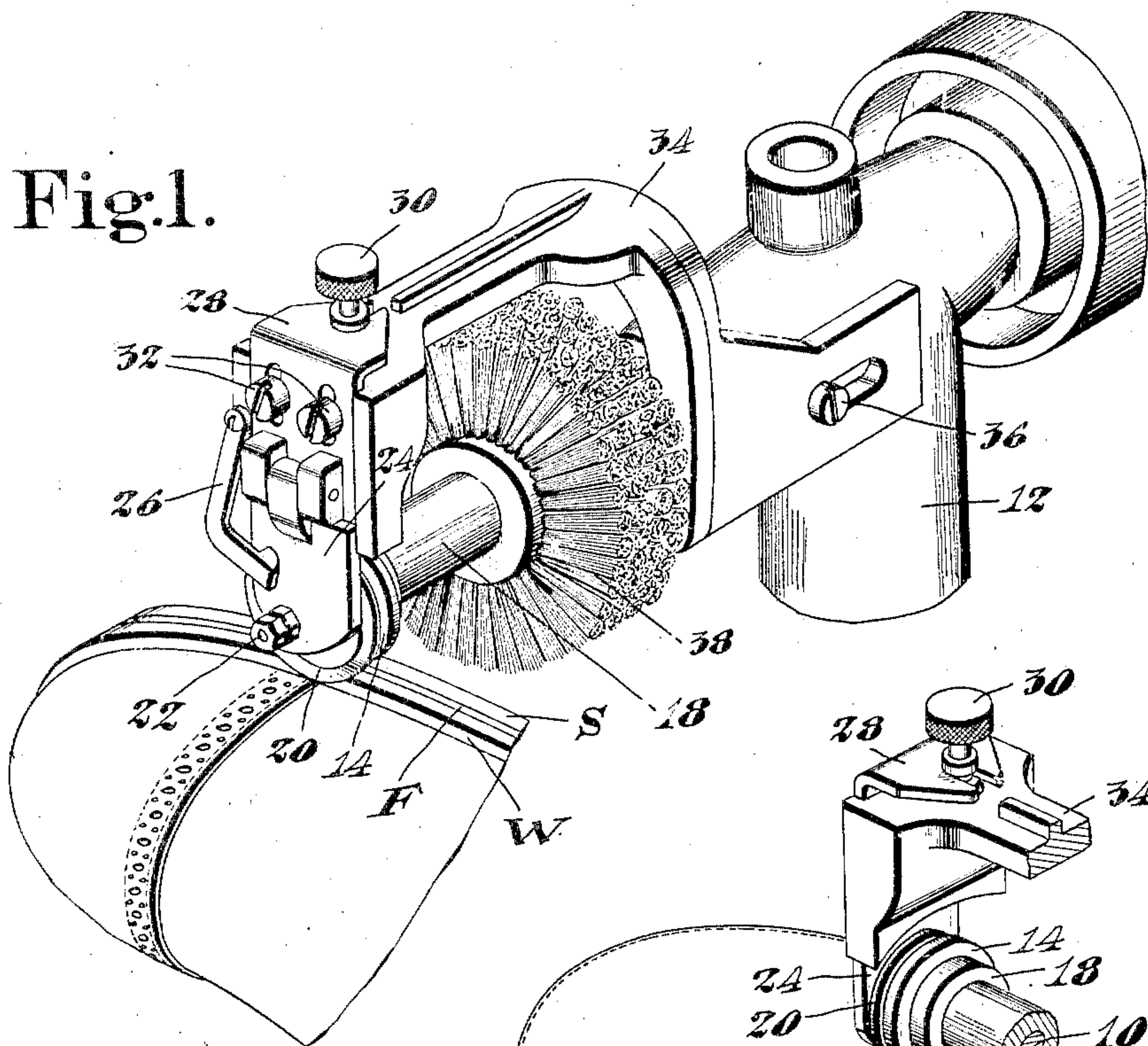


Fig.2.

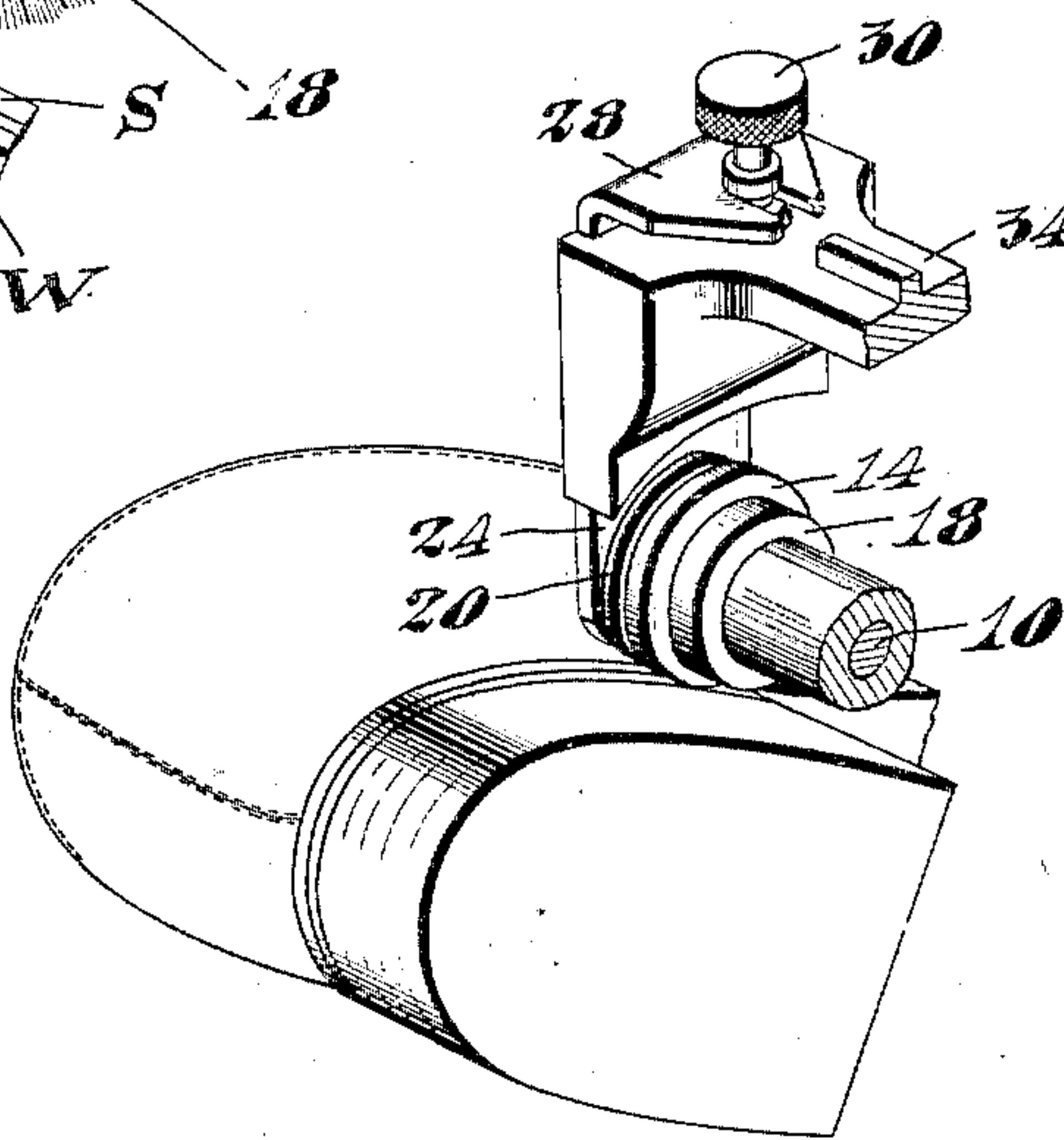


Fig.3.

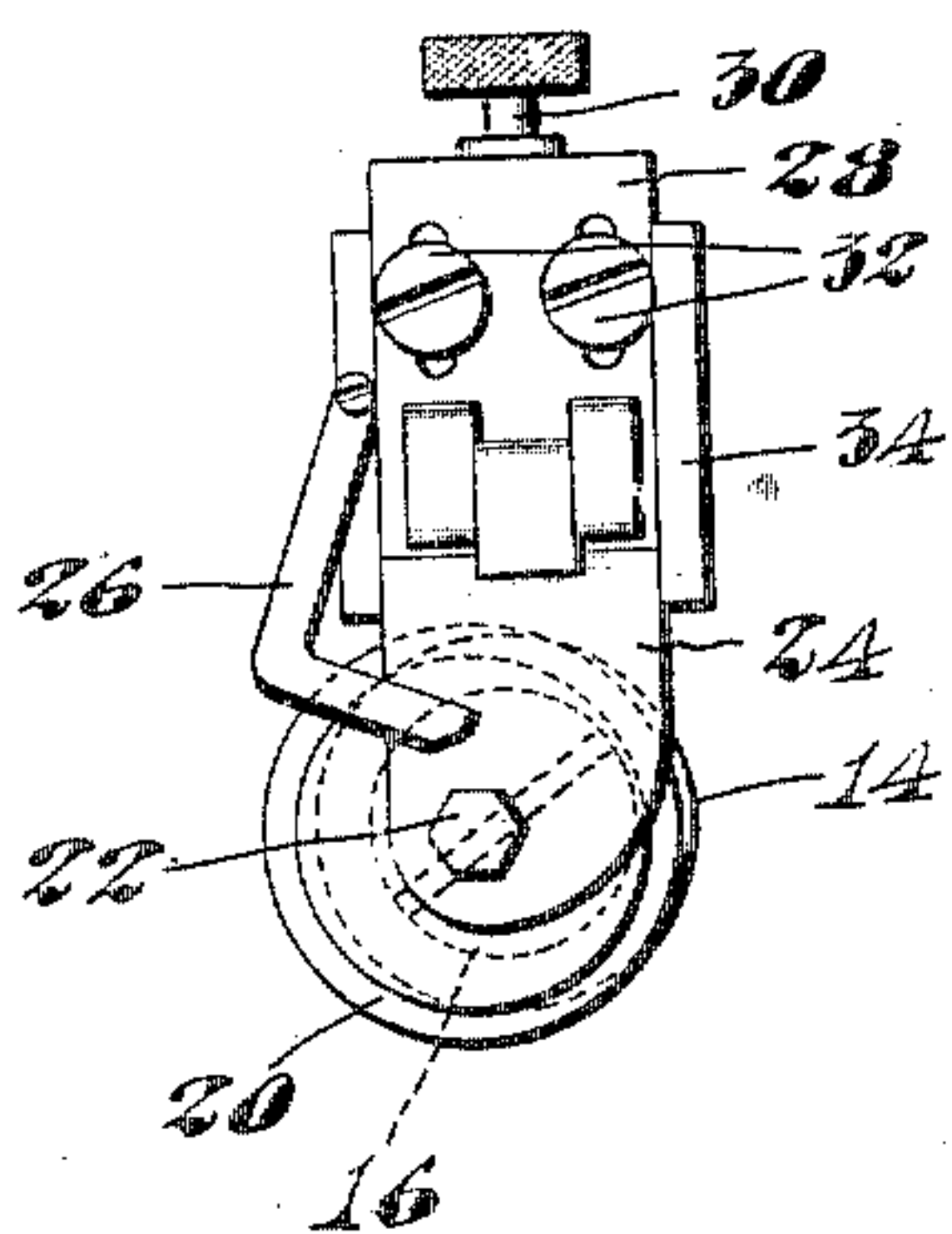
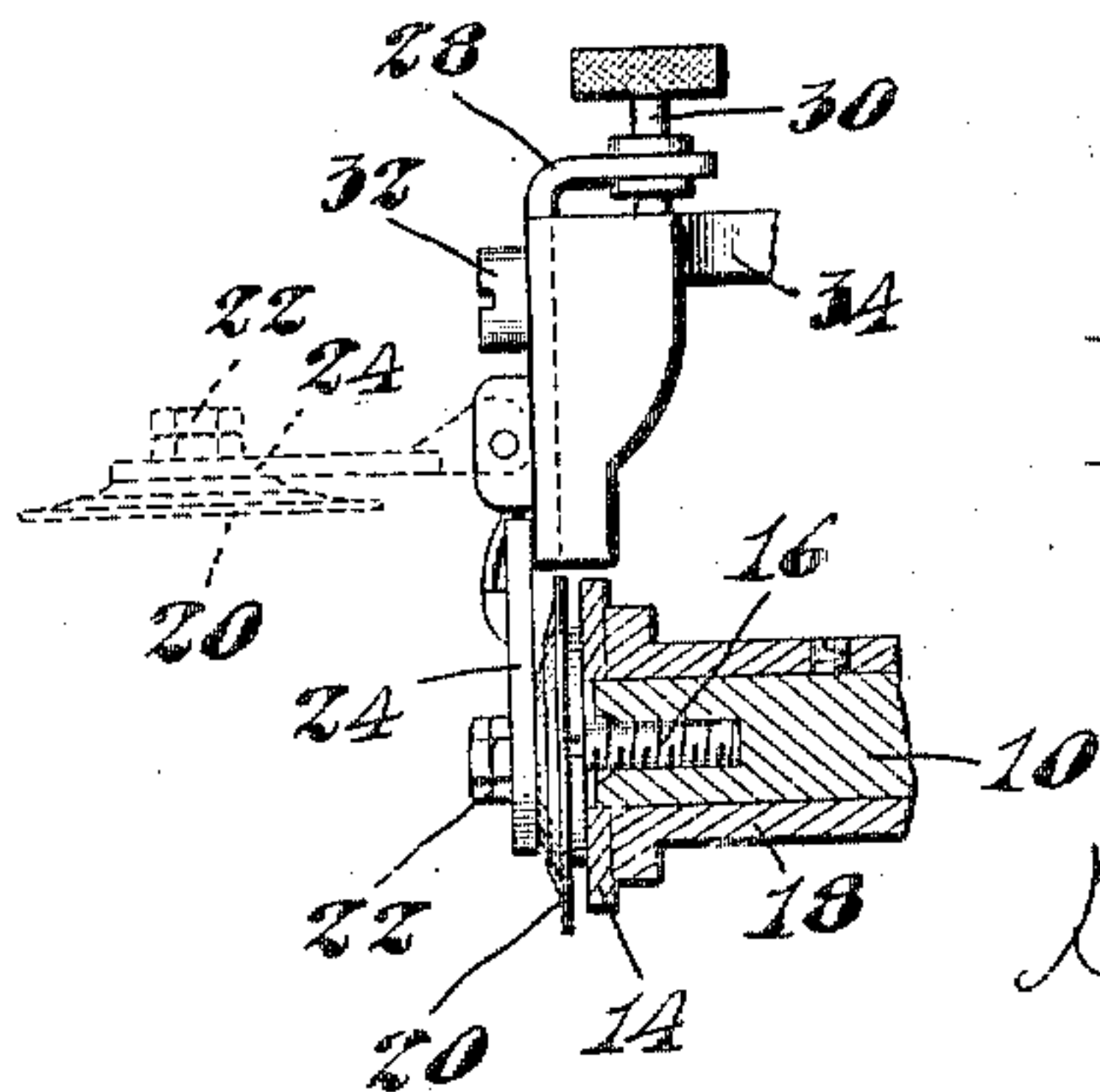


Fig.4.



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MACHINE FOR OPERATING ON SHOES.

Application filed August 22, 1921. Serial No. 494,127.

This invention relates to machines for operating on shoes, and is illustrated as embodied in a machine for cleaning the edges of fiber inserts such as are sometimes placed between the outsoles and welts of shoes, partly for decorative purposes and partly to make the shoes more nearly waterproof. The contrast between the white edge of such an insert, and the black edges of the welt and the sole between which it appears, is usually much desired, and is obtained by blacking the entire edge and then rubbing the blacking off the edge of the insert (which is not readily penetrated thereby) by means of a suitable cleaning tool.

Heretofore this cleaning operation has always been performed by hand in a slow and expensive manner, and an important object of the present invention is to substitute mechanically-operated cleaning means for the hand tools now in use.

With this object in view the invention in one aspect consists in the provision, in a machine for cleaning an insert between the welt and the outsole of a shoe, of a rotary disk having a narrow periphery for cleaning the exposed edge of the insert without engaging the material at either side of the insert, and a gage disk mounted eccentrically with respect to the axis of the cleaning disk to turn freely in a plane parallel to the plane of the cleaning disk to ride along the welt crease to position the shoe to limit the operation of the tool to the material of the insert. The invention further provides for mounting a rotary brush just behind the cleaning tool, so that an operator may readily move the work back and forth between said tool and the brush.

An important feature of the invention is to be found in a novel mounting for the gage member, which is carried on an arm overhanging the tool, in such a manner that it may be swung back readily to afford access to the tool. Preferably the position of the gage is readily adjustable.

A further feature of the invention consists of the combination of a circular rotary tool with a circular gage mounted eccentrically with respect to said tool to provide portions projecting different distances beyond the tool, to accommodate the varying depth of the welt crease in different shoes and in different parts of the same shoe. Inasmuch as

the circular gage is mounted to turn freely it will turn with the shoe as the shoe is tilted into different positions around the axis of the tool, and thus the amount of projection of the gage beyond the tool at the point where the gage contacts with the work may be varied merely by shifting the shoe around the tool without removing the shoe from the gage and without sliding the shoe over the edge of the gage in such a manner as to injure the finished surface of the shoe. By varying the amount of projection of the gage at its point of engagement with the work in this manner, the edge of the insert may be maintained in effective engagement with the cleaning tool irrespective of changes in the depth of the welt crease.

Other features consist in various specific constructions and combinations of parts which will be apparent from the following description of the embodiment of my invention illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective of the head of the machine;

Fig. 2 is a perspective of the co-operating gage and tool, from a view-point substantially at right angles to that of Fig. 1;

Fig. 3 is a front elevation of the gage and tool; and

Fig. 4 is a view partly in side elevation and partly in section, showing the gage and tool.

As illustrated in Figs. 1 and 2, a rotary shaft 10 is mounted in bearings in a support 12, and arranged to be driven by any suitable means. On the end of the shaft a circular cleaning tool or disk 14, such as a rubber, is secured by a tap screw 16, the rubber being substantially equal in width to the thickness of a fiber insert F between the sole S and the welt W of a shoe of the above-described type. The cleaning tool or rubber 14 is clamped in place between the head of the screw 16 and a flange on a collar 18 secured to the shaft 10. The tool 14 rubs loose the blacking on the edge of the insert F, without acting on the sole or the welt.

A thin disk-like gage roll 20 is arranged in close proximity to the face of the cleaning tool 14 so that it may readily enter the welt crease of a shoe to engage the top surface of the welt to position the shoe relatively to the tool 14. As shown, the gage roll is mounted to rotate idly about a pin 22 which is eccen-

tric with respect to the shaft 10. By this arrangement, as clearly shown in Fig. 3, different parts of the periphery of the gage roll project different distances beyond the edge of the cleaning tool 14, so that where the welt crease is comparatively deep one part may be used as shown in Fig. 1, and where it is shallow, as about the heel, a portion projecting a lesser distance can be used, as shown in Fig. 2, to insure effective engagement of the work with the periphery of the cleaning disk 14. To enable different parts of the periphery of the gage roll to be used as just described, the shoe is tipped relatively to the gage roll in the plane of the welt or rand crease. The gage roll turns in a plane parallel to the plane of rotation of the cleaning tool. Accordingly it will be apparent that the transverse relation between the cleaning tool and the fiber insert will not be changed by variations in the lengthwise angular relation of the edge of the shoe bottom to the gage caused by tipping of the shoe and consequently such tipping will not have any tendency to cause the cleaning tool to run off from the insert. Furthermore, since the gage roll is free to turn, the work may be shifted from a position where the gage roll projects a relatively small distance beyond the edge of the cleaning tool to a position where the gage roll projects a greater distance beyond the cleaning tool, or vice versa, without causing any relative or rubbing movement to occur between the gage roll and the work, thus insuring against any damage to the finish of the portions of the shoe in the vicinity of the welt crease.

The gage is mounted on a plate 24, which can be swung upward (as shown in dotted lines in Fig. 4) to afford access to the tool 14 by turning a leaf spring 26 out of the way. The plate 24 is pivoted to a support 28, which may be adjusted vertically by an adjusting screw 30, and held by clamp screws 32. As shown, the plate 24 is pivoted to the support 28 at a point somewhat above the lower end of the support, the arrangement being such that the portion of the support below the pivot serves to locate the gage in operative position in predetermined spaced relation to the tool 14, in which position it is yieldingly held by the leaf spring 26.

The support 28 in turn is carried by an overhanging arm 34 secured to the support 12 by a screw-and-slot connection 36 for adjustment longitudinally of the shaft 10.

A brush 38, mounted on the shaft 10 coaxially with respect to the tool 14, is provided for brushing away the particles of dried blacking removed by the tool 14.

In operation, after the trimmed edge of a shoe has been coated with blacking and dried, the shoe is presented to the above-described machine, and moved around with the welt crease in engagement with the roller gage 20 until the cleaning tool 14 has loosened and

largely removed the dried blacking from the edge of the fiber insert. The shoe is then presented to the brush 38 for removal of any small particles of dried blacking that may still be left more or less loosely on the fiber insert.

While an illustrative embodiment of my invention has been described in detail, it is not the intention to limit its scope thereby, or otherwise than by the terms of the appended claims.

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

1. A machine for use in finishing welt shoes of the type having an insert between the welt and the outsole comprising, in combination, a cleaning disk having a periphery of a width equal to the thickness of the insert for operating entirely around the edge of the shoe bottom after trimming to clean the edge of the insert, and a gage disk arranged in a plane parallel to the plane of the cleaning disk and having its periphery projecting beyond the periphery of the cleaning disk for engagement within the welt crease of the shoe to guide the shoe as it moved relatively to the cleaning disk, the gage disk being spaced laterally from the cleaning disk a distance substantially equal to the thickness of the welt to register the edge of the insert with the periphery of the cleaning disk.

2. A cleaning machine comprising, in combination, a rotary disk having a narrow periphery for cleaning the exposed edge of an insert between the welt and outsole of a shoe without engaging the material at either side of the insert, and a gage disk mounted eccentrically with respect to the axis of the cleaning disk to turn freely in a plane parallel to the plane of the cleaning disk to ride along the welt crease to position the shoe to limit the operation of the tool to the material of the insert.

3. A machine of the class described comprising, in combination, a rotary shaft, a tool mounted on the end of the shaft, an arm overhanging the shaft, a gage on the arm in immediate proximity to the tool and constructed and arranged to be swung back to afford ready access to the tool, and yielding means movable bodily into holding engagement with the gage to maintain the latter in predetermined spaced relation to the tool and arranged to be retracted from operative position to permit the swinging back of the gage.

4. A machine comprising, in combination, a rotary shaft, a tool on the end of the shaft, an arm overhanging the tool adjustable longitudinally of the shaft, a rigid support on the arm adjustable transversely of the shaft, and a gage pivotally mounted on said rigid support and normally located in immediate proximity to the face of the tool, said gage being adapted to be swung back readily to afford access to the tool.

5. A machine for operating on shoes comprising, in combination, a rotary disk having a periphery to operate on a shoe, and a gage having portions disposed at varying distances from the axis of the disk and mounted to turn freely about a fixed pivot to resist pressure of the work, the gage being constructed and arranged to permit portions of the gage which project a desired distance for use to be selectively utilized without varying the relation of the tool transversely with respect to the edge of the sole.

6. A machine for use in finishing welt shoes of the type having an insert between the welt and the outsole comprising, in combination, a cleaning disk having a periphery of a width equal to the thickness of the insert for operating entirely around the edge of the shoe bottom after trimming to clean the edge of the insert, and a gage disk arranged in a plane parallel to the plane of the cleaning disk and having its periphery projecting beyond the periphery of the cleaning disk for engagement within the welt crease of the shoe to guide the shoe as it is moved relatively to the cleaning disk, the gage disk being spaced laterally from the cleaning disk a distance substantially equal to the thickness of the welt to register the edge of the insert with the periphery of the cleaning disk, and the gage disk being mounted eccentrically with respect to the cleaning disk so that by tilting the shoe

about the periphery of the gage disk the amount of projection of the gage disk beyond the cleaning disk at the point of engagement with the work may be varied in accordance with variations in the depth of the welt crease.

7. A machine for use in finishing shoes having fiber inserts between the welt and the sole comprising, in combination, a cleaning tool of a width to clean the edge of an insert without marring the adjacent welt and sole, gaging means movable to and from operative position to locate the shoe to register the edge of the insert with the cleaning tool, and means interposed between the tool and the gaging means to limit the movement of the gaging means to locate it in predetermined spaced relation to the tool.

8. A machine for use in finishing shoes having shoe bottoms the marginal portions of which are of laminated construction comprising, in combination, a rotary finishing tool of a width to finish the edge of one of the component layers of the shoe bottom without disturbing the adjacent edge of another of said layers, and a rotatable gage member eccentrically mounted with respect to the axis of the finishing tool and spaced from the edge to be finished to register said edge with said tool.

In testimony whereof I have signed my name to this specification.

HAROLD S. SWAIN.