

# J. A. Wagener. Sewing Machine.

N<sup>o</sup> 82366

Patented Sept. 22, 1868

Fig. 3.

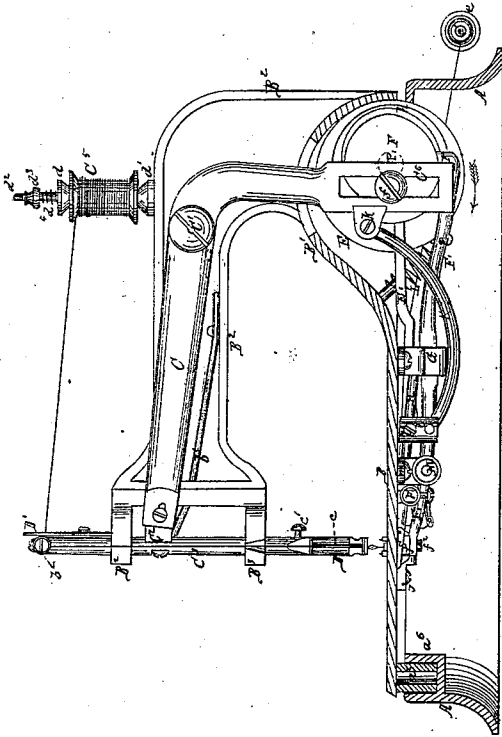


Fig. 4.

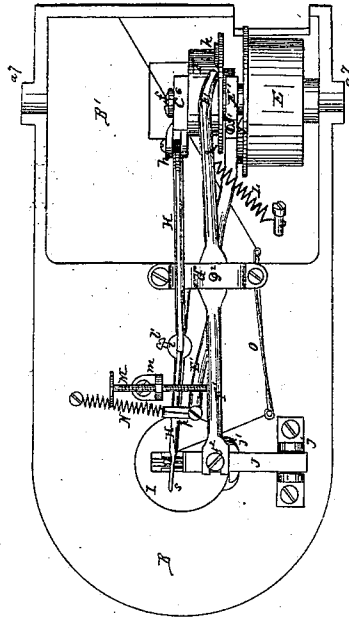


Fig. 1.

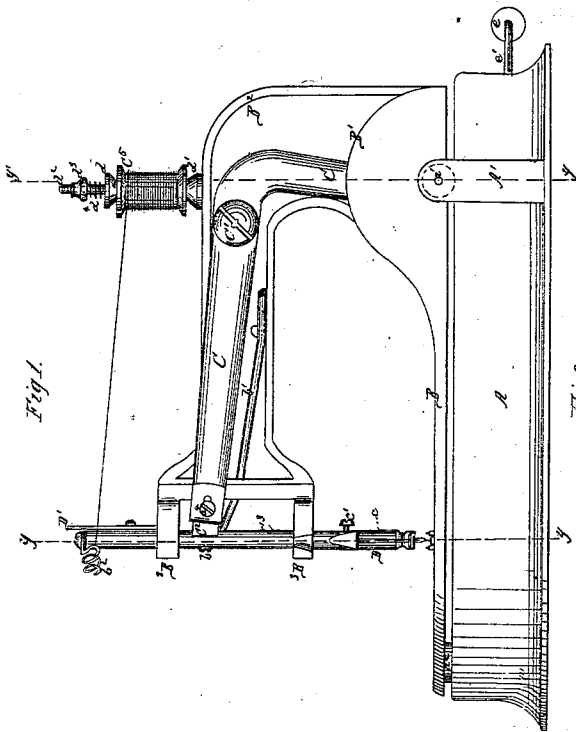
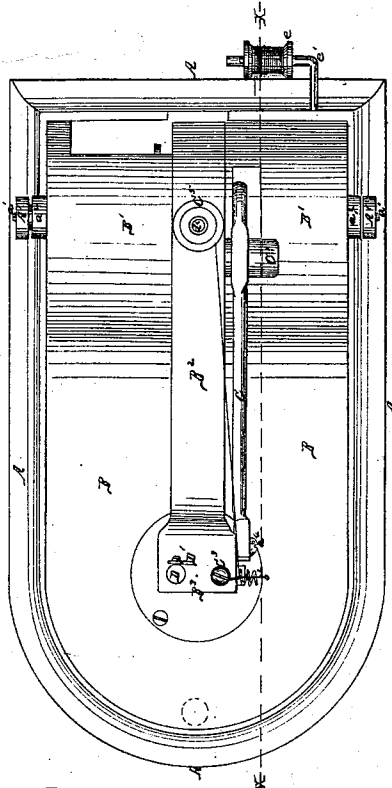


Fig. 2.



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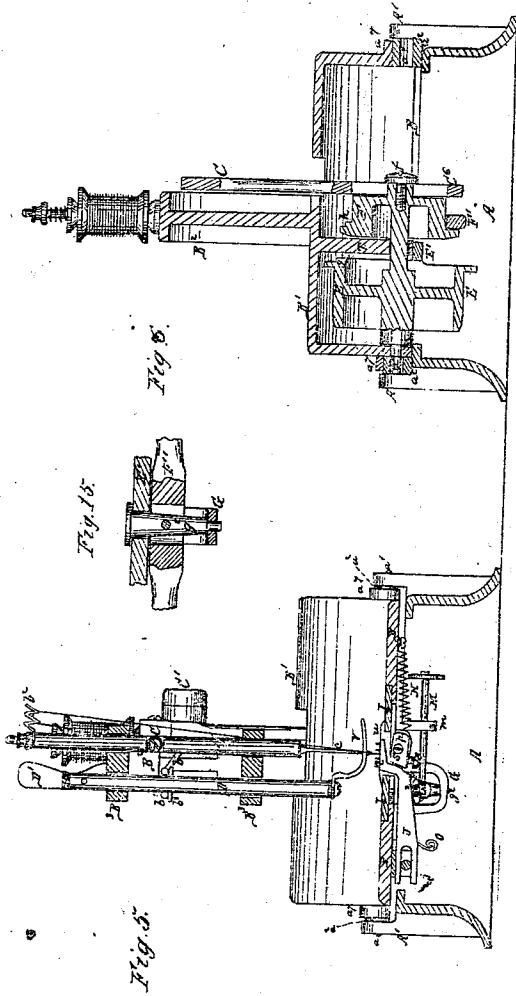


Fig. 6.

Fig. 5.

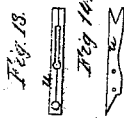


Fig. 13.

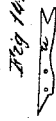


Fig. 14.

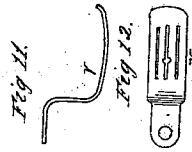


Fig. 11.



Fig. 12.

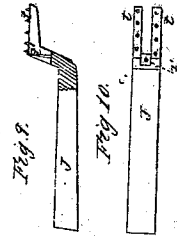


Fig. 9.

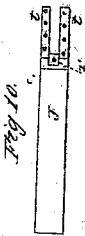


Fig. 10.

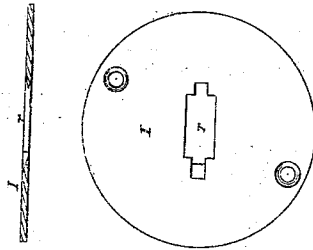


Fig. 7.

Fig. 8.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 82,366, dated September 22, 1868.

### *To all whom it may concern:*

Be it known that I, JEPHTHA A. WAGENER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Sewing Machinery; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, Sheet 1, is an elevation of one side of the improved machine. Fig. 2, Sheet 1, is a top view of the machine. Fig. 3, Sheet 1, is a longitudinal section through the machine, taken in the vertical plane indicated by line *x x* in Fig. 1. Fig. 4, Sheet 1, is a bottom view of the machine with the bed-frame removed. Fig. 5, Sheet 2, is a transverse section through the machine, taken in the vertical plane indicated by line *y y* in Fig. 1. Fig. 6, Sheet 2, is a transverse section taken through the machine in the vertical plane indicated by line *y' y'* in Fig. 1. Figs. 7 and 8, Sheet 2, show the construction of the bridge-plate. Figs. 9 and 10, Sheet 2, show the construction of the feed-bar and its pointed feed. Figs. 11 and 12, Sheet 2, show the construction of the presser-foot. Figs. 13 and 14, Sheet 2, show the construction of the bridge detached from its bridge-plate. Fig. 15 is a sectional view of the bearing of the feed-lever and lower needle-lever.

Similar letters of reference indicate corresponding parts in the several figures.

The cloth-plate B, with its fixed overhanging bracket-arm B<sup>2</sup> and the working parts of the machine, are all sustained upon a horizontal bed-frame, A, by means of elastic bearings *a<sup>2</sup> a<sup>2</sup> a<sup>2</sup>*, so that very little, if any, noise will be produced during the operation of sewing. Two of said bearings are arranged near the rear end of the bed-frame A, and directly opposite each other, in a line coinciding with the axis of the main driving-shaft P; and the other bearing is arranged at the front end of said bed-frame, and in the middle of the width thereof. The two rear bearings *a<sup>2</sup> a<sup>2</sup>* are short cylindrical tubes of india-rubber, which are slipped upon studs *a<sup>1</sup> a<sup>1</sup>*, that project inwardly from the sides of standards A' A' upon frame A.

Semicircular sockets or shoulders *a<sup>7</sup> a<sup>7</sup>* are formed upon the sides of the raised portion

B<sup>1</sup> of the cloth-plate B, and when this plate is in place upon the frame A these sockets receive the rubber bearings, and form, in conjunction therewith, pivot-joints, for allowing the cloth-plate to be oscillated about these joints, and its front end turned up, for obtaining access to the mechanism beneath it.

The front bearing *a<sup>2</sup>* is a piece of india-rubber inserted into a socket, *a<sup>8</sup>*, formed upon the inside of the bed-frame A, as shown in Fig. 3.

The cloth-plate B is constructed with a hollow semicircular elevation, B<sup>1</sup>, upon its rear end, from which projects upward and forward the fixed bracket-arm B<sup>2</sup>, carrying all the working parts which are above the cloth-plate. The semicircular elevation B<sup>1</sup> of the cloth-plate serves to form a cover for the driving-cams, and allows the cam-shaft P to be arranged in the plane of the flat portion of this cloth-plate, as shown in Figs. 2 and 6.

The needle-bar C<sup>3</sup>, carrying the needle *c*, and the bar D, carrying the presser-foot V, are guided by the projections B<sup>3</sup> B<sup>3</sup>, which are formed on the end of the bracket-arm B<sup>2</sup>. The bar D is acted upon by two springs, *b<sup>1</sup>*, which press the foot-piece V down upon the cloth, and this bar is provided with a cam-lever, D', for raising and holding it up.

The needle-bar C<sup>3</sup> has a sliding block, C<sup>2</sup>, secured to it by a screw, *b*, to which block the front end of a right-angular vibrating lever, C, is suitably pivoted. This lever C has its fulcrum at C<sup>1</sup>, and its rear arm passes down through an opening made through the raised portion B<sup>1</sup> of the cloth-plate B, and is slotted, as shown at C<sup>6</sup>, in Fig. 3 and 6. In the slot of this lever is a square block, through which passes a screw-pin, *f*, that connects the lever eccentrically to the face of a cam-hub, F, upon the main shaft P. Thus it will be seen that the lever C will receive a vibrating movement from said cam-hub, which transmits a rectilinear reciprocating movement to the needle-bar C<sup>3</sup>. The pin which pivots the front end of the lever C to the sliding block C<sup>2</sup> passes through an oblong slot made through said lever, as shown in Figs. 1 and 3.

The cam-shaft P has its bearings in one side of the cloth-plate, and also in a pendant, T, projecting therefrom, as shown in Fig. 6; and beside the cam-hub F a flanged belt-drum, E, is keyed or formed upon the shaft P, as shown

in Figs. 3, 4, and 6. The hub F is made with a cam-elevation upon it, which is designed for actuating the lever F', and thereby depressing the feed-bar J at proper times; and this hub F is also constructed with a lateral-throw cam, *h*, upon its periphery, which imparts the feeding movements to said bar J. These movements are communicated to the feed-bar J through the medium of a lever, F', which is arranged below the cloth-plate and pivoted to a vertical oscillating stud, *g*<sup>2</sup>, as shown in Fig. 15. This stud has its bearings in the stirrup G and cloth-plate B, and allows the lever F' to vibrate laterally as well as vertically. The front end of the lever F' is forked, and pivoted to the feed-bar J, as shown in Fig. 4, so as to give to this bar its required movements for moving the work beneath the needle. The feed-bar J works between guides *j j*, and is held in place between the guides *j* by means of a pin passing through a slot or fork formed in its end. The inner end of this bar J is turned up and slotted, as shown in Figs. 5, 9, and 10; and upon the upper straight edges *t t* of these turned-up portions are two rows of teeth or spurs. In the crotch of the forked feed is a long spur, *v*, (shown in Figs. 9 and 10,) which takes hold of the work in line with the needle *c*, while the spurs on the forked portions *t t* take hold of the work on both sides of the needle.

A circular opening is made through the cloth-plate B, beneath the needle-bar and pressure-bar, which is covered by a circular bridge-plate, I, through which is a rectangular opening, *r*, for allowing the feed-spurs to act upon the work, as shown in Figs. 5, 7, and 8. This opening *r* has a bridge-piece, *u*, applied across it in a direction with the movement of the feed, which bridge is made with an oblong slot through it, through which the needle works in passing through the cloth. This bridge is notched at one end and beveled at the other, so that it may be readily fastened down in place by a single screw, and when fastened down its upper surface is slightly raised above the level of the top surface of the cloth-plate and bridge-plate, as shown in Fig. 5. The bridge *u* is made in two longitudinal halves, together, and it is made sufficiently narrow to allow the spurred feeding portions *t t* to rise on each side of it and act upon the cloth, which is held down upon it by the foot V. The slot through the bridge *u* is oblong, for the purpose of receiving through it the intermediate spur *t'*, and allowing this spur to act upon the work, in a line with the needle or seam, at the same time that the side spurs act upon the work on each side of the seam.

The cloth-presser V may be made of the usual well-known shape, and applied to its bar D in the usual well-known manner. I make three slots through this presser, as shown in Fig. 12, for the purpose of receiving through them the feed-spurs during the act of feeding the cloth beneath the needle.

It will be seen that the cloth is held down upon the elevated surface of the bridge *u*, between this bridge and the presser-foot V, and that the cloth, while thus held, will be taken hold of by the feeding-spurs on each side of the bridge, and also in line with the seam, and thus moved along during the operation of sewing.

By reference to Fig. 4 it will be seen that I employ a coiled spring, L, back of the stirrup G, for the purpose of holding the rear end of the lever F' in contact with the cone-surface *h* on hub F. It will also be seen that I employ an adjustable stop or screw, M, forward of the lever F, for regulating the length of the feeding-stroke of this lever.

H represents the looper, carrying the lower thread from the spool *e*, which looper consists of a flat-pointed needle, having eyes through it, through which the lower thread passes to form the loops. This pointed end is formed upon a bar, which receives a longitudinal reciprocating motion, and also a lateral vibrating motion, during the operation of forming the stitches. The looper receives an endwise movement from the vibrating lever C through the medium of a curved connecting-rod, K, which is pivoted at its rear end to ears *k* upon the arm C, and at its front end to a block, *l*, which is secured by a set-screw, *l'*, to the said looper-bar H. This bar plays freely through an offset of the stirrup G, which will allow the front end of the bar to vibrate laterally. This latter motion is imparted to the looper by means of the cam *g* upon one end of the belt-drum E, acting through the medium of a laterally-vibrating lever, E', and a coiled spring, N. The lever E' is pivoted to the stud *g*<sup>3</sup>, and constructed with an eye-piece, *p*, upon its front end, through which the forward portion of the looper slides. The spring N is designed for holding the rear end of the lever in contact with the cam-face *g* of the drum E. The small steel plate *g*<sup>1</sup> on the rear part of the lever E' is made adjustable, and is used as a friction or wearing piece, which can be set up, when it wears away, to prevent lost motion.

The spool C<sup>5</sup>, carrying the upper thread, is placed upon a stud, *d*<sup>2</sup>, and acted upon by means of cones *d d*<sup>1</sup>, a spring, *d*<sup>4</sup>, and an adjusting-screw, *d*<sup>3</sup>, by means of which latter the tension of the thread can be regulated to a nicety. This upper thread is carried to a helical spring, *b*<sup>2</sup>, which is secured to the upper end of the needle-bar C<sup>3</sup>, and passed around one of the coils of this spring. It is thence carried down through an eye-piece on the lower end of the needle-bar, and passed through the eye of the needle.

The spool of the lower thread is applied upon a bracket-arm, *e'*, and its thread is carried beneath the bed-plate B and passed through eyes or coils formed upon the extremities of a fine steel wire, O. It is thence carried to the looper and passed through the two eyes thereof.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. The feeding device J, furnished with points on each side of an open slot, and a point or points in range with said slots, the said feeding-points being applied, arranged, and operating substantially as described.

2. The combination of the bridge *u*, plate I, and feeding device J *t t'*, the said bridge being slotted, and the feeding device being forked and furnished with central and side points, substantially as and for the purpose described.

3. The bridge *u*, when slotted and provided with a forked or V shape at one end and a bevel and shoulder at the other end, in combination with the recessed removable plate I, substantially as shown, and so that by one screw the bridge is confined in position.

4. The bridge *u*, constructed as shown in Figs. 13 and 14, for the purpose described.

5. The combination of the looper H, the feed-lever J, with its central and lateral feeding-points, slotted bridge, triple-slotted presser-foot, and upper needle, the said parts being constructed and arranged as described, and operated by a cam-pulley constructed as described.

6. The cam-pulleys E F, constructed and arranged as described, in combination with the levers E' F', rod K, looper H, looper-guide *p*, lever C C<sup>6</sup>, needle *c*, feed-arm J, bridge *u*,

and presser-foot V, all constructed and arranged and operating as described.

7. The arrangement of a front elastic support, *a*<sup>2</sup>, for the cloth-plate B, forward of and centrally between two rear hinging elastic supports, *a*<sup>2</sup> *a*<sup>2</sup>, substantially in the manner and for the purpose described.

8. The rear elastic sleeve-bearings *a*<sup>2</sup>, fitted in the hinging studs *a*<sup>1</sup>, in combination with the hollow bearing-boxes *a*<sup>7</sup> formed in the cloth-plate B, in the manner described.

9. The gimbal-joint *g*<sup>2</sup>, with the levers E' F' applied to it, as shown in Fig. 15, in combination with the feeding-arm J, looper-guide *p*, and the looper or lower needle H, all constructed, arranged, and operating as described.

10. The cloth-plate B, cast with a horizontal portion forward of the axis of the needle-arm C, and with a semicircular portion, B<sup>1</sup>, in rear of the horizontal portion, and also with a bracket, B<sup>2</sup>, and hollow bearing-boxes *a*<sup>7</sup>, all substantially in the manner shown and described, and for the purpose set forth.

11. The slotted cloth-presser V, in combination with the elevated bridge *u*, and feeding-points working on both sides of said bridge, substantially as described.

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