Jan. 30, 1945. L. SABO 2,368,571

CUTTING DEVICE

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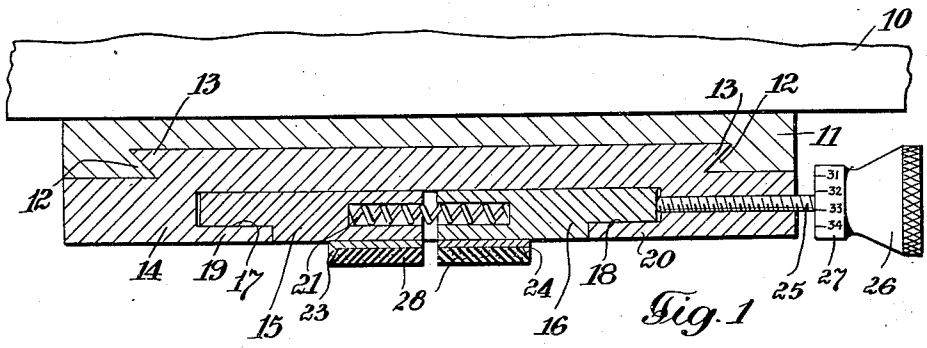


Fig. 1

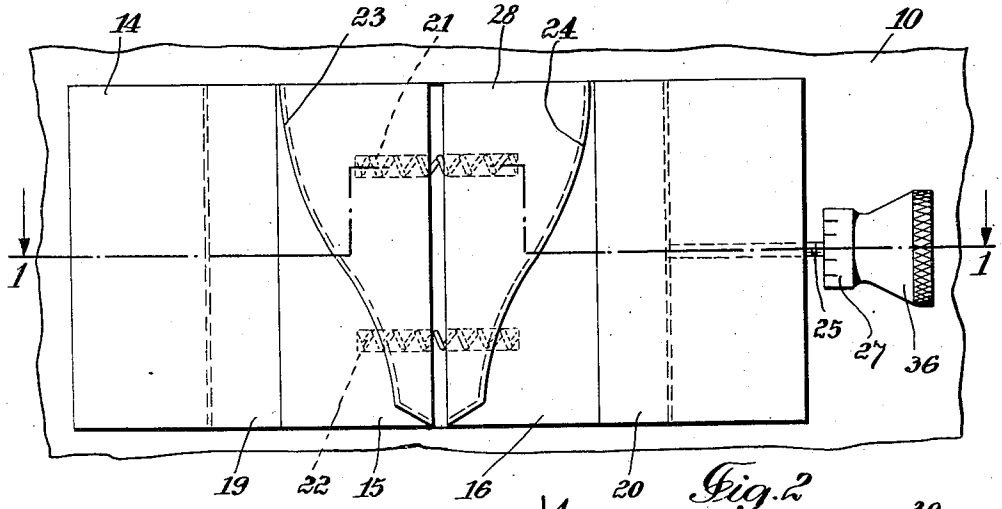


Fig. 2

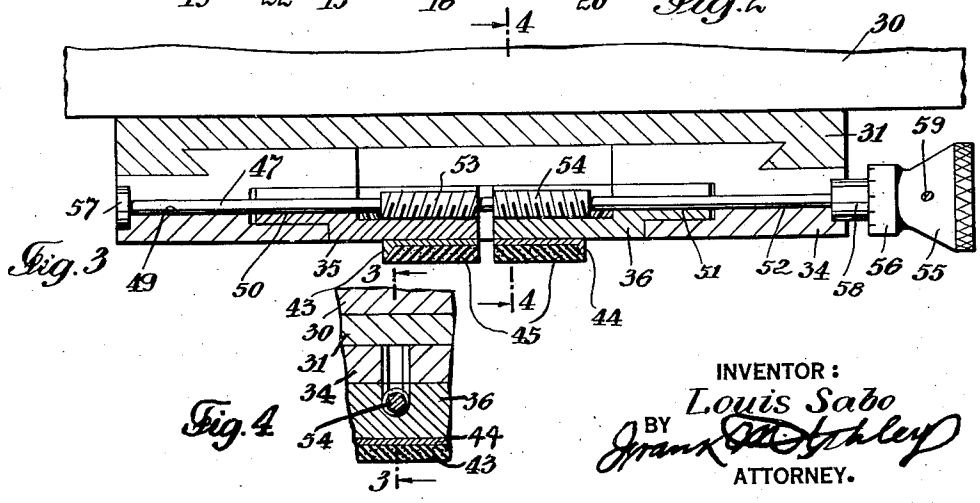


Fig. 3

Fig. 4

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CUTTING DEVICE

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10 Claims. (Cl. 12—17)

This invention relates to cutting devices, and more particularly to cutters adapted to form a heel-breast flap from a portion of the sole of a shoe.

One of the principal objects of the invention is to provide a cutter which may be adjusted to form a cut contour of varying width, according to the adjustment of the device.

Another object is to provide such a device which may be positively adjusted to a selected predetermined width.

Another object is to provide means by which such a cutter is easily inserted and removed in a support therefor, for assembly with mechanism for operating the same.

Another object is to provide such a cutter with a resilient pad extending to the cutting edges thereof, and which bears upon a flap being operated upon.

Another object is to provide means by which said cutter is adjusted equally from the central line thereof.

Further objects and advantages of the invention will be in part set forth in the following specification, and in part will be obvious to those skilled in the art to which the invention relates, without being specifically pointed out.

With the above and other objects of the invention in view, the invention consists in the novel construction, arrangement and combination of various devices, elements and parts, as set forth in the claims hereof, certain embodiments of the same being illustrated in the accompanying drawing and described in this specification.

In the said drawings,

Fig. 1 is a front view, partly in section, of one embodiment of my invention;

Fig. 2 is an inverted plan view of the same;

Fig. 3 is a view, partly in section, of a modification of the invention; and

Fig. 4 is a fragmentary sectional view, taken along the line 4—4 of Fig. 3.

Referring first to Figs. 1 and 2, 10 indicates a portion of the press in which my cutter is mounted, the same being shown broken away at the top and sides. Fixed to the member 10 is a plate 11 for supporting the cutter and adjusting means which form the invention. This plate 11 has a pair of inward inclined shoulders 12, with which slidably engage outwardly inclined shoulders 13 on a plate 14, by which means the cutter is easily attachable and removable, with its adjusting mechanism.

In the plate 14, is mounted a divided plate, comprising sections 15 and 16, the outer edges of which are supported in channels 17 and 18 in the plate 14, resting upon shoulders 19 and 20. Springs 21 and 22 are positioned in laterally extending bores in the plate sections 15 and 16, bridging the line of division between the same and exerting an outward thrust, urging the sections to separate as far as possible. The springs 21 and 22 are spaced forwardly and backwardly of the transverse central line of the cutter, and therefore also serve to hold the parts in alignment.

To the lower surface of the plate sections 15 and 16, are secured the two sections of the cutter proper, designated 23 and 24. In the embodiment illustrated, each section is adapted to form one side of a heel-breast flap of a shoe. When the two sections are contiguous, the cut extends completely around the three sides of the flap; if the same are separated to such an extent that the cut is not continuous, the same is completed by removing the small remaining tongue, after removing the formed flap from the machine. A screw 25 passes thru a screw-threaded bore in the plate 14, its inner end bearing against the right-hand plate section 16, and its outer end having fixed thereon a knurled head 26; rotation of this screw 25 in one direction permits the plate sections 15 and 16 and consequently the cutter sections 23 and 24, to separate to the full extent permitted by the conformation of the plate 14, and rotation in the opposite direction causes the right-hand sections 16 and 24 to approach to, and, if such rotation is continued, to abut, the left-hand sections 15 and 23, against the force of the springs 21 and 22. In order to insure a predetermined effective cutting width of the adjusted cutter, a graduated collar 27 is formed upon the inner end of the head 26, to indicate the amount of turn necessary for a particular width of heel-breast flap. A pointer cooperating with the graduations may be provided if desired, not shown in the drawing. By this means, a heel-breast flap may be formed which will accurately fit different widths of heels, even though the difference be slight.

The cutter sections 23 and 24 are each provided with a pad 28, of sponge rubber or other suitable yielding and resilient material. These pads substantially fill the interior cavity of each cutter section, extending close to the cutting edges and to the central dividing line, and the lower surfaces of the pads lying substantially

flush with the line of the cutting edges. The heel flap or other material to be cut, being positioned and supported in place for the forming operation, will lie under the cutter and upon a platen or other co-acting means, not shown. On the downward stroke of the cutter, the pads 28 will smooth the material to be cut, insuring that the cutting edges will form the correct contour intended, without distortion due to bulging, wrinkling or other displacement of the flap upon its support. Upon the rising of the cutter, the resiliency of the pads 28 will bear downward upon the material until the cutting edge is clear of the same, thus obviating any rising of the material with the cutter and a resulting necessity of manually disengaging it therefrom.

In Figs. 3 and 4, I have shown a modified form of construction, in which the adjustment of the plate and cutter sections is equal on each side of the central line between the sections. In a machine wherein the shoe is mechanically positioned for the forming operation, it may be necessary that the cutter shall always be centrally positioned with regard to a given line. To accomplish this result, the adjustment is made by right and left screw-threaded sections. In these figures, 30 indicates a portion of the press, partly broken away, and 31 a plate analogous to plate 11. A plate 34 is supported from the plate 31, and in turn supports plate-sections 35 and 36, to which are attached cutter sections 43 and 44, provided with pads 45, all of which are in general similar to the corresponding parts above described, except as below pointed out.

A composite slot extends from side to side of the device, thru the plate 34 and plate sections 35 and 36, being U-shaped at the sides of the plate 34 and in the sections 35 and 36, and extending thru the central portion of the plate 34. In this U-shaped channel, the sections of which are designated 49, 50, 51 and 52, lies the adjusting device, comprising a shaft 47, upon which are right and left screw-threaded sections 53 and 54, which lie in the enlarged central portion of the channel 50—51. The semi-cylindrical lower surface of this channel 50—51 is screw-threaded, right and left, to be engaged by said sections 53 and 54. A knurled head 55 having a graduated collar 56, is fixed to the shaft 47 by a set screw 59. Collars 57 and 58, surrounding the shaft, lie in recesses in the plate 34 formed to prevent upward movement thereof, thereby holding the adjusting member in engagement with the bottom of the channel.

In this form of the invention, it will be obvious that rotation of the knurled head will adjust the cutter in width, but always equidistantly from the central line between the sections.

The operation of the invention has been set forth in connection with the above description of the construction.

The advantages of the invention will also be clear to those skilled in the art, from what has been above said.

I do not limit myself to the particular details of construction and operation which have been described in the above specification or illustrated in the accompanying drawing, as it is obvious that various modifications may be made, within the scope of the claims hereof, without departing from the spirit and scope of the invention.

It is obvious, for instance, that the resilient pad may be utilized on a non-adjustable cutter, as well as upon the device here shown, and also that the adjustable means may be applied to forming devices of other kinds and for other purposes than the heel-breast cutting means shown and described. Other changes will occur to those skilled in the art.

Having thus described my invention, I claim:

1. A cutting device for removable attachment as a unit to operating means therefor and adapted to form sheet material into predetermined similar contours of varying predetermined widths, comprising in combination a supporting plate for attachment to a plunger or the like for operating said device, said plate having a pair of inwardly and downwardly inclined shoulders, a second supporting plate having a pair of upwardly and outwardly inclined shoulders removably slidably engaging with the shoulders of said first supporting plate, and having also a recess in its under portion and channels located laterally of said recess, a pair of cutter-supporting sections mounted in said recess and each having a lateral shoulder lying in one of said channels, whereby said sections are supported by said second plate and adjustable with relation to each other by slidable movement of one of said sections toward or away from the other section, each of said sections carrying upon its under side one part of a divided cutter, and a screw passing thru a portion of said second plate and operable to control said relative sliding movement to vary the distance between said sections and thereby adjust the width of the contour cut by said divided cutter.

2. The construction defined in claim 1, together with indicating means on said screw for accurately predetermining the extent of said relative sliding movement.

3. The construction defined in claim 1, together with said cutter-supporting sections being slidably removable from said second plate.

4. A cutter adapted to form heel-breast flaps for shoes, of similar contour and varying predetermined sizes, comprising a plurality of sections each adapted to form a part of said contour, means slidably supporting one of said sections for movement toward and away from the other, a screw mounted to move said sliding section toward the other section when rotated in one direction and to permit said sliding section to move away from said other section when said screw is rotated in the opposite direction, each of said sections having a plurality of bores extending laterally thereinto from its edge adjacent the other section, the bores in one section registering respectively with the bores in the other section to provide a plurality of composite sockets, one of said composite sockets being located forwardly of said screw and another being located rearwardly thereof, and a spring positioned in each of said composite sockets and bridging the line of separation of said sections and urging said sections apart.

5. A cutting device for removable attachment as a unit to operating means therefor and adapted to form sheet material into predetermined similar contours of varying predetermined widths, comprising in combination a supporting plate provided on one side with means for attachment of said plate to said operating device and on the other side with a recess, a pair of flat plate sections slidably retained in said recess and supported by said supporting plate, said flat plate sections being adjustable with relation to each other by sliding movement in said recess, a cutting edge provided on the other side of each of said plate sections, a rotatable screw passing

through a portion of said supporting plate and operating to control said relative sliding movement of said plate sections to adjust the width of the contour cut by said cutting edges.

6. The construction defined in claim 5, together with a resilient pad mounted upon each of said sections adjacent the inside of said cutting edge and adapted to bear upon said flaps directly prior to, during, and directly after, the cutting operation.

7. A cutting device for removable attachment as a unit to operating means therefor and adapted to cut sheet material into predetermined similar contours of varying predetermined widths, comprising in combination a supporting plate for attachment to said operating device and having a flat supporting surface, a pair of flat plate sections slidably supported by said supporting plate and each having on one side a cutter section and on the opposite side a flat surface engaging the flat supporting surface of said supporting plate, said plate sections being adjustable with relation to each other by sliding movement on said supporting surface, aligned openings in said plate sections, spring means in said openings for moving said plate sections apart, and means for controlling said relative movement to adjust the width of the contour cut by said cutter sections.

8. A cutting device for removable attachment as a unit to operating means therefor and adapted to cut sheet material into similar contours of varying predetermined widths, comprising in combination a supporting plate for attachment to said operating device, a pair of flat plate sections slidably supported by said supporting plate, a cutter section mounted on each of said sections, said supporting plate and plate sections having aligned slot portions of which at least one is provided with a threaded surface, a shaft lying in the composite slot formed by said slot portions and having screw threads engaging said threaded surface, and means for rotating said shaft to effect relative sliding movement of said plate sections to adjust the width of the contour cut by said cutter sections.

9. A cutter adapted to form heel-breast flaps for shoes, of similar contour and varying predetermined sizes, comprising a plurality of sections each adapted to form a part of said contour, means slidably supporting one of said sections for movement toward and away from the other, resilient means urging said sections apart, a screw mounted to move said sliding section toward the other section when rotated in one direction and to permit said sections to be separated when rotated in the opposite direction, and indicating means associated with said screw for accurately determining the extent of said movement.

10. A cutting device for removable attachment as a unit to operating means therefor and adapted to form sheet material into predetermined similar contours of varying predetermined widths, comprising in combination a supporting plate for attachment to a plunger or the like for operating said device, said plate having a pair of inwardly and downwardly inclined shoulders, a second supporting plate having a pair of upwardly and outwardly inclined shoulders removably slidably engaging with the shoulders of said first supporting plate, and having also a recess in its under portion and channels located laterally of said recess, a pair of cutter-supporting sections mounted in said recess and each having a lateral shoulder lying in one of said channels, whereby said sections are supported by said second plate and adjustable with relation to each other by slidable movement of one of said sections toward or away from the other section, each of said sections carrying upon its under side one part of a divided cutter, resilient means urging said sections apart, and a screw acting upon one of said sections to move the same toward the other section when rotated in one direction and to permit said resilient means to cause said sections to separate to a predetermined distance when rotated in the opposite direction.

LOUIS SABO.