G. E. BARKER.

BUTTON FEEDING DEVICE FOR BUTTON SEWING MACHINES.

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1,160,487. Patented Nov. 16, 1915.

Fig. 1.

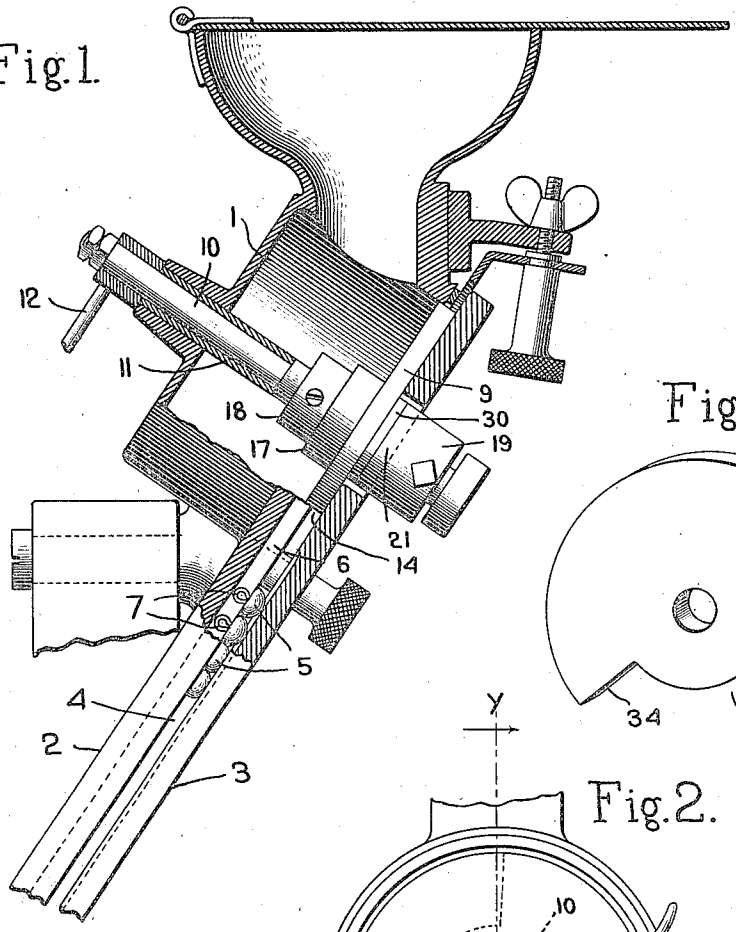


Fig. 5.

Fig. 2.

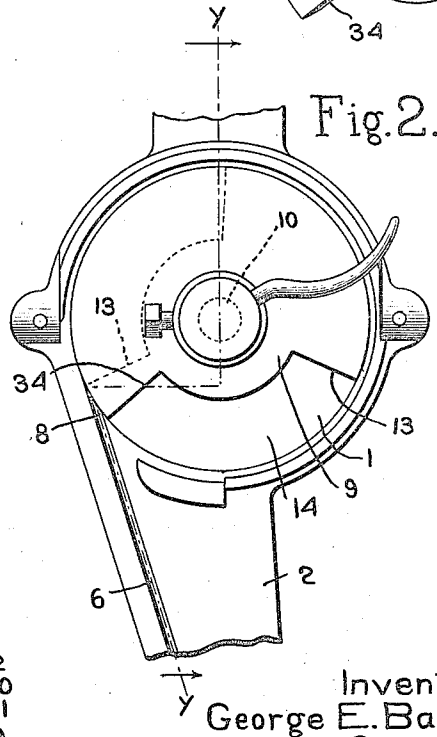


Fig. 3.

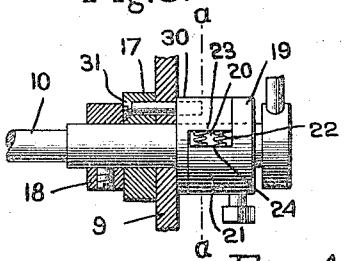
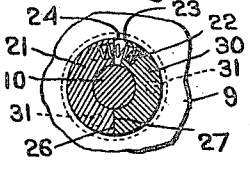


Fig. 4.



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UNITED STATES PATENT OFFICE.

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BUTTON-FEEDING DEVICE FOR BUTTON-SEWING MACHINES.

1,160,487. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed April 1, 1915. Serial No. 18,633.

To all whom it may concern:

Be it known that I, GEORGE E. BARKER, a citizen of the United States, residing at Arlington, county of Middlesex, State of Massachusetts, have invented an Improvement in Button-Feeding Devices for Button-Sewing Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to machines for sewing I-shanked buttons, such as are used on button shoes, onto cloth, leather or other goods, and particularly to the means for feeding the buttons from the reservoir to the chute by which they are conveyed to the sewing mechanism, and the object of the invention is to provide a novel button-feeding mechanism which will be positive in its action, which will not become readily worn by the operation of feeding the buttons, and which will accomplish the button-feeding operation without injury to the buttons, and which will have other advantages, all as will be more fully hereinafter described.

In order to give an understanding of my invention I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claims.

In the drawings, Figure 1 is a vertical sectional view through a reservoir for a button-sewing machine embodying my invention, taken on the line *y*—*y*, Fig. 2; Fig. 2 is a rear view of the reservoir shown in Fig. 1 with the plate 3 removed; Fig. 3 is a fragmentary sectional view showing the driving connection between the button-feeding member and the shaft 10; Fig. 4 is a section on the line *a*—*a*, Fig. 3; Fig. 5 is a perspective view of the button-feeding member.

I have herein illustrated my invention as it might be embodied in the button-feeding mechanism of a button-sewing machine of the type shown in United States Patents No. 690,978, dated January 14, 1902, No. 886,826, dated May 5, 1908, and No. 955,195, dated April 19, 1910, but as the invention relates to the button-feeding means associated with the reservoir and by which the buttons are fed from the reservoir to the chute that conveys them to the sewing mechanism, I have not thought it necessary to illustrate the sewing machine as an entirety but have confined the illustrations in the drawings to the reservoir and the button-feeding mechanism.

I have shown at 1 a button-receiving reservoir which communicates with a chute leading to the button-sewing mechanism. This chute is formed by the two parts 2 and 3 which depend from the reservoir 1 and which are shaped to present a space 4 for the buttons 5 and a guiding groove 6 in which the shanks 7 of the buttons are received, said space and groove operating to hold the buttons in proper position, all as described in the above-mentioned patents. This chute communicates at its upper end with the reservoir 1, as shown at 8, and in devices of this type it is customary to provide a button-feeding device for feeding buttons from the reservoir into the upper end of the chute. In the patents above referred to this button-feeding device is in the form of an oscillatory brush mounted in the reservoir and oscillated from the stitch-forming mechanism, the oscillations of the brush causing the bristles thereof to engage and agitate the buttons in the reservoir and feed them toward the entering end of the chute, some of the buttons being properly positioned by such agitation and feeding movement so that they will drop into the open end of the chute.

Experience has shown that a button-feeding device in the form of a brush is unsatisfactory because the bristles wear away after a comparatively short time to such an extent that the buttons are not fed to the chute with sufficient rapidity, and when this occurs it is necessary to replace the worn brush by a new one.

I have provided herein a novel button-feeding device which will withstand any wear to which it may be subjected, but which is sufficiently yielding in its character and in its movement to prevent any injury to the buttons should one of them become caught and which has other advantages.

My improved button-feeding device is shown at 9 and it is mounted on a shaft 10 that extends through a bearing 11 in the reservoir and has a wire or other connec-

tion 12 secured thereto by which it is oscillated, this wire or connection 12 leading to and being actuated from the stitch-forming mechanism. The button-feeding member 9 is made of tough but somewhat elastic material, so that it will not only withstand any wear to which it may be subjected, but will also give somewhat to prevent any injury to the buttons. I find that leather makes a good material for this purpose, and I propose, therefore, to make this feeding device of leather. The feeding device is shown as having a general circular shape, but cut away at 14 to form a button-feeding shoulder or edge 13 which in the present embodiment extends substantially radially. This button-feeding member 9 is so positioned that during the oscillation of the shaft 10, the shoulder or edge 13 moves from the full to the dotted line position Fig. 2. Inasmuch as the reservoir stands at an inclination, as shown, the buttons will naturally gravitate toward the lower side of the reservoir so that when the button-feeding device is in the full line position, Fig. 2, some of the buttons will fall down against the bottom 14 of the reservoir in front of the shoulder or edge 13 and when the button-feeding device moves into the dotted line position, these buttons are fed forwardly by said edge 13, and one or more of them will be dropped into the upper end of the chute.

The extent of the opening or cut-away portion 14 of the button-feeding member 9 is such relative to the angle through which said member oscillates that when it is in its retracted position, as seen in full lines Fig. 2, the edge 34 of the opening 14 has been carried past the entering end 8 of the chute. If, therefore, a button becomes caught at the entrance to the chute, the edge 34 will dislodge it so as to leave the chute free for the entrance of buttons thereto upon the next forward movement of the feeding edge 13.

I have provided herein a construction by which the button-feeding device 9 is yieldingly secured to the shaft 10. This is herein accomplished by securing the feeding device 9 to two collars 17 and 30 that are loosely mounted on the shaft and are situated either side of the member 9, said collars and member 9 being secured together by screws 31. These connected collars are situated between and held in place on the shaft 10 by collars 18 and 19 both fast to the shaft. The collar 30 is cut away, as shown at 20, and the collar 19 which is fast to the shaft is provided with a projecting portion 21 which occupies the space 20 where the collar 30 is cut away. One or more springs 22 are interposed between the shoulder 23 of the collar and the shoulder 24 of the extension 21, said springs yieldingly holding the shoulders 26 on the collar against the shoulder 27 on the sleeve. The spring 22 is of sufficient strength to withstand the normal pressure of the buttons against the edge 13 during the oscillatory movement of the feeding device 9, but if a button becomes caught at the entering throat of the chute, then the spring 22 will yield sufficiently to prevent any injury to the button. The member 13 will thus give a positive feeding movement to the buttons, but it is sufficiently yielding in its nature so that it will not injure or mar the buttons as a hard non-yielding metallic feeding member would. Further, the feeding member 9 being of leather is tough and will resist the wear to which it is subjected much longer than a feeding member in the form of a brush would, and moreover, since the feeding member 9 is yieldingly sustained on the oscillating shaft, there is no danger that it will crush or injure a button which may be caught at the entering end of the chute.

While I have described the feeding member 9 as made of leather, yet I do not wish to be limited to this particular material, as any material which is sufficiently yielding so that it will not injure the buttons but which has sufficient strength and toughness to perform the desired functions may be used without departing from the invention.

I claim:

1. In a device of the class described, the combination with a button-receiving reservoir, of a chute communicating with the reservoir, an oscillatory button-feeding member in the reservoir formed of material having a slightly yielding nature and presenting a radial button-engaging edge, and means to oscillate said member to feed buttons into the chute.

2. In a device of the class described, the combination with a button-receiving reservoir, of a chute communicating with the reservoir, an oscillatory button-feeding member in the reservoir, said member being made of leather and presenting a substantially radial button-engaging edge, and means to oscillate said member.

3. In a device of the class described, the combination with a button-receiving reservoir, of a chute communicating therewith, a shaft extending through the reservoir, a button-feeding member yieldingly mounted on said shaft and provided with a button-engaging edge, and means to oscillate said shaft.

4. In a device of the class described, the combination with a button-receiving reservoir, of a chute communicating therewith, a shaft extending through the reservoir, a sleeve loosely mounted on the shaft and having a yielding driving connection therewith, a button-feeding member secured to said sleeve, and means to oscillate the shaft.

5. In a device of the class described, the combination with a button-receiving reser-

voir, of a chute communicating with the reservoir, an oscillatory button-feeding member in the reservoir having two radially-extending edges spaced from each other an angular distance substantially equal to the angle through which said member oscillates whereby one edge will feed buttons to the chute and the other will dislodge any buttons that may become caught at the entrance to the chute.

6. In a device of the class described, the combination with a button-receiving reservoir, of a chute communicating therewith, an oscillatory button-feeding member in the reservoir having an opening therein presenting two opposed edges spaced an angular distance apart substantially equal to the angle through which said member oscillates whereby one edge will feed buttons to the chute and the other will dislodge any buttons that may become caught at the entrance to the chute.

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

GEORGE E. BARKER.

Witnesses:
F. A. SHEA,
LOUIS C. SMITH.