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W. BOWDEN.
TUCK SEWING MACHINE.

Patented Mar. 16, 1897.



Inventor:
William Bowden
by A. Rosenbaum atty.

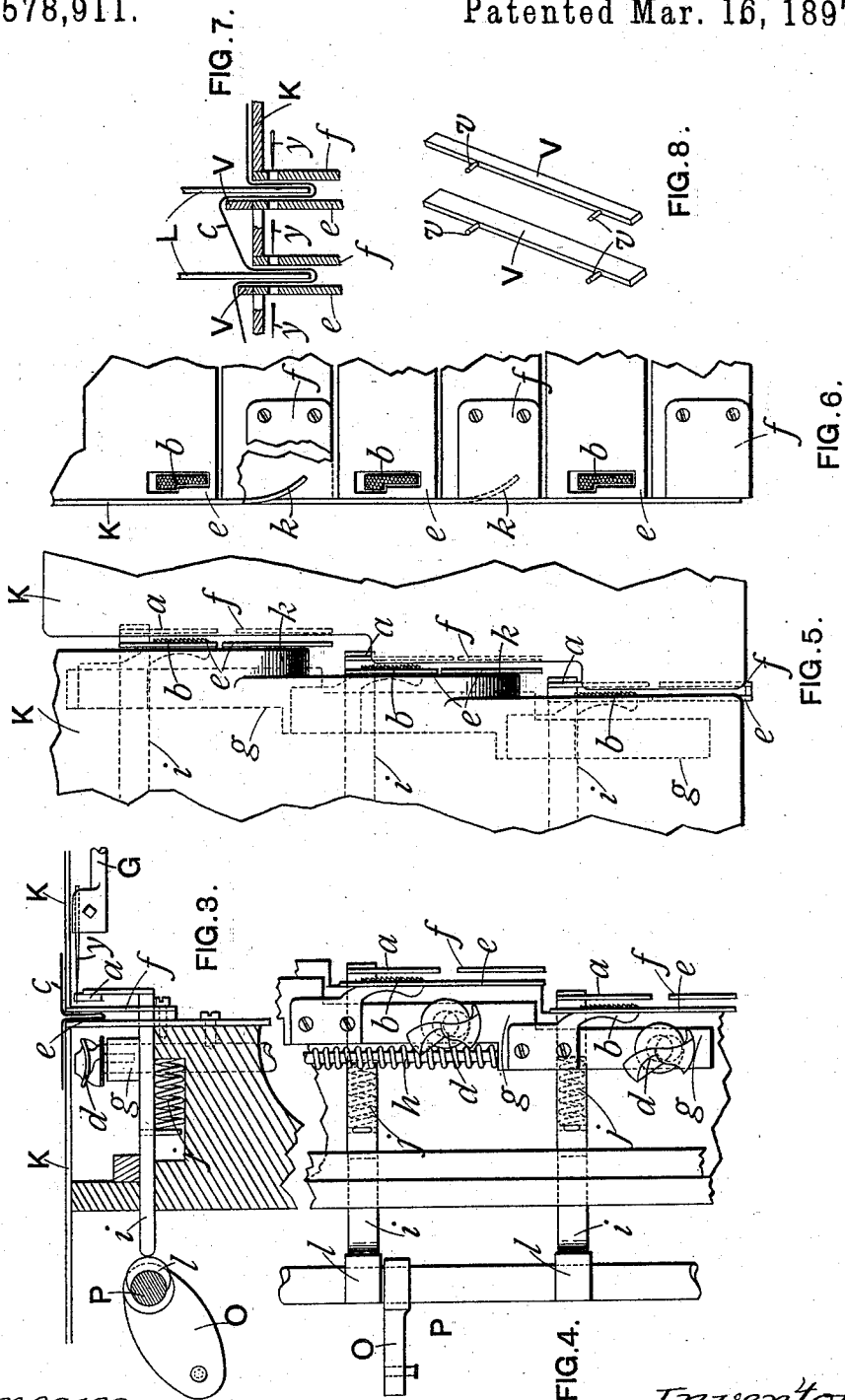
(No Model.)

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No. 578,911.

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Witnesses:
Frank S. Ober.
C. V. Edwards.

Inventor:
William Bowden
by *Wm. R. Renshaw*
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM BOWDEN, OF MANCHESTER, ENGLAND.

TUCK-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,911, dated March 16, 1897.

Application filed October 15, 1894. Serial No. 525,855. (No model.) Patented in England April 30, 1894, No. 8,522, June 11, 1894, No. 11,257, and September 3, 1894, No. 16,730.

To all whom it may concern:

Be it known that I, WILLIAM BOWDEN, a citizen of the United Kingdom of Great Britain and Ireland, residing at Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Tuck-Sewing Machines, (the same being patented in England, No. 11,257, dated June 11, 1894; No. 16,730, dated September 3, 1894, and No. 8,522, dated April 30, 1894,) of which the following is a specification.

This invention relates to a machine for sewing tucks in fabrics, and which may be constructed and adapted for sewing only a single tuck or for simultaneously sewing two or more tucks, the latter type of machine being that which is more generally useful. In this machine the fabric is folded into the channel or channels by a suitable depressor or depressors, and while in the channel or channels it is sewed by means of reciprocating needles passing parallel with the fabric upon the table and at right angles with the folds through the tuck. By this means a very great economy of time is secured with the additional advantage of the production of superior work, the tucks, when there are more than one, being truly parallel and of uniform breadth.

I will describe my invention as applied to a multiple machine and as illustrated by the accompanying drawings, in which—

Figure 1 is a sectional side elevation, and Fig. 2 a sectional plan. Figs. 3, 4, 5, 6, 7, and 8 represent details drawn to an enlarged scale.

In each of the figures similar details are denoted by similar letters of reference.

The machine may be single or multiple, that is to say, it may consist of a machine having a single channel or of a machine having two or more of the channels with a corresponding number of stitch-forming devices. It is preferred to construct the multiple machine as hereinafter described, but in some cases a number of the single machines may be arranged alongside of each other stepwise. Such an arrangement is, however, inconvenient and need not be further described. The single machine differs from the multiple machine only in having a single set of organs

instead of two or more sets, and its construction will be obvious.

The machine illustrated is of the "chain-stitch" type because of the greater simplicity of the mechanism and the higher speed at which it can be worked. Other types of stitch-forming devices may be used, if preferred.

In the drawings, A is the driving-pulley; B, the spindle, on which A is fixed; C, the driving-band from the clutch-pulley D, and E the main driving-band.

F is the needle-eccentric fixed upon the shaft B and actuating the needle-bars G by means of the eccentric-rod H and the levers I.

As shown in the drawings, the machine is constructed to sew three tucks simultaneously, but any other convenient number may be employed.

The channels in which the tucks are formed are illustrated by Figs. 3 to 7, inclusive. Each is perpendicular to the machine-table and parallel with the direction of travel of the work, but the several channels are in different vertical planes, or, in other words, are arranged stepwise, as shown by Fig. 5. Each also is provided with a separate presser-foot *a*, feed-plate *b*, needle-bar G, and rotary hook *d*, the latter being driven from the spindle B by the pinions J J. The channel-walls *e f* are perforated for the passage of the needle and of the feed-plate, and one of them, *f*, may be formed in part of the presser-foot *a*. The feed-plates *b* are all mounted upon a cranked bar *g*, which is reciprocated in the usual manner by a cam and the spring *h*. Slots are formed through this bar for the passage of the rotary-hook spindles.

The presser-feet *a a* are mounted upon the ends of the bars *i*, which pass below the channels, and each of which has a projection engaging with a spring *j*, which normally forces the presser-foot into contact with the tuck. It is forced out of contact with the tuck when the machine is not working by the cam *l*, as will be hereinafter described. The channel-walls *e* may be divided as shown in the partial plan, Fig. 5. In this case that part of the wall through which the feed-plate does not pass may be made adjustable in height by any

common means, so as to provide for a greater or less distance between the tucks. The cloth is led into the first channel from the level of the table-top, so that it cannot fall below the bottom of the depressor. Opposite to the end of the first and each succeeding channel except the last, where it is optional, there is an inclined plane *k* to lift the tuck sewed in the preceding channel upon the table *K*.

The adjustable depressors *L* may be arranged in various ways, so as to be lowered into the channels at the commencement of the work and be lifted at the end of the tucks. As illustrated by the drawings, they are mounted upon the upper and outer end of the U-shaped lever *M* and are vertically adjustable by the nuts *N*. The lower ends of the depressors are flat and rounded, their edges only being shown by Figs. 1 and 7.

The machine may be started and the depressors lowered by a single movement of the pedal *Q*. To this pedal there are connected two pitmen *o*. The pitman *o* is pivoted at its upper end to the cam *O*, fixed upon the spindle *P*, on which are also fixed the cams *ll*, Fig. 4. The upper end of the pitman *n* is slotted and connected through this slot with a pin on the lever *S*, which actuates the clutch *T*. When the pedal is depressed, the pitman *o* draws down the cam *O*, which thus depresses the U-shaped lever *M* and lowers the depressors into the channels. The same motion of the cam rotates the shaft upon which it is fixed, and consequently also the cams *ll*, bringing their short radius opposite to the ends of the presser-foot rods, whereupon the presser-foot springs bring the feet into contact with the folded tucks in the channels. As soon as this has taken place the slot in the upper end of the pitman *n* will have come into contact with and commenced to move the clutch-lever *S*, the further motion of which closes the clutch and starts the machine. When the work is finished, the pedal is liberated, whereupon the clutch opens, the machine stops, and the depressors are lifted by the action of their springs *s*.

Means for varying the distances between the tucks are illustrated by Figs. 7 and 8. These consist of gage-pieces *V*, which may be removably fixed upon the top edge of the channel-walls *e* by means of pins *v* let into apertures (not shown) in said walls. It will be seen by reference to Fig. 7 that since the fabric must pass over the gage-pieces between the tucks the deeper the gage-piece the greater will be the distance between the tucks. As already set forth, the same object may be attained in a similar manner by making a part of the wall *e* of the channel vertically adjustable, so that it may be raised and lowered, in substitution for the gage-pieces. This method, however, obviously requires more care on the part of the operative.

In using the machine the fabric in which the tucks are to be formed is laid upon the

table, the pedal is lowered, and the work commences.

The thread *x* for the needles *yy* is supplied from the spools *X*, and its tension may be regulated by the screw *Y*, as usual.

Having now particularly described my said invention, I declare that what I claim is—

1. A tuck-sewing machine comprising a suitable bed-plate, a channel in said bed-plate provided with walls perpendicular to said bed-plate, means for folding the tuck in said channel, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including a horizontally-arranged needle adapted to pass through the walls of the channel; substantially as described.

2. A tuck-sewing machine comprising a suitable bed-plate, a series of channels in said bed-plate each provided with walls perpendicular to said bed-plate, means for folding the tuck into said channels, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including horizontal needles adapted to pass through the walls of the channels, said channels being arranged in different planes; substantially as described.

3. A tuck-sewing machine comprising a suitable bed-plate, a series of channels in said bed-plate each provided with walls perpendicular to said bed-plate, a series of adjustable depressors for folding the fabric in the channels, independent means for holding the tuck to receive the stitches and stitch-forming mechanism including horizontal needles adapted to pass through the walls of the channels, said channels being arranged in different planes; substantially as described.

4. In a tuck-sewing machine the combination with stitch-forming mechanism of a depressor, a presser-foot and means for simultaneously operating the depressor to form a fold in the fabric and forcing the presser-foot into holding contact with the latter; substantially as described.

5. In a sewing-machine the combination with stitch-forming mechanism of a vertically-movable depressor, a horizontal movable presser-foot and means for simultaneously operating the said depressor and foot, the one to fold the goods and the other to hold the folded goods to receive the stitches; substantially as described.

6. In a tuck-sewing machine the combination with the bed-plate having a plurality of channels in which the tucks are sewed, of means with which one of the side walls of each channel is provided, for varying its height, for the purpose of varying the width of the fabric between the tucks, substantially as described.

7. In a tuck-sewing machine, the combination with the bed-plate having a plurality of openings in which the tucks are sewed, of gage-pieces removably secured to one of the walls of each of said channels for varying the

height thereof and thereby the width of fabric between the tucks, substantially as described.

8. In a tuck-sewing machine having a series of channels to receive the fold of the fabric and a series of depressors to form the fold, the combination with each channel of a presser-foot, a bar to which the same is secured, a spring in engagement with said bar for normally holding the presser-foot into contact with the tuck, and a cam adapted to engage

said bar for forcing the presser-foot out of engagement with the tuck; substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of September, 1894.

WILLIAM BOWDEN.

Witnesses:

WILLIAM E. HEYS,
ARTHUR W. PULMAN.