

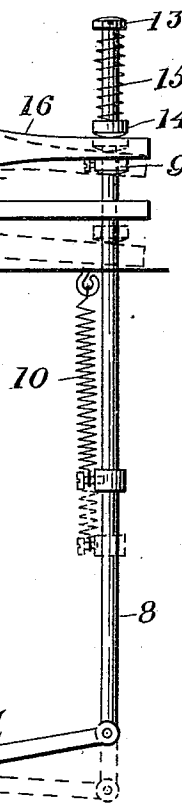
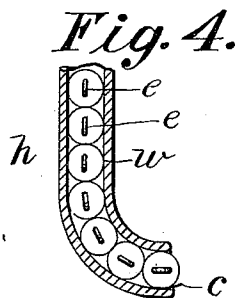
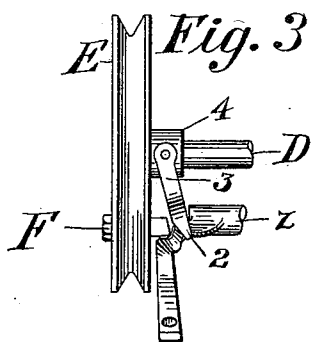
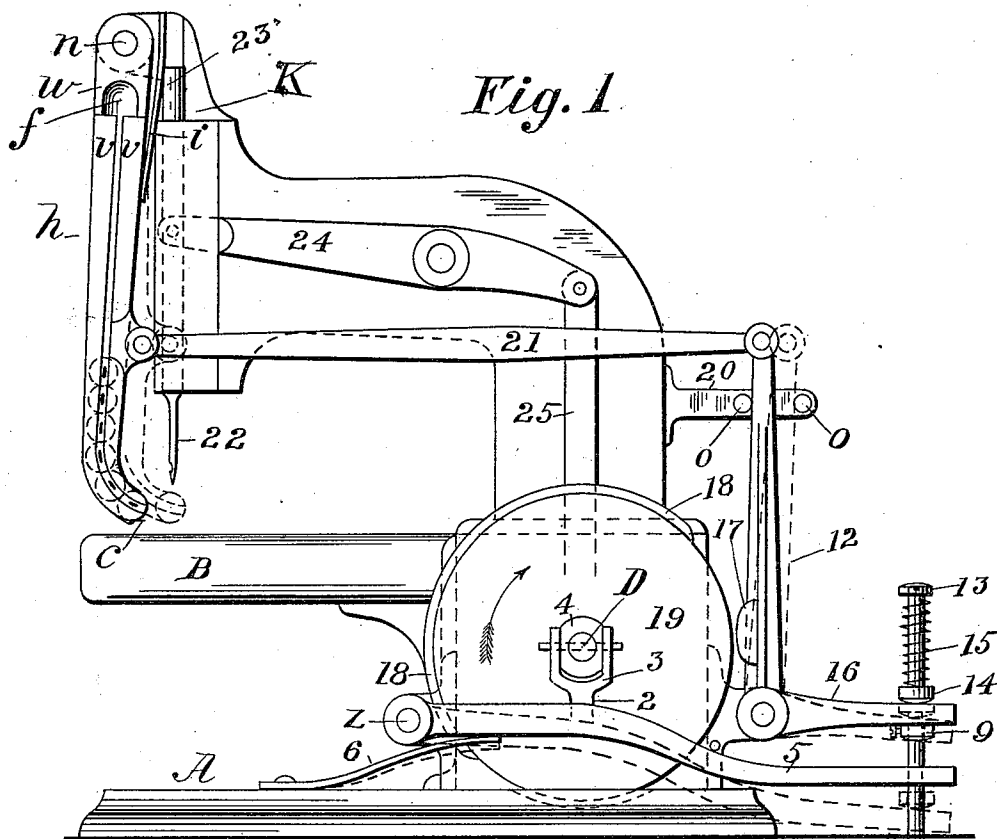
(No Model.)

2 Sheets—Sheet 1.

W. E. BENNETT.
MACHINE FOR SEWING ON BUTTONS.

No. 511,496.

Patented Dec. 26, 1893.



Witnesses:
J. Boedeker,
A. A. Clemens

Inventor,
Walter E. Bennett
By Chapman &
" Atty

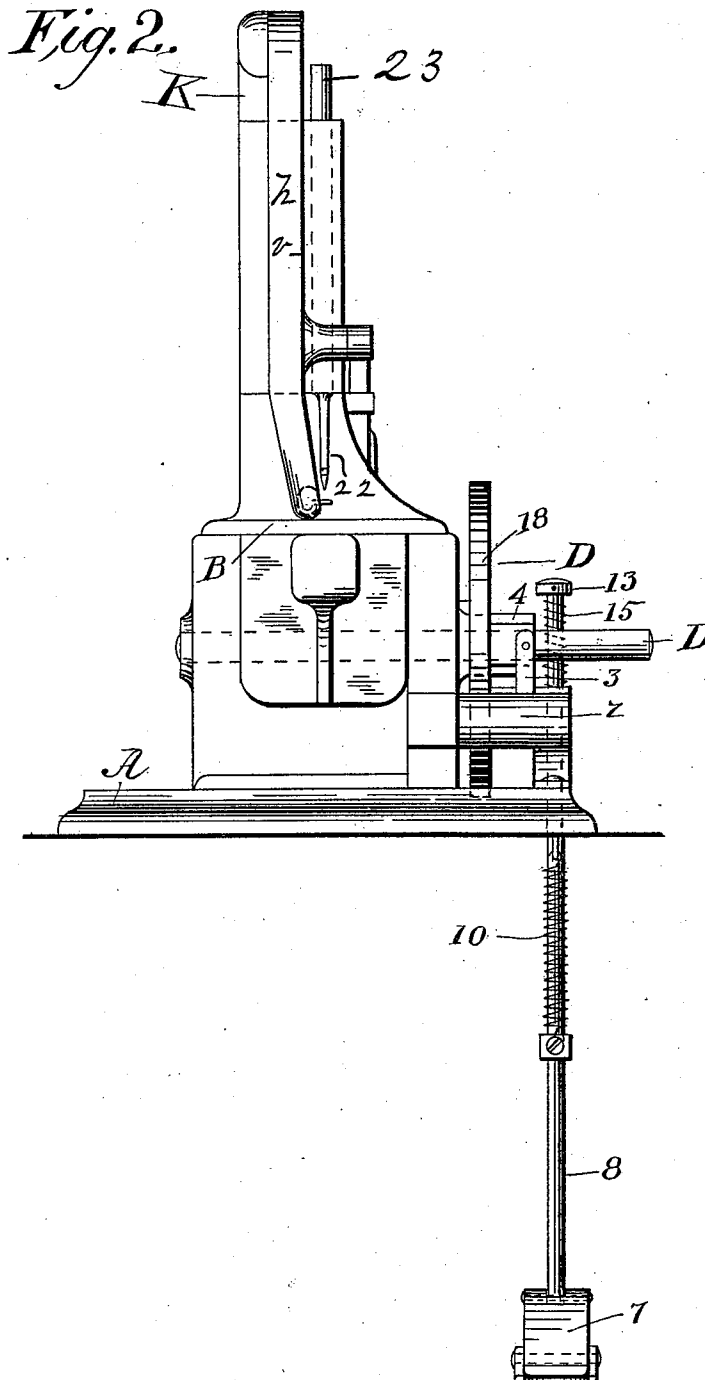
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UNITED STATES PATENT OFFICE.

WALTER E. BENNETT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
MORLEY BUTTON SEWING MACHINE COMPANY, OF SAME PLACE.

MACHINE FOR SEWING ON BUTTONS.

SPECIFICATION forming part of Letters Patent No. 511,496, dated December 26, 1893.

Application filed July 7, 1893; Serial No. 479,784. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. BENNETT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Mechanism for Presenting Buttons to the Needles of Button-Sewing Machines and for Actuating and Stopping the Same, of which the following is a specification.

10 This invention relates to improvements in machines for sewing shank buttons to leather, or other material or fabric, the object being to provide a cheap machine, one which may be easily understood and manipulated by un-
15 skilled operators, and one which shall provide simple means to enable a person to sew on buttons of unequal spacing by moving the fabric by hand, obviating the costly construction of feeding devices, and for permitting
20 the operator to so readily control the machine, especially with respect to the devices for delivering the buttons to the sewing mechanism, that he may effect as many stitchings through and through the shank of a single button as
25 may be desired whereby certain buttons of a row, which are likely to be subjected to the greatest strain may receive the requisite number of stitches.

30 The invention more particularly pertains to the vibratory button-trough in conjunction with the specially provided devices for starting and stopping the machine which have direct connections with said trough; and the invention consists in the combination or arrangement of parts hereinafter set forth and
35 pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a button-sewing machine embodying my improvements, the driving-pulley and a part of the clutch mechanism being left off therefrom to avoid covering other parts, the position of the button-trough, when holding a button-shank under the needle, being shown in dotted lines.
40 Fig. 2 is a front elevation. Fig. 3 illustrates the driving-pulley, a part of the driving-shaft, the clutch, and the clutch-lever, as seen looking from the rear end of the machine forward. Fig. 4 is a longitudinal section of the lower
50 end of the button trough, the slotted front or cover in which the eyes of the buttons engage, being removed.

In the drawings, A indicates the base of the frame of the machine, of which B is the table or cloth-plate on which the work on which but-
55 tons are to be sewed, is laid.

D is the driving-shaft on which the driving-pulley, E, is fitted to run loosely and continuously on the shaft by belt, said pulley having a clutch-bolt, F, secured thereto whose inner end projects, as shown in Fig. 3, beyond
60 the inner face of the pulley for engagement with the pending arm, 2, of a yoke-clutch, 3, which is pivoted to said shaft, D, as shown in Figs. 1, 2, and 3, said yoke rotating as one
65 with the shaft. A collar, 4, is placed on said shaft between the arms of said clutch to maintain the latter in proper operative position so that its arm, 2, may swing freely toward the adjoining side of the driving-pulley.
70

A clutch-lever, 5, is hung by one end at *a*, on the machine, and extends under the pending end of said clutch-arm, 2, and between the latter and the adjoining side of the driving-wheel, E, as shown in Fig. 3. A spring,
75 6, is applied under said lever, 5, to cause it to be held, normally, in an upward position, or that shown in Fig. 1, whereby, as illustrated in Fig. 3, it holds the arm, 2, of the clutch, 3, away from the bolt, F, of the driving-wheel,
80 E, until the operator shall, by operating the starting treadle, as below described, set the machine in motion. The said lever, 5, is operated by any suitable starting treadle, as 7,
85 which is arranged, preferably, to be pressed downward by the foot of the operator, to set the machine in motion, as indicated in dotted lines. One end of said treadle is pivotally
90 connected to the lower end of a shipping-rod, 8, and the latter extends freely through the end of said lever, 5, as shown. A lifting spring, 10, is applied to said shipping or connecting-rod which acts to return it, and its connected parts, to its normal, or upward position at the pleasure of the operator, after it
95 shall have been drawn downward, as aforesaid. A collar, 9, is placed adjustably on the rod, 8, and serves for engagement with the end of said lever, 5, to move it downward when said rod so moves.
100

An elbow lever, 12, is pivotally hung on the rear end of the machine, as shown, through the horizontal arm, 16, of which said connecting-rod, 8, freely passes, and when the said

lever, 12, is in the position shown in Fig. 1, its said horizontal arm lies against said collar, 9. The said rod, 8, has a head, 13, and a loose collar, 14, thereon, and between said head and last-named collar is placed a spring, 15, which is stiff enough to carry arm 16, downward, and serves to prevent the rebound of said arm, 16, upward, when the rod, 8, is permitted to move suddenly upward. Said elbow lever has, upon its vertical arm a cam-projection, 17, which is adapted for engagement with a circular cam, 18, on the periphery of the cam-wheel, 19, this last named wheel being fixed upon the said driving-shaft, D. In order to provide suitable means, if desired, for positively limiting the vibratory movements of the vertical arm of the elbow lever, 12, a horizontal arm, 20, is secured to the machine, on which are two rigidly fixed stop-pins, o, o, between which the upper end of said vertical arm moves.

On, or near, the head, K, or other suitable part, of the machine, is attached, preferably, by pivoting its upper end thereto, a button-trough, h, in such manner that the lower end of said trough may be moved toward and from the needle of the machine, to the end that the eye of a button held in the lower end of said trough may be brought automatically under the point of said needle, and that after a sewing-on operation through said button-eye shall have taken place, whereby the button shall be attached to the fabric or leather, the said lower end of the button-trough shall automatically move away from the needle, leaving the button either on the needle, or where it shall have been sewed on, as aforesaid. To effect the said button-trough movement toward and from the needle, 22, of the machine, the button-trough, h, is here shown as pivotally attached by its upper end at n, to the said head of the machine, and a connecting-rod, 21, pivotally attached by one end to said trough; and by its opposite end to the vertical arm of said elbow-lever, serves to so unite said trough with said lever, that the said vibratory movements of the latter impart the above described movements to said button-trough, to the end that buttons are delivered automatically, one by one, to said needle. As an aid to the sure and quick retirement of the lower end of the trough from the attached button and the needle, it is preferable that a spring, i, be applied to bear by its free end against the rear side of the trough, the opposite end of said spring being fixed to the head, K. The said button-trough consists, substantially, of a longitudinal section of a tube, w, internally of suitable contour, to adapt it to receive the head of a common shank-button, such as are used on shoes and other articles of apparel, and a thin metallic covering-plate, v, in two like sections, secured over the button-head channel in said semi-tubular part, w, but sufficiently separated to leave a longitudinal button-eye slot between their adjoining borders, as clearly shown in Fig. 1.

Fig. 4 is a sectional view of the lower end of said semi-tubular part of the button-trough, showing the positions of buttons held therein in suitable manner for presentation to a needle, as above-described. A short, flexible, light spring, c, is attached at the lower extremity of said trough, which serves to prevent the lower button of the group from dropping or being shaken therefrom.

The buttons are placed in the trough at the opening, f, near the upper end thereof, and they take the positions of those shown in the straight part of the trough in Figs. 1 and 4, that is, with their eyes, e, in the slot of the cover of the trough and consequently in vertical planes, but as they move downward they pass through the curved lower end of the trough, and in so moving, they are gradually turned so that the eye of the lower button of the group is brought to a horizontal plane, or so that the opening through the eye is opposite and under the point of the needle, 22, as shown in Fig. 2. Fig. 4 also clearly illustrates the last-named position of the shank of the lower button. The button channel in the trough is of such dimensions as to provide for the free downward movement of the buttons therein, but said movement is further rendered sure and unfailing by the quick backward and forward movement of the trough, actuated by the above described mechanism, whereby it is sufficiently shaken to secure said button movement, which thus becomes automatic.

The needle-bar, 23, is connected with the driving-shaft, D, of the machine, whereby the requisite vertical reciprocating movements are imparted thereto, and to the needle, 22. The mechanism here shown for so actuating the needle-bar, consists of a pitman, 25, having a crank, eccentric, or other suitable connection with said driving-shaft, and a lever, 24, pivotally hung on the frame or needle-arm of the machine, and having its extremities pivotally connected one to said pitman, and one to said needle-bar.

Any suitable or well known sewing mechanism may be employed in the machine herein described, for proper co-operation with the above-described button-feeding devices, and needle, the latter being preferably of the class commonly called "hook needles."

The operation of the above-described devices in presenting buttons, one by one, from a trough, automatically to the needle of a button sewing machine, is as follows: The normal position of the button-trough is that shown in Fig. 1, that is, swung away from the needle. The said trough is filled with buttons by placing them therein, one by one, by hand, as described. The fabric or leather on which the buttons are to be sewed is then held on the table or work-plate, B, under the needle, 22. The operator then presses on the treadle, 7, with the foot, and draws rod, 8, downward, and then lifts his foot off. The result of said downward movement of rod, 8, is as

follows: Lever, 5, is swung, causing clutch, 3, to operate and shaft, D, to rotate. The needle-bar and needle are thus set in motion. Elbow-lever, 12, swings, drawing the lower end of the button trough, and a button to the needle. The cam, 18, on wheel, 19, now has its movement in contact with the projection, 17, on said elbow-lever and thus acting as a guard to prevent the return swing of the elbow lever, through said rod, 8, and collar, 9, thereon, holds the clutch-lever, 5, down, and the button-trough toward the needle until the shaft, D, shall have rotated sufficiently to effect the attachment of the button to the fabric. The cam, 18, then clears the cam, 17, on elbow-lever, 12, and the latter the button-trough, (leaving a button on the fabric) the clutch-lever, the treadle, and the connecting-rod, (by action of springs, 10, 6, and 4,) all resume, automatically, their normal positions, or those in which they are shown in Fig. 1. The fabric, if several buttons are to be sewed on in a row as upon a shoe, is then moved along by hand under the needle to space the buttons, and the treadle and its connected parts are again operated as before, and so on, until the requisite number of buttons shall have been sewed on. The material may be moved back and forth under the needle, by hand, to cause the stitch to be sewed around the button-shank, or suitable stitch-feeding-mechanism may be employed for that purpose.

A foot-treadle, as described, constitutes the most convenient means for starting the machine and for bringing the operative parts instantly to position, and setting them in motion for sewing on buttons, for the use of the treadle leaves the hands of the operator free for manipulating the work under the needle, but if preferred, the treadle may be dispensed with, and the connection, or shipping-rod, 8, be operated by one hand of the operator, by simply pushing it downward and then releasing it.

What I claim as my invention is—

1. In a machine for sewing shank buttons onto fabric, the combination with the usual sewing mechanism comprising the needle and driving connections therefor and a pulley to be driven by power adapted for a clutch engagement with said driving connections, and a foot-operated device for throwing the pulley and sewing mechanism into clutch engagement,—the same being adapted to automatically unclutch,—the button-trough mounted on the machine for a vibratory movement toward and from the needle, and a medium of direct connection between the clutch-operating device and the trough for swinging the trough toward the needle upon the actuating movement of the clutch-operating device, substantially as described.

2. In a machine for sewing shank buttons to fabric, the combination with the button trough mounted on the machine for a vibratory movement toward and from the needle, of a treadle, an elbow lever pivotally mounted

on the machine, a rod connecting one member thereof to the trough, a draft-rod connecting the treadle and the other member of the lever, and a spring exerting a pressure to bring the trough to its position removed from the needle and said mediums of connection to corresponding positions, substantially as described.

3. In a machine for sewing shank buttons onto fabric, the combination with a pulley to be driven by power and having clutching devices whereby it may be placed in clutch engagement with the driving connection for the sewing mechanism, and a foot-operated device for throwing the pulley into its clutch engagement, a wheel having a concurrent rotation with the said driving connection, and having thereon a cam or expanded portion covering a portion of its circumference, the button-trough mounted for a vibratory movement toward and away from the needle, a medium of connection secured to the vibratory trough and having an engagement with the clutch-operating device, a portion thereof being in proximity to said cam-surface whereby, during a portion of the rotation of the said wheel, the trough may not be permitted to return to its normal position, substantially as described.

4. In a machine for sewing shank buttons onto fabric, the combination with the button-trough mounted on the machine for a vibratory movement toward and from the needle, of a treadle, and a medium of connection between the treadle and said trough whereby the movement of the trough is directly controlled by the treadle, and a disk, 19, rotating concurrently with the operation of the sewing mechanism, having the cam-like or guard portion, 18, which is adapted to so engage the aforesaid intermediate connection as to prevent the retiring movement of the trough during a portion of the sewing operation, substantially as described.

5. In a machine for sewing shank buttons onto fabric, the combination with a shaft, D, and the pulley, E, loose thereon, and the wheel, 19, fixed on the shaft and having the expanded or cam member, 18, covering a circumferential portion thereof, clutch members between the pulley and shaft, and the operating lever, 5, for forcing them into clutching engagement, the rod, 8, vertically movable, with the treadle for depressing it, and with the spring, 10, for elevating it, and having a connection with the lever, 5, the button-trough having a vibratory movement toward and from the needle, the elbow lever, 12, one arm of which has an operative engagement with said rod, the other arm having a connection with the vibratory trough, and said arm being located in proximity to the path of said cam, substantially as described.

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Witnesses:

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