

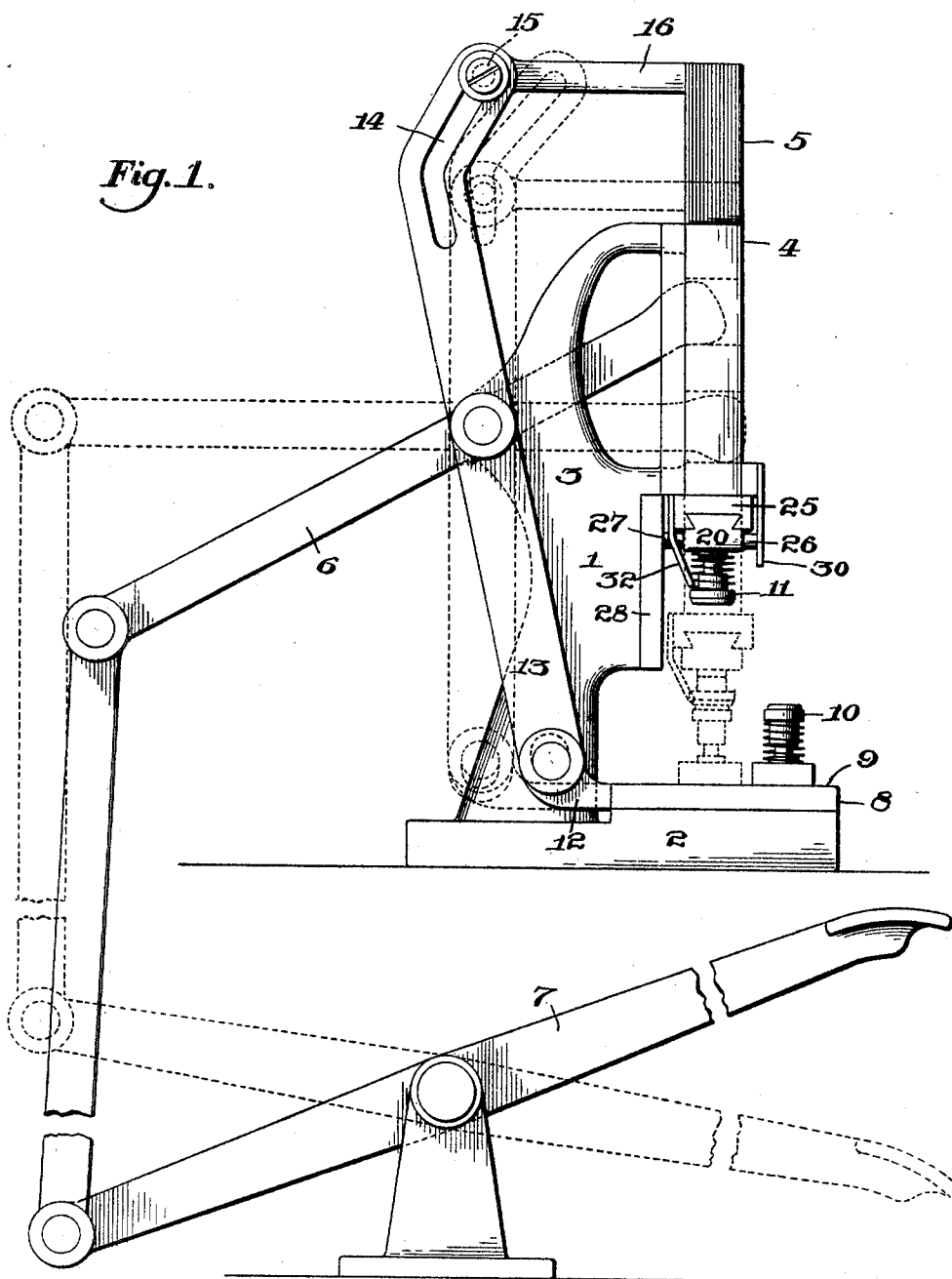
(No Model.)

3 Sheets—Sheet 1.

S. MENKIN.
BUTTON MAKING MACHINE.

No. 586,821.

Patented July 20, 1897.



Witnesses.

A. V. Group
A. V. Blackwood

Inventor.

Solomon Menkin,
per John R. Nolan
Attorney.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

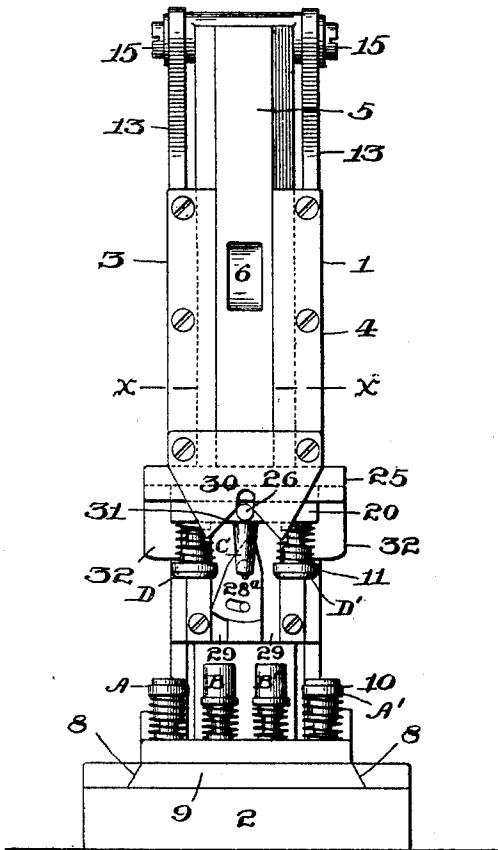


Fig. 3.

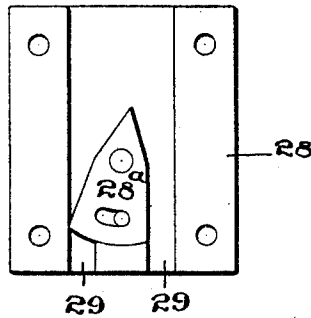


Fig. 4.

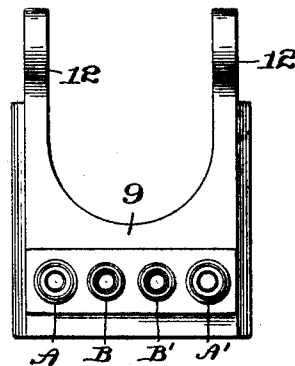
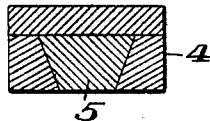


Fig. 5.



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(No Model.)

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BUTTON MAKING MACHINE.

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Fig. 6.

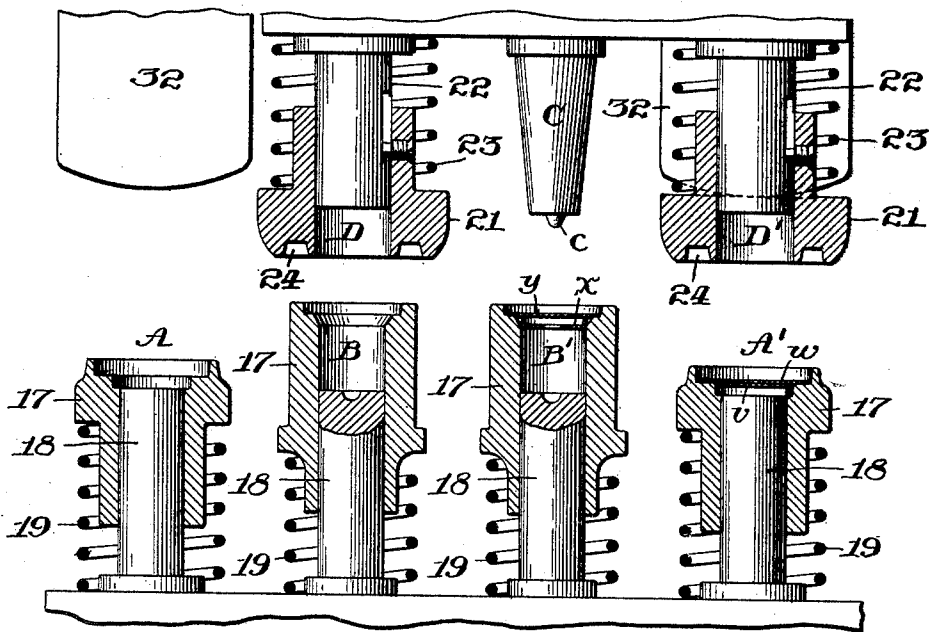
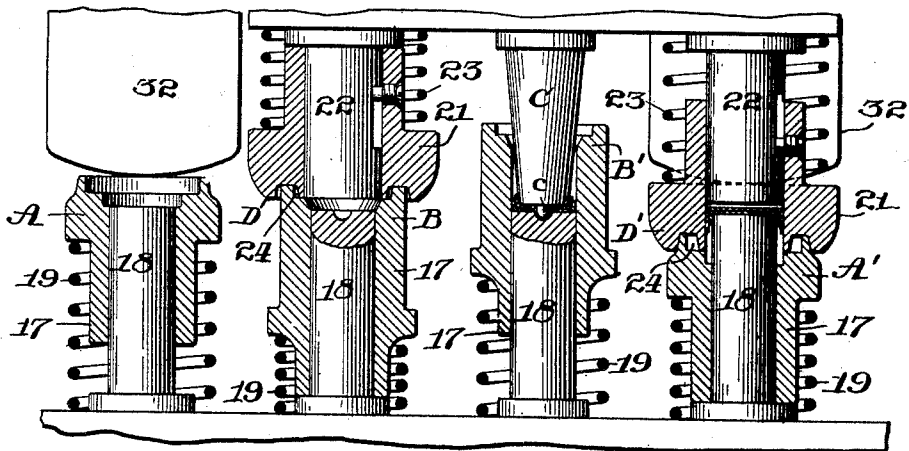


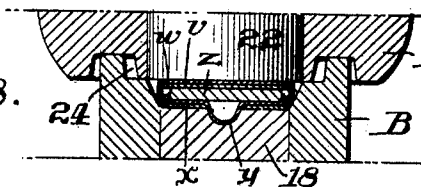
Fig. 7.



Witnesses.

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Fig. 8.



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UNITED STATES PATENT OFFICE.

SOLOMON MENKIN, OF PHILADELPHIA, PENNSYLVANIA.

BUTTON-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 586,821, dated July 20, 1897.

Application filed April 28, 1896. Serial No. 589,381. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON MENKIN, a subject of the Czar of Russia, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Button-Making Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to machines for making cloth-covered buttons, and has for its object to provide a simple and efficient construction whereby the several parts or members of buttons may be expeditiously assembled and combined.

To this end the invention comprises a novel construction and arrangement of the dies in which the button parts are manually disposed preparatory to their organization by vertically-reciprocating coacting dies, which first-named dies are so mounted and arranged that they are horizontally movable forwardly of the upper dies in a manner to permit the feeding or introduction of the button parts to the machine without danger of injury to the hands of the operator by the descending dies.

The invention also comprises a novel construction and arrangement of the upper dies and their supporting parts whereby said dies are laterally reciprocated automatically, so as to act upon alternate lower dies in a manner to transfer the button parts in one die to an adjacent die and therein effect organization of the several parts.

The invention also comprises various features of construction and arrangement of parts, as will be hereinafter particularly described and claimed.

In the drawings, Figure 1 is a side elevation of a machine embodying the invention. Fig. 2 is a front view thereof. Fig. 3 is a view of the oscillatory sector-cam and its supporting-plate as detached from the machine. Fig. 4 is a plan of the lower dies and their reciprocable supporting-plate. Fig. 5 is a section as on the line *xx* of Fig. 2. Fig. 6 is a vertical section through the dies, enlarged, showing the button parts as set in the lower dies A' and B' preparatory to the descent of the upper dies. Fig. 7 is a similar section

showing the coöperation of said dies. Fig. 8 is a section through dies D and B' (or D and B) as completing the organization of the parts of a button.

The numeral 1 designates the framework of the machine, comprising the base 2 and the standard 3, with the overhanging guide portion 4. In the latter is fitted a vertically-reciprocable plunger 5, to which is connected one arm of a lever 6, the other arm thereof being linked with a treadle 7 or other suitable operating means.

Fitted to appropriate guides 8 in the base is a horizontally-reciprocable plate 9, on which are mounted the dies 10 for the reception of the button parts. The base is moved forward to enable the operator to introduce such parts without liability of injury to his or her hands by the premature descent of the upper series of coacting dies 11. In the present instance the plate is provided with two rearwardly-extending lugs 12, which are pivotally connected with the lower arms of two parallel vertical levers 13, fulcrumed on the sides of the standard. In the upper arms of these levers are camways 14, with which engage studs 15 on the horizontal arm 16, affixed to the plunger.

The shape of the camways is such that during the descent of the plunger the upper arms of the levers are thrown forward, so as to retract the plate 9 and set its dies 10 directly below the upper dies 11, whereupon the plate and its dies remain in position until the two opposing sets of dies coact. (See dotted lines in Fig. 1.) When, however, the plunger is raised, the levers are oppositely moved, so as to project the plate and its dies forward in readiness for a succeeding operation.

The dies 10 are four in number, the same being arranged in pairs A B and A' B', respectively, and each pair being constructed and designed to receive the respective parts of a single button, as below explained. The dies A and A' are at the ends of the series, while those B B' are intermediate the same, as shown. These dies each comprise a cup-like head 17, fitted to a stud 18, rising from the plate and maintained normally elevated by means of suitably-disposed springs 19.

The upper dies 11, which coact with the dies just described, are three in number, the same

being mounted upon a head-block 20, which is laterally movable, so as to effect the cooperation of the upper dies alternately with the lower dies—that is to say, the central upper die coacts alternately with the two inner dies B B', while the outer upper dies coact with the respective outer lower dies A A' and with the inner dies B B' adjacent thereto alternately. The central die C is merely a tapered stem with a teat *c* on its lower end, while the outer dies D D' comprise centrally-perforated heads 21, fitted to stems 22 on the block 20 and held normally depressed by means of springs 23. The lower face of each of the heads 21 is provided with an annular groove 24, with which register the rims of the opposing lower heads 17 when the dies coact, as will presently appear.

The head-block 20 is fitted to a suitable guide-piece 25 on the lower end of the plunger, and it is provided on the front and rear faces with outwardly-extending studs 26 27, respectively. Pivoted to a plate 28 on the standard, immediately in rear of the block 20, is an oscillatory sector-shaped cam 28^a, which is pivoted a suitable distance below its apex or upper end and is adapted during the descent of the plunger to coact with the stud 27 on the block and direct the latter to the right or left, as the inclined edge of the cam may dictate. On the plate 28 laterally of this cam are formed vertical guides 29, which insure the correct position of the head and its dies in their descent.

On the front of the standard is affixed a plate 30, in the lower portion of which is formed a Λ -shaped recess 31, which is so located in respect to the studs and the sector-cam that in the ascent of the plunger and its connections the stud 26 abuts against the opposing edge of the recess and is directed thereby to a central position, so that in the succeeding descent of the plunger the rear stud 27 will occupy a proper position in relation to the beveled edges of the sector—that is to say, assuming the sector to occupy the position represented in Fig. 3, the stud 27 will, in its descent, abut against the left edge of the sector and be directed thereby into the left guide 29, the sector, perforce, being swung to the right, in which position it will be held by friction. In the succeeding ascent of the plunger the stud 26 will be again moved to the central position by the recessed portion of plate 30, and therefore in the next downstroke of the plunger the stud 26 will abut against the right-hand edge of the sector and be directed thereby into the right guide 29, the sector, as in the previous instance, being shifted to the left-hand position and held by friction therein. Hence the head-block will be moved endwise to and fro in harmony with the reciprocations of the lower dies.

Normally the parts occupy the relative positions shown by the full lines in Figs. 1 and 2—that is, the upper dies being raised and the lower dies being projected forward. At

the outset the operator places in die A' a shell *v* and thereon a cloth disk or cover *w*, and in die B' he places a collet *x* and thereon a flax disk *y*. He then depresses the treadle, thereby forcing down the plunger, in consequence of which the head-block, with its dies, is retracted, the dies B' and A' being directly below the dies C D', respectively. Continuing the descent of the plunger the dies C D' coact with the lower dies B' A', thereby setting the disk *y* into the collet *x* and transferring the shell *v* and cover *w* from die A' into die D'. (See Fig. 7.) This being done, the plunger is raised, the head-block in its ascent being directed laterally with its dies to the central position, and the plate 8, with its dies, being projected forward. The operator then places a paper wad or disk *z*, Fig. 8, upon the disk *y* in die B', and also places in dies A and B parts similar to those placed at the outset in the corresponding dies A' and B', and for convenience sake again likewise places in die A' a shell and cover. He then forces down the plunger, the head-block 20, with its dies, thus being moved to the left and the plate 8, with its dies, being retracted, the dies A B' being directly below the dies D, C, and D', respectively. In the further descent of the plunger these opposing dies coact, in consequence of which the button parts in die D' are combined with the parts in die B', so as to complete a button, (see Fig. 8,) while the action upon the parts in dies A and B is similar to that upon the like parts previously described in respect to dies B' and A'. The plunger is then raised, the head-block being returned to its central position and the plate and dies being projected. The operator removes the completed button, places a shell and cover in die A, which may be conveniently done at this time, a wad in die B, and a collet and disk in die B'. In the succeeding descent of the plunger the upper dies coact with the dies B, B', and A', the button parts in die B being combined with the parts in die D, so as to complete a button, while the action of the coacting dies C D' and B' A' is similar to that previously explained.

The operations of introducing the button parts to the dies in proper order and the cooperation of the dies may be continued successively, in consequence of which buttons will be completed alternately in the dies B and B'.

It will be observed that there are arranged on the rear of the head-block depending arms 32. The function of these arms is to bear against the flanges of the die-heads 21, respectively, during the descent of the head-block, and thereby act as thrust-plates for such heads during their engagement with the lower dies.

I claim as my invention—

1. In a button-making machine, the combination, with the supporting-frame, of the lower dies arranged in sets as described, a horizontally-reciprocable support therefor, a

vertically-reciprocable plunger, a head-block thereon, dies on said head-block adapted to coact with the lower dies at predetermined intervals, means for laterally reciprocating said head-block during the action of the plunger, and a rock-lever connected at its lower end with said support and at its upper end with the plunger, whereby during the downward stroke of the plunger the lower die-support is moved into alinement with the upper dies, and during the upward stroke said support is projected forwardly, substantially as described.

2. In a button-making machine, the combination, with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocable head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam, a connection between the head-block and said cam whereby the head-block in its descent is moved to the right or left as the position of the cam may dictate, and operative connections between said plunger and the lower dies whereby during the downward stroke of the plunger the latter dies are moved into alinement with the upper dies and during the upward stroke the lower dies are projected forwardly, substantially as described.

3. In a button-making machine, the combination with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocative head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam,

and a connection between the head-block and said cam, whereby the head-block in its descent is moved to the right or left as the position of the cam may dictate, substantially as described.

4. In a button-making machine, the combination with the supporting-frame, of the lower dies, the plunger, a laterally-reciprocative head-block on the plunger, dies on said head-block, an oscillatory sector-shaped cam, a fixed plate provided with a Λ -shaped recess therein, and studs on said head-block adapted to coact with the cam and recessed plate respectively, substantially as described.

5. In a button-making machine, the combination with the supporting-frame, of the lower dies arranged in pairs as described, the plunger, the laterally-reciprocable head-block thereon, the dies thereon, means for reciprocating said head, to effect their coöperation with the lower dies, and the depending arms fixed on the respective ends of the head-block and adapted to engage the outer lower dies in alternate succession, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

SOLOMON MENKIN.

Witnesses:

JOHN R. NOLAN,
A. V. BLACKWOOD.