(No Model.) 3 Sheets—Sheet 1.

A. A. BOUTON.

MITT AND GLOVE SEWING DEVICE.

No. 367,356. Patented Aug. 2, 1887.

Fig. 1.

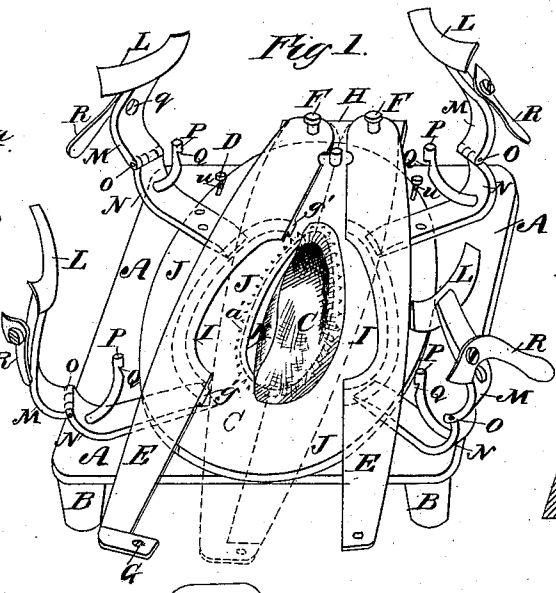


Fig. 1a.

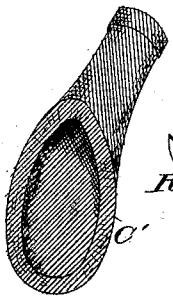


Fig. 1b.

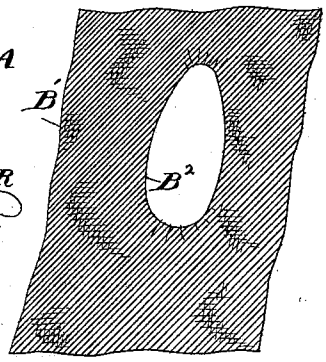


Fig. 1c.

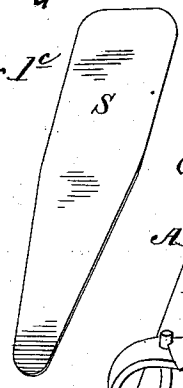


Fig. 2.

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(No Model.) 3 Sheets—Sheet 2.

A. A. BOUTON.

MITT AND GLOVE SEWING DEVICE.

No. 367,356. Patented Aug. 2, 1887.

Fig. 3.

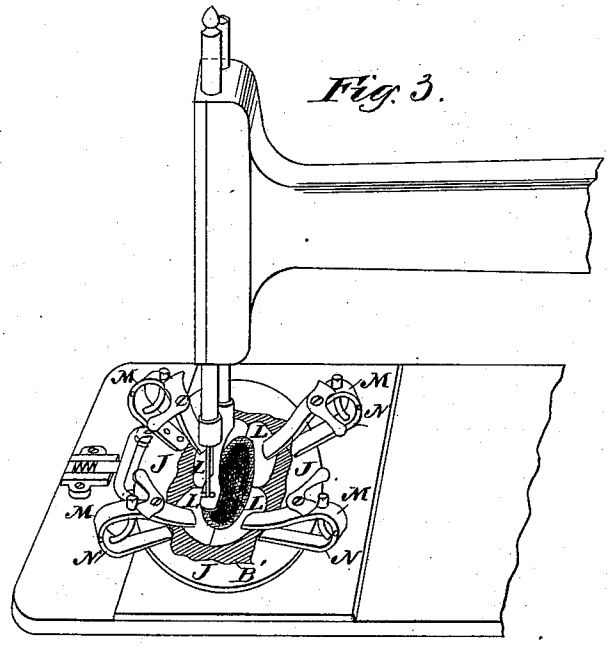
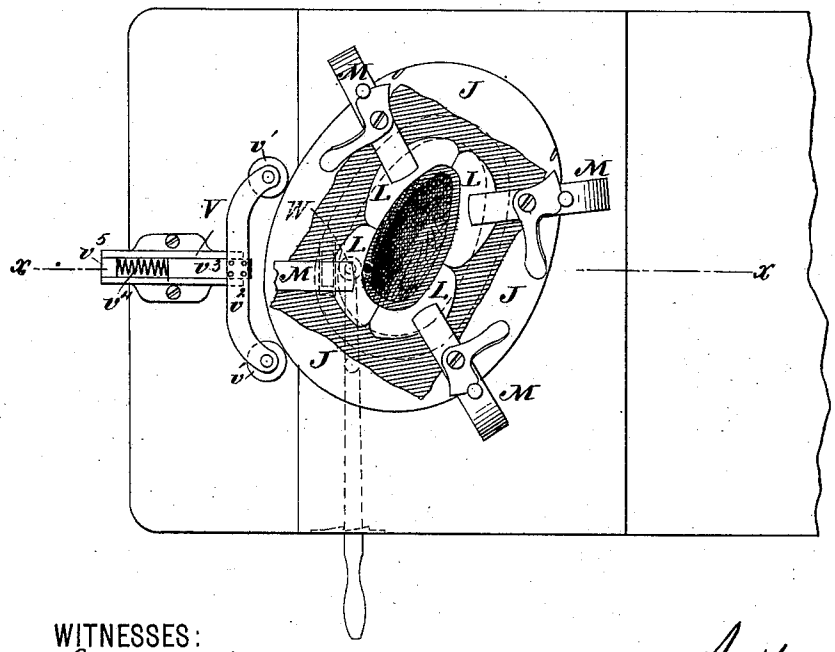


Fig. 4.



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(No Model.) A. A. BOUTON. 3 Sheets—Sheet 3.

MITT AND GLOVE SEWING DEVICE.

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Fig. 5.

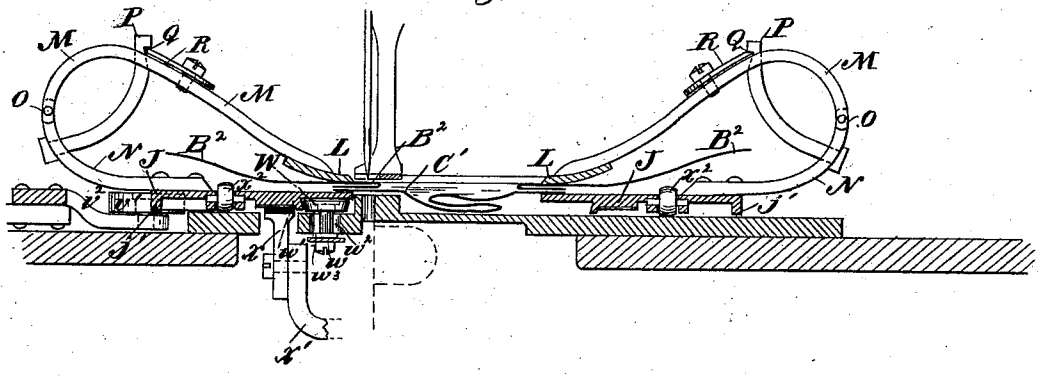
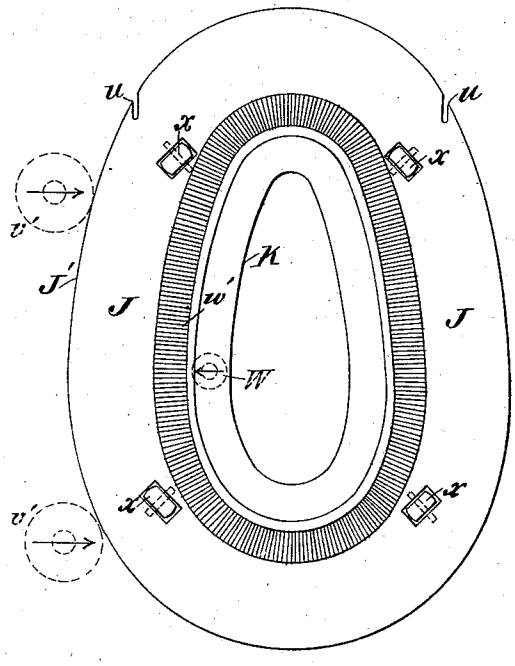


Fig. 6.



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UNITED STATES PATENT OFFICE.

ARTHUR A. BOUTON, OF BROOKLYN, ASSIGNOR TO JULIUS KAYSER, OF NEW YORK, N. Y.

MITT AND GLOVE SEWING DEVICE.

SPECIFICATION forming part of Letters Patent No. 367,356, dated August 2, 1887.

Application filed September 13, 1886. Serial No. 213,408. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. BOUTON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Mitt and Glove Sewing Device, of which the following is a specification.

My invention relates to instrumentalities whereby thumbs may be quickly, easily, and accurately sewed to the hand part of mitts, gloves, and like articles; and it consists, generally speaking, of a plate perforated centrally and provided with clamping devices for holding the thumb-piece and the mitt or glove part in proper position relative to each other for uniting by stitching. Means are also provided for folding over the raw edges of the hole cut in the mitt or glove for the reception of the thumb; and the invention also consists in certain guiding devices which hold the work-holding plate and its attachments in proper position relative to the needle of the machine, and which automatically guide the work during the stitching operation.

In the drawings like reference-letters indicate like parts in all the figures.

Figure 1 represents a perspective top view. Figs. 1ª, 1ᵇ, and 1ᶜ represent detailed views of parts used in connection with the device shown in Fig. 1. Fig. 2 represents a perspective view with the clamping devices closed. Fig. 3 represents a perspective view showing the work-holding device in position on a sewing-machine. Fig. 4 represents a plan view, showing also the feed-guiding rollers. Fig. 5 represents a longitudinal section of the parts shown in Fig. 4 on the line *x x*, somewhat enlarged. Fig. 6 represents an inverted plan view of the work-holding plate, showing the engagement of the feed-guiding devices with the plate.

A is a plate, preferably of metal, and preferably supported on short legs B. In its central part is a hole, C, of the shape of the base C′ of the thumb-piece, or, in other words, the part which is stitched to the mitt or glove. Near one side of the plate A are two thin upwardly-projecting stops, D, which act as stop-gages, as hereinafter set forth.

E E are two thin plates of metal, preferably steel, which I will call the "folding-guides." They are each pivoted at F to the plate A, and are adapted to be swung horizontally on said pivots. At the ends opposite the pivots there is a catch, G, of any suitable construction adapted to lock these ends together when closed. Fastened to the under side of these folding-guides are thin offset pieces *g′ g′*, which serve to separate these folding-guides from the dividing-plate hereinafter described, so as to allow of the folding over of the raw edge of the thumb-hole between them and the dividing-plate.

H is a pin rigidly fastened in the plate A, which limits the inward movement of the folding-guides E, thus centering them. These guides are hollowed out adjacent to the hole C, as seen at I, the hollowed-out part in each guide conforming in shape to the shape of half of the hole C in the plate A.

J is another thin plate or sheet of metal, preferably steel, which has also a hole, K, centrally located therein, which hole conforms to the shape and size of the hole C in the plate A. The edges of this hole are furnished with small burrs or hooks, over which the bell-mouthed base of the thumb are caught, as hereinafter described. The shape of this plate J at its outer edge is oval, as shown, and exactly conforms to that of the hole K in its center—that is to say, the distance from the edge of the hole to the edges of the plate is the same all around the plate.

L L L L are clamping-plates attached to the respective ends of four arms, M, &c., which are hinged to as many standards N, which are fastened to the plate J. The hinges are seen at O.

P is an upwardly-extending curved finger, notched near its upper end at Q. The notched ends of the fingers pass through slots *q* in the arms N, projecting above the arms when in their depressed position.

R R R R are cam-levers pivoted to the arms M, which engage with the notches Q in the fingers P when the clamps are in their clamping position. The edges of the short arm of these levers are formed on a level flatwise, to act as cams when operated in the notches Q, and, being forced under the notches, they press the clamps L firmly down upon the mitt or glove beneath them.

S, Fig. 1ᶜ, is a thin piece of steel, which I will call the "dividing-plate." Its shape is

substantially as shown in the drawings, and its use will be explained hereinafter.

The foregoing constitutes the devices for holding the mitt or glove and the thumb-piece in proper position relative to each other for being stitched together, and before describing the feeding and guiding mechanism I will explain the operation of these parts.

The plate J and the parts attached to it are separate and distinct from the plate A and the parts attached to it, although they are used in conjunction with each other.

First, the cam-levers R R, &c., are disengaged from the notches Q in the fingers P, and the clamping-plates L are all of them turned upwardly away from the plate J, as seen in Fig. 1. The plate J is then placed on top of the plate A in such manner that the folding-guides E E rest on top of the plate J and between the standards N N. This is done by slightly lifting the free ends of the folding-guides and sliding the plate J underneath them. The plate J is pressed inwardly until the notches U engage with the stop-gages D. The hole K in the plate J will then be exactly coincident with the hole C in the plate A. The folding-guides E E are then spread apart, so as to expose the teeth on the edges of the hole K. The thumb of the mitt or glove, which has previously been made inside out, is then passed through the holes K and C until its base comes adjacent to the teeth on the edges of the hole K, over which teeth the cloth of the base of the thumb is then caught all around the hole. The dividing-plate S, Fig. 1^c, is then placed on top of the hole K, covering the edges of the base of the thumb, and under the folding-guides, and is shoved in under the guides until stopped by the pin H. The thumb-piece is thus held and prevented from escaping from the hooks or teeth on the edges of the hole K. The folding-guides are then brought together over the dividing-plate and their ends locked together by the catch G. The mitt or glove B′, a portion of which is seen in Fig. 1^b, which has previously been made and left flat—*i. e.*, not seamed up—is then placed over the folding-guides right side up, and with the hole for the reception of the thumb, (marked B^2,) which has previously been cut out therefrom, directly over the hole formed by the concave recesses I I, made in the folding-guides E E. The clamping-plates L L L L are then brought down and clamped upon the mitt or glove, thus holding it firmly in place. The edges of the thumb-hole are then bent downwardly and backwardly between the folding-guides E E and the dividing-plate S, which are sufficiently separated by the offset strip g' g' on the under side of the folding-guides to allow of this being easily done. I prefer to slit the edges of the hole B^2 in the mitt or glove slightly in a radial direction at the sharply rounding ends thereof to facilitate this folding operation, which is easily effected by means of a very thin and flexible steel blade, C^2, rounded and bent at the ends, which is held in the hand of the operator, and by which the raw edge of the hole in the mitt or glove is shoved in between the folding-guides and the dividing-plate, as illustrated in Fig. 2. After the raw edge of the thumb-hole has been bent under all around, the folding-guides are unlocked and spread apart as far as they will go, and the plate J is then pulled out from under them and away from the plate A. The dividing-plate S may also be pulled out at the same time the folding-guides are separated; but I prefer to leave it in position until the stitching is to be done, since displacement of the work is less likely to occur if it be so left.

When the stitching is to be done, the plate J is placed on the table of a sewing-machine in such position that the needle will come down adjacent to the inner edge of the clamping-plates L, which are in the same vertical line as the edges of the hole K in the plate J. The dividing-plate S is then withdrawn, (if it has not been previously withdrawn,) and the stitching may then be accomplished by running the machine as usual and moving the plate J about as required to cause the needle to follow a line coincident with the inner edges of the clamping-plates L, and one, two, or more rows of stitches may thus be produced, as desired.

It will be noticed that when the dividing-plate has been withdrawn the mitt or glove rests right side up, so that the right side of the stitches are presented to view when the mitt or glove is folded over and seamed up, and also that the thumb, being inside out, upon being turned, will project through the mitt or glove in the reverse direction and appear right side out, with the cut edge of the thumb on the inside and the under side of the stitches hidden, and also that the raw edges of the thumb-hole will be turned under, thus presenting a nicely folded-over edge, and that the thumb and the mitt or glove are in proper position for the stitches to pass through them both.

Another part of my invention, as before stated, consists in an automatic feeding and guiding attachment, which I will now explain.

The outer edge of the plate J (seen at J′) is exactly coincident in shape with the hole K in the plate, although larger than it. On the table of the machine I attach a slide guide-block, V, which carries two horizontally-acting rollers, v' v', which are attached to a cross-bar, v^2, which is centrally attached to a sliding block or bar, v^3, which slides in the guide V. A spring, v^4, acting on the end of the sliding block v^3, and provided with a stop, v^5, rearwardly, serves always to project the rollers v' v'. These rollers engage with the outer edge of the plate J, upon which I prefer to form a flange, j', for the rollers to rest against, because this flange serves to stiffen the plate and prevent springing; but these rollers may be grooved to receive the thin edge of the plate, if desired.

W is another horizontally-acting roller, which turns upon a spindle, *w*, which is rigidly attached to the table of the machine in proper relation to the stroke of the needle to secure proper registration of the edges of the clamping-plates relative to the needle. This roller W engages with the inner edge of a downwardly-extending ledge, *w'*, on the under side of the plate, which exactly coincides with the shape of the hole K all around, and which may be undercut a little, as seen in Fig. 5, to afford more secure contact with the roller W, (the periphery of the roller being formed in such manner as to properly engage with the undercut part;) and in order that the feed-plate of the machine may catch hold of the under side of the plate J and feed it, I either roughen the under surface of the ledge *w'* with fine backwardly-extending teeth which interlock with the teeth of the feed-plate, or I attach with cement or otherwise to the under side of the plate J or to this ledge a piece of felt or equivalent material, in which the teeth of the feed-plate will catch and feed it, and, if preferred, the teeth may be made of such size that they shall conform to the length of stitch, and then a pawl may be employed instead of the ordinary feed-plate, thus making a ratchet-bar of the under surface of the ledge *w'*. The roughening felt or teeth may be directly on the bottom of the plate J or on the ledge, as desired. If on the bottom of the plate, then the ledge will not be required, and in this case the wheel W should be grooved to properly receive and hold the edge of the plate, and the needle will then strike by the side of the wheel W instead of directly in front of it.

In order that two or more rows of stitches may be stitched, I make the fixed roller W adjustable laterally by means of a slot, w^2, and set-screw w^3, so that it may be shifted away from the line of movement of the needle the desired distance; and in order that this shifting of the roller may be conveniently done I propose to mount it on a pivoted lever, as shown, the end of the lever opposite the roller being provided with some suitable catches to hold the roller in its desired position.

The operation of the feeding and guiding devices just described is as follows: The plate J, having the work clamped upon it, as before stated, is placed upon the table of the machine, with the inner edge of the ledge *w'* or of the plate J, as the case may be, grasped by the roller W, as stated, and the outer edge of the plate J being pressed against by the rollers *v' v'*, (these rollers having been drawn backwardly by compressing the spring v^4 to allow of the introduction of the plate J.) The machine is then run as usual, and the operation of the feed-plate X (which is attached to a feed-lever, X', as usual) against the roughened or felt-covered under side of the plate J or ledge *w'*, as the case may be, will cause the plate to move with an elliptically-shaped rotary motion as the stitching is done, this motion being such as to cause the line of stitches to follow the line of the inner edge of the clamping-plates L L, &c., and a little inside thereof. The spring v^4 will compel the rollers *v' v'* to follow the undulations or variations in the curved edge of the plate J and keep it pressed up against the fixed roller W, thus maintaining proper position relative to the needle, and when desired to make another row of stitches the roller W is adjusted laterally, as before stated, and the plate J rotated again. The plate J is removed from the machine by again drawing back the rollers *v' v'*, compressing the spring v^4 until the outer edge of the plate is removed from their grasp. The plate J may be provided with three or more small friction-rollers, x^2, projecting very slightly below the under side thereof, to facilitate the movement of the plate, avoiding friction.

Instead of four clamping-plates L, there may be one, two, or more with suitably-arranged supporting and clamping devices; but I prefer at least two, because I have found the adjustment of the work to be better and the clamping action more secure. Also, any other form of guiding and feeding device may be employed—such, for instance, as that now employed on the button-hole sewing-machines; but I prefer that described by me. Also, as stated, the device may be used without any special guiding or feeding devices, being simply guided by hand, while the ordinary feed-plate supplies the step by-step motion.

I do not limit myself to the details of construction shown and described, since it will be apparent to those skilled in this art that many alterations in details of construction, &c., may be made and still my invention be employed; but

I do claim—

1. The combination of a perforated plate provided with cloth catching and holding devices around the edges of the perforation to catch and hold the edges of the base of the thumb, a movable dividing-plate and movable folding-guides, whereby the edges of the thumb-hole may be folded under, and movable clamps for holding the work in proper position, substantially as set forth.

2. The combination of a perforated plate provided with cloth catching and holding devices around the edges of the perforation to catch and hold the edges of the base of the thumb, a movable dividing-plate and movable folding guides self-centering relative to the said perforation, whereby the edges of the thumb-hole will be coincident with the base of the thumb, and clamps for holding the work in proper relation for the action of the needle, substantially as set forth.

3. The combination of a perforated plate having pivoted folding-guides and stops to determine the location of the guides, and another perforated plate having movable clamps and provided with notches adapted to engage with stops on the plate having the folding-guides, whereby the relative positions of the folding-

guides and the clamps will be determined, substantially as set forth.

4. The combination of a perforated plate provided with clamps fastened to the plate, between which and the plate the work is clamped in a fixed position relative to the perforation, with the parts to be sewed lying within the edges of the perforation, and with the under side of the perforated plate roughened or covered to enable it to be fed by the feed-plate of a sewing-machine, substantially as set forth.

5. The combination of a perforated plate having clamps fastened to the plate, between which and the plate the work is clamped, the outer edge of the plate conforming in shape to the perforation therein, and a fixed roller attached to the table of a sewing-machine, which maintains the edge of the perforation in position relative to the needle-stroke, and movable spring-actuated rollers which engage with the outer edge of the perforated plate, and feeding mechanism which engages with the under side of the perforated plate and feeds the work, substantially as set forth.

6. The combination of a plate having clamps fastened to the plate, between which and the plate the work is held, a roller rigidly attached to the table of a sewing-machine and the spring-actuated rollers, the said rigid roller and said spring-actuated rollers engaging with coincident surfaces on the plate, and a feeding mechanism, whereby the feeding mechanism will feed and the rollers guide the work to the needle, substantially as set forth.

7. The combination of a plate having a centrally-located opening, the edges whereof are provided with teeth to catch and hold the work, a dividing-plate to separate one part of the work from the part to be stitched to it, movable folding-guides placed over the dividing-plate, and clamps adapted to come down over the guides and to hold the work while being folded and stitched, substantially as set forth.

8. The combination of a plate adapted to hold the work and a rigid roller attached to the table of a sewing-machine in a fixed position relative to the needle, but capable of lateral adjustment, and spring-actuated rollers having a spring-controlled lateral movement, the said rollers all engaging with coincident surfaces on the work-holding plate, substantially as and for the purposes set forth.

9. A plate, A, having movable folding-guides E, and a hole, C, and stop-gages D, in combination with a plate, J, having a hole, K, provided with teeth on its edges, recesses U, clamp-plates L, with means for supporting and clamping the same, and a dividing-plate, S, substantially as set forth.

10. The combination of a plate having clamps fastened to the plate, between which and the plate the work is held, and a fixed roller attached to the table of a sewing-machine, adapted to maintain the edge of the plate in position relative to the needle-stroke, substantially as set forth.

11. A plate, A, having movable folding-guides E, and a hole, C, in combination with a plate, J, having a hole, K, provided with teeth on its edges, clamps L, with means for supporting and clamping the same, and a dividing-plate, S, substantially as set forth.

12. A plate, J, having a hole, K, provided with teeth on its edges and clamps adapted to hold the work, the outer edge of which plate coincides in shape with the edge of the hole in it, in combination with a fixed roller, W, and spring-actuated rollers v' v', attached to the table of a sewing-machine and a feed-plate of a sewing-machine, and mechanism to drive the same, all combined and operating substantially as set forth.

13. The described feed-guiding attachment for sewing-machines, consisting in a plate adapted to hold the work, a roller attached to the table of the machine, and movable spring-actuated rollers, also attached to the table of the machine, said rollers being adapted to grasp and guide the edges of the said plate and a feed-plate of a sewing-machine, all combined and operating substantially as set forth.

14. The described work-holding plate having a centrally-located hole, clamps to bind the work to the plate, and rollers projecting slightly below the under surface of the plate, whereby friction will be reduced, substantially as set forth.

15. The combination of a plate provided with clamps fastened to the plate, between which and the plate the work is held, and a ratchet-bar on the plate, which engages with a pawl operated by the feed-arm of a sewing-machine, the said ratchet-bar conforming in shape to that of the desired line of stitches, substantially as set forth.

16. The combination of a plate provided with clamps fastened to the plate, between which and the plate the work is clamped, and a ratchet-bar on the plate, which engages with a feed plate or pawl operated by the feed-arm of a sewing-machine, the said ratchet conforming in shape to that of the desired line of stitches, and a guiding device whereby the plate will be propelled by the plate or pawl and the ratchet-bar and guided by the guiding mechanism, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 8th day of September, A. D. 1886.

ARTHUR A. BOUTON.

Witnesses:
JOHN H. IVES,
JOHN BYRNE.