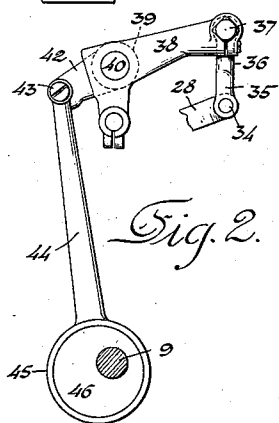
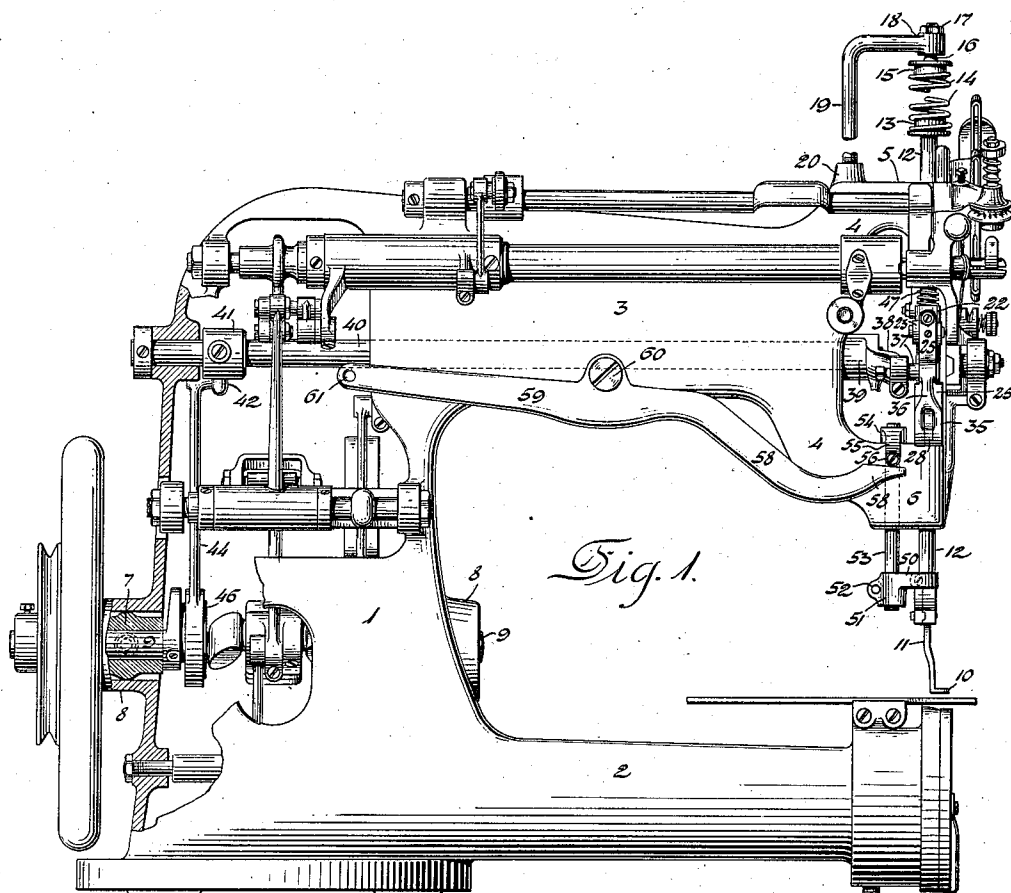


O. E. BROWN.
PRESSER FOOT MECHANISM FOR SEWING MACHINES.
APPLICATION FILED APR. 11, 1911.

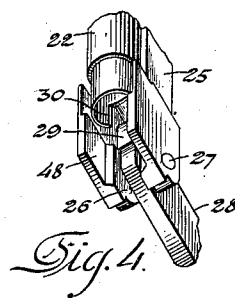
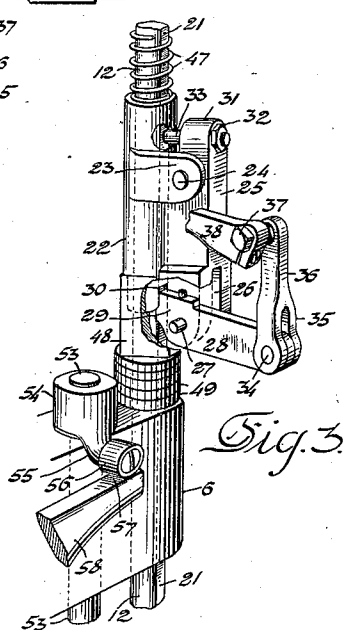
1,014,283.

Patented Jan. 9, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

OTIS E. BROWN, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

PRESSER-FOOT MECHANISM FOR SEWING-MACHINES.

1,014,283.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Original application filed March 4, 1910, Serial No. 547,246. Divided and this application filed April 11, 1911. Serial No. 620,368.

To all whom it may concern:

Be it known that I, OTIS E. BROWN, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Presser-Foot Mechanisms for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This application is a division of my pending application Serial No. 547,246, filed March 4, 1910, and the present invention has for its object to provide a simple and effective means for lifting the presser-foot uniformly and with certainty regardless of the varying thickness of the work.

According to the present invention, in the preferred form, the presser-bar is embraced by an endwise-movable sleeve which sustains a fulcrum for a supporting and clamping lever having a jaw adapted for engagement with the presser-bar and carrying a fulcrum for a second clamping lever provided with a jaw adjacent said fulcrum for engagement with the presser-bar, presser-bar lifting means being connected with the second-named clamping lever for imparting to both levers in the production of each stitch, clamping and presser-bar lifting movements. Means are applied to one of said levers whereby the timing of their simultaneous engagement with the presser-bar under the action of the presser-bar lifting means may be accelerated or retarded so as to vary their period of action and thus correspondingly vary the height to which the presser-bar is lifted.

In the drawings, Figure 1 is a rear side elevation of a machine embodying the present improvements, with the frame partly in section. Fig. 2 is an elevation of the actuating means for the presser-foot lifting rock-shaft. Fig. 3 is a perspective view, upon a larger scale, of the presser-bar and its lifting means, and Fig. 4 a perspective view of a portion of the presser-bar lifting means.

The frame of the machine is shown constructed with the hollow standard 1 having the laterally extending work-supporting arm or horn 2 and overhanging bracket-arm 3 terminating in the head 4 provided with the upper and lower presser-bar bearing members 5 and 6. Journaled in suitable

bushings 7 within the bearing bosses 8 and 55 transversely of the standard 1 is the driving shaft 9 having suitable operative connections with the needle and loop-taker. The presser-foot 10 is provided with the shank 11 secured upon the lower end of the 60 presser-bar 12 journaled in the bearing members 5 and 6 of the bracket-arm and provided at the top with the shouldered cap 13 to receive the lower end of a coiled compressing spring 14 whose opposite end is 65 similarly fitted to a shouldered plug 15 formed upon the lower end of the adjusting screw 16 secured against rotation by the lock-nut 17 in the threaded boss 18 of a thrust-rod 19 secured in a boss 20 upon the 70 top of the head 4 of the bracket-arm. The presser-bar is flattened upon one side at 21 and has slidingly mounted thereon the sleeve 22 provided with laterally projecting spaced ears 23 between which is pivoted by means 75 of the pin 24 the rock-lever 25 having at its lower end a slot or fork 26 within which is pivoted by means of a pin 27 the clamping lever 28 having upon one side of its fulcrum-point the jaw 29 adapted to enter a 80 slot 30 in the reduced lower end portion of the sleeve 22 for engagement with the flat portion 21 of the presser-bar. The supporting lever 25 is formed with an upward extension or lug 31 in which is adjustably secured and locked by means of the nut 32 the 85 threaded outer end of the stop-pin 33 whose point passes through a lateral aperture in the sleeve 22 for engagement with the flat face 21 of the presser-bar in conjunction 90 with which it serves as a clamping jaw for the lever 25. The apertured outer end of the primary clamping lever 28 embraces a pin 34 by means of which it is pivotally connected with the forked lower end portion 35 of a 95 link 36 whose upper end is pivotally connected by means of the pin 37 with a lateral crank-arm 38 having its hub 39 secured to the forward end of a rock-shaft 40 which is journaled within and horizontally of the 100 bracket-arm 3 and has fixed upon its rearward end the hub 41 of a lateral crank-arm 42 connected by means of the screw-stud 43 with the eccentric-rod 44 having at its lower end the strap 45 embracing the actuating 105 eccentric 46 upon the driving shaft 9. The eccentric 46 imparts to the rock-shaft 40, through the eccentric-rod 44 and crank-arm

42, uniform rocking movements which are communicated to the clamping lever 28 through the crank-arm 38 and link 36.

As the outer end of the primary clamping lever 28 is raised, its jaw 29 forcibly engages the flattened side 21 of the presser-bar and the endwise thrust of the lever is transmitted to the pivotal pin 27 which communicates it to the supporting and clamping lever 25, thereby throwing the stop-pin 33 also into forcible engagement with the flattened side 21 of the presser-bar which checks the lateral movement of the pivotal pin 27, whereby the operative portions of both clamping levers are pressed firmly into clamping relation with the presser-bar for clutching the sleeve 22 thereto. The further upward movement of the link 36 under the action of the actuating eccentric 46 causes the bodily lifting of the presser-bar in opposition to its pressure spring 14. The inward or outward adjustment of the stop-pin 33 serves to vary the lost motion between the two pivotally connected clamping levers and thus acts simultaneously to vary the period of operative engagement of each with the presser-bar relatively to the uniform lifting movements imparted to the link 36 by the eccentric 46.

The presser-bar is adapted to rise independently of the sleeve 22 in order to permit the presser-foot to accommodate itself to different thicknesses of material without affecting the action of the lifting mechanism thereon, and the sleeve is normally pressed downward by a spring 47 surrounding the presser-bar and interposed between the top of the sleeve and the bearing member 5 of the bracket-arm, whereby the forked lateral extension 48 at the lower end of the secondary clamp-lever 25, which embraces the presser-bar 12, is caused to normally rest upon the top of a series of washers 49 of yielding material which are interposed between the same upon the presser-bar and the top of the lower presser-bar bearing member 6 whereby noise and shock are prevented in the actuation of the presser-bar.

The present improvement is designed more particularly for embodiment in that class of sewing machines in which the work is advanced to space the stitches while the needle is in its lower position within the same, and the eccentric 46 is so set upon the shaft 9 as to cause the lifting of the presser-bar just as the needle is about to begin a lateral or feeding movement, so as to permit the work to be advanced by the needle without resistance.

Fixed upon the lower portion of the presser-bar above the presser-foot shank 11 is a block 50 provided with a split socket 51 secured by means of the clamp-screw 52 upon the lower end of a vertical slide-bar 53 journaled in the bearing member 6 and hav-

ing fixed to its upper end the collar 54 with the rigid lateral arm 55 carrying the roller-stud 56 against the lower side of which rests the flat wearing face 57 upon the top of the forward portion 58 of a lifting rock-lever 59 fulcrumed at 60 upon the bracket-arm and having in its rearward end an eye 61 for attachment of a treadle-rod in a manner well known. As will be evident the manual actuation of the lifting lever 59 operates through the slide-bar 53 and the block 50 to raise the presser-bar independently of its automatically acting lifting means.

From the foregoing description, it will be seen that the provision of the sliding sleeve with two clamping members connected for simultaneous actuation by differential movement produces a very strong grip of the lifting sleeve upon the presser-bar which insures against any slip in the lifting action so as to avoid a drag upon the work during the feeding period which would affect the uniformity of the stitching.

While the present embodiment is considered best suited to the machine in which it is shown embodied, it is to be understood that the construction and arrangement of parts may be materially modified without departure from the scope of the present invention.

Having thus set forth the nature of the invention, what I claim herein is:—

1. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve embracing and endwise movable relatively to the presser-bar, a plurality of clamping members sustained by said sleeve and differentially movable into and out of operative relation with the presser-bar, and means for simultaneously actuating said clamping members and lifting said sleeve and presser-bar.

2. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve embracing and endwise movable relatively to the presser-bar, a plurality of clamping members sustained by said sleeve and movable into and out of operative relation with the presser-bar, an operative connection between said clamping members whereby one is actuated through the other, and presser-bar lifting means connected with said clamping members.

3. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve embracing and endwise movable relatively to the presser-bar, a plurality of clamping levers sustained by said sleeve and each provided with a clamping jaw movable into and out of operative relation with the presser-bar, a pivotal connection between said levers, and presser-bar lifting means applied to one

of said levers and adapted to throw both levers into clamping relation with the presser-bar.

4. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve embracing and endwise movable relatively to the presser-bar, a plurality of clamping members sustained by said sleeve and movable into and out of operative relation with the presser-bar, uniformly acting presser-bar lifting means operatively connected with said clamping members and adapted to throw them into operative relation with the presser-bar, and means for simultaneously adjusting the timing of the engagement of the presser-bar by said clamping members under the action of said lifting means.

5. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve embracing and endwise movable relatively to the presser-bar, a plurality of clamping members sustained by said sleeve and movable into and out of operative relation with the presser-bar, uniformly acting presser-bar lifting means operatively connected with said clamping members and adapted to throw them into operative relation with the presser-bar, and adjusting means applied to one of said clamping members and adapted to vary the period of engagement of both of said members with the presser-bar under the action of said lifting means.

6. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve movable endwise upon said presser-bar, a supporting lever pivotally mounted upon said sleeve, means for limiting the lateral movement of the supporting lever relative to the sleeve, a clamping lever pivotally connected to said supporting lever and having a jaw adjacent its point of support for engaging said presser-bar, and means for rocking said clamping lever to impart clamping and lifting movements thereto.

7. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve movable endwise upon said presser-bar, a supporting lever pivotally mounted upon said sleeve, means comprising an adjustable member for limiting the lateral movement of the supporting lever relative to the sleeve, a clamping lever pivotally connected to said supporting lever and having a jaw adjacent its point of support for engaging said presser-bar, and means for rocking said clamping lever to impart clamping and lifting movements thereto.

8. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve movable endwise upon said presser-bar, a supporting lever pivotally mounted upon said sleeve and formed with a depending portion forked at its lower end and with an upward extension or lug, a stop-pin adjustably mounted in the upward extension or lug of said supporting lever and having a point adapted to engage the presser-bar, a clamping lever pivotally mounted within the forked lower end of said supporting lever and having a jaw adjacent its point of support for engaging the presser-bar, and means for rocking the clamping lever to impart clamping and presser-bar lifting movements to said levers.

9. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve movable endwise upon said presser-bar, a fixed support for said sleeve, a spring for yieldingly maintaining said sleeve upon its support, a supporting and clamping lever pivotally mounted upon said sleeve and having a jaw adapted for engagement with the presser-bar, a clamping lever pivotally mounted upon the first-named lever and having a jaw adjacent its pivotal connection therewith and adapted for engagement with the presser-bar, and means for rocking the second-named clamping lever to impart clamping and presser-bar lifting movements to said levers.

10. In a sewing machine, the combination with a presser-bar and a presser-foot attached thereto, of a loose sleeve movable endwise upon said presser-bar, a supporting lever pivotally mounted upon said sleeve and formed with a depending portion having a lateral extension forked to embrace the presser-bar, a clamping lever pivotally connected to the depending portion of said supporting lever and having a presser-bar engaging jaw adjacent said pivotal connection, a fixed support upon which the forked lateral extension of the supporting lever is adapted to rest, a spring acting upon said sleeve to maintain the supporting-lever extension yieldingly seated upon said support, and means for rocking said clamping lever to impart thereto clamping and presser-bar lifting movements.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

OTIS E. BROWN.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN, Jr.