No. 641,822. Patented Jan. 23, 1900.

C. G. BELMER.

EDGE TRIMMING MACHINE.

(Application filed Feb. 21, 1899.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

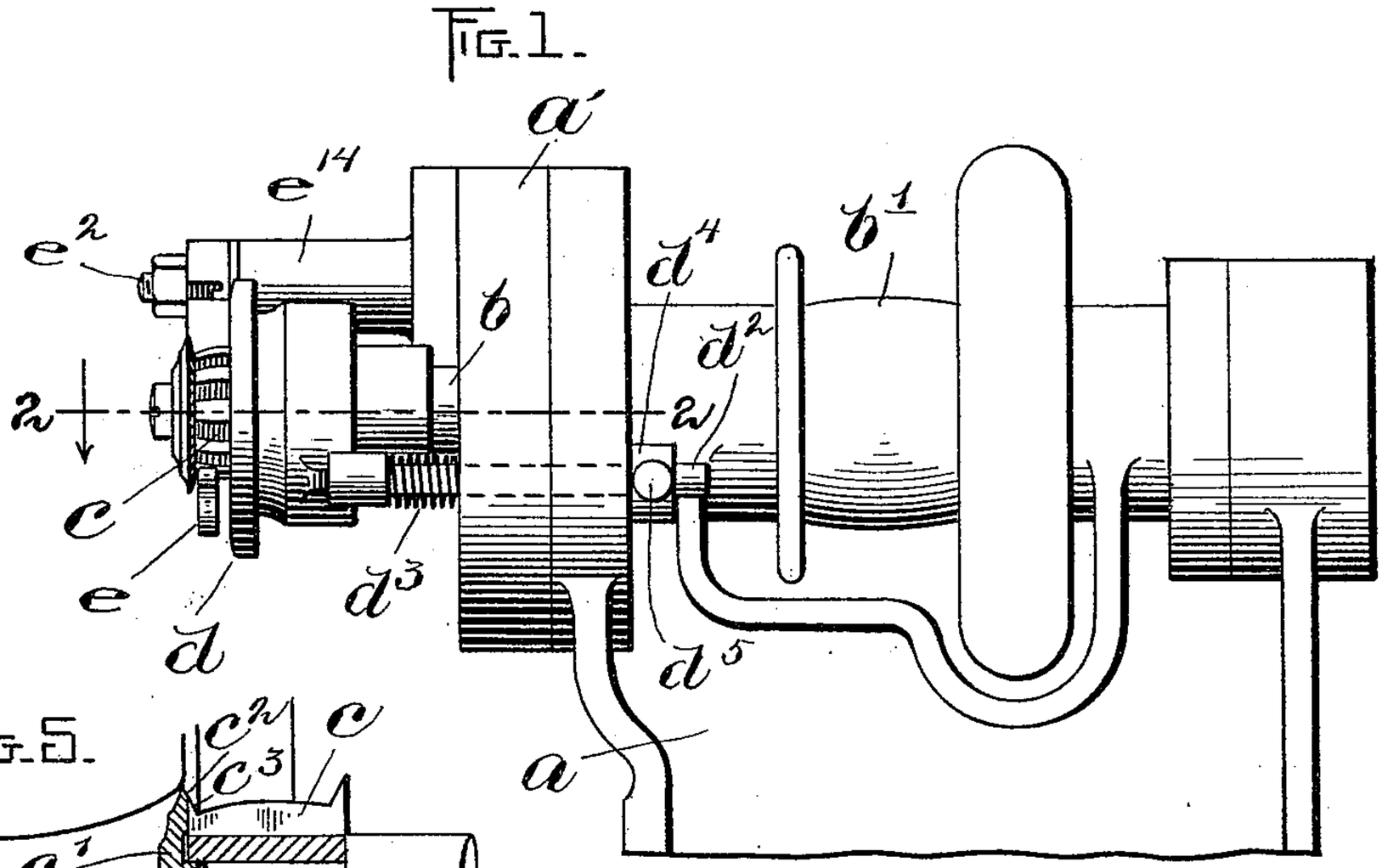

FIG. 5.

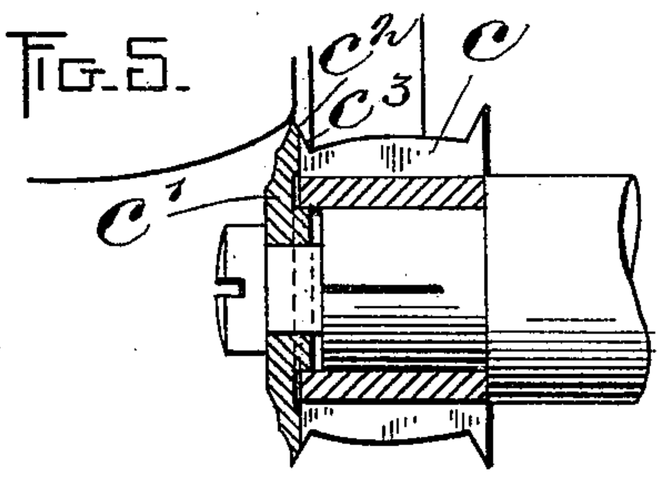

FIG. 2.

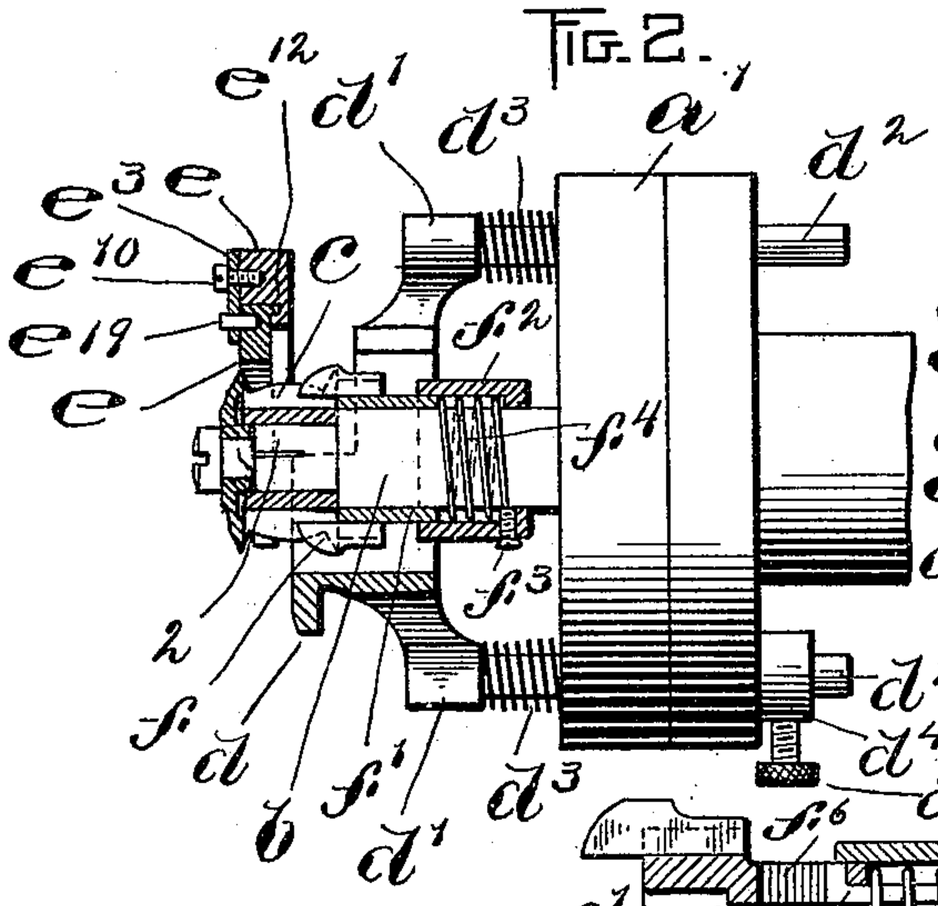

FIG. 3.

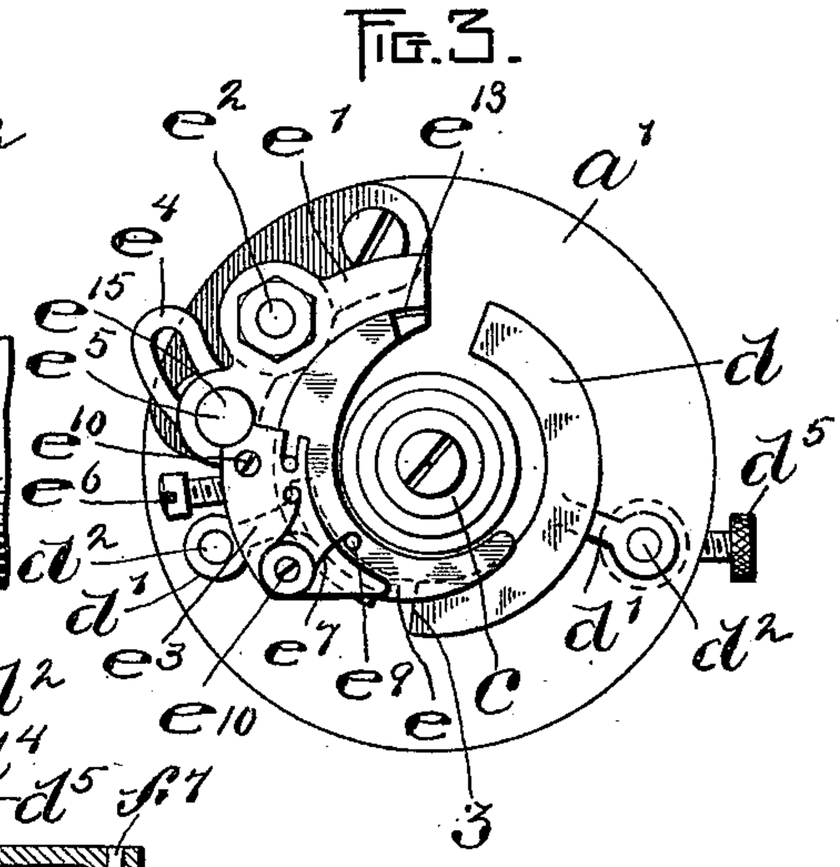

FIG. 4.

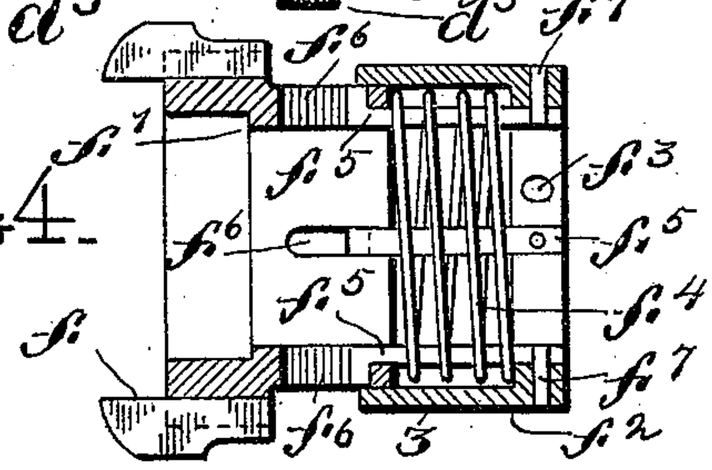

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FIG. 6.

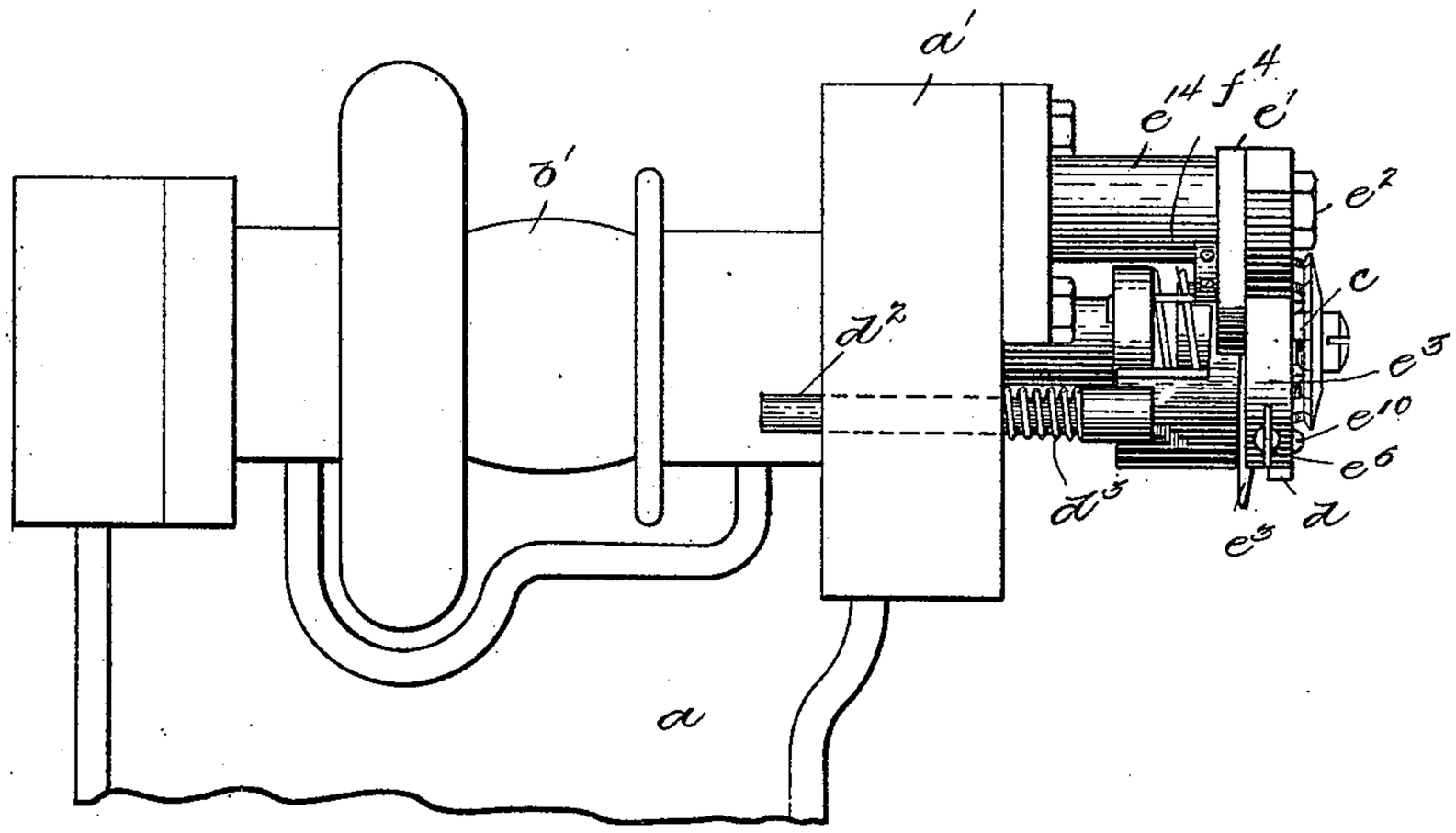
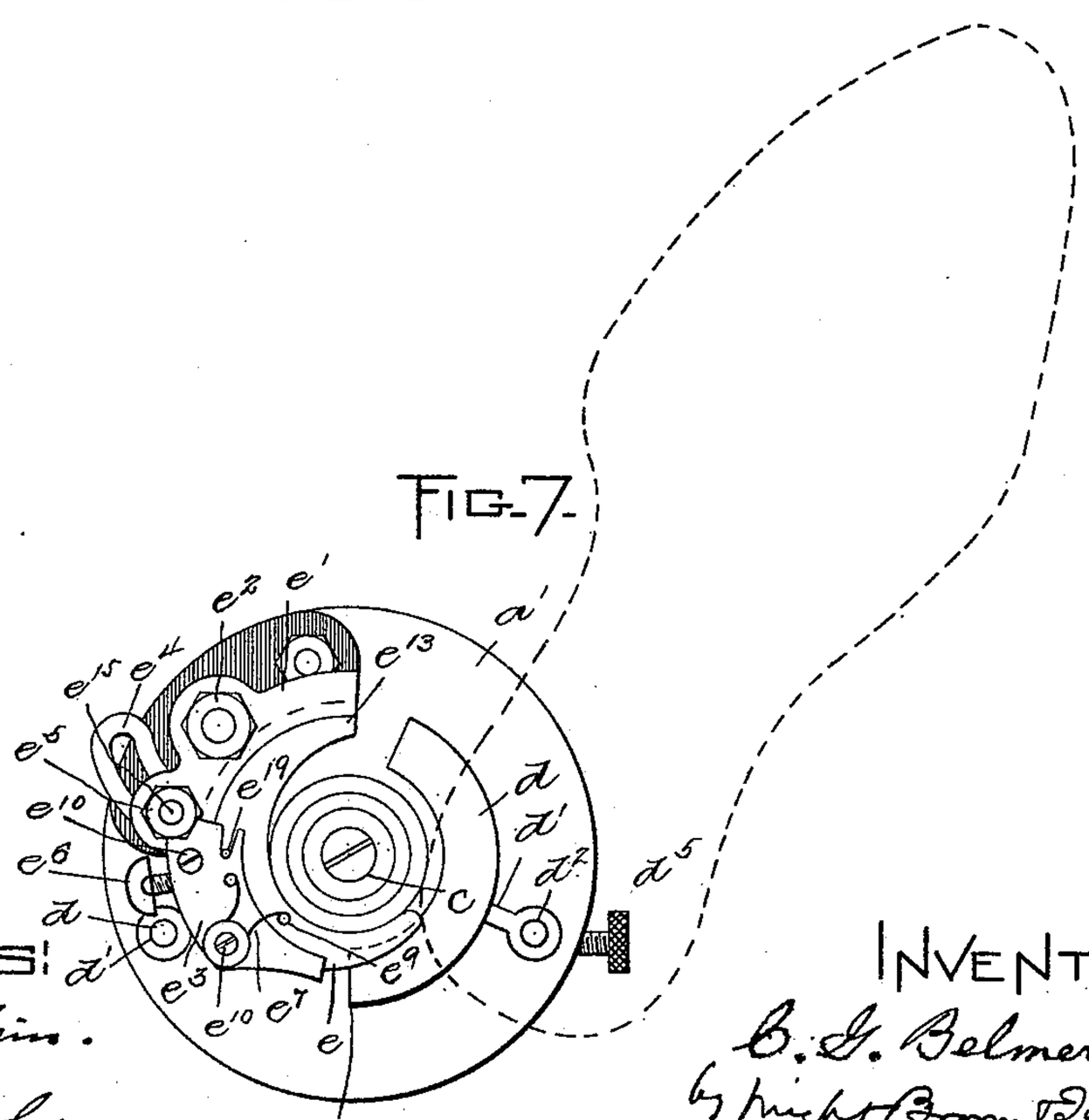


FIG. 7.



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UNITED STATES PATENT OFFICE.

CHARLES G. BELMER, OF CHELSEA, MASSACHUSETTS.

EDGE-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 641,822, dated January 23, 1900.

Application filed February 21, 1899. Serial No. 706,340. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. BELMER, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Edge-Trimming Machines, of which the following is a specification.

This invention has relation to rotary edge-trimming machines for shaving or trimming the heel edges or other parts of boots and shoes; and it has for its object to provide certain protective devices and other improvements tending to increase the efficiency of machines of this character.

The invention consists in the novel features of construction and arrangement which I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of an edge-trimming machine constructed in accordance with my invention. Fig. 2 represents a view, partly in plan and partly in section, on the line 2 2 of Fig. 1. Fig. 3 represents a front end elevation of the machine. Fig. 4 represents an enlarged longitudinal sectional view of the buffer. Fig. 5 represents an enlarged sectional view of the cutter and the shield or counter guard at the outer end thereof. Fig. 6 represents a side elevation looking at the opposite side of Fig. 1. Fig. 7 is a view similar to Fig. 3, illustrating a shoe in its position relative to the parts of the device while the trimming operation is being performed.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, a designates a frame having bearings for the cutter-shaft b, on which is a pulley b' of the usual kind, said shaft having a cutter c attached to its forward end, which cutter is adapted to be rotated at a high rate of speed to trim the heel edge or other part of the shoe.

a' is a stationary support attached to or forming a part of the frame a and serving as a support for the bottom and edge rests now to be described.

d represents the bottom rest, of segmental or semi-annular form and having lugs d', to which are attached supporting and guiding legs or rods d^2, which project through guiding sockets or apertures in the support a'. Springs d^3, surrounding said legs and interposed between the support a' and the lugs d', operate to normally project the bottom rest d forward in a direction parallel to the shaft. The forward motion of said rest is limited by means of a collar d^4, which is provided with a set-screw d^5, having a knurled head, so that the operator can screw and unscrew it with his fingers and set the collar d^4 in different positions on the leg d^2.

e is an edge-rest of segmental form, having a segmental rib e^{12}, occupying a groove e^{13} of corresponding curvature formed in an edge-rest holder e', which is pivotally mounted on a stud e^2 at the end of a post e^{14}, which projects from the face of the support a'. The holder e' may swing in and out to bring the end of the edge-rest e a greater or less distance from the periphery of the cutter c, and when adjusted is fixed in position by means of a nut e^5 engaging a fixed guide-plate e^4. The guide-plate has a segmental slot concentric with the stud e^2 and is engaged on its rear side by the head of a threaded bolt e^{15}, upon whose forward end the nut e^5 screws. The edge-rest e is retained in place in its holder e' by means of an overlapping plate e^3, attached by screws e^{10} e^{10} to the holder, and is arranged so that it can be yieldingly projected in its guide in the direction of the work by means of a spring e^7 engaging pins e^8 and e^9, projecting from the retaining-plate e^3 and the rest e, respectively. The movement of said edge-rest is limited by means of a stop-pin e^{19} on the edge-rest abutting the end of a recess in the plate e^3, as seen in Figs. 2 and 3. The edge-rest may, however, be fixed in any desired position by means of a set-screw e^6 passing through its holder e' and engaging the edge of the rest.

When the operator presents the edge of a shoe-heel to the cutter, he presses said edge radially inward against the blades of the cutter and guides the shoe by means of the bottom and edge rests d and e. The bottom rest d prevents the shoe from tipping sidewise and at the same time presses the top or rand edge of the heel forward against the rand-cutting lip c^3 on the cutter c. In shoes such as those having spring-heels, where the thickness of the heel varies, the bottom rest d yields rearwardly against its springs d^3 when the thicker portions of the heel are reached. The shoe is

also supported and guided during the trimming operation by the edge-rest *e*. The said edge-rest, as stated, may be fixed by means of the screw e^6, so as to remain in a fixed position; but when a skilled workman is using the trimmer he may loosen the screw e^6 and allow the edge-rest to follow the edge of the heel as the latter moves around the cutter. When used in a fixed position, the edge-rest may be adjusted, as stated, so that it can be made convenient for short or tall workmen.

An improvement in the present invention relates to the buffer *f* or feather-edge trimmer, whose blades project between the blades of the cutter *c* and operate to trim off the feather-edge or bur resulting from the action of the cutter *c*. Said buffer is provided with a rearwardly-projecting sleeve *f'*, which loosely surrounds the shaft *b*, and in its wall are formed through-slots f^6, occupied by hooks formed on the ends of connector-bars f^5, which lie next the shaft *b* and have their rear ends attached by pins f^7 to a collar f^2. The latter loosely surrounds the shaft *b* and may be adjustably fixed thereto by means of a set-screw f^3. The collar f^2 and sleeve *f'* are channeled to receive the bars f^5, and the collar is formed with a forwardly-projecting portion or shell 3, which overlaps the rear end of the sleeve *f'* and incloses a spring f^4. The latter is interposed between the rear end of the sleeve *f'* and the end of the larger bore of the collar f^2 and is located outside of the bars f^5, as shown. The said spring operates to project the buffer yieldingly forward in the direction of the work, and the hooked bars f^5, abutting against the rear ends of the slots f^6, serve to limit the forward motion of said buffer. The normal position of the latter with respect to the cutter may be varied by adjusting the collar f^2 on the shaft. The forwardly-projecting portion 3 of said collar incloses the spring f^4 and protects said spring from uncoiling or being otherwise displaced.

It will be observed that the segmental bottom rest *d* is adapted to afford a yielding support for the bottom of the part to be trimmed, which support is in close proximity to the outer ends of the buffer-blades *f* and extends partly around the series of blades, so that the heel is supported by the bottom rest close to the buffer-blades in all the positions required during the shaving or trimming operation. The bottom rest materially aids the operator in holding the shoe in place against the displacing tendency or pressure of the buffer-blades. The yielding movement of the bottom rest enables it to move in and out independently of the buffer-blades, the rest and blades at times moving simultaneously in opposite directions.

As shown in Fig. 5, the shield or counter-guard *c'* at the outer end of the cutter *c* has a beveled annular face c^2 on its inner side, which face surrounds the outer ends of the rand-trimming portions c^3 of the cutter-blades and has about the same inclination as said portions. The object of this beveled face c^2 is to force the ragged corner of the rand inwardly toward the cutting portions c^3, causing said portions to smoothly trim the said corner.

I claim—

1. In an edge-trimming machine, a rotary cutter, a stationary support, a segmental bottom rest partially surrounding the cutter and having a rod or leg guided in the said stationary support, a spring interposed between said support and the bottom rest and surrounding the said rod or leg, a collar working on said rod or leg behind the said support to limit the forward movement of the bottom rest and a set-screw working in said collar and designed to engage said rod or leg.

2. In an edge-trimming machine, a rotary cutter, a stationary support, and an edge-rest holder pivotally mounted on the stationary support at one side of the cutter, and an edge-rest adjustably mounted on said holder and arranged to swing toward and from the cutter in the plane thereof.

3. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, means for adjusting said holder, and an edge-rest mounted in said segmental guide and adjustable on the holder concentrically with the cutter.

4. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, means for adjusting said holder, an edge-rest mounted on the guide of said holder and movable concentrically with the cutter, and a spring adapted to hold the edge-rest yieldingly against the work.

5. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, an edge-rest mounted in the guide of said holder and movable concentrically with the cutter, and a set-screw for fixing the edge-rest at different adjustments on the holder.

6. In an edge-trimming machine, a supporting-frame, a rotary cutter mounted therein, an edge-rest holder carried by said frame and having a segmental groove therein, and an edge-rest carried by said holder and having a rib fitting within said segmental groove, substantially as set forth.

7. In an edge-trimming machine, a supporting-frame, a rotary cutter mounted therein, an edge-rest holder pivotally mounted on said frame, said holder having a slot formed therein concentric with its pivot, a threaded bolt working in said slot, a nut working on said bolt and designed to engage said holder, and an edge-rest carried by said holder, substantially as set forth.

8. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent thereto, an edge-rest, and an overlapping plate designed to retain said edge-rest in position on said holder, as set forth.

9. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent

thereto, an edge-rest, an overlapping plate secured to said holder and designed to retain said edge-rest in position, and a spring carried by said plate and engaging studs on the latter and said holder, substantially as set forth.

10. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent thereto, an edge-rest, a plate secured to said holder and designed to retain said edge-rest in position, said plate having a slot therein, and a pin carried by said edge-rest and working in the slot of said plate, substantially as set forth.

11. In an edge-trimming machine, a rotary shaft, a cutter mounted thereon, a longitudinally-slotted sleeve mounted on said shaft and having forwardly-extended buffer-blades projecting between the blades of the cutter, said sleeve having channeled portions adjacent the slots thereof, a collar surrounding said shaft and also provided with channeled portions, means for adjustably fixing said collar to said shaft, connecting-bars secured to said collar and fitting within said channeled portions, said bars having hooks at their forward ends occupying the slots of said sleeve and normally abutting the rear ends thereof, and a spring located within said buffer-sleeve and interposed between the same and said collar, said spring surrounding the shaft outside of said connecting-bars, substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES G. BELMER.

Witnesses:
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A. D. HARRISON.