

Feb. 28, 1939.

J. FERRARA

2,148,546

CHANNEL CUTTER ATTACHMENT

Filed March 28, 1935

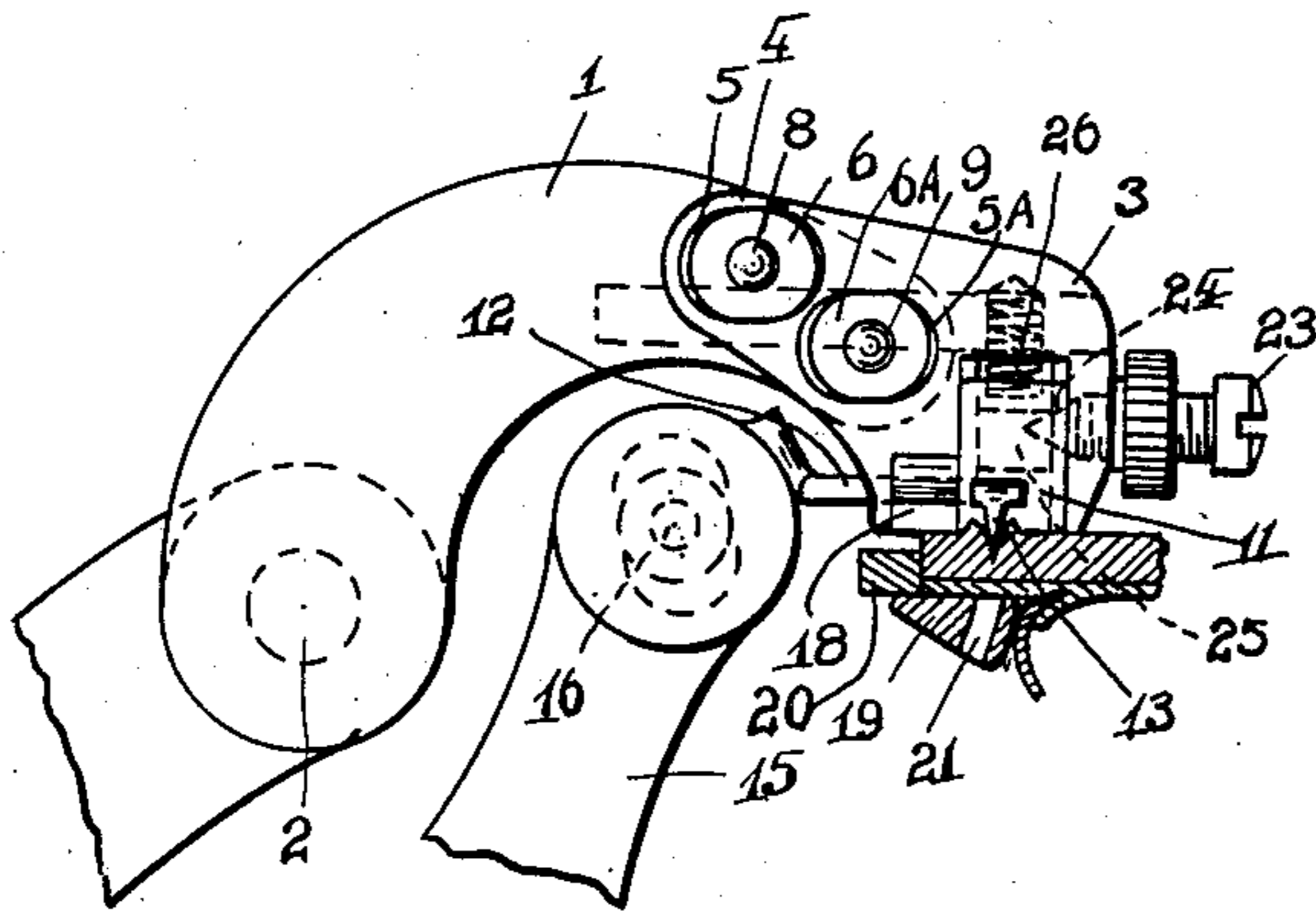


FIG. 1.

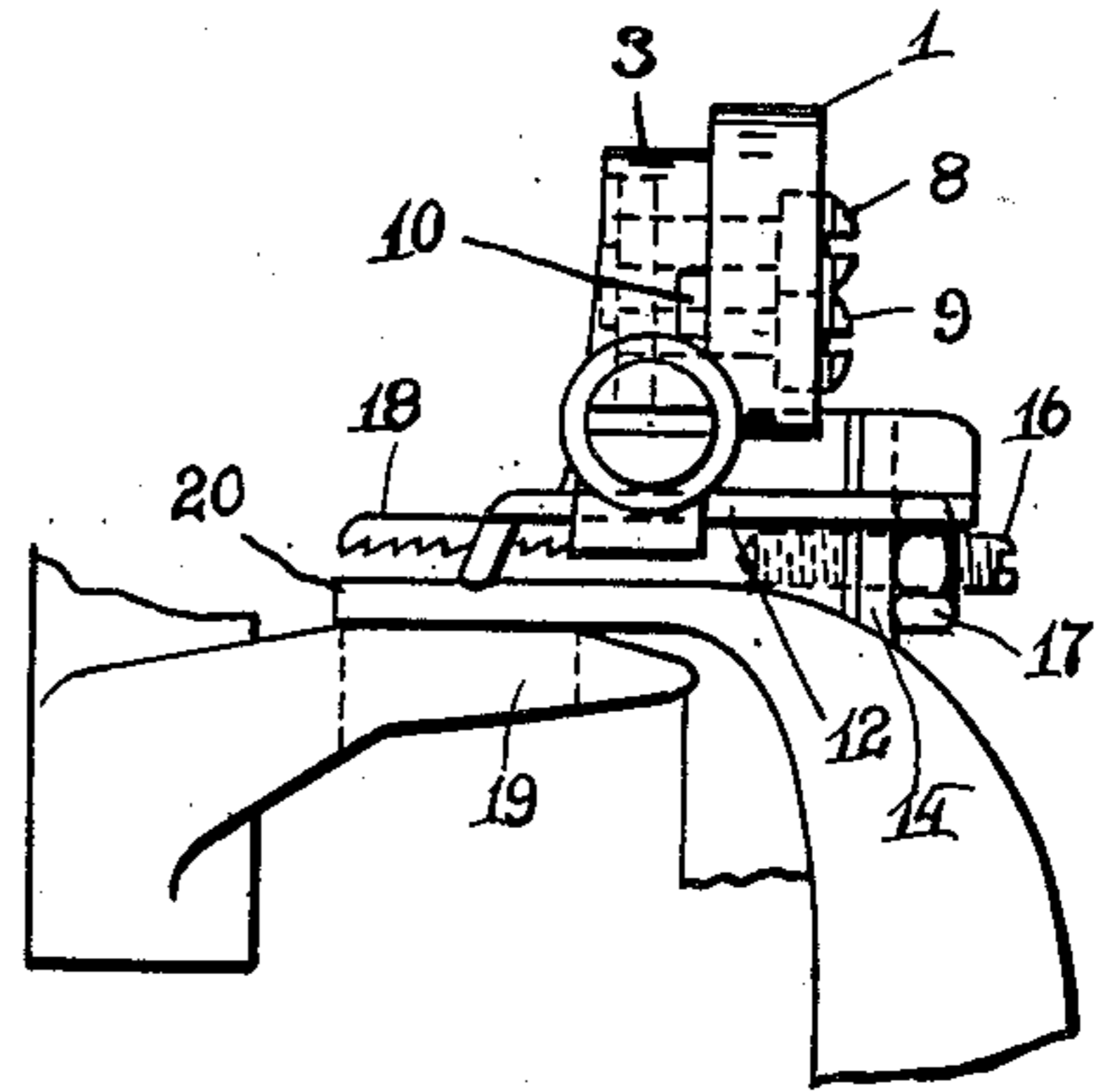


FIG. 2.

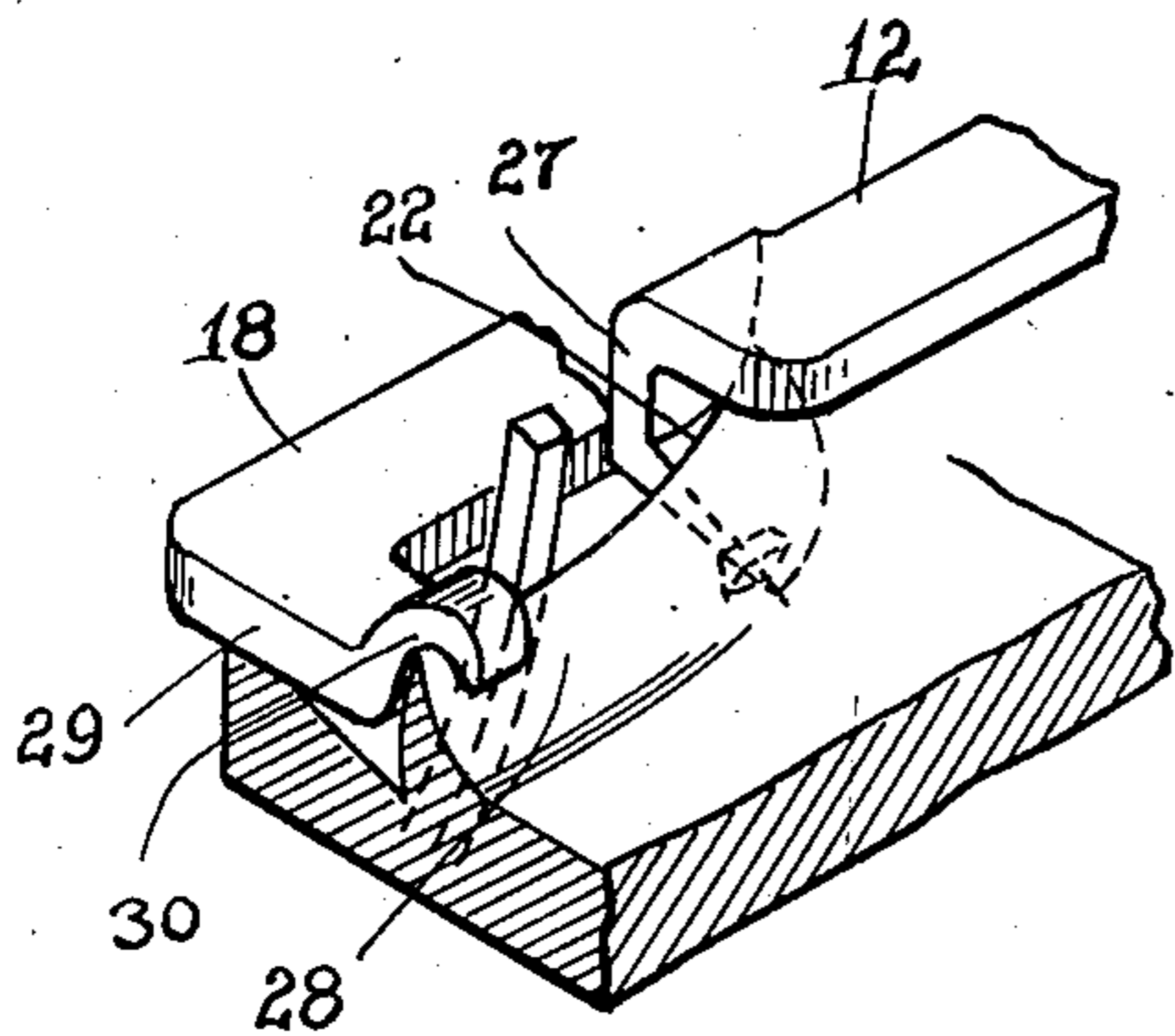


FIG. 3.

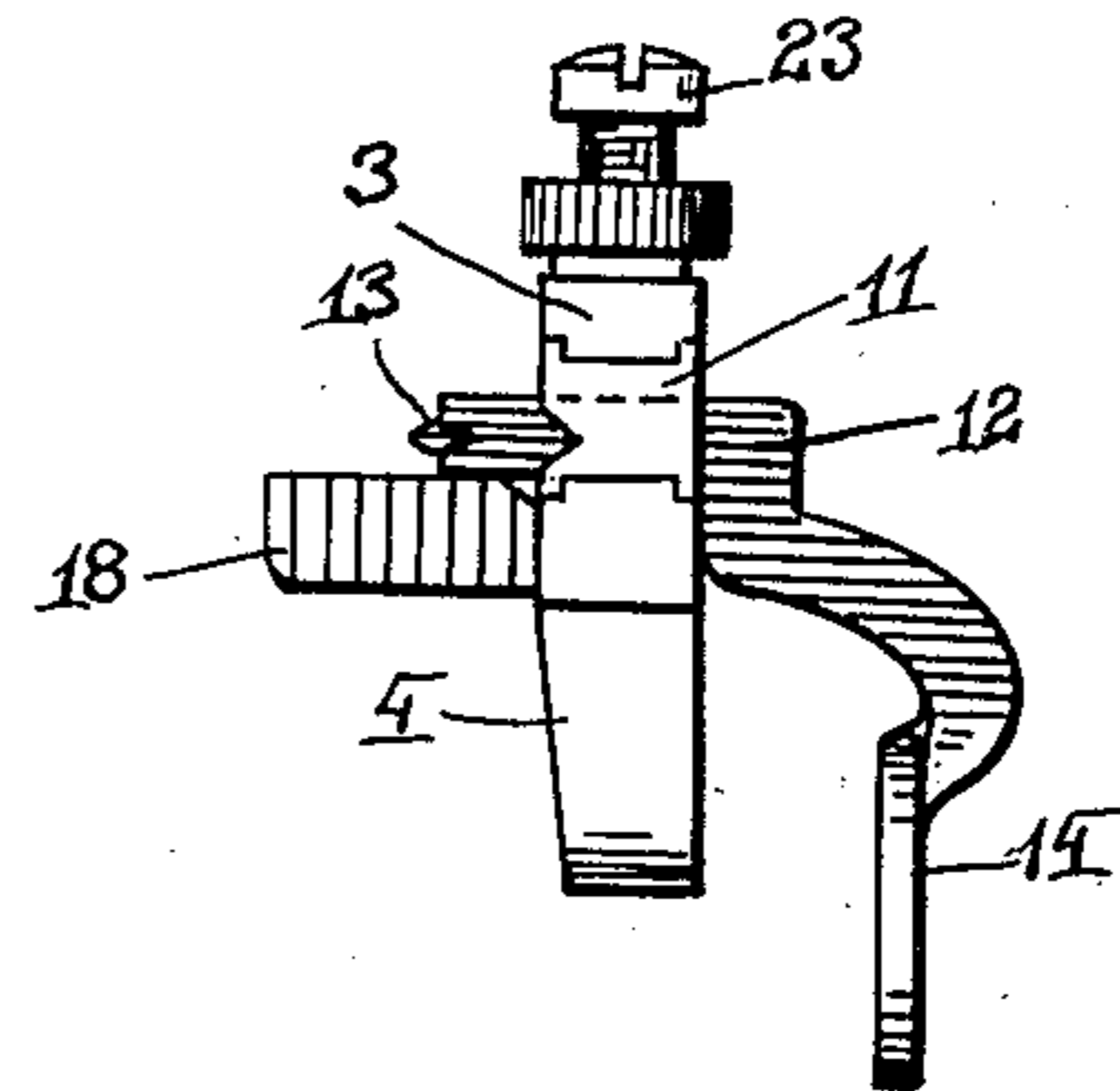


FIG. 4.

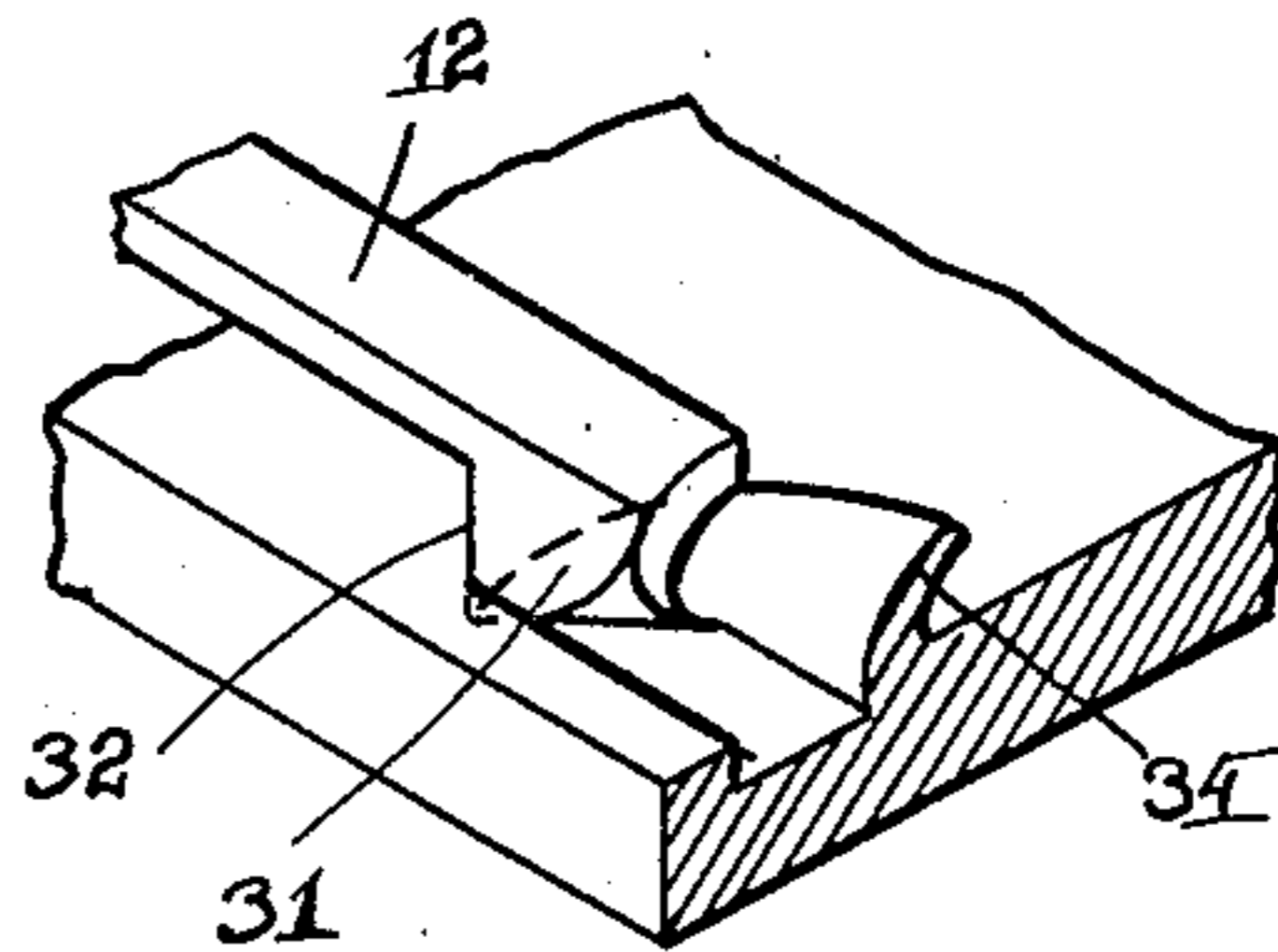


FIG. 5.

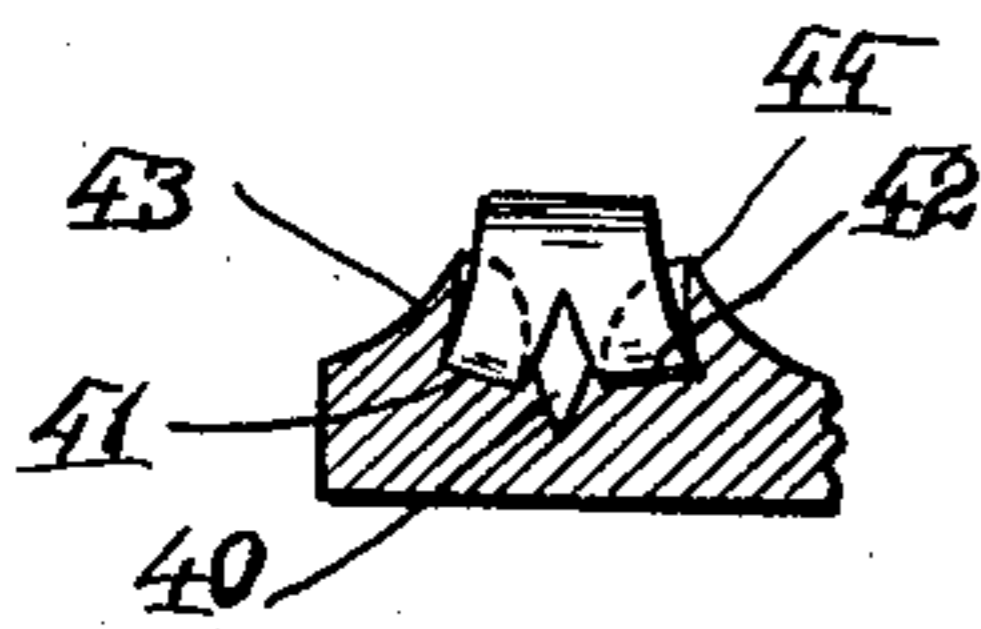


FIG. 6.

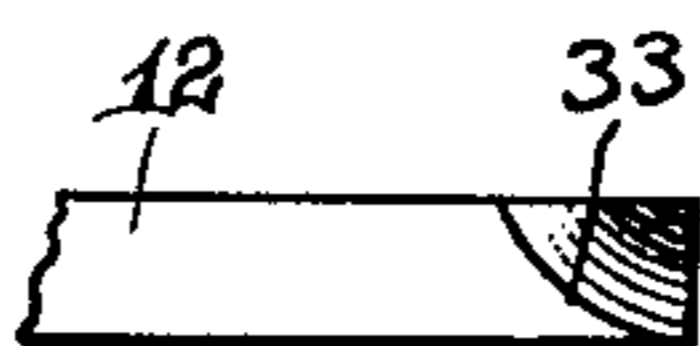


FIG. 7.

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## UNITED STATES PATENT OFFICE

2,148,546

## CHANNEL CUTTER ATTACHMENT

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Application March 28, 1935, Serial No. 13,503

7 Claims. (Cl. 112—45)

This invention relates to channel cutters for stitching machines and has for its object to provide a new and improved form of cutter which will efficiently cut the leather and form a channel in the sole ahead of the stitching operation.

Another object of this invention is to provide a novel form of mounting for the channel cutter.

These and other objects and attendant advantages of this invention will become more readily apparent from the detailed description thereof which follows, reference being had to the accompanying drawing in which

Figure 1 is a front elevation of the channel cutting attachment and the members of the stitching machine to which it is attached, a sole being shown in section to illustrate the operation of the attachment.

Figure 2 is an end elevation of the same parts.

Figure 3 is a detail bottom plan view of the attachment.

Figure 4 is an enlarged detail perspective view of a modified form of channel cutter for use with the attachment.

Figure 5 is an enlarged detail perspective view of another modified form of the channel cutter.

Figure 6 is a bottom plan view of the channel cutter illustrated in Figure 5.

Figure 7 is an end elevation of a modified form of the channel cutter in process of cutting a channel into leather stock, the leather stock being shown in section.

In the several figures of the drawing like reference numerals indicate like parts.

The channel cutter attachment forming the subject matter of my present invention is an improvement over the channel cutter attachment illustrated in my prior application Serial No. 687,462 filed August 30, 1933.

In my present improved form the attachment is adjustably mounted to the end of the arm 1 which is locked and held in a fixed position during the stitching operation and is released to swing on the pivot 2 and permit the raising of the attachment after the stitching operation is completed. The attachment comprises the bracket 3 which is provided with a rearwardly projecting angular extension 4 with which it is adjustably fastened to the arm 1. For this purpose one side of the extension 4 of the bracket is provided with two short channels 5 and 5A in which are mounted to slide the anchoring plates 6 and 6A. These plates are adjustably held in place in the channels 5 and 5A and are provided with threaded holes into which engage the clamping screws 8 and 9 carried by the arm 1. By tightening the

clamping screws the anchoring plates 6 and 6A thus firmly clamp the rearward extension 4 of the bracket 3 against the arm 1 to hold it firmly anchored thereto. The arm 1 may also be provided with a horizontal guide 10 which projects from the side of the arm and engages a corresponding guide slot in the side of the bracket 3 to locate this bracket in a predetermined position on the arm and keep it in a relative position thereto when adjusted in and out thereon. The adjustment is made by loosening the clamping screws to allow the bracket to move in and out therefrom while the clamping plates 6 and 6A adjust themselves to the desired position in the channels 5 and 5A.

Vertically adjustable in the bracket 3 is the bearing block 11 in which is provided a horizontal bearing for the shank 12 of the channel cutter. This shank is preferably of rectangular cross section and projects thru the bearing block with the cutting blade 13 provided at one end and the clamping plate 14 provided on the other end and offset therefrom to extend to the arm 15 to which it is fastened. This is done by means of the threaded stud 16 which is threaded into the end of the arm 15 and is locked thereto by means of the lock nut 17. The lock nut being adjustable on the stud 16 permits a horizontal adjustment of the clamping plate 14 on the arm 15 by interposing a washer or washers of various thicknesses between the clamping plate and the end of the arm 15 and then tightening the lock nut against the clamping plate thus spaced from the arm.

Projecting laterally to the left of the bracket 3 at the bottom thereof and in back of the cutting blade 13 is the presser foot 18. This presser foot is serrated at the bottom so that the serrations engage the surface of the sole about to be channeled while clamping it down onto the stationary support 19.

Located between the presser foot 18 and the stationary support 19 is the guide 20 which is fixed to have the outer edge of the sole held thereagainst and guided thereby during the stitching operation.

In Figure 1 I have illustrated a sole held in place by the presser foot 18 on the support 19 with the cutting blade 13 in the act of cutting a channel into the sole. As will be noted from an inspection of this figure the channel cut by the cutting blade is in line with the slot 21 provided in the support 19 so that the needle and awl moving therethru will enter the middle of the channel from above and below and pass thru the sole with a minimum resistance during the stitch-

ing operation. In this way the needle and awl are made to operate with greater ease in passing thru the leather so that the stitching produced by them is more uniform than has heretofore been possible with stitching machines without the channel cutting attachment.

The arm 15 moves laterally under the arm 1 and in so doing draws the cutting blade over the sole. In this way the cutting blade is being forced into the sole by means of the pressure exerted by the spring 26 after the presser foot 18 is forced down onto the sole to clamp the edge of the sole between it and the stationary support 19.

In the stitching machine the needle, which moves up thru the sole from the under side thereof, moves laterally for the spacing of the stitches after this needle has been withdrawn from the sole and while the edge of the sole is held clamped to the stationary support by the presser foot. This same movement is imparted to the channel cutter by the arm 15 so that while the needle is being moved laterally for its next stitch, the channel cutter is drawn over the sole to cut its channel and have it ready before the needle is again forced thru the sole in the channel provided by the cutter. In this way a section of the channel is always cut ahead of the stitching operation of the needle so as to locate the stitches in the channel and embed them therein. After the stitching operation is completed the channel is closed over the stitches by hammering or rolling the sides of the channel over the stitches so as to entirely conceal them therein and keep them from wearing off as the surface of the sole is brought in contact with the floor while walking.

A vertical adjustment of the channel cutter is secured by the adjusting screw 23 which is threaded into the front of the bracket 1 so that its tapered end 24 engages into the hole 25 provided in the bearing block 11. An expansion spring 26 is interposed between the top of the bearing block and the bracket so as to yieldingly force the bearing block downward and have the edge of the hole 25 engage the tapered end of the adjusting screw so that by threading the adjusting screw in and out, the bearing block with the channel cutter is raised and lowered in the bracket.

In Figure 4 I have illustrated a modified form of the channel cutter in which the cutting blade 22 is arranged to cut laterally at an angle to the surface of the sole. A vertical flange 27 supports the cutting blade from the shank 12 and holds it spaced therefrom. This cutting blade cuts an angular channel into the sole and provides a lip 28 on one side of the channel which is adapted to fold over the stitch to cover it after the stitching operation has been completed. To keep the lip 28 cut from the sole from interfering with the needle as it passes thru the sole during the stitching operation, the presser foot 18 is provided with a lateral extension 29 with a hook shaped end 30 which engages the lip as it is cut from the sole and holds it in an upright position away from the needle while the stitching operation takes place.

In another form of the channel cutter illustrated in Figures 5 and 6 the vertical flange 31 is provided with a cutting edge 32 and the bottom of the flange is curved under and is provided with a curved angularly extending cutting edge 33. The cutting blade thus formed cuts a channel as

illustrated in Figure 5 and provides a lip 34 on one side of the channel which is adapted to cover the stitching after the stitching operation is completed.

In Fig. 7 I have illustrated another modified form of the channel cutter. Three cutting edges are provided on this cutter, one which projects in a vertical plane and is indicated by reference numeral 40 and operates to slit the leather and two substantially horizontal cutting edges located one on each side of the vertical cutting edge and indicated by reference numerals 41 and 42. The substantially horizontal cutting edges channel the leather on opposite sides of the slit made by the central cutting edge and raise the lips 43 and 44 to permit the stitching mechanism to locate the stitches in the trough made by the central slitting cutter. After the stitching operation is completed the lips 43 and 44 can then be folded back over the channels and cover the stitching located in the trough between them.

I claim:

1. A channel cutter comprising a horizontal shank, a substantially vertically disposed cutting edge provided on the under side of said shank, and a substantially horizontally disposed cutting edge located on each side of said substantially vertically disposed cutting edge.
2. A channel cutter as set forth in claim 1 in which the substantially vertically disposed cutting edge projects below the substantially horizontally disposed cutting edges.
3. An attachment for stitching machines comprising a bracket, a presser foot provided on said bracket, an anchoring member adjustably engaging said bracket to provide a substantially horizontal adjustment for said bracket, a bearing in said bracket and a channel cutter horizontally movable in said bearing.
4. An attachment for stitching machines as set forth in claim 3 including means for adjustably connecting said channel cutter to said stitching machine to permit its movement in said bearing.
5. An attachment for stitching machines comprising a supporting member having a guide on one side thereof, a bracket, a presser foot provided on the bracket, a guide channel in said bracket for receiving said guide to provide for a substantially horizontal adjustment for said bracket, a bearing block carried by said bracket, a shank slidably mounted in said bearing block, a vertically depending cutting blade at one end of said shank and attaching means provided at the other end of said shank.
6. An attachment for stitching machines comprising a bracket, anchoring means carried by said bracket to provide a substantially horizontal adjustment for said bracket, a bearing in said bracket substantially at right angles to said anchoring means, a shank slidably mounted in said bearing, a groove forming cutting blade depending from said shank at one end thereof and connecting means for the movement of said shank provided at the other end thereof.
7. An attachment for stitching machines comprising a bracket with a substantially horizontal bearing therein, of a comparatively thin and flat shank for movement in said bearing, a narrow groove forming cutting blade depending from said shank at one end thereof and connecting means provided at the other end thereof.

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