W. B. KEIGHLEY.

SHOE TRIMMING MACHINE.

APPLICATION FILED SEPT. 30, 1909.

984,376. Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

Fig. 3.

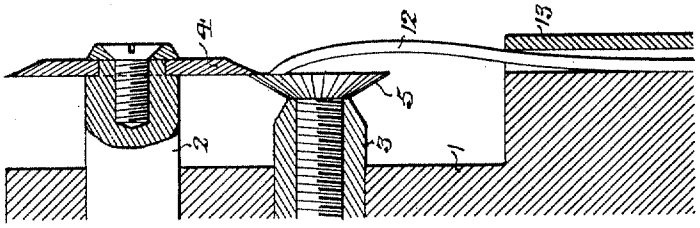


Fig. 2.

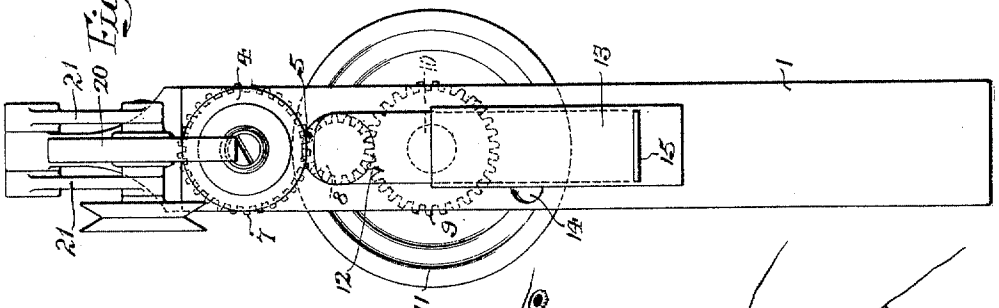
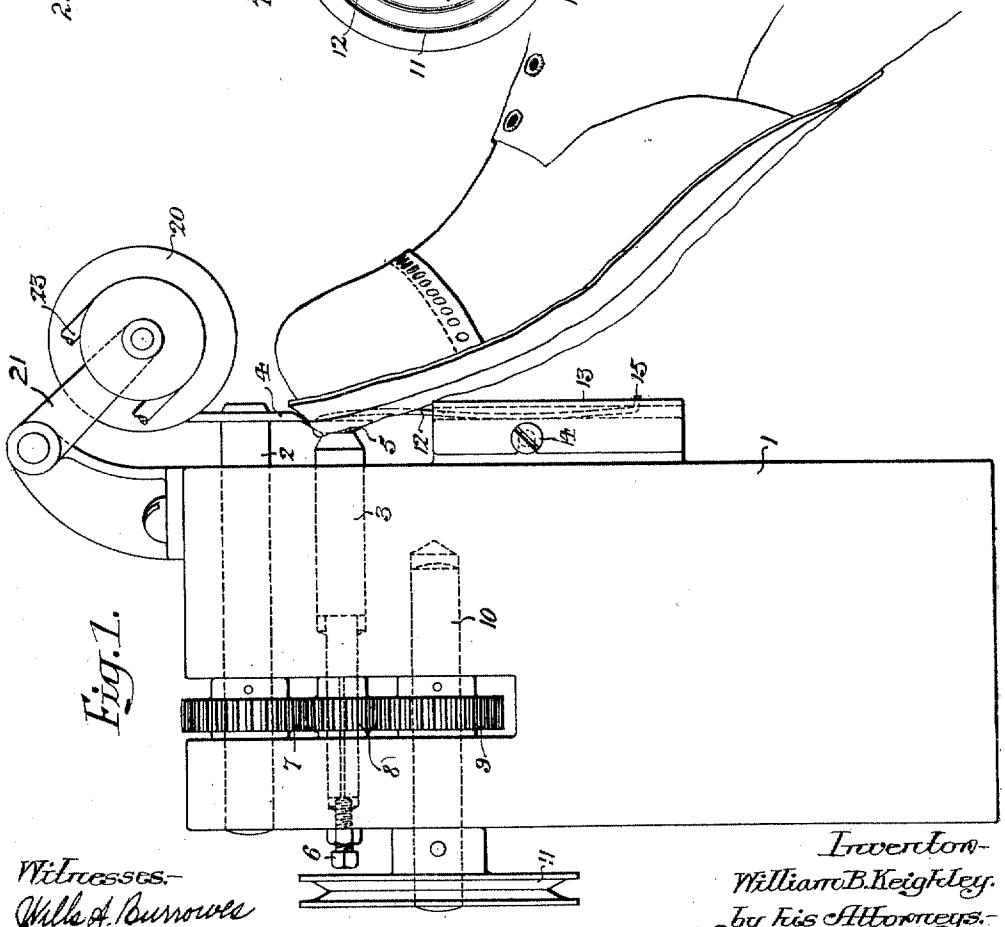


Fig. 1.



Witnesses.—
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Walter Thiom.

Inventor—
William B. Keighley.
by his Attorneys.—
Howson & Howson

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2 SHEETS—SHEET 2.

Fig. 4.

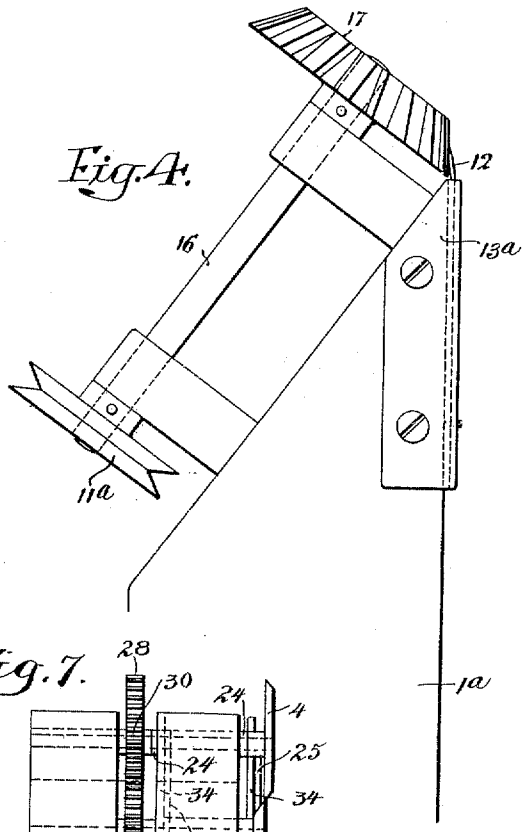


Fig. 5.

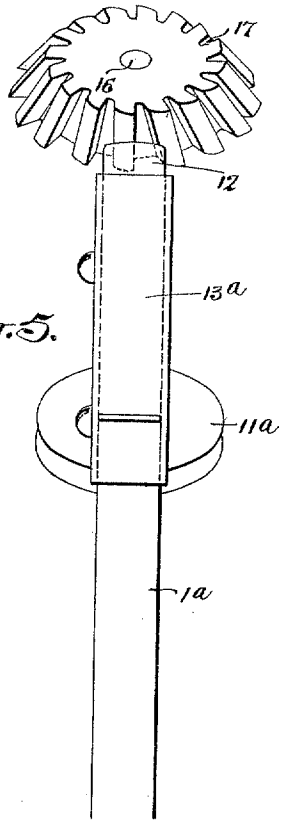


Fig. 7.

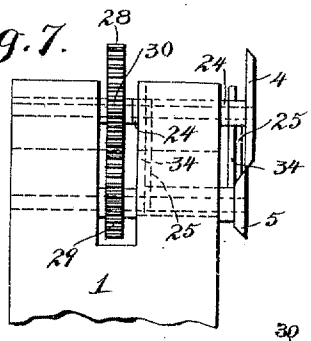
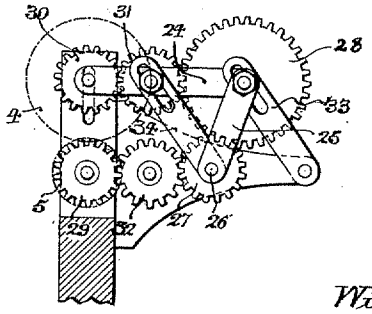


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM BOTTOMLEY KEIGHLEY, OF VINELAND, NEW JERSEY.

SHOE-TRIMMING MACHINE.

984,376. Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed September 30, 1909. Serial No. 520,322.

To all whom it may concern:

Be it known that I, WILLIAM B. KEIGHLEY, a citizen of the United States, and a resident of Vineland, New Jersey, have invented certain Improvements in Shoe-Trimming Machines, of which the following is a specification.

My invention relates to that class of cutting mechanism particularly designed for removing surplus portions of the welt, lining, etc., from a shoe during its manufacture;—one object of the invention being to provide a novel form of machine, which, in addition to being relatively compact and substantial as to the arrangement and construction of its parts, shall be simple and inexpensive to construct and operate.

Another object of the invention is to provide a shoe trimming machine of the general character above noted which shall be capable of quickly and efficiently performing the work for which it is designed, which shall be of such construction as to require but little attention or repairs, and shall not be likely to get out of order under operating conditions; it being also desired to provide means for conveniently compensating for the wear of the trimming knives.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings in which:—

Figure 1, is a side elevation of a shoe trimming machine constructed according to my invention. Fig. 2, is a front elevation of the machine shown in Fig. 1. Fig. 3, is an enlarged sectional view illustrating the relative positions of the cutter wheels and work support. Figs. 4 and 5 are respectively a side and a front elevation illustrating a modified form of my invention, and Figs. 6 and 7 are respectively a side and a front elevation to some extent diagrammatic, showing the means for maintaining the cutters in operative positions irrespective of their wear.

In Figs. 1 to 3 of the above drawings 1 is the head or main portion of the frame of the machine and this may be in the form of a vertically extending post of rectangular or slightly rounded cross section. At the upper portion of this post are bearings for shafts 2 and 3, which, in the present instance, are parallel with each other and project beyond one face of said post. The upper of said shafts carries a beveled disk-shaped cutter wheel 4, while the lower one has on its projecting end another cutter 5 of generally conical form, whose sides are provided with milling or cutting teeth. The upper edge of the base of this second cutter contacts with the edge of the base of the beveled cutter 4, and as the cutter 5 wears or requires adjustment, owing to such contact, it may be forced toward the cutter 4 by means of an adjusting screw 6 which engages the rear end of its supporting shaft 3. For keeping the cutter 4 in a sharpened condition I mount an emery or other suitable grinding wheel 20 on one or more arms 21 so that it can swing toward the center of said disk and so be capable of properly sharpening its edge irrespective of its diameter. This wheel is driven from any suitable source of power through a belt 23. The shafts 2 and 3 are respectively provided with intermeshing gears 7 and 8 and the power necessary to drive them may be applied by means of a third gear 9 meshing with the gear 8 and carried upon a driving shaft 10 upon which is a pulley 11. In order to properly support the work in position to cause it to be acted upon by the two cutters in the desired manner, I provide a work supporting finger 12, which, as shown in Figs. 2 and 3, bears upon the base of the cutter 5, immediately adjacent to that portion thereof which is engaged by the cutter 4. Said finger is carried by a plate 13 held to the post 1 by a screw 14 and having in its front face a transverse slot for the reception of the turned up lower end 15 of the finger 12. This latter is preferably of a slightly bowed construction, as shown in Fig. 3, so that when the plate 13 is properly set in place upon the post, the upper end of the finger is pressed against the base of the cutter 5 just below the edge of the cutter 4.

Under operating conditions, the shoe to be operated on is presented to the cutter so that the projecting part of the edge to be trimmed is, to some extent, supported upon the upper edge of the finger 12 and upon the cutter 5. This cutter, as well as the cutter 4, being turned by power applied to the pulley wheel 11, tend to feed or draw the work between themselves, the teeth of the cutter 5 especially aiding in this action. As the cutters are driven at a relatively high speed, they act to very cleanly and accurately sever the surplus material, and it is to be noted that the arrangement of parts is such that they do not become obstructed or

clogged by the threads or fine particles of the material operated on.

In the case illustrated in Figs. 4 and 5, the cutter-carrying post is provided with an inclined or pointed top, as indicated at 1^a, and carries a single shaft 16, whose upper end has fixed to it a beveled, toothed cutter 17;—the angle of the shaft being such as to make substantially perpendicular that portion of the edge of the cutter which is immediately adjacent to the front face of the post 1^a. As before, this front face has mounted upon it the finger 12 which is held in place by a plate 13^a, though in this case said finger bears against or is immediately adjacent to, the toothed cutting face of the cutter, which obviously is tangent to it. Under operating conditions, the finger is a work support, serving as an abutment for presenting the work to or holding it in engagement with the cutting face of the cutter 17, which in this instance is driven by power applied to the pulley 11^a on the shaft 16.

It is obvious that as the cutter 4 diminishes in diameter owing to the wear incident upon repeated sharpening, it will be necessary that it be moved toward the cutter 5, and while various means may be employed for accomplishing this end, I preferably attain it by the arrangement of parts shown in Figs. 6 and 7. In such case the cutter 4 is mounted upon a spindle in suitable bearings at one end of an arm or arms 24, and the opposite end of said arm or arms is pivotally connected to one end of another set of arms 25 whose opposite end is mounted upon the driving shaft 26 so as to be free to swing thereon. This driving shaft has keyed to it a gear 27 which meshes with a gear 28 carried upon the pivot spindle connecting the arms 24 and 25, and also with a gear 32, which in turn meshes with a gear 29 fixed to the shaft carrying the cutter 5. The shaft carrying the cutter 4 has fixed to it a gear 30, operatively connected through a gear 31 to the gear 28, and as is obvious, by means of this arrangement the cutter 4 is free to swing toward and from the cutter 5, and may also be moved laterally relatively thereto without interfering with the operation of the driving mechanism. Any desired means may be provided for holding the arms 24 and 25 in any desired adjusted positions, and for this purpose two additional links 33 and 34 may be employed as shown.

I claim:—

1. A shoe trimming machine consisting of two co-acting rotary cutters in combination with a work supporting plate lying substantially parallel to the plane thereof in engagement with one of the cutters immediately adjacent to the co-acting portions of said cutters.

2. A shoe trimming machine consisting of two beveled rotary cutters; means for supporting said cutters with portions of their bases adjacent each other; means for driving the cutters; and a work supporting plate lying substantially parallel with the planes of the cutters and mounted with an edge in engagement with one of the cutters adjacent the co-acting portions of said cutters.

3. The combination in a shoe trimming machine of a cutter having inclined teeth and a base, a beveled cutter and a work supporting plate engaging the base of said toothed cutter, with means for driving said cutters.

4. The combination in a shoe trimming machine of a work supporting post; two co-acting rotary cutters mounted thereon; a work supporting plate; and means for holding said plate to the work supporting post below said cutters; said plate projecting toward the cutters and lying substantially parallel to the planes thereof with one end immediately adjacent the active portions of said cutters.

5. A shoe trimming machine including a cutter, and a work supporting plate co-acting with said cutter, said plate consisting of a relatively thin metal piece of bowed form, with means for holding said plate in position.

6. The combination in a shoe trimming machine of a work supporting post, a cutter thereon, a work supporting plate co-acting with said cutter and consisting of a bowed piece having one end adjacent to the active portion of said cutter and its other end turned at right angles to its body, with a holding member slotted for the reception of said turned up end of said plate and detachably mounted on the work supporting post.

7. A shoe trimming machine including a cutter; a work supporting plate; means for supporting said plate substantially parallel with the cutter and with one end adjacent thereto; and a second cutter substantially parallel with the first cutter and co-acting therewith adjacent the plate.

8. The combination in a shoe trimming machine of a work supporting post; cutters mounted thereon; a work supporting structure in the form of a thin strip; and means for holding said structure to the work supporting post, with one end immediately adjacent to the active portions of said cutters.

9. A shoe trimming machine consisting of a pair of co-acting rotary cutters, a system of links supporting one of the cutters so as to permit it to move toward and from the other cutter, and driving mechanism for said cutters of which a part is carried upon said links.

10. A shoe trimming machine consisting of a pair of co-acting rotary cutters, a driv-

ing shaft, a gear mounted on said driving shaft and operatively connected to one of the cutters, a system of links of which one is mounted on the driving shaft while another serves as the support for the second cutter, with gearing mounted on said links and operatively connecting the gear on the driving shaft with the said second cutter.

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

WILLIAM BOTTOMLEY KEIGHLEY.

Witnesses:
HARRY C. DOWN,
W. S. DUNGAN.