

No. 658,016.

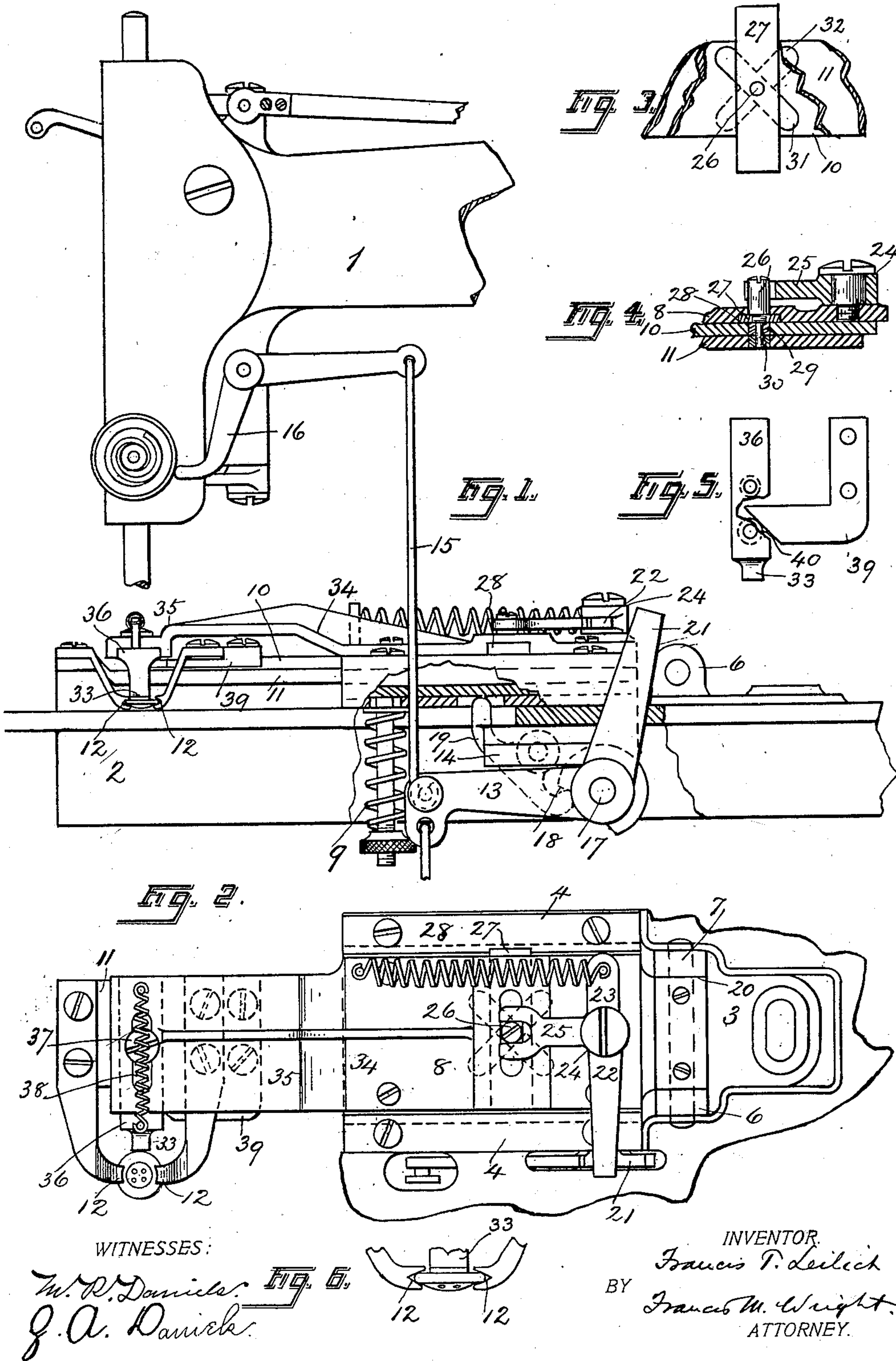
Patented Sept. 18, 1900.

F. T. LEILICH.

CLAMP MECHANISM FOR BUTTON SEWING MACHINES

(Application filed Jan. 15, 1900.)

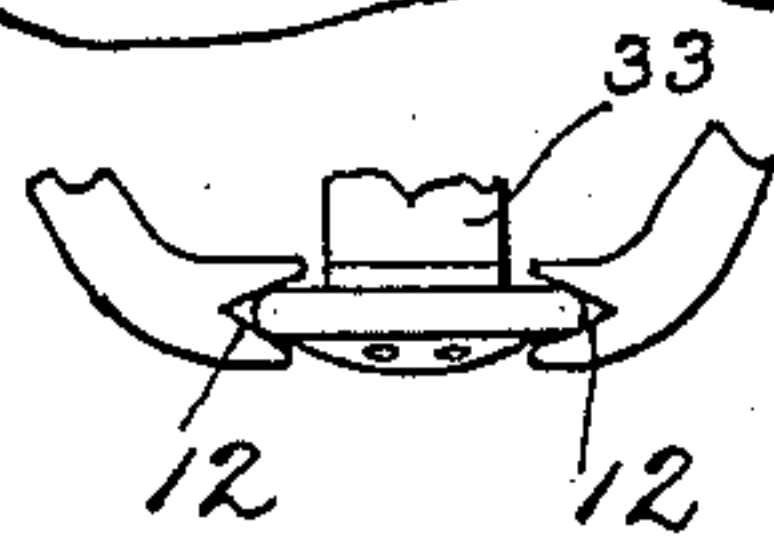
(No Model.)



WITNESSES:

W. R. Daniels.
J. A. Daniels.

Fig. 6.



INVENTOR.

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FRANCIS T. LEILICH, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
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CLAMP MECHANISM FOR BUTTON-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 658,016, dated September 18, 1900.

Original application filed October 20, 1899, Serial No. 734,237. Divided and this application filed January 16, 1900. Serial No. 1,529. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS T. LEILICH, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Clamp Mechanism for Button-Sewing Machines, of which the following is a specification.

This invention relates to improvements in button-clamp mechanism for button-sewing machines, being a division of my application for a button-sewing machine, filed October 20, 1899, Serial No. 734,237; and the objects of the invention are to provide a clamp or holder for the button by which buttons of different diameters and thicknesses are held in the same central position relative to the operation of the needle, to provide means for elevating the button-clamp jaws before opening them and, vice versa, for first clamping the button and then lowering the jaws, and to provide a holder with an improved form of jaw for holding the button.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of the button-clamp mechanism, showing also a portion of the arm of the sewing-machine. Fig. 2 is a plan view of the clamp mechanism. Fig. 3 is a horizontal detail section to show the slots in the clamp-slides. Fig. 4 is a vertical section to show the same. Fig. 5 is a horizontal detail section to show the mechanism for operating the third jaw, and Fig. 6 is a detail of a jaw-mouth.

Referring to the drawings, 1 represents the arm of a button-sewing machine, and 2 the bed or table thereof. Upon said bed is a plate 3, which, as described in the specification of said parent application, is reciprocated over the bed 2, being held down by gibs 4. The means for so reciprocating it, however, form no part of my present invention and need not be here described. The plate 3 is provided with lugs 6 7, between which is hinged one end of a clamp-box 8, held down to the clamp-plate 3 by the pressure of the adjustable spring 9. In said clamp-box 8 are the arms 10 11 of the button-holding jaws 12.

To place a button in position, the operator

will by any suitable foot or knee device depress an arm of a lever 13, pivoted in a bracket 14, depending from the bed, and will thereby also, through a connection 15, actuate a bell-crank 16 to strike between and relieve the pressure of the jaws of the tension device. The depression of the arm of the lever 13 will rock the shaft 17 of said lever, and thus will actuate a cam 18 on said shaft to rock a lever 19, also pivoted in said bracket 14, the other arm of which passes upward through an opening in said bed and through a slot in the plate 3, and said arm will thus abut against the under side of the box 8, pivoted at 20 on said plate 3, and will raise said box, and with it the clamping-jaws 12. Immediately after the box 8 is raised an arm 21 of the lever 13 will rock a horizontal arm 22 of a spring-resisted lever 23, pivoted at 24 on the cover of the box 8, and will thus, by means of an arm 25 of said lever having a forked end engaging a pin 26, move said pin rearwardly. The pin 26 is guided in its rearward movement by a guide-block 27, in which it is secured, sliding in a channel 28, undercut in the cover, and below said block said pin carries, one beneath the other, two rollers 29 30, of which the upper one 29 rolls in a slot 31, cut in the upper clamp-slide 10 and the lower one in a slot 32 in the lower clamp-slide 11. The upper slot 31 extends obliquely to the left rearwardly, so that when the pin 26, with its roller 29, is moved rearwardly the engagement of said roller 29 with the slot 31 will move the upper slide 10 to the right, and in like manner, since the lower slot 32 extends to the right rearwardly, the lower slide will be moved to the left. The lower and upper slides carry jaws 12, engaging the button on the left and right, so that when the above-described movement takes place the button is released from said jaws. In addition to these jaws there is a third jaw 33, adapted to support the button on the rear, the construction and operation of which are as follows: The cover 34 is secured by screws to the top of the box and has an extension 35, which has cut in its under surface at its end a transverse channel. In said channel moves the slide 36, being supported therein by a

screw 37, passing upward therefrom through a slot 38 in the extension parallel with the channel, the head of said screw resting on the extension. The slide 36 carries the jaw 33 at its front end and is moved into position to hold the button by a cam-arm 39, secured to the upper slide 10 and moved to the left therewith. When said arm is so moved to the left, the cam end thereof engages a roller 40, mounted on the under side of the slide 36, and moves said slide forward. A spring 41, suitably secured between the extension and the slides, serves to withdraw said jaw when the arm 39 moves to the right. The end of the cam-arm 39 is inclined to said arm at an angle of forty-five degrees. Therefore the amount of movement given to the jaw 33 is always equal to that of the jaw carried by the upper slide, and inasmuch as the slots 31 32 have the same obliquity as each other to the direction of motion of the pin 26 the movements of the two slides 10 11 are always equal. Hence there are provided three button-holding jaws, which must always move uniformly away from a common center, and will therefore hold buttons of all diameters with uniform exactitude. When the operator releases the pressure, springs 9 28 serve to restore the parts to their former position, in which the jaws 12 and 33 clamp and support the button. The button-holding jaws 12 are rigid from their point of attachment with the respective slides to their mouths and have rigid mouths divergent or V-shaped in vertical section—that is to say, the vertical cross-section of each mouth is a reëntrant angle and the divergent surfaces of the mouth extending equally above and below the apex of the angle. They will thus hold effectually buttons of various thicknesses. A very thin button will be held between the jaws, so that its edge is pressed by the divergent surfaces close up to the apex of the angle, while a thick button will be held by said surfaces at points

more remote from said apices; but in all cases the direction of pressure of the clamping-surfaces upon the edge of the button will be precisely the same and the grip will be precisely of the same character.

I claim—

1. In a button-clamp for a button-sewing machine, the combination of three movable button-supporting jaws, means for constraining the movement of said jaws so that they move always all three in unison with equal velocity in substantially-straight lines to and from the common center, a reciprocating device arranged to be moved in one direction against the hereinafter-mentioned spring by the direct pressure of the operator to so move said jaws outward from said center, and a spring for returning said jaws to said center when released from said pressure, substantially as described.

2. In a button-sewing machine, a pair of oppositely-directed button-clamping jaws each having a rigid mouth, the vertical cross-section of which is a reëntrant angle, the divergent surfaces of the mouth extending equally above and below the apex of the angle, substantially as described.

3. In a clamp mechanism for a button-sewing machine, the combination of two jaw-carriers constructed to move in opposite and parallel directions, and having slots oblique to said directions and crossing each other, a pin moving in both of said slots, and means for moving said pin in a direction transverse to the directions of motions of the carriers, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANCIS T. LEILICH.

Witnesses:

FRANCIS M. WRIGHT,
Z. A. DANIELS.