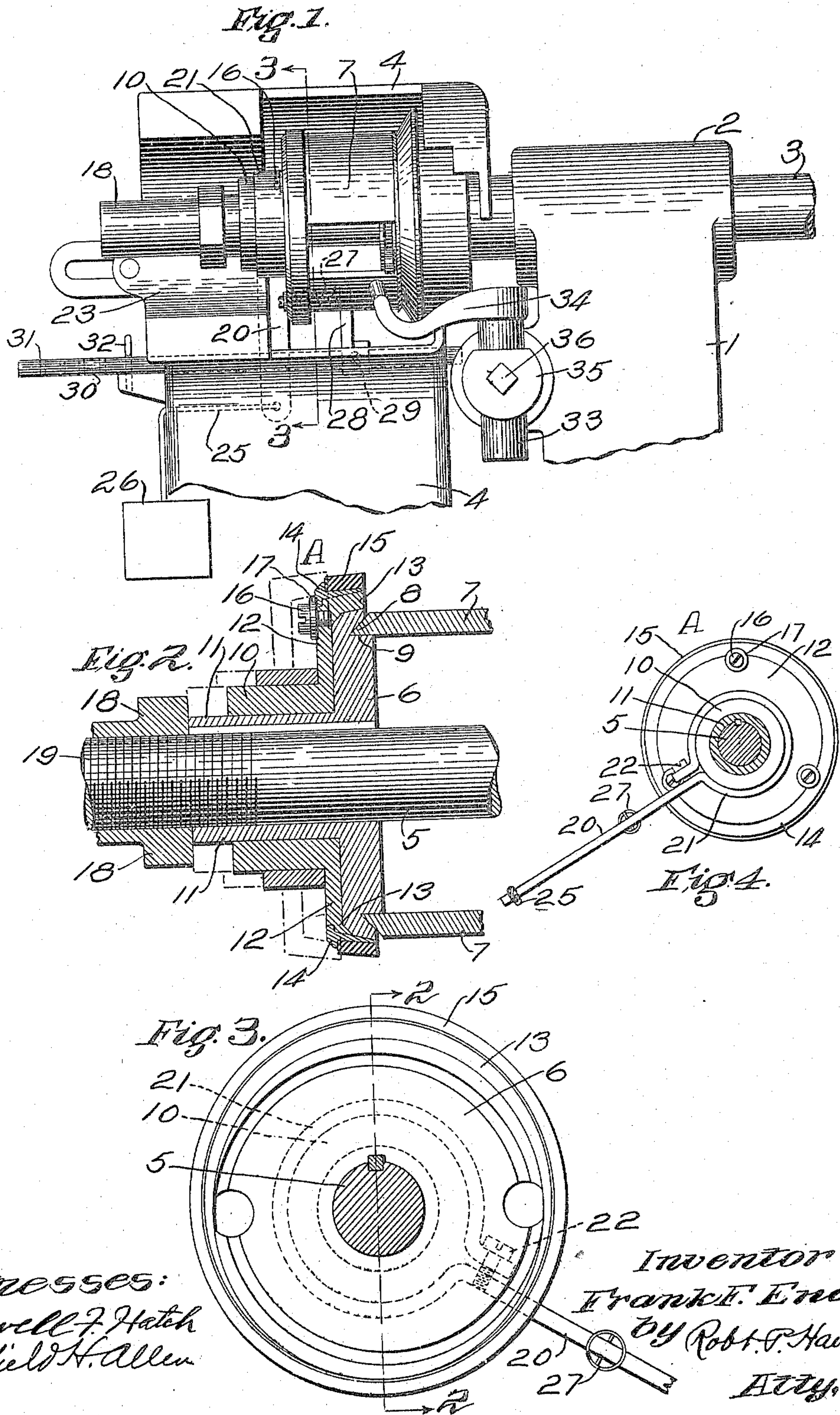


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 COUNTER GUARD FOR HEEL SHAVING MACHINES.
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UNITED STATES PATENT OFFICE.

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COUNTER-GUARD FOR HEEL-SHAVING MACHINES.

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To all whom it may concern:

Be it known that I, FRANK F. ENO, a citizen of the United States, residing at Forest Hills, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Counter-Guards for Heel-Shaving Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention to be hereinafter described relates to heel shaving or trimming machines of the type employing rotary knives, and has reference more particularly to the counter guard for protecting the upper of the shoe during the shaving or trimming operation.

As well understood by those skilled in the art, heels not only vary in height for different styles or characters thereof but likewise vary in their dimensions between the tread surface and the heel seat in the same heel, especially in some types of women's shoes, so that while a counter guard is desirable to protect the upper of the shoe from injury by the rotating knives, it is likewise essential that such a guard be readily yieldable to permit the proper treatment of the heel and at the same time present no injurious effects upon the upper.

With these generally stated facts in view, the aims and objects of the present invention will best be made clear from the following description and accompanying drawings of one form of means for carrying the present invention into practical effect, it being understood that the invention is not circumscribed by the exact details set forth and is definitely set forth in its true scope in the claims.

In the drawings: Figure 1 is a side elevation of a sufficient portion of a heel shaving or trimming machine to show the general relation of the parts and the association of the present invention therewith; Fig. 2 is a detail sectional view on the line 2—2 of Fig. 3; Fig. 3 is a cross section on an enlarged scale on the line 3—3, Fig. 1; and Fig. 4 is a detached view showing the counter guard, its yielding supporting arm, and co-acting elements.

In the drawing the machine frame 1 may

be of any desired or approved form provided with a suitable bearing as 2 for any usual form of driving shaft 3. Likewise there may be employed as usual a dust trunk 4 for carrying away the dust and other waste incident to the cutting operation.

Suitably connected to the driving shaft so as to rotate therewith is the cutter head shaft 5 having splined or otherwise secured thereto the usual knife supporting collars 6 carrying the knives 7, said knives preferably being formed with edge portions 8 engaging eccentric grooves 9 in the said collars, whereby the cutting edges of the knives may, by movement of the knives forward in said eccentric grooves, be maintained in proper cutting position, as usual.

Disposed adjacent the knife supporting collar 6, Fig. 2, is the counter guard which, as a whole, may be identified as A. In the present form of the invention, the said counter guard comprises a sleeve portion 10 mounted to slide and rotate on a hub 11 of the knife supporting collar 6 and carrying or having as part of said sleeve portion 10 a disk portion 12. This disk portion has a flange 13 extending over a part of the knife supporting collar 6 and formed eccentric with relation thereto, such eccentricity being well shown in Figs. 2, 3 and 4.

Mounted on the eccentric flange 13 is a rotatable ring 14 having a seat for a rubber or other like bearing ring 15. The rotatable ring 14 is held to its inclined seat on the flange 13 by means of suitable screws or other fastening devices 16 passing into the disk portion 12 of the counter guard and having washers 17, a part of which overlap the outer face portion of said rotatable ring 14, the construction being such that the rotatable ring 14 is free to turn upon the flange 13 and carry with it the bearing ring 15 so that with the upper of the shoe resting against the bearing ring 15 and the shoe being turned as usual in the heel shaving or trimming operation, the upper of the shoe will not be caused to rub or slide over any fixed portion, the bearing ring 15 freely moving with the shoe as it is manipulated by the operator.

While the invention contemplates a bearing ring 15 of rubber as a good bearing ma-

terial for the shoe upper, and while it contemplates the form of rotatable ring 14 as herein described as a good, practical embodiment of this feature of the invention, it is to be understood that these two rings may be otherwise formed and that different substances may be employed, and that the rotatable ring 14 may be otherwise rotatably mounted upon the eccentric flange 13 of the counter guard disk portion.

The internally screw threaded nut 18 adapted to engage the exterior screw threads 19 on the cutter head shaft 5 serves to bear against the end portion of the hub 11 of the knife supporting collar 6 and clamp the knives 7 between the two collars, as will be obvious. The sleeve portion 10 of the counter guard is of less length than the hub 11 of the knife supporting collar, so that said sleeve portion and, perforce, the disk 12, the rotatable ring 14, and the bearing ring 15 may be moved longitudinally of the hub 11 or cutter head shaft in accommodating heels of different dimensions or in accommodating different dimensions of the same heel.

It is desirable that the counter guard be held normally in the position indicated in Fig. 2, that is, with the flange 13 thereof overlying or closely adjacent to the knife supporting collar 6, but that the counter guard be free to move longitudinally of the shaft or away from said collar under a uniform or unvarying resistance so that during the trimming operation the varying dimensions of a heel may be properly presented to the cutters, as will be readily understood by those skilled in the art. To this end, the counter guard is controlled by an arm 20, a portion 21 of which is passed about the sleeve 10 of the counter guard and is provided with a set screw 22 whereby the part 21 may be securely clamped to the sleeve of the counter guard to prevent free rotative movement thereof. The arm 20 of the counter guard controller projects through the wall 23 of the dust trunk or other casing and at its lower end is provided with an eye to which is attached a cord or other flexible connection 25 joining the end of the arm 20 with a weight 26, the construction being such that the weight normally acts to draw the arm 20 to the left, Fig. 1, or longitudinally of the cutter head shaft in a direction away from the knife supporting collar 6.

Connected to the arm 20 between the eye 24 and the clamping portion 21 is a spring 27, the other end of said spring being connected to a lug 28 secured by a screw 29, or otherwise, to an adjusting rod or arm 30, see Fig. 1. The arm 30 is provided with a series of notches or indentations 31 adapted to engage a holding catch 32, the construction being such that when the arm or adjusting rod 30 is moved to the right, Fig. 1,

the tension in the spring 27 will be proportionately increased and the parts may be held in such position by engagement of the catch 32 with a notch in said adjusting rod, as will be obvious.

The particular means for adjusting the tension of the spring 27 may, of course, be varied, it being understood that the invention is not, in its broadest sense, circumscribed by these details.

Adjustably mounted in the machine frame is a supporting rod 33 for a heel rest 34, the end whereof may project into proximity with the cutters 7 to form a rest or steadying element for the heel, if desired. The heel rest 34 is preferably adjustable as to height in its supporting lug 35 by means of a set screw 36.

From the construction thus described, it will be apparent that by unclamping the set screw 22 of the arm 21, the eccentric flange portion of the counter guard may be adjusted rotatively about the knife supporting collar 6 so that the distance of the face of the bearing ring 15 from the edge of the cutters at the cutting point for the heel may be varied to determine the amount of material to be trimmed from the heel, or, in other words, the projection of the heel surface with reference to the counter of the shoe, and when so adjusted, the set screw 22 may be set up to hold the parts in this relation, the rotatable ring 14 and the bearing ring 15 rotating freely with the shoe as it is turned to bring different portions of the heels into co-acting relations with the knives, thereby obviating any injury to the upper. It will also be obvious that the counter guard may move longitudinally of the cutter head shaft or with relation to the cutter head in a substantially right line, and that under the action of the weight 26 and its co-acting spring 27 this movement may be made under a substantially unvarying or constant pressure of the counter guard.

In the use of knives of different lengths for the purpose of trimming heels of greater extent or height, the counter guard may be suitably adjusted and the tension thereof varied under the means substantially as hereinbefore set forth.

What is claimed is:

1. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having a portion disposed eccentric to said cutter head, and a yielding bearing portion freely movable on said eccentric portion by movement of the shoe during the cutting operation.

2. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having a portion disposed eccentric to said cutter

head, and a bearing portion freely movable on said eccentric portion by movement of the shoe during the cutting operation.

3. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having a rotatable ring mounted to freely rotate thereon, and a bearing ring carried by the rotatable ring and rotating therewith by movement of the shoe during the cutting operation.

4. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having a portion disposed eccentric to the cutter head, a bearing for the shoe mounted on the eccentric portion of the counter guard to move freely with the shoe as the latter is moved during the cutting operation, and means for adjusting the eccentric portion of the counter guard.

5. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having a portion disposed eccentric to the cutter head, a rotatable ring freely rotatable on said eccentric portion and carrying a bearing ring, and means to adjust the eccentric portion of the counter guard about the cutter head.

6. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having an eccentric flange portion, a bearing ring freely rotatable on said eccentric flange portion by movement of the shoe during the cutting operation, and means permitting movement of the counter guard longitudinally with respect to the cutter head.

7. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard operatively disposed with respect to the cutter head, a controlling arm for said counter guard, and yielding means acting upon said arm in opposite directions to yieldingly maintain the counter guard in operative relation with the cutter head.

8. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard, an arm for controlling said counter guard, and yielding means acting laterally upon said arm at different points in its length to permit said counter guard to move longitudinally away from the cutter head.

9. In a heel shaver and trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard, a controlling arm for said counter guard, a clamp for connecting the said arm to the counter guard, and a spring and weight acting on said arm for holding the counter guard in operative position with respect to the cutter head.

10. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard having an eccentric portion, an arm for controlling said counter guard, means for clamping the arm to said counter guard to restrain rotation thereof, and means acting yieldingly on said arm to permit the counter guard to yield away from the cutter head.

11. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard, a controlling arm for positioning the counter guard, a weight acting on said arm in one direction, and a spring acting on said arm in the opposite direction.

12. In a heel shaver or trimming machine, the combination of a shaft, a cutter head mounted thereon, a counter guard, a controlling arm for positioning the counter guard, a weight acting on said arm in one direction, a spring acting on said arm in the opposite direction, and means for adjusting the acting forces of said spring.

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

FRANK F. ENO.

Witnesses:

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