5 Sheets—Sheet 1.

C. R. JACKSON.

Buttonhole Stitch Sewing Machine.

No. 41,923. Patented March 15, 1864.

Fig. 1,

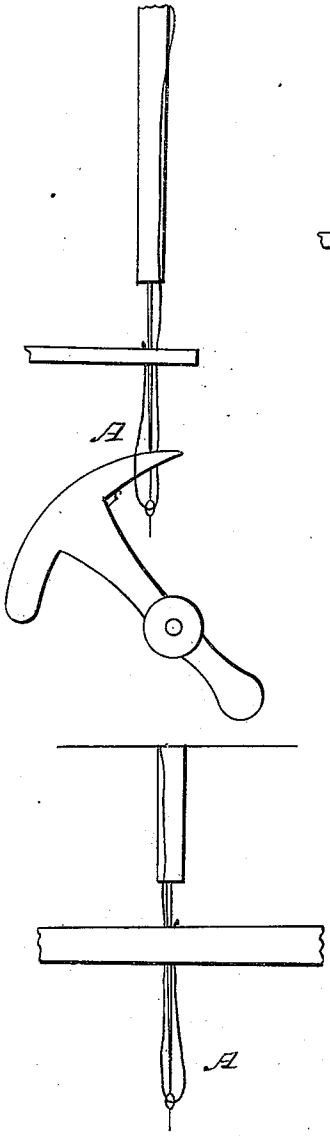


Fig. 2,

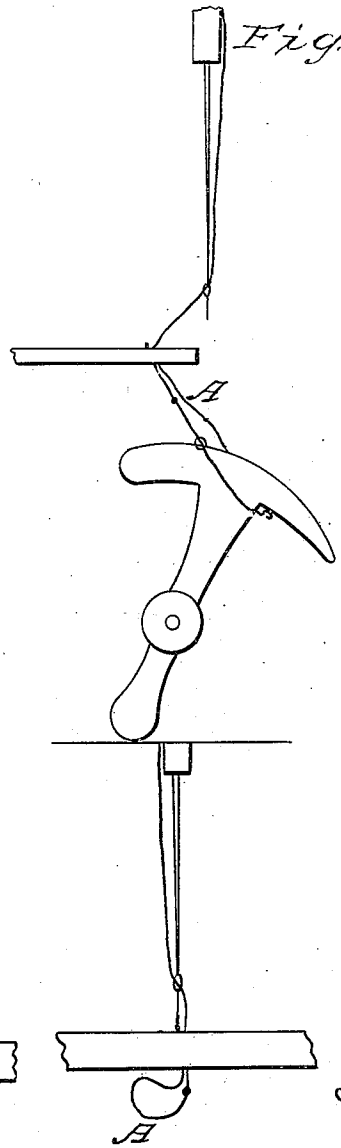
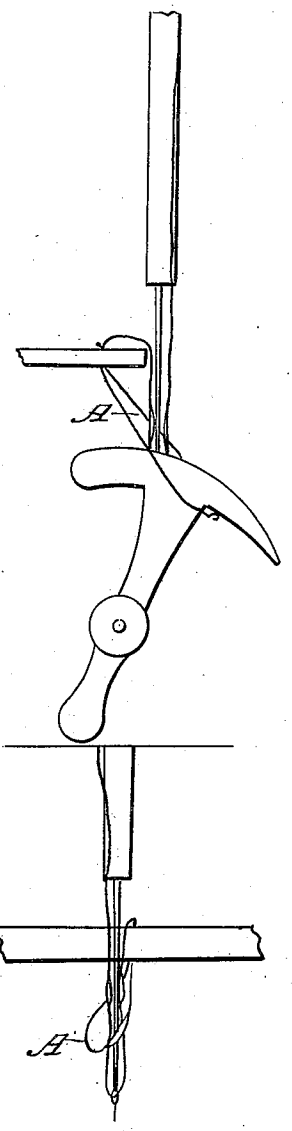


Fig. 3,



Witnesses
Chas B Tatham
Chas W Ingraham

Inventor
Charles Rogers Jackson

5 Sheets—Sheet 2.

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Buttonhole Stitch Sewing Machine.

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Fig. 4.

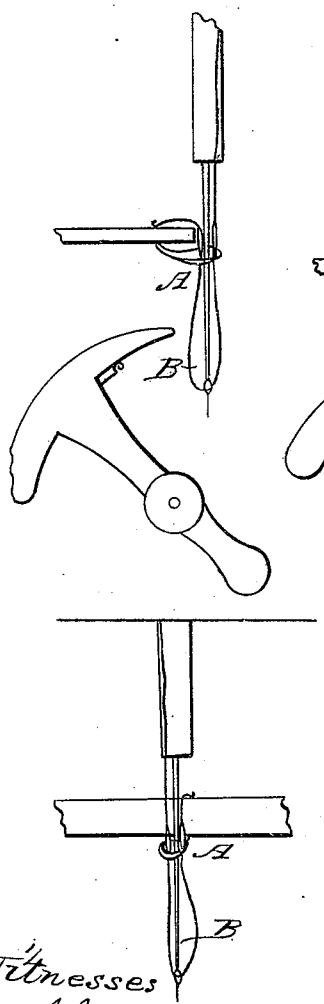


Fig. 5.

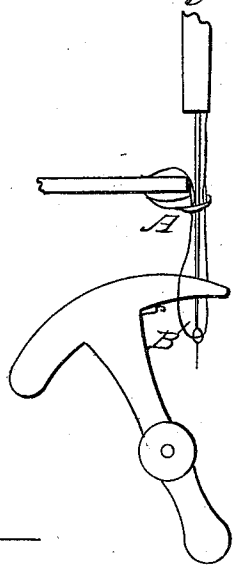


Fig. 6.

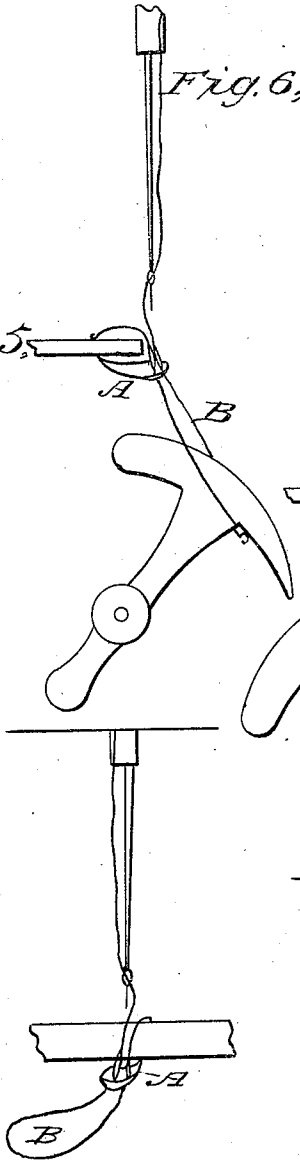
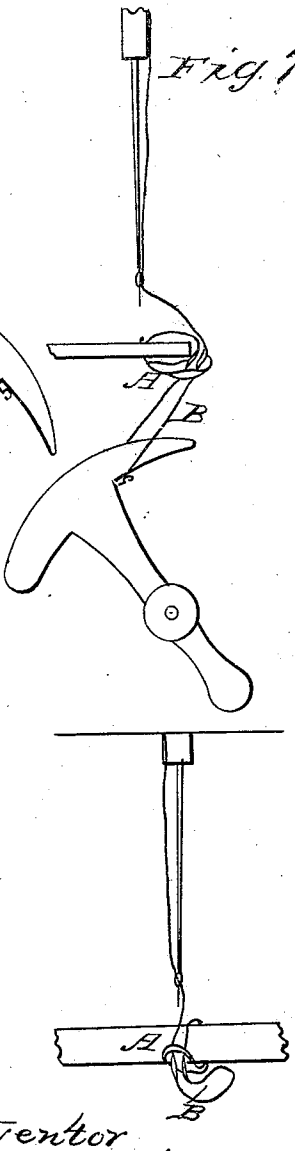


Fig. 7.



Witnesses
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Chas W. Ingraham

Inventor
Charles Rogers Jackson

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Buttonhole Stitch Sewing Machine.

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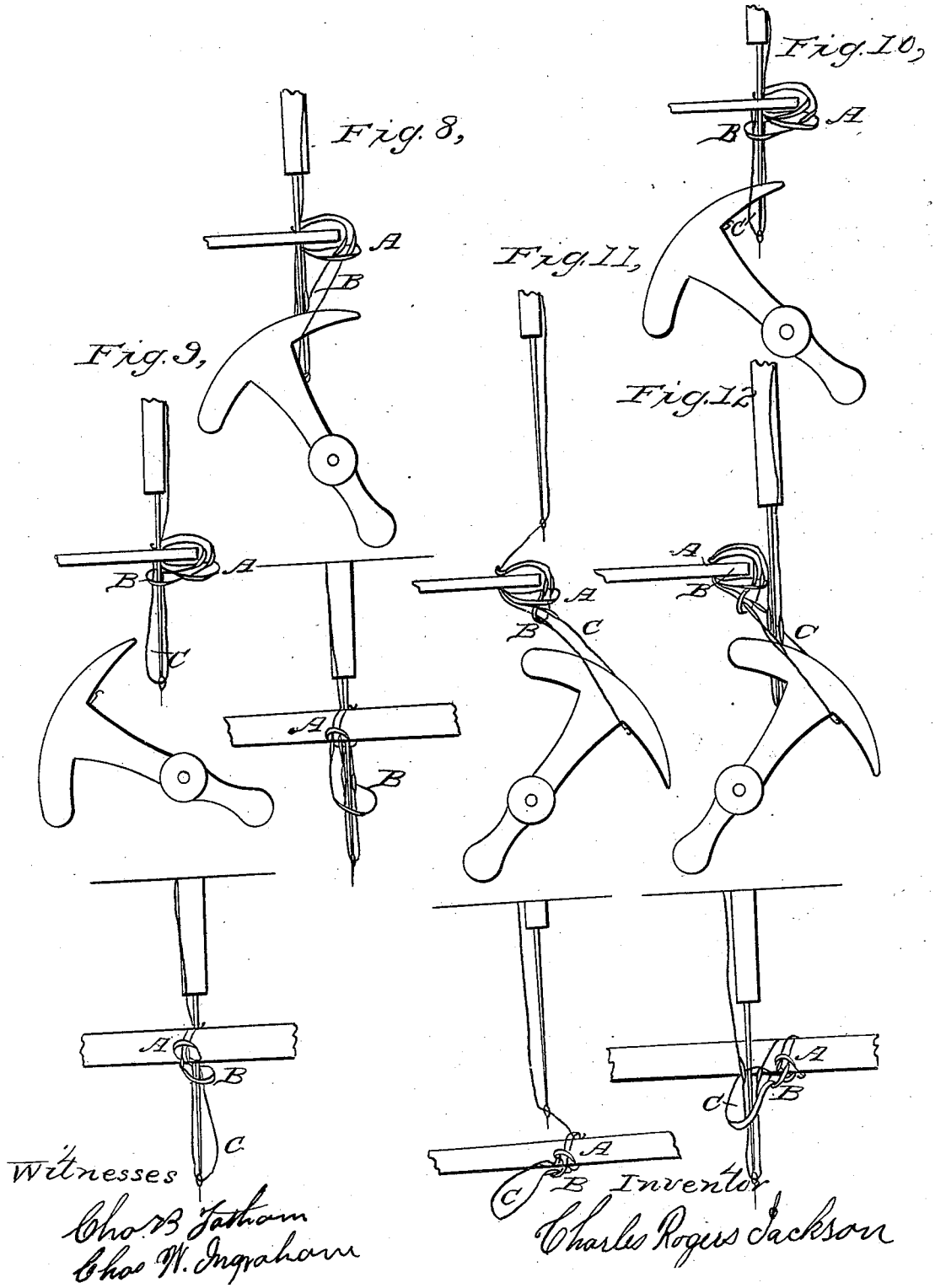

Witnesses

Chas B Fatham

Chas W. Ingraham

Inventor

Charles Rogers Jackson

5 Sheets—Sheet 4.

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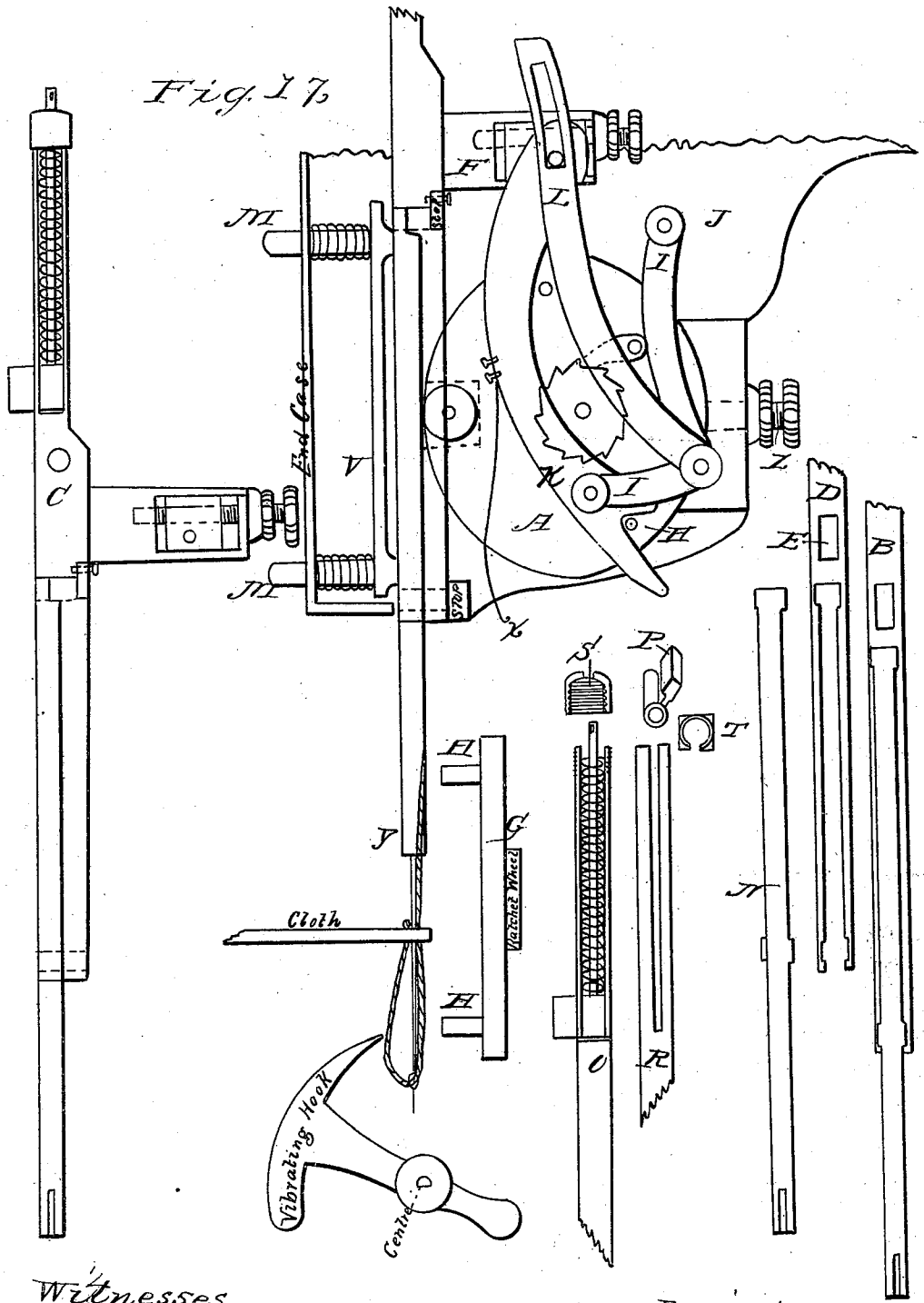
Buttonhole Stitch Sewing Machine.

No. 41,923. Patented March 15, 1864.

Fig. 17.



Witnesses
Chas. B. Tatham
Chas W. Ingraham

Inventor
Charles Rogers Jackson

5 Sheets—Sheet 5.

C. R. JACKSON.

Buttonhole Stitch Sewing Machine.

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Fig. 15,

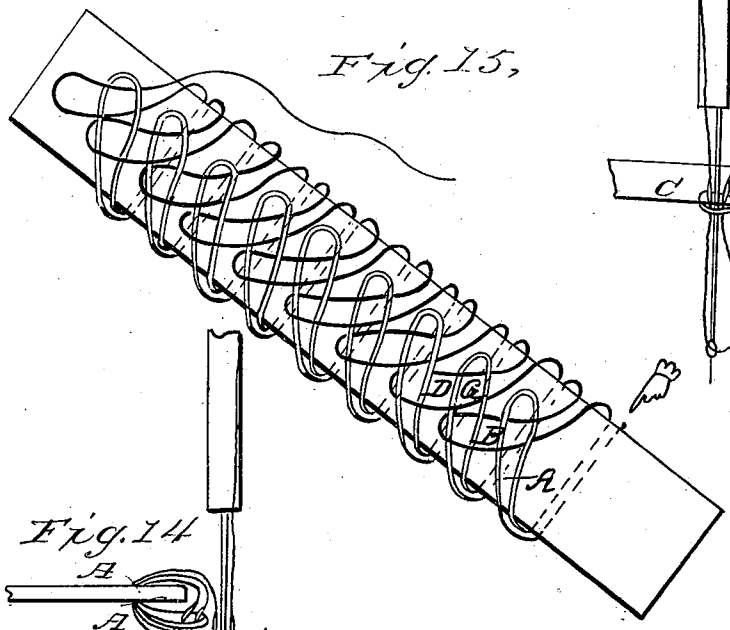
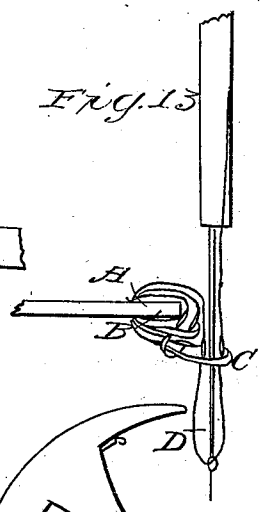


Fig. 13



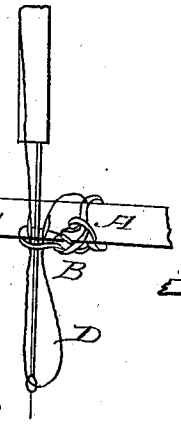


Fig. 14

Fig. 18,

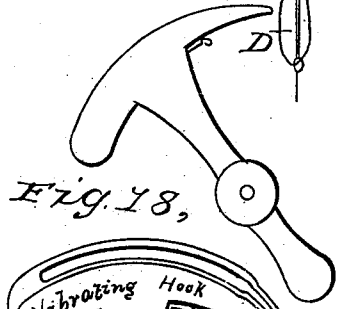
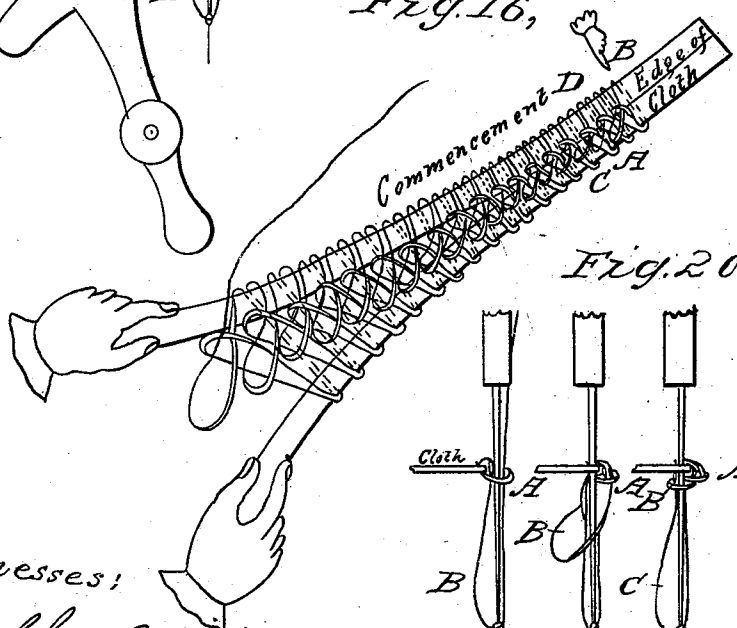


Fig. 16,



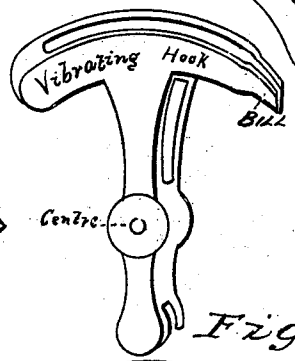


Fig. 19,

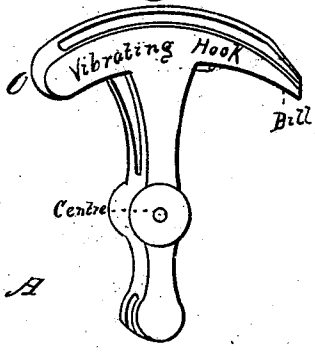


Fig. 20

Witnesses:

Chas B. Fatham

Chas W Ingraham

Inventor.

Charles Rogers Jackson

UNITED STATES PATENT OFFICE.

CHARLES ROGERS JACKSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SEWING-MACHINE BUTTON-HOLE STITCH.

Specification forming part of Letters Patent No. **41,923**, dated March 15, 1864.

To all whom it may concern:

Be it known that I, CHARLES ROGERS JACKSON, of Brooklyn, in the county of Kings and State of New York, have invented a new Sewing-Machine Stitch for Button-Holes or over the Edge of a Fabric; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, forming a portion of this specification, and which represent the manner in which the stitch is to be made.

The stitch consists of passing a threaded eye-pointed needle down through the cloth at a given distance from the edge, that the loop of its thread may be taken by an open or hollow hook vibrating on a center beneath the cloth or fabric. The needle then passes up about one-fourth of an inch to form a loop for the bill of the hook to enter. (See vibrating hook, Figure 17, and perspective view, Fig. 18.) The bill of the vibrating hook then passes into loop A. (See Fig. 1.) The needle-bar then passes up, while the vibrating hook stands still. The vibrating hook then goes on into loop A and pulls it down, (see Fig. 2,) while the needle is going from the place of its perforation toward and over the edge of the cloth, down through loop A and into the vibrating hook. (See Figs. 3 and 18, showing the opening or hollow for the needle to pass into, and likewise the bill for the needle to pass out.) The needle then stands still in the loop while the vibrating hook is passing back, the bill of the hook receding from the needle, leaving it clear, with the needle passed into loop A. The vibrating hook then stands still while the needle-bar passes down about three-eighths of an inch. Then the upper tension draws loop A up to the cloth tight on the needle. (See description of the upper tension, and see Fig. 4.) The needle-bar then passes up part way to form a loop for the bill of vibrating hook to enter. The bill of the hook then passes into loop B. (See Fig. 5.) The vibrating hook then stands still while the needle-bar passes up. Then the vibrating hook passes on into loop B and goes to its given distance, carrying with it loop B and pulling it down off from the edge of the cloth, by which means loop A is drawn tight to the edge of the cloth in its proper position while the needle is standing still. (See Fig. 6 and the description of the lower tension.) The vibrating hook then passes back part way toward the line of the seam from the edge of the cloth, taking with it loop B. (See Fig. 7.) In the meantime the needle-bar passes down while the needle is going to the given distance from the edge and through the cloth a short space forward in the line of the seam through loop B and into the vibrating hook. (See Fig. 8.) The needle then stands still in the loop while the vibrating hook is passing back, the bill of the hook receding from the needle, leaving it clear, with the needle passed into loop B. The vibrating hook then stands still while the needle-bar passes down about three-eighths of an inch. The upper tension then draws loop B up to the cloth tight on the needle. The needle-bar then passes up part way to form a loop for the bill of the vibrating hook to enter. (See Fig. 9.) The bill of the hook then passes into loop C. (See Fig. 10.) The vibrating hook then stands still while the needle-bar pases up. The vibrating hook passes on into loop C and goes to its given distance, carrying with it loop C, and pulling it down off from the edge of the cloth, by which means loop B is drawn tight to the edge of the cloth in its proper position (see Fig. 11) while the needle is going from the place of its perforation toward and over the edge of the cloth down through loop C and into the vibrating hook. (See Fig. 12.) The needle then stands still in the loop while the vibrating hook is passing back, the bill of the hook receding from the needle, leaving it clear, with the needle passed into loop C. The needle-bar then passes down about three-eighths of an inch. Then the upper tension draws loop C up to the cloth tight on the needle. The needle-bar then passes up part way to form a loop for the bill of the hook to enter. (See Fig. 13.) The bill of the vibrating hook passes into loop D, (see Fig. 14,) and so on, repeating and advancing in the work.

All the loops are made with a single thread and drawn upon the edge, each loop being drawn through the one next preceding it (see Figs. 3, 6, and 15) in succession on the edge when finished, and forming a complete stitching for the edge of the button-holes, or any other edge desired to be worked in like manner in or on any fabric desired to be used. Each loop is taken off the needle below the

cloth. While the needle is passing up a loop is passed down through the cloth at a given distance from the edge of the cloth. The loop is then brought forward to the edge while the needle is passing toward and over the edge down through the loop. The loop is then drawn up to the cloth tight on the needle (see Fig. 4) with a tension caused by devices above the cloth or table. The needle is then drawn up out of the loop, leaving the succeeding loop passed through it, (see Figs. 3 and 4,) by which the preceding loop is tightened to the edge of the cloth in its proper position with a tension caused by devices below the cloth or table. The succeeding loop is then brought back from the edge of the cloth, when the needle is passed down through the cloth at the given distance from the edge and through the succeeding loop, and so on repeating. The continuation of one side of a succeeding loop forms the preceding loop. The pulling off or straining of the succeeding loop causes it to slide around the vibrating hook. As the succeeding loop lengthens the preceding loop is drawn up tight to the edge of the cloth in its proper position. (See Fig. 6.)

Fig. 15 shows an edge view of the cloth and stitch. The dotted lines represent the thread passed down through the cloth. All the loops are made with a single thread, commencing at the index. Fig. 16 shows an edge view with the edge parted at one end and some of the stitches made loose. All the loops are made with a single thread, commencing at the index. Fig. 20 shows the proportionate length of the loops while making and when drawn up to the cloth as they would appear in any button-hole or stitching.

The upper tension for the tightening of the stitch is effected by devices above the cloth or table, and is caused by a spring inserted into the top of the needle-bar, (upper section,) with a shaft, one end of which is fastened into a block, a part of which block is inserted into the needle-bar, together with the spring and shaft. (See Fig. 17, letter O.) When the needle-bar passes down, the spring-block being held stationary, the spring becomes compressed. The spring-block is then given to the action of the spring by devices above the cloth or table, shooting up the spring-bar, thereby pulling up the loop tight on the needle.

The lower tension for the tightening of the stitch is effected by devices below the cloth or table, and is caused by the motions of the vibrating hook oscillating on a center to a given distance from the edge of the cloth or stitching, and pulling down each loop off from the edge of the cloth, (see Figs. 6 and 11,) thereby tightening the preceding loop in its proper position.

Fig. 17, letter P, shows a perspective view of the spring-block.

The thread is held against the needle-bar with a small spring (see Fig. 17, letter Y) while the needle-bar is passing up to form a loop for the bill of the vibrating hook, taking up the slack on one side of the needle, leaving the slack or loop on the other side for the bill of the vibrating hook to enter.

Figs. 18 and 19 show a perspective view of the vibrating hook, (oscillating on a center,) with bill and small spring attached for the purpose of holding the loops when they are drawn back from the edge of the cloth. (See Fig. 7.) The bill of the vibrating hook closes at one end with a slight spring. As the vibrating hook recedes it causes the needle to pass through the bill of the hook out at one end, opening the spring. The spring closes after the hook has receded. The needle-bar is pressed to a given distance from the edge of the cloth with a revolving cam-wheel, in the edge of which is inserted a small wheel that presses against the needle-bar once in a revolution of the large wheel. When the needle-bar has passed down the large wheel takes its position (see Fig. 17, letter A) and remains stationary, held by a ratchet-wheel on the back, while the needle-bar passes up, revolving the small wheel, inserted into the edge of the large wheel in order to lessen the friction. The needle-bar then passes down, and is pressed in the meantime with the spring-bar (see Fig. 17, letter V) toward and over the edge of the cloth, when the large wheel again takes its position, having turned a half-revolution, bringing the small wheel diametrically opposite to its former position horizontally. The needle-bar then passes up, and so on repeating. The large wheel is operated on with an arm (see Fig. 17, letter K) adjusted on an axis or shaft attached to a horizontal piece (see Fig. 17, letter F) fastened to the upper section of the needle-bar, and passes up and down with it. On the large wheel (Fig. 17, letter A) are fastened two small shafts or pins for the purpose of turning the wheel a half-revolution, thereby reversing the position of the pins. (See Fig. 17, letter A, pins marked H.) When the needle-bar passes down the arm presses down the pin fastened into the upper part of the large wheel, turning it a half-revolution, and pushing the pin down and over the center of the large wheel by means of a jointed angle, (see Fig. 17, letters I,) one end of which is adjusted on an axis or shaft fastened on the back plate, (see Fig. 17, letter J,) and the other end adjusted on the arm. (See Fig. 17, letter K.) On an axis or shaft there is also a center piece, L, one end of which is adjusted on The working angle-joint, (see Fig. 17, letter I.) the other end has an oblong space cut through of about one inch in length, through which the axis or shaft that the arm works on passes, and presses the lower end of the oblong space (see Fig. 17, letter L) toward the angle-joint when the needle-bar is passing down, and so pushes out the angle-joint, bringing the end of the arm, with the pin, over the center of the large wheel. (See Fig. 17, letter A.) The angle, letters I, and center piece, letter L, Fig. 17, are raised above the surface of the large wheel for

the pins to pass under when the large wheel revolves. The spring on the arm, Fig. 17, letter K, and marked X, presses against the case that covers the needle-bar. When the needle-bar raises and shoots the arm on the upper pin the arm presses on the upper pin as the needle-bar descends, pressing the upper pin down to the position of the lower pin, while the lower pin takes the position of the upper pin. (See Fig. 17, letter A.) Then the arm passes up with the needle-bar, leaving the lower pin, the wheel being held stationary with a ratchet-wheel on the back, the arm passing on to the upper pin, and so on repeating.

Fig. 17, letter G, shows an edge view of the large wheel, with ratchet-wheel fastened on the back, the small shafts or pins being marked H. The ratchet is adjusted on an axis or shaft fastened to the back plate. (See Fig. 17, letter J and ratchet.) The large wheel is adjusted with a screw (see Fig. 17, letter Z) to move it nearer to or farther from the needle-bar, in order to work on the edge of the cloth any width desired. By adjusting the wheel farther from the needle-bar the needle will work less on the edge of the cloth.

On the horizontal piece that is fastened to the needle-bar (see Fig. 17, letter F) the arm, Fig. 17, letter K, is adjusted with a screw in the same manner as the large wheel. When the large wheel is adjusted farther from the needle-bar the arm is screwed off to correspond. The end case of the needle-bar is bored through to receive the spring-shafts attached to the spring-bar. (See end case, Fig. 17, and spring-shafts, marked M; also, spring-bar, letter V.)

Fig. 17, letter B, shows an edge view of a part of the upper section of the needle-bar with the lower section or part that the large wheel operates on and presses to a given distance from the edge of the cloth, the other side of which is pressed toward and over the edge of the cloth with the spring-bar, the two parts, together with the horizontal piece, passing up and down, and called the "needle-bar." (See Fig. 17, letter C.)

Fig. 17, letter D, shows a part of the upper section separated from the lower section of the needle-bar, with notches cut out to receive the tenons of the lower section of the needle-bar. (See Fig. 17, letter N.) The tenons slide in the notches when pressed to a given distance from the edge of the cloth and back over the edge of the cloth.

Fig. 17, letter E, shows the mortise for the horizontal piece that is attached to the needle-bar. (See letter F, Fig. 17.)

The top end of the lower section of the needle-bar is rabbeted out to meet the stop (see stop in the upper section of the needle-bar, Fig. 17) when pressed, with the spring-bar, to the lower stop. The lower stop is fastened to the back plate. (See Fig. 17, letter J.)

Fig. 17, letter R, shows a side view of the top of the upper section of the needle-bar with groove cut through to the bore for the neck of spring-block to slide in the oblong part of the block remaining on the outside of the needle-bar.

Fig. 17, letter T, shows an end view of the top of the needle-bar (upper section) with bore for the spring-shaft and part of the spring-block to pass into; also, the end view of the groove for the neck of the spring-block to pass into.

Fig. 17, letter S, shows a half-view of the cap of the needle-bar with bore in the top large enough to admit the spring-shaft to move up and down through the bore. When required the cap is screwed on the top of the needle-bar (upper section) when a part of the spring-block, together with the spring and shaft, has been inserted in the top of the needle-bar. (See Fig. 17, letter C.)

What I claim, and desire to secure by Letters Patent, is—

The sewing-machine stitch herein described, suitable for stitching eyelet-holes, button-holes, or edges by passing the thread or loops through and over the edge of a fabric, the same being formed with a single thread, and by a succession of stitches or loops passing into each other in the manner herein described.

CHARLES ROGERS JACKSON.

Witnesses:

CHAS. B. TATHAM,

CHAS. W. INGRAHAM.