

No. 662,355.

Patented Nov. 20, 1900.

O. A. DAVIS.
SHOE TRIMMING MACHINE.

(Application filed June 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

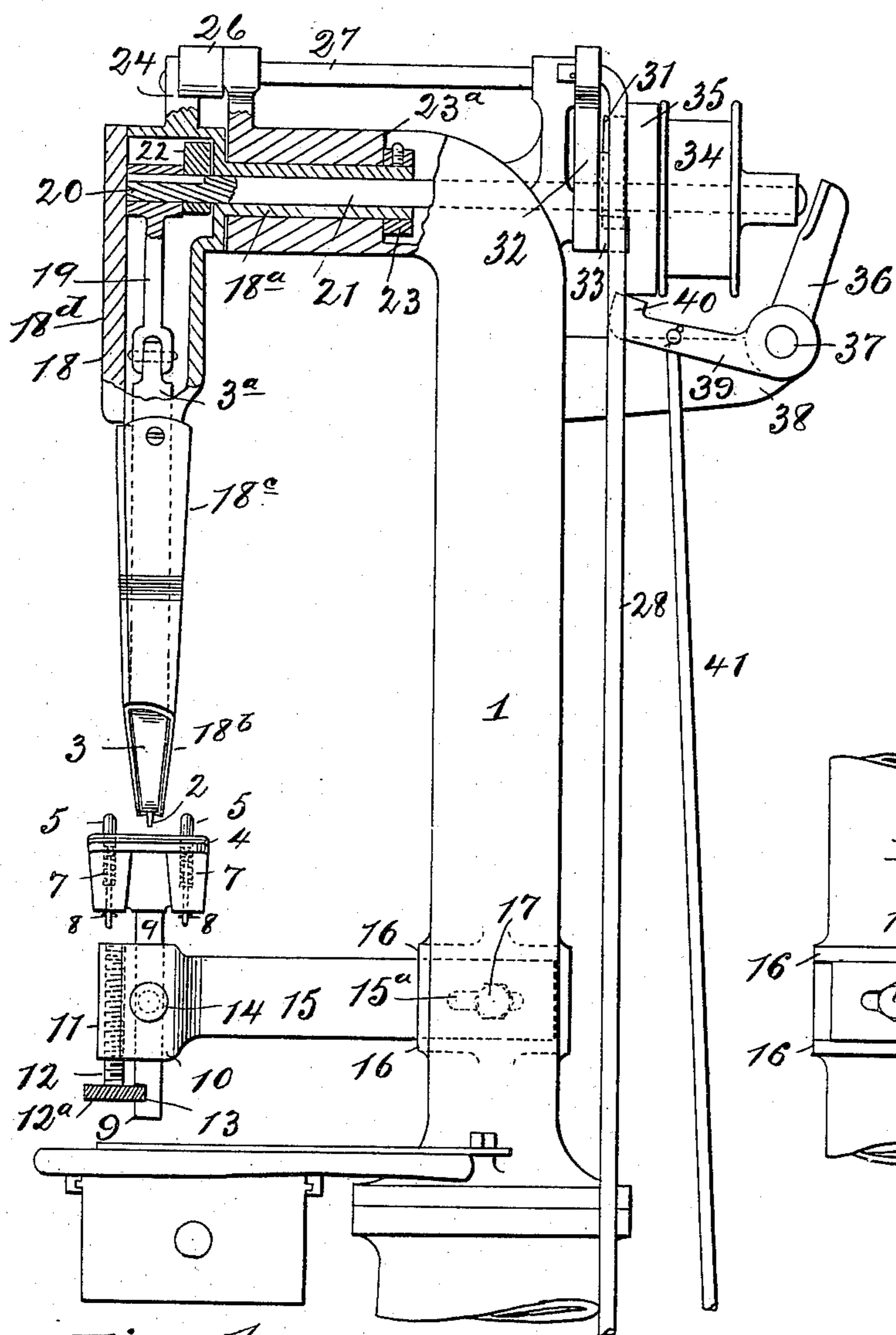


Fig. 1

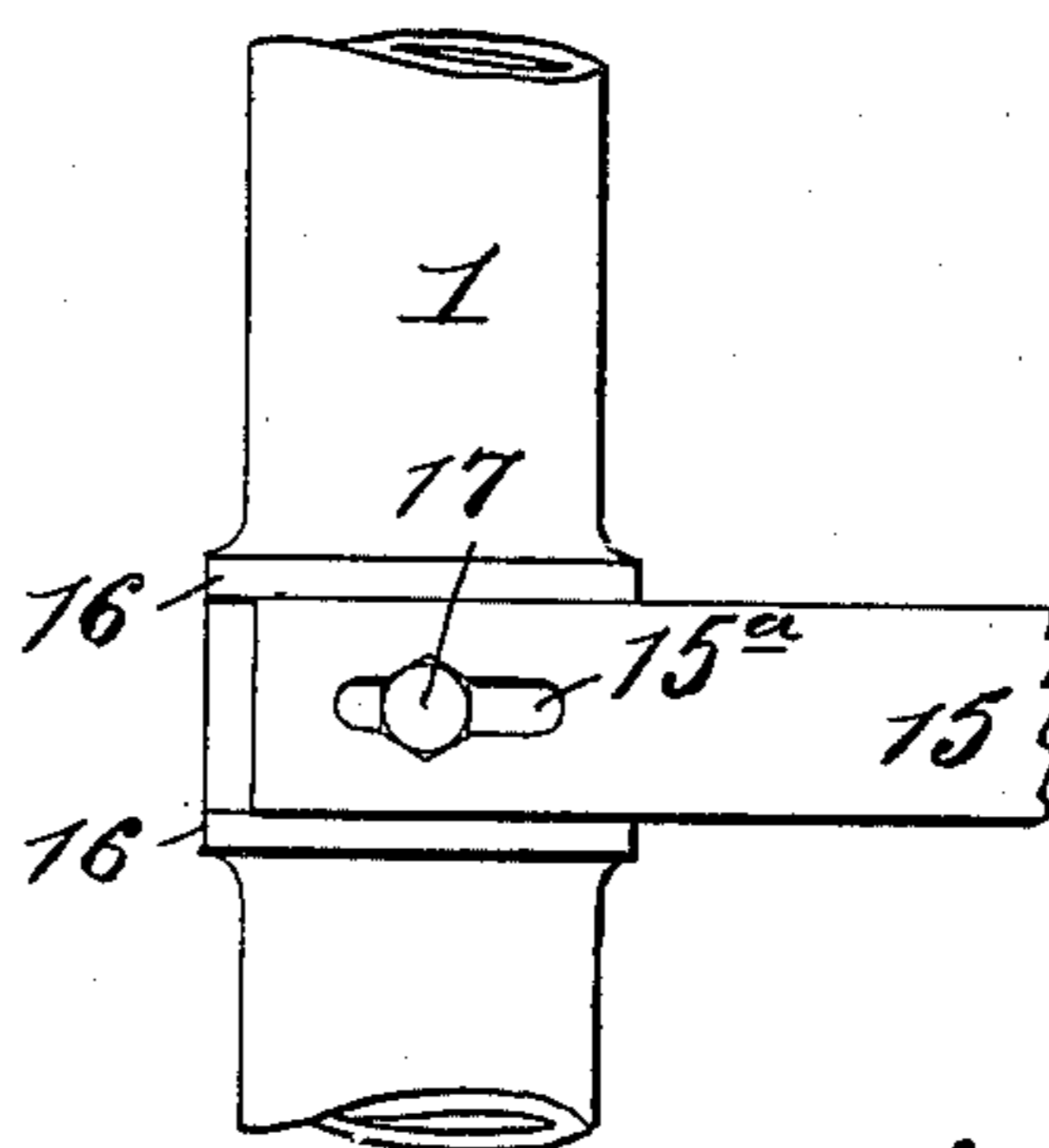
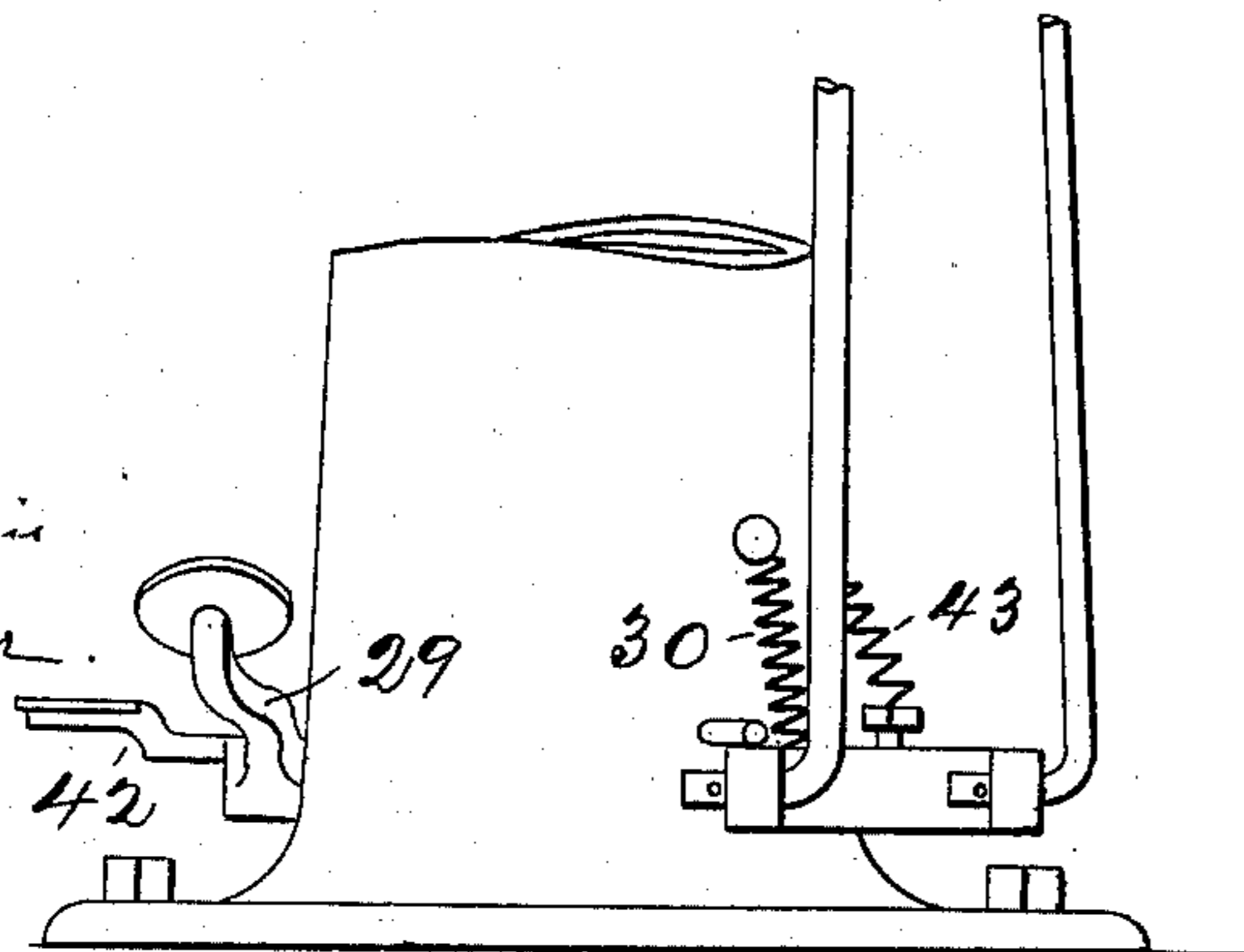


Fig. 1a

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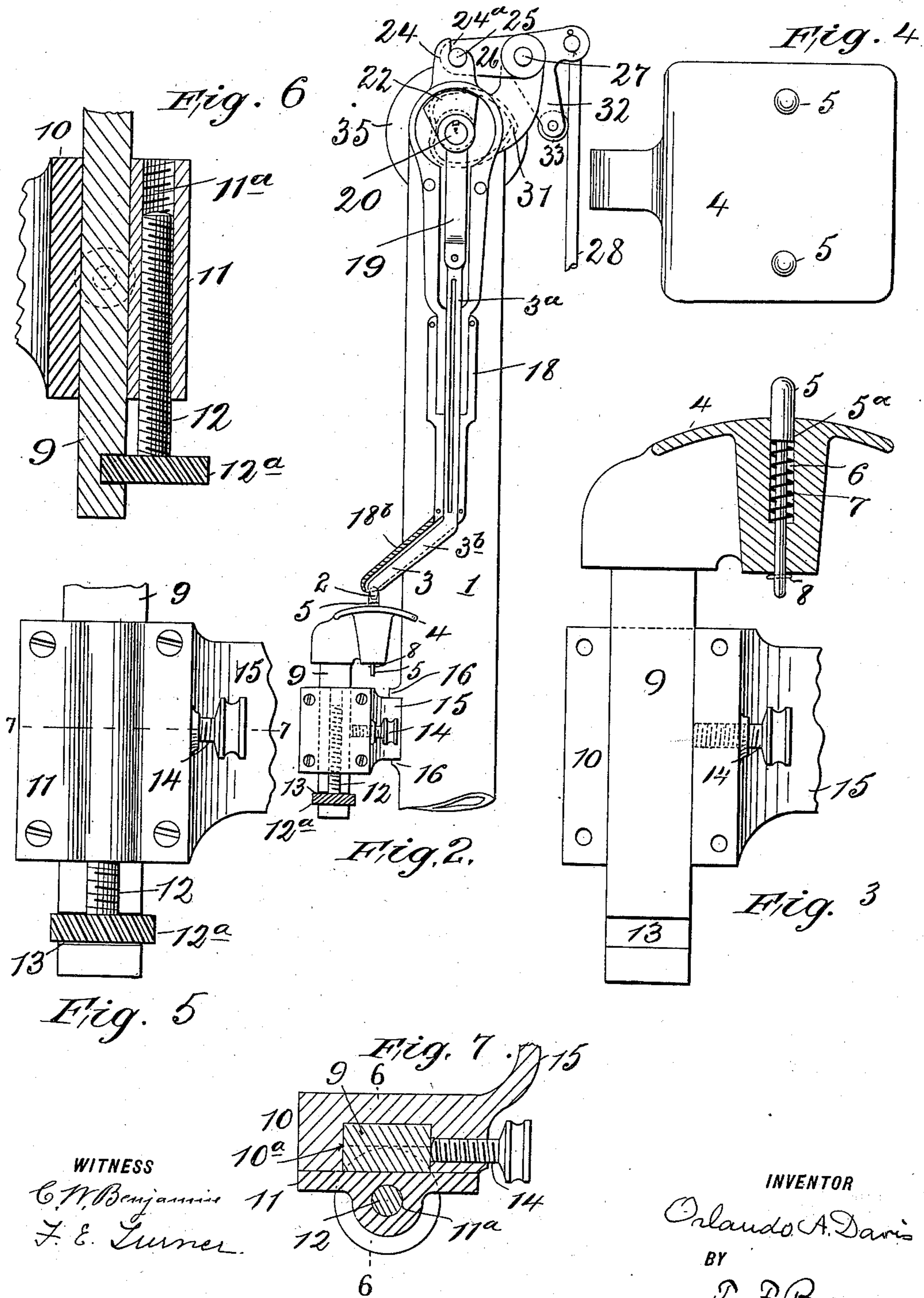
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UNITED STATES PATENT OFFICE.

ORLANDO A. DAVIS, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE
BOSTON FOOTWEAR MACHINE COMPANY, OF MAINE.

SHOE-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 662,355, dated November 20, 1900.

Application filed June 30, 1899. Serial No. 722,356. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO A. DAVIS, a citizen of the United States, and a resident of Rochester, Monroe county, New York, have
5 invented certain new and useful Improvements in Shoe-Trimming Machines, of which the following is a specification.

This invention relates to improvements in the class of machines that are adapted to trim
10 or cut a portion of the edge or edges of a lasted upper or of the upper and lining that project inwardly from the line of stitches within a shoe that secure the sole and upper together. Machines for accomplishing this
15 were patented to G. W. Day November 24, 1891, which patents are numbered, respectively, 463,947 and 463,948, and this invention relates to improvements in the class to which they belong. In the said class of machines a
20 reciprocative cutter is used that is adapted to pass within a shoe or other hollow article to trim or cut material therein; and the object of this invention is to provide improved means for supporting and guiding the shoe or article
25 to be trimmed in proper operative position relatively to the cutter.

The invention consists in the combination of a cutter and means for supporting and operating the same within a shoe with a sup-
30 port for a shoe or article to be trimmed or cut and a pair of guides for said shoe or article, which guides are located on opposite sides of the cutter and are adapted to be moved into and out of operative position,
35 whereby one may be depressed by the shoe or article to be operated upon, so as to enable the other one to act as a guide, and vice versa.

The invention also consists in the novel details of improvement and the combinations of
40 parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a partly broken side elevation
45 of a machine embodying this invention, part of the frame or standard being broken away. Fig. 1^a is a detail face view of a portion of the frame, showing an adjustable arm for supporting the guides. Fig. 2 is a detail front
50 elevation of the upper portion of the machine, part of the guide or casing for the cutter and

its support being removed. Fig. 3 is an enlarged detail view, partly in section, of the shoe-support and guide, as shown in Fig. 2, part being removed. Fig. 4 is a plan view of
55 the shoe-support and guides. Fig. 5 is an enlarged detail face view of the lower portion of Fig. 2, showing adjusting means for the shoe-support. Fig. 6 is a section on the line 6 6 in Fig. 7, and Fig. 7 is a horizontal section
60 on the plane of the line 7 7 in Fig. 5.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, 1 indicates a main frame which is shown in the
65 form of a column, but may be of any suitable construction. The frame 1 carries a cutter 2, which may be supported and operated in any suitable manner. In the arrangement shown the cutter 2 is carried at the lower end of a
70 reciprocative carrier or bar 3, which may be supported, guided, and operated in any suitable manner. The arrangement shown for the purpose will be explained hereinafter. Beneath the cutter 2 is a support or table 4,
75 upon which the shoe or other article to be operated upon may rest and be guided. In connection with the support or table 4 there are provided adjustable guides 5, against which
80 the edge of a shoe-sole or other article to be operated upon may bear, whereby it can be guided in line with the cutter 2. The guides 5, as shown, are in the form of pins adapted to move longitudinally, and they are normally
85 upheld, so as to project above the surface of the table or support 4 and are adapted to be pressed down about flush with the surface of said support. For this purpose the support
90 or table 4 is shown provided with pockets 6, in which are located the guides 5 and springs 7, which springs are adapted to bear against an abutment or the bottom of the pockets
95 and also against a shoulder or abutment 5^a upon the guides 5 to keep the latter normally projecting above the support 4. (See Fig. 3.) The guides 5 are shown provided with pro-
100 jections or pins 8, that are adapted to limit the movement of said guides by the springs 7. It is evident, however, that other suitable means may be provided to enable the guides 5 to have in-and-out movement relatively to the surface of the table or support 4. As

shown in Fig. 1, the guides or pins 5 are located side by side and the cutter 2 passes between them, said guides being at a suitable distance from said cutter, so that when the shoe or article to be cut is placed against a guide the cutter 2 will be in the proper position relatively to the article to be cut.

It will be understood that when the shoe or other article is to be trimmed it will first be placed upon one guide or pin 5, so as to depress the same, which enables said shoe or article to be moved against the other guide or pin to bring the portion of the upper within the shoe that is to be trimmed into proper operative position relatively to the cutter 2, whereupon the shoe may be fed to the cutter along the guide 5, and when the first line of cut along one side of the shoe is completed the shoe will be laid upon the other pin to depress it and the sole edge moved against the opposite guide 5 for a similar purpose.

As shoe soles and uppers vary in thickness, it is desirable to have the support or table 4 adjustable toward and from the cutter 2, and for this purpose the support or table 4 is shown carried by a bar 9, that is supported to travel in a guide 10, the latter being shown provided with a recess 10^a to receive the bar 9. (See Fig. 7.)

11 is a plate or cover for the recess 10^a, which plate is secured to the face of the guide 10 and serves to retain the bar 9 in its groove 10^a.

12 is a screw shown meshing with the threads in a bore 11^a in plate 11 and provided with a milled head 12^a, that enters a recess 13 in bar 9, whereby as the screw is rotated it will cause the bar 9 to move lengthwise to adjust support 4 toward and from cutter 2.

14 is a set-screw threaded in the support 10 and adapted to bear upon the bar 9 to lock the same in any position of adjustment. The support 10 is carried by an arm 15, that is supported by the frame 1. By preference the arm 15 is adjustable laterally of frame 1, and for this purpose it is shown carried in guides 16 on one side of frame 1, which guides form a socket or recess for said arm and serve to hold it rigidly from up-and-down movement, and said arm is shown provided with a slot 15^a, adapted to receive a screw or bolt 17, carried by frame 1. (See Figs. 1 and 1^a.) By means of this slot and screw the arm 15 may be adjusted lengthwise, and such adjustment will vary the positions of the guides 5 relatively to the cutter 2.

The means shown for supporting and operating the cutter are as follows: The carrier or bar 3 has a straight portion 3^a at its upper part, and at its lower part it is shown bent downwardly and sidewise at 3^b, so as to enable it to pass forwardly into a shoe. The upper part 3^a of carrier or bar 3 is guided in a casing 18, and the support 3 is pivotally connected with a pitman 19, that is hung on a crank-pin 20, carried by a shaft 21, supported in suitable bearings on the frame 1.

The casing 18 is shown provided with a sleeve 18^a, that is journaled on shaft 21, whereby said casing, the support 3, and the cutter 2 may be swung sidewise to carry the cutter 2 away from the support or table 4. The lower part of casing 18 is bent downwardly and sidewise at 18^b correspondingly to the bent part 3^b of support 3, and the lower end of this portion 18^b of casing 18 is open so as to enable the part 3^b of support 3 and the cutter 2 to reciprocate. The casing 18 is open on one side and provided with plates 18^c 18^d to retain the support 3 and the pitman 19 in the compartments or spaces formed within said casing.

22 is a balance-weight carried by shaft 21.

23 is a collar secured to sleeve 18^a to retain the casing in position on frame 1, said collar bearing against a shoulder 23^a in said frame.

24 is a lug carried by casing 18 and provided with a recess 24^a to receive a pin 25, carried by a rocking arm 26, the latter being secured to a rock-shaft 27, carried in bearings on frame 1. The rock-shaft 27 is connected by a rod 28 with a treadle 29, adapted to operate said rod to lock the shaft 27, a spring 30 coacting with said treadle. When the shaft 27 is rocked to move pin 25 from recess 24^a, the casing 18 can be swung sidewise for the purpose of applying and removing a shoe over and from the cutter 2 at the lower end of the casing.

31 is a heart-shaped cam connected with shaft 21, and 32 is an arm connected with shaft 27 and having a roller 33 adapted to bear upon said cam, the arrangement being such that as shaft 27 is turned to release pin 25 from recess 24^a the arm 32 will act upon cam 31 and so turn shaft 21 as to raise the cutter 2 about within the lower part 18^b of casing 18 to prevent said cutter from acting upon the shoe when it is being applied to and taken from the end 18^b of casing 18.

34 is a pulley loosely mounted upon shaft 21 and adapted to move longitudinally thereon, and 35 is a friction-disk secured to shaft 21, the pulley 34 having a friction face to coact therewith, so that when the pulley is pressed into frictional engagement with said disk the shaft will be rotated and when released therefrom the shaft may come to rest. The pulley is so pressed into engagement with the disk 35 by means of an arm 36, carried by a rock-shaft 37, supported by a bracket 38, carried by frame 1, and 39 is an arm connected with said shaft 37 and having a brake or shoe 40 adapted to bear upon friction-disk 35 to bring the same to rest.

41 is a rod shown connecting arm 40 with a treadle 42, a spring 43 coacting therewith, whereby as rod 41 is drawn down the shoe 40 will be removed from disk 35 and the arm 36 will push the pulley into frictional engagement with said disk to cause shaft 21 to rotate.

It will be understood that the details of construction shown and described for supporting

and operating the cutter 2 and its support 18 may be varied, if desired, and it will also be understood that the particular arrangement shown for supporting and operating the guides or pins 5 may be altered without departing from the spirit of this invention.

Having now described my invention, what I claim is—

1. The combination with a cutter and means for supporting and operating the same within a shoe, of a support for the work and a pair of guides located on opposite sides of the cutter and adapted to be moved into and out of operative position, substantially as and for the purposes set forth.

2. The combination with a cutter and means for supporting and operating the same within a shoe, of a support, a pair of guides for the work located on opposite sides of the cutter and adapted to be moved in and out relatively to the support to enable the work to be brought against one or the other, substantially as described.

3. The combination of a cutter and means for supporting and operating the same within a shoe, with a support for the work, located on opposite sides of the cutter, and springs for holding the guides in operative position and adapted to allow the guides to be moved out of operative position, substantially as described.

4. The combination of a cutter, a swiveled arm for the same adapted to guide the cutter within a shoe, and means for operating the cutter, with a support for the work, a pair of guides located on opposite sides of the cutter and comprising reciprocative members, means for supporting said members, and means for holding said members in operative position while permitting them to be moved out of operative position, substantially as and for the purposes set forth.

5. The combination of a cutter and means for supporting the same and for swinging it

laterally to and from the operative position, with a support for the work located below the cutter, a pair of guides for the work located on opposite sides of the cutter, said guides comprising reciprocative members, guides for said members, springs to hold said members in operative position, and means to limit the outward movement of said members, substantially as described.

6. The combination of a reciprocative cutter and means for operating the same, with a support for the work in line with said cutter, a pair of guides located on opposite sides of said cutter and held from movement laterally of the cutter and adapted to have work pushed along in contact with them while in line with the cutter and to be moved into and out of operative position, and means for moving said work-support toward and from the cutter, substantially as described.

7. The combination of a cutter and means for supporting and operating the same within a shoe, with a support for the work held in line with the cutter beneath the same, a pair of guides located on opposite sides of said cutter and adapted to be moved into and out of operative position, means for moving said work-support toward and from the cutter, and means for adjusting said guides laterally relatively to said cutter, substantially as described.

8. The combination of a frame, a cutter, a swiveled arm for guiding said cutter, means within the arm for operating the cutter, a work-support in line with the cutter, adjustable guides for the work, an arm to carry said support, said frame having a socket to receive said arm, and means for adjustably holding said arm in said socket, substantially as described.

ORLANDO A. DAVIS.

Witnesses:

GEORGE M. REID,
T. F. BOURNE.