

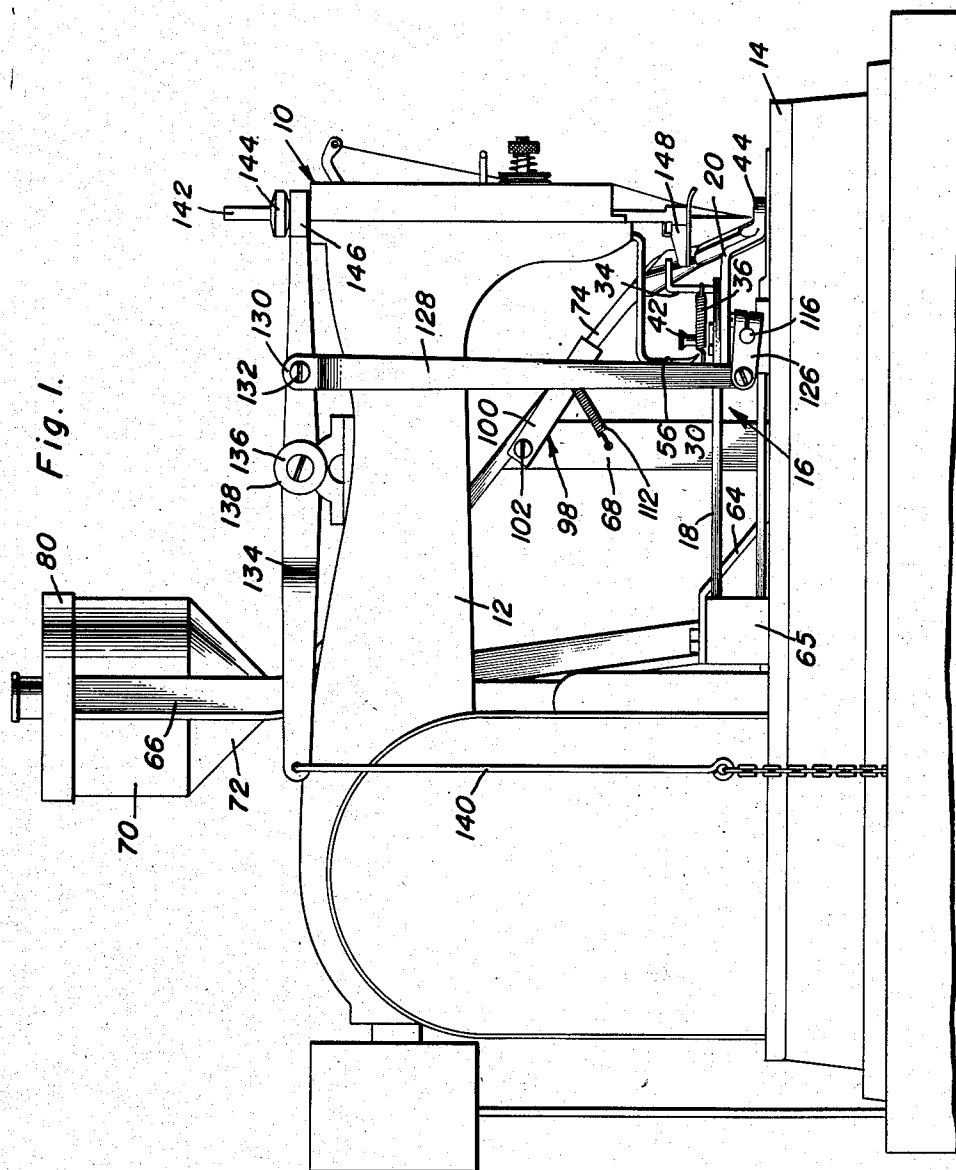
Aug. 22, 1950

H. L. HERRING
BUTTON DISPENSING ATTACHMENT
FOR BUTTON SEWING MACHINES

2,519,655

Filed Aug. 22, 1949

5 Sheets-Sheet 1



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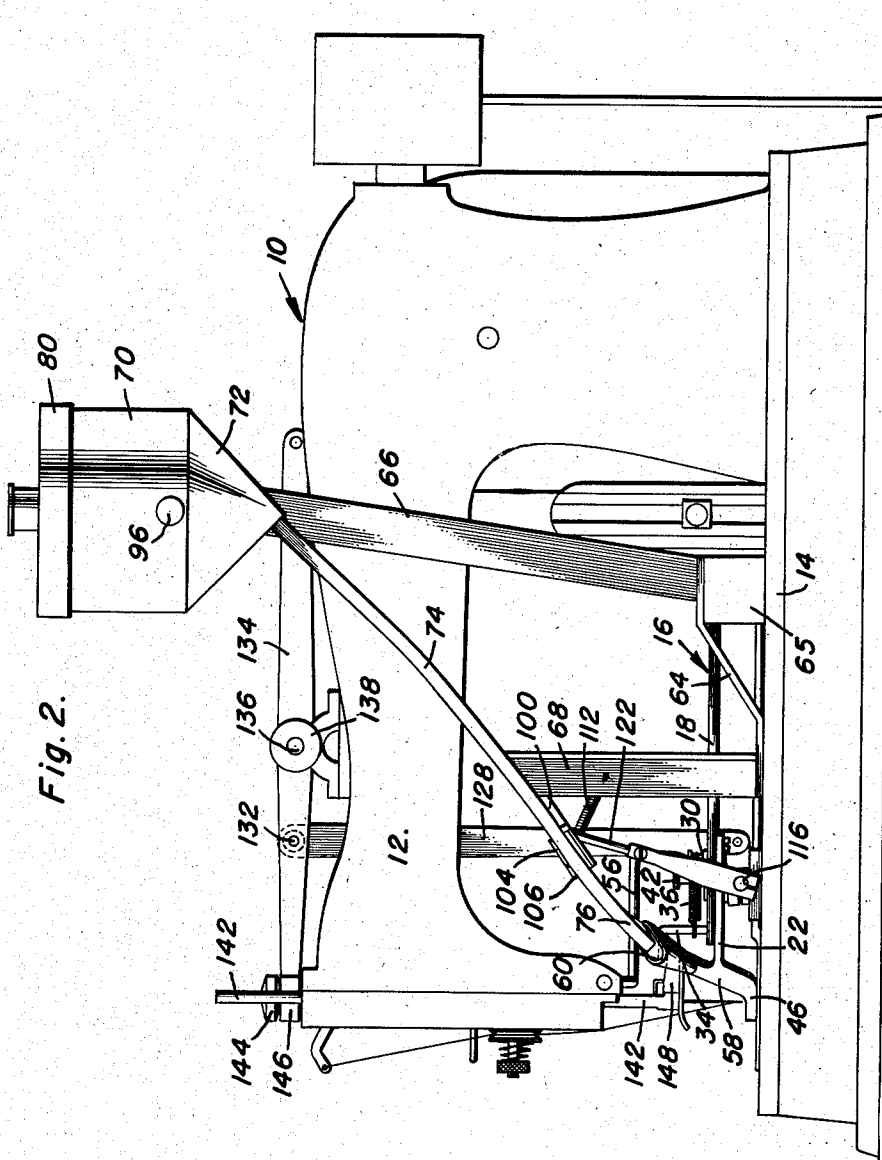
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Filed Aug. 22, 1949

5 Sheets-Sheet 2



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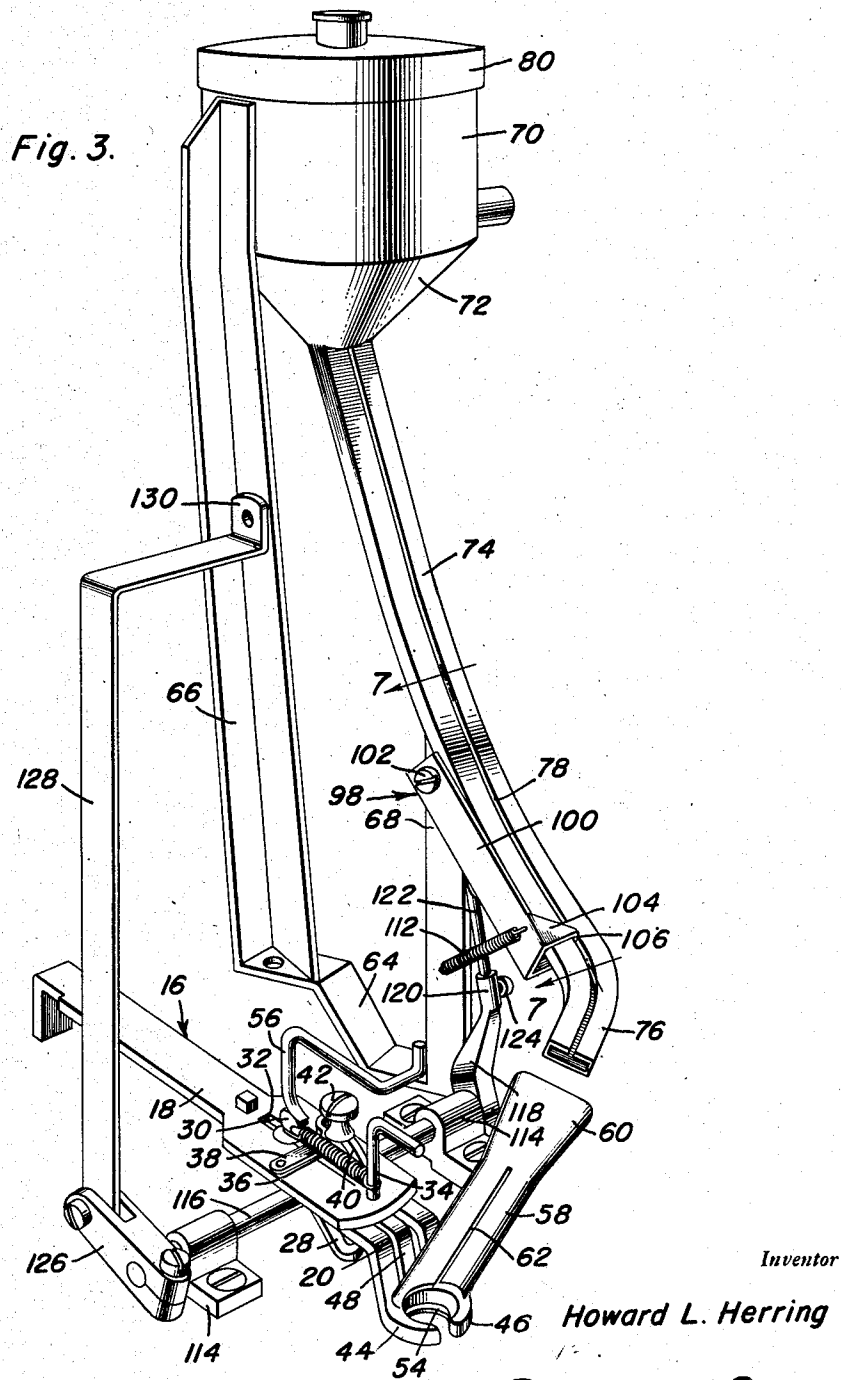
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Fig. 4.

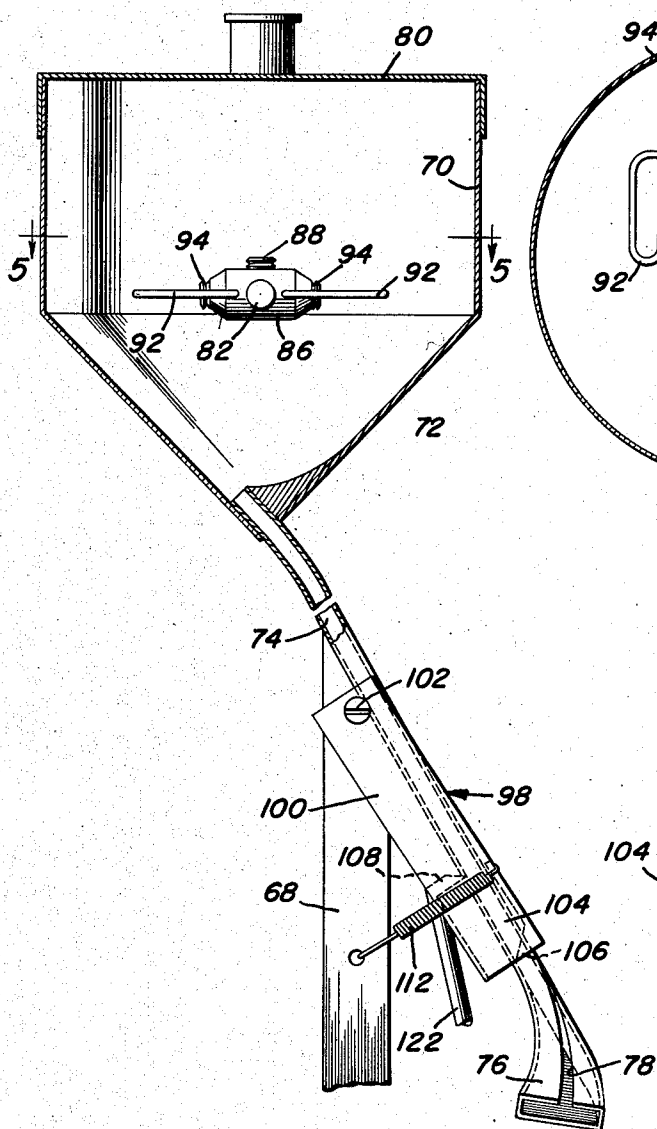


Fig. 5.

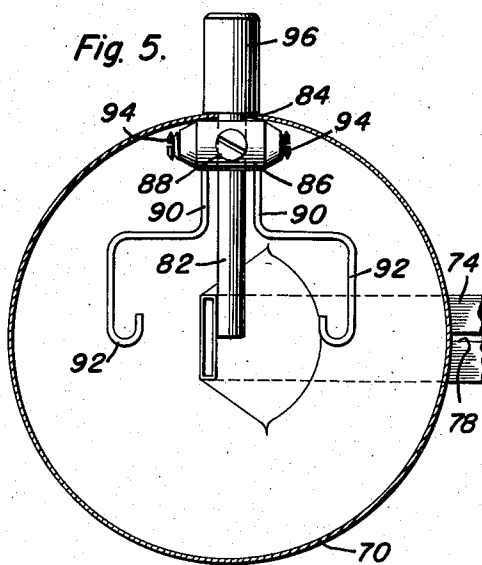
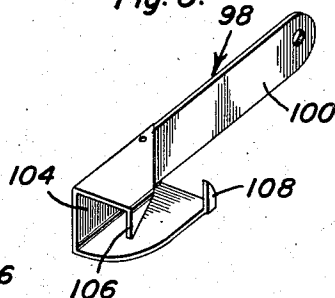


Fig. 6.



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Fig. 7.

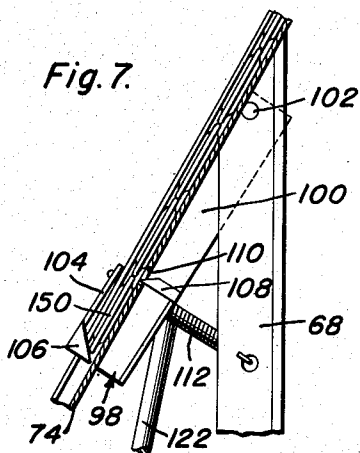


Fig. 8.

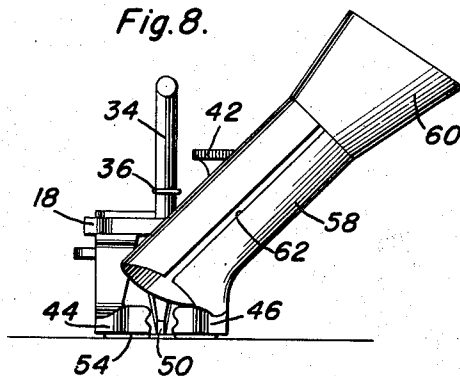


Fig. 9.

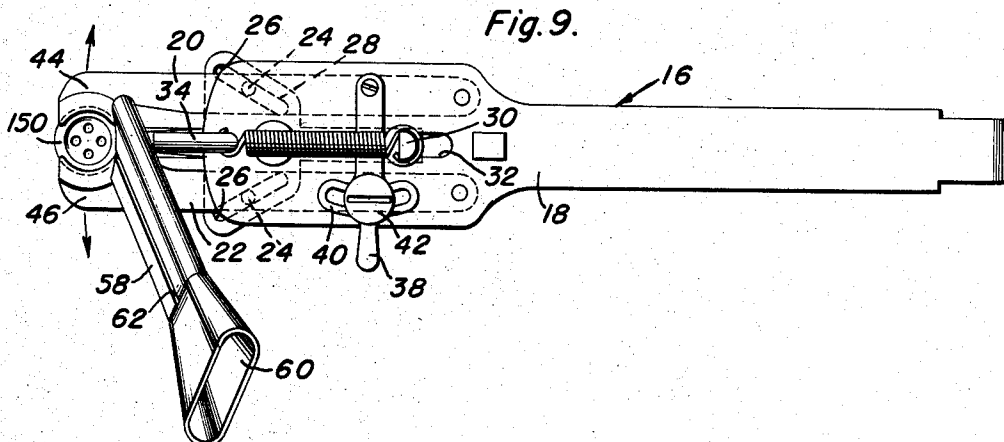
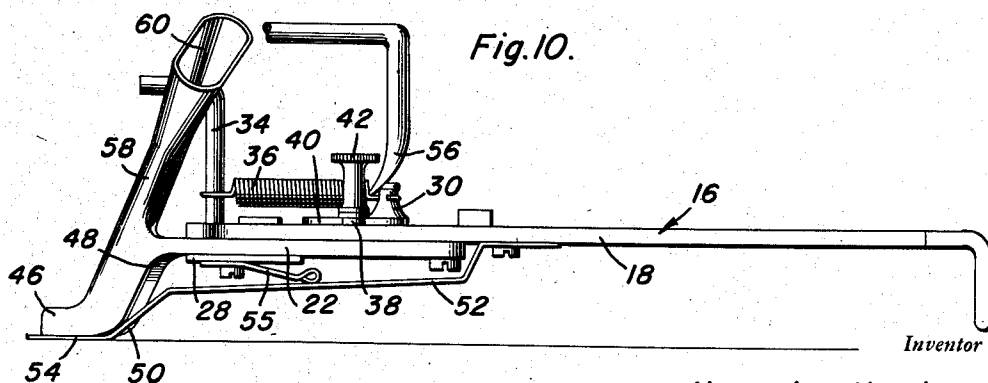


Fig. 10.



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UNITED STATES PATENT OFFICE

2,519,655

BUTTON DISPENSING ATTACHMENT FOR
BUTTON-SEWING MACHINESHoward L. Herring, Jackson, Miss., assignor of
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Application August 22, 1949, Serial No. 111,693

6 Claims. (Cl. 112—113)

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This invention relates to new and useful improvements in button sewing machines and the primary object of the present invention is to provide a button dispensing attachment for button sewing machines so that a single button may be discharged to and gripped by the usual button holding jaws of a button sewing machine.

Another object of the present invention is to provide a button dispenser for button sewing machines that is foot operated to permit an operator to have both hands free for the manipulation and feeding of cloth to the machine.

Yet another object of the present invention is to provide a button dispensing attachment for button sewing machines including a delivery conduit and a novel and improved button holding and releasing member that is manually actuated through an operating mechanism to effect the release of a single button at a time.

Another object of the present invention is the provision of a button dispensing attachment for button sewing machines including a hopper and an agitator associated with the hopper to prevent the clogging of buttons in the hopper.

Another object of the present invention is to provide a button dispenser for button sewing machines that is quickly and readily applied to or removed from a button sewing machine without in any way interfering with the normal structure of the machine on which the same is attached.

A further object of the present invention is to provide a button dispensing attachment for button sewing machines that is extremely small and compact in structure to occupy very little space on a button sewing machine.

A still further aim of the present invention is to provide a button dispenser of the aforementioned character that is simple and practical in construction, strong and reliable in use, highly efficient in operation, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, references being had to the accompanying drawing forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of a button sewing machine and showing the present invention applied thereto;

Figure 2 is a side elevation view, taken in opposite direction of Figure 1, of a button sewing machine and showing the present invention applied thereto;

Figure 3 is a perspective view of the instant button dispensing attachment showing the button holding jaws that the same is associated with and also showing the spreader cam for the jaws;

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Figure 4 is a detailed view, partly in section and partly in elevation, showing the hopper construction and the delivery conduit extending from the hopper;

Figure 5 is a horizontal sectional view through the hopper and taken substantially on the plane of section line 5—5 of Figure 4;

Figure 6 is a perspective view of the button holding and releasing member that is used in conjunction with the present invention;

Figure 7 is a vertical sectional view taken substantially on the plane of section line 7—7 of Figure 3 and showing the mounting for the button holding and releasing member;

Figure 8 is a front sectional view of the button gripping jaws and support therefor and the conduit mounted on one of the jaws;

Figure 9 is a plan view of Figure 8; and,

Figure 10 is a side elevational view of Figure 9 and showing the jaw spreader cam in position for effecting the spreading of the button holding jaws.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a conventional and well known type of button sewing machine generally including a head 12 and a base 14.

As is usual for button sewing machines, there is provided a button holder 16 consisting of a vertically swingable base 18 on which a pair of button holding jaws 20 and 22 are pivotally mounted. The jaws 20 and 22 support pins 24 that are slidably received in forwardly diverging slots 26 in a jaw operating member 28. A lug 30 rises from the member 28 and is slidably received in a longitudinally extending slot 32 in the plate 18 so that as the lug 30 enters the rear of the slot 32 the jaws 20 and 22 will spread whereas the placement of the lug 30 in the forward portion of the slot 32 will effect a movement of the jaws 20 and 22 toward each other.

A post 34 rises from the forward end of the plate 18 and a coil spring 36 is terminally secured to the post 34 and lug 30 to yieldingly urge the lug 30 and member 28 forwardly of the plate 18 and hence the jaws 20 and 22 to their button gripping position.

A swingable member 38 is pivoted to the plate 18 and extends across the slot 32 between the lug 30 and post 34. The member 38 is formed with an arcuately slotted head 40 that receives a bolt 42 threaded to and extending upwardly from the plate 18. As the bolt 42 is threaded downwardly the same will clamp or force the head 40 against the upper surface of the plate 18 and will permit the lug 30 to be held at a predetermined distance from the post 34. The bolt 42 is normally positioned so that the member 38 can be swung to

contact the lug 30 to move the lug 30 rearwardly in order to spread the jaws 20 and 22.

The jaws 20 and 22 are provided with offset end portions 44 and 46 having concaved inner surfaces for gripping a button and a retaining finger 48 disposed between the jaws 20 and 22 is also provided with an offset portion 50 that is held stationary between the offset and positions 44 and 46 of the jaws.

An elongated spring member 52 is secured to the inner surface of the plate 18 and includes an offset and bifurcated end portion 54 that underlies the end portions 44 and 46 of the jaws. The furcations of the end portion 54 project inwardly of the concaved faces of the end portions 44 and 46 to prevent the downward movement of a button gripped by the end portions 44 and 46 of the jaws. A spring arm 55 supported on the member 28 urges the spring member 52 from the undersurface of the plate 18.

Held stationary on the machine 10 is a cam 56 that will engage the lug 30 during upward and rearward lifting movement of the forward portion of plate 18 to urge the lug 30 rearwardly in the slot 32 to thereby effect a spreading of the jaws 20 and 22.

The aforesaid structure, as shown best in Figures 8, 9, and 10, is quite similar to all types of button sewing machines and the manner in which the lug 30 is contacted by the stationary cam 56 is also quite common to practically all types of button sewing machines.

The button holder 15 is modified by a tubular member or conduit 58 having one of its ends secured by welding or the like to one of the jaws, for example the offset end portion 46 of the jaw 22. Of course, the conduit 58 may be integrally formed with the jaw 22 as a new article of manufacture, since the present invention is adaptable for existing sewing machines as well as newly manufactured sewing machines. The conduit 58 inclines rearwardly and upwardly from the jaw 22 and at one side of the jaw 22, and the conduit 58 terminates in an enlarged end portion or guide throat for a purpose that will later be more fully described.

The conduit 58 is formed with a longitudinal slot 62 in one of its walls to permit a slight expansion of the conduit 58 as a button passes therethrough and so that an access to the interior of the conduit 58 will be present. The lower end of the conduit 58 slopes over the end portions 44 and 46 of the jaws 20 and 22 so that a button sliding downwardly through the conduit 58 will be deposited in a substantially horizontal position between the end portions of the jaws and on the furcations of the end portion 54 of spring 52.

A support 64 is mounted on the base 14 of the machine 10, or to a block 65 secured to the base 14, by fasteners or the like, and the support 64 includes a pair of upstanding portions 66 and 68. The upper end of portion 66 is secured to a hopper 70 having a downward tapering substantially conical lower portion 72. The minor end of the conical lower portion 72 is secured to the upper end of a downwardly curved delivery conduit 74 having a discharge end 76 that is curved laterally toward the throat 60 of conduit 58. The delivery conduit 74 is supported by the portion 68 and the delivery conduit is provided, throughout its length, with a slot 78 that will permit a slight expansion of the delivery conduit.

A hopper 70 includes a removable cover or closure 80 and a means for agitating the buttons

in the hopper to prevent the buttons from clogging and thereby restricting their passage into the delivery conduit 74. The agitating means, as shown best in Figures 4 and 5, consist of a rod or holder 82 that is journaled for rotation in an aperture 84 in the hopper 70. A slide 86 is received on the inner end of the rod 82 and is held longitudinally adjusted on the rod 82, by a set screw 88. The slide 86 is provided with a pair of openings that are spaced parallel to the rod 82 and which receive the ends 90 of contact arms or wire members 92. Set screws 94 threaded on the slide 86 bear against the ends 90 to adjust, longitudinally, the members 92 relative to the slide 86.

As the enlarged outer end portion 96 of the rod 82 is rotated, the wire members 92 will rotate to agitate buttons in the hopper and thereby prevent the buttons from clogging up in the hopper, hence the buttons in the hopper will gravitate into the delivery conduit 74.

Means is provided so that a single button at a time can be discharged from the conduit 74 into the conduit 58. This means consists of a button holding and releasing member designated generally by the numeral 98 and which is disclosed best in Figure 6 of the drawings. The member 98 is composed of an elongated strap 100 that is pivoted, as at 102, to the portion 68 for vertical swinging movement. The strap 100 includes a channel shaped portion 104 the legs of which support upper and lower stops or fingers 106 and 108. The finger 106 is slidably received in the slot 78 and the finger 108 is slidably received in a slot 110 in the lower wall of the conduit 74 as shown in Figure 7.

A spring 112 is terminally secured to the portion 68 and the member 98 and yieldingly urges the finger 106 into the conduit 74 and the finger 108 out of the conduit 74 as illustrated best in Figure 7.

There is provided an operating means or linkage for the member 98 that consists of bearings 114 mounted on the base 14. The bearings 114 support a rock shaft 116 on one end of which is secured an arm 118 having a terminal sleeve 120 that slidably receives a contact member or rod 122. The member 122 is held longitudinally adjusted in the sleeve 120 by a set screw 124.

The other end of the shaft 116 supports a laterally projecting link 126 that is pivoted to an upright 128 having an offset ear 130 that is pivoted, as at 132, to a rockable lever 134. The lever 134 is supported on a pin 136 mounted on a bearing 138 on the head 12 and the rear end of the lever 134 is secured to a foot operated hanger 140. The forward end of the lever 134 is slidably received on a vertically movable rod 142 carried by the head 12 and having a stop 144 mounted thereon that overlies the eye end 146 of the lever 134.

The lower end of the rod 142 supports a laterally projecting block 148 that will engage the laterally projecting end of the post 34 to raise or lift the forward end of the member 16 as the rod 142 is moved upwardly. The elements 134-148 inclusive, form a usual part of a Singer sewing machine.

In practical use of the present invention, a plurality of buttons are placed in the hopper 70 and certain of the buttons will slide down the conduit 74 until they are arrested by the finger 106 of member 98.

When the hanger 140 is pulled downwardly, it raises the member 16 and opens the jaws 20 and

22, the member 98 will be pivoted upwardly to move the finger 108 into the conduit 74 and the finger 106 out of the conduit thereby releasing the button 150 previously resting against the finger 106. The button 150 will slide down the conduit 74, and since during the raising of the member 16 the throat 60 is moved toward the discharge end 76 of the conduit 74, the button 150 will pass into the conduit 58 and will be deposited between the jaws 20 and 22 as before described.

The spring 112 will then return the finger 106 to its position within the conduit 74 and finger 108 out of the conduit 74 so that as the hanger 140 is again moved down another button will be discharged. Also, the member 16 will swing downwardly to its normal position and the jaws 20 and 22 will grip the button therebetween.

In view of the foregoing description taken in conjunction with the accompanying drawing it is believed that a clear understanding of the device will be apparent to those skilled in the art. A more detailed description is accordingly deemed unnecessary.

It is understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a button sewing machine including a pair of button holding jaws, an attachment for the sewing machine for supplying buttons to the jaws, said attachment comprising a hopper mounted on the sewing machine, a delivery conduit extending from the hopper, a further conduit carried by one of said jaws and positioned to receive buttons leaving the delivery conduit, a channel member, a support for said delivery conduit, a pivot pin securing said channel member to said support, first and second spaced parallel fingers on said channel member, said fingers being spaced apart to permit a button to be disposed therebetween, openings in said delivery conduit for receiving said fingers, said fingers being alternately moved into and out of said delivery conduit, and an operating mechanism connected to said channel member for imparting pivotal movement to said channel member.

2. In a button sewing machine including a pair of button holding jaws, an attachment for the sewing machine, for supplying buttons to the jaws, said attachment comprising a hopper mounted on the sewing machine, a delivery conduit extending from the hopper, a further conduit carried by one of said jaws and positioned to receive buttons leaving the delivery conduit, a support for said delivery conduit, a button holding and releasing member pivoted on said support for vertical swinging movement, a first finger depending from said member, a second finger rising from said member, said fingers being spaced parallel to each other, said delivery conduit having an upper wall and a lower wall, said upper wall having an opening for receiving said first finger and said lower wall having an opening for receiving said second finger, means acting on said member for urging said first finger into said delivery conduit to block the passage of button there-through and also urging said second finger out of said delivery conduit, and an operating means

connected to said member for moving the second finger into the delivery conduit and the first finger out of the delivery conduit to release a button from the delivery conduit.

3. In a button sewing machine including a pair of button holding jaws, an attachment for the sewing machine for supplying buttons to the jaws, said attachment comprising a hopper mounted on the sewing machine, a delivery conduit extending from the hopper, a further conduit carried by one of said jaws and positioned to receive buttons leaving the delivery conduit, means associated with said delivery conduit for releasing one button at a time from the delivery conduit, and an operating mechanism connected to said means, said operating mechanism including a rock shaft mounted on the sewing machine, a laterally projecting arm carried by said shaft and connected to said means, and a foot operated rockable lever for rocking said shaft.

4. In a button sewing machine including a pair of spreadable button holding jaws, an attachment for the machine for supplying buttons to the jaws, said attachment comprising a support rising from the machine, an elevated hopper mounted on said support, a delivery conduit extending downwardly from the hopper and having a lower discharge end, a further conduit fixed to one of said jaws and having an enlarged upper end for movement toward the lower end of said delivery conduit upon spreading of said jaws, and means synchronized with the spreading of the jaws to release a button from the delivery conduit.

5. For use with the spreadable button holding jaws of a button sewing machine, a button dispenser comprising a delivery conduit for supplying buttons to the jaws, a vertically swingable button holding and releasing member associated with the conduit, said member including upper and lower fingers alternately entering said conduit, means urging said upper finger into said conduit and said lower finger out of said conduit, and means for moving the lower finger into the conduit and the upper finger out of the conduit, said fingers being spaced apart a distance substantially equal to the diameter of a button in said conduit.

6. In combination with the vertically movable jaw supporting member of a sewing machine and the complementary jaws on the member that are spread as the member is raised, of a button dispenser including a chute for supplying buttons to the jaws, said chute having a discharge end, a tube supported on one of the jaws and having a mouth that moves toward the discharge end of said chute upon spreading of the jaws, a swingable button holding and releasing member associated with said chute, and a foot operated mechanism for imparting a swinging movement to said member to effect the release of the button from the chute.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,940,229	Rawnsley	Dec. 19, 1933
2,321,990	Burkey	June 15, 1943