

(No Model.)

J. J. SULLIVAN.

ATTACHMENT FOR BUTTON HOLE SEWING MACHINES.

No. 264,491.

Patented Sept. 19, 1882.

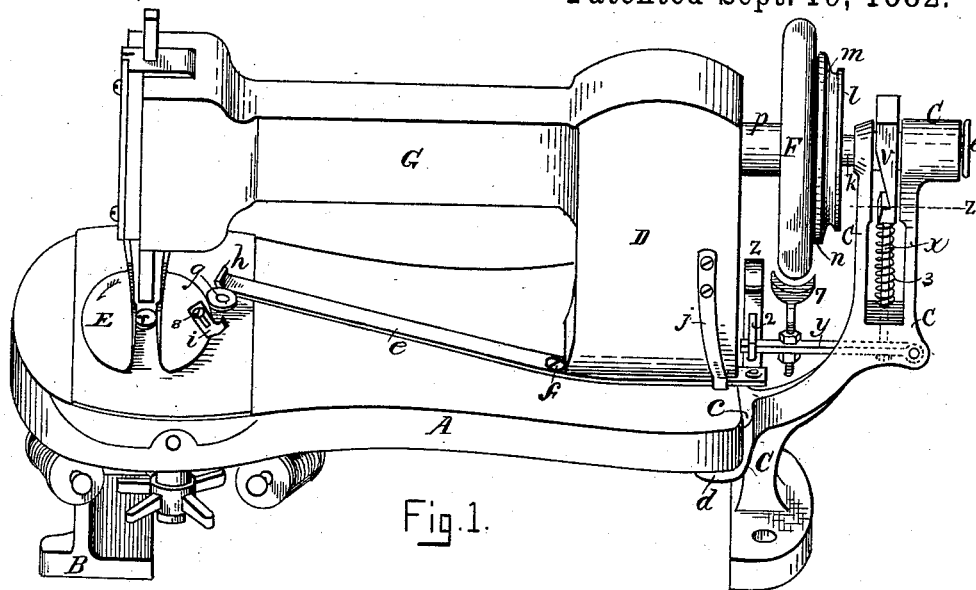


Fig. 1.

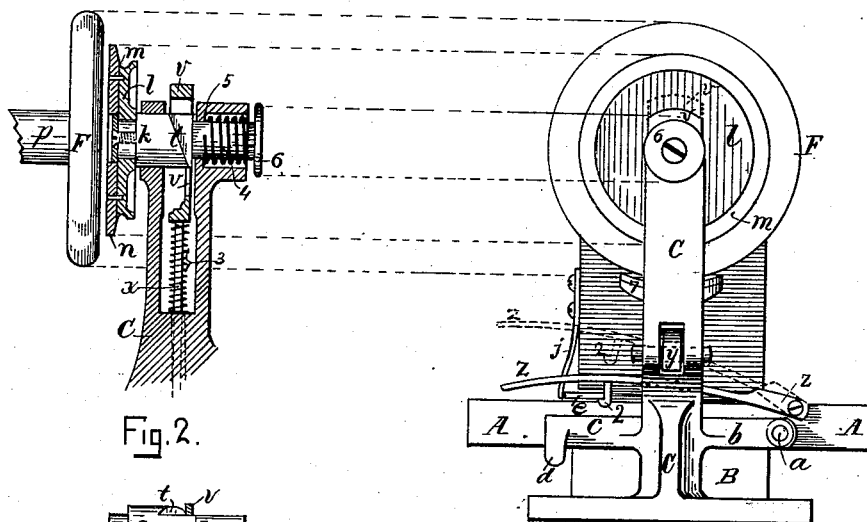


Fig. 2.

Fig. 3.



Fig. 4.

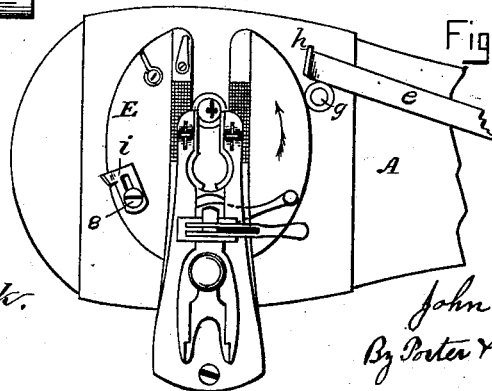


Fig. 5.

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JOHN J. SULLIVAN, OF IPSWICH, MASSACHUSETTS.

ATTACHMENT FOR BUTTON-HOLE SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 264,491, dated September 19, 1882.

Application filed April 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. SULLIVAN, of the town of Ipswich, in the State of Massachusetts, have invented Improvements in Attachments for Button-Hole Sewing-Machines, of which the following is a specification.

This invention relates to that class of machines which are adapted to finish, by a suitable stitch, the edges of button-holes; and it consists in the construction and combination of the divers devices embodied therein, as hereinafter more particularly and fully set forth and claimed.

Figure 1 is a perspective view, showing my invention (for the purpose of illustration) in connection with the well-known "Humphrey Button-Hole Sewing-Machine," (for which United States Letters Patent were issued October 7, 1862, June 13, 1871, and February 6, 1872.) Fig. 2 is a detached sectional elevation, showing the clutch devices, in vertical section, from a similar standpoint as in Fig. 1, and the balance or driving wheel and a part of its shaft in elevation. Fig. 3 is an end elevation as viewed from the right in Fig. 1. Fig. 4 is a plan view of the arbor of the friction driving-disk, and showing the clutch in transverse section as taken on line *z*, Fig. 1. Fig. 5 is a detached plan view, showing the cloth-holding clamp as at the starting-point, and also showing the end of the tripping-lever in position, which is engaged by the tripper secured to said clamp.

In said views, A represents the bed of the machine, which, in the usual manner, is pivotally supported upon standard B at the clamp or left-hand end, and upon pivot *a* in lateral arm *b* of standard C at the right-hand or driving-wheel end. An arm, *c*, extending from standard C, serves to receive bed A in the angle *d*, and, in conjunction with its pivoted supports in standards B C, to sustain it in a horizontal position, in the usual and well-known manner. A thin ribbon-like lever, *e*, pivoted to bed A, at *f*, extends just past and bears against the clamp-button *g*, as shown in Figs. 1 and 5, and is formed with a slight vertical angle, *h*, to be encountered by the tripper *i*, which is adjustably secured to clamp-plate B. Said lever *e* extends from its pivot *f*, loosely, beneath the goose-neck standard D, and beyond bed A, as shown in Fig. 1, a spring,

j, secured to said standard, serving to hold said lever against button *g*.

In the head of standard C is mounted a short arbor, *k*, arranged to slide longitudinally in its bearings. A metallic disk, *l*, is mounted to revolve freely on said arbor, by means of a driven band acting in its groove *m*, and a leather friction-disk, *n*, is secured to said disk *l* to engage and rotate the balance or driving wheel F, mounted on shaft *p*, which engages and actuates the stitching devices carried by the goose-neck G. Said arbor *k* is formed with shoulders *t t*, oblique to its axis, and against these shoulders the oblique faces of slide *v* act, so that when said slide is depressed by means of its rod *x*, the lever *y*, pivoted in standard C, and lever *z*, pivoted to bed A, the arbor *k* is moved toward wheel F, bringing the leather disk *n* of wheel *l* in contact with said wheel F, and rotating the same by means of the driven band on wheel *l*. When said lever *z* is depressed in order to produce contact between wheels *l* and F, as described, the catch 2, rigidly secured to said lever, engages the under side of lever *e*, and so holds wheels *l* and F in contact, until, by the movement of clamp E in the direction indicated by the arrow, the tripper *i* engages angle *h* of lever *e*, and by vibrating it on its pivot *f* disengages it from catch 2, when the expansive force of helical spring 3 on rod *x* forces slide *v* upward, releasing arbor *k*, when a similar spring, 4, arranged on the diminished portion of *k* between shoulder 5 and disk 6, secured on the end of *k*, forces the same outward and separates the frictional driving-wheel *l* from wheel F, and at the same instant the friction-brake 7, carried by lever *y*, engages wheel F, instantly stopping the machine. When the clamp E is returned to first or starting position, as shown in Fig. 5, spring *j* returns lever *e* to the position shown in Figs. 1 and 5, so that it is in the path of catch 2 of lever *z*, which last-named lever must be forced down by the hand of the operator, so that its catch 2 will engage lever *e*, and thereby secure contact of wheels *l* F until lever *e* is again moved out of contact with catch 2, as already described. The tripper *i* is arranged at such point on clamp E that when it arrives at lever *e* and engages the same, a button-hole of ordinary length will have been moved past and have been stitched by the needle. Said

tripper is, for convenience, formed with a slot to receive a securing-screw, 8, and admitting of its adjustment on the clamp, in order to advance or retard its arrival at lever *e*, and its tripping the same, for the purpose of allowing the needle the requisite time to act upon the entire outline of button-holes of any desired length before the action of the tripper stops the machine.

By the described combination and arrangement of devices, when it is desired to turn the machine upon its pivots, to gain access to parts beneath bed A, (a frequent necessity,) there is no driving-belt to be cast from the driving-wheel of the machine, and no time is lost in replacing the same, which is often a vexatious delay, as the belt is liable to be detached from the power-pulley as well as from that on the machine, and, besides, at the instant that the machine stops the driving devices are disconnected, so that the operator is always certain, without the exercise of care, that when the machine has stopped no harm can result from turning it upon its pivots, and by the act of removing the brake from the driving-wheel F the machine is set in motion, because wheel *l* is in constant motion, except when the machine is lying idle, in which case power is shut off at the counter-shaft; or the belt may be cast from wheel *l*.

I claim as my invention—

1. The combination, with the driving or balance wheel of a pivotally-mounted button-hole sewing-machine, of a rotative friction-disk arranged to be brought into contact with and to actuate said wheel, with mechanism for producing such contact and devices actuated through the cloth-clamp to automatically disconnect said disk from the driving-wheel, substantially as specified.

2. The combination, with a pivotally-mounted button-hole sewing-machine, of a friction driving mechanism, an automatic stop-motion to be actuated through the cloth-clamp, and a

friction-brake to arrest the motion of the machine, all so combined and arranged that the engagement of the friction driving mechanism shall remove the brake from the driving-wheel, and the action of the stop-motion shall cause the engagement of the brake with said wheel, and the action of the cloth-clamp shall both disconnect the friction driving mechanism and liberate the brake-applying spring, substantially as specified.

3. In a button-hole sewing-machine, the combination of clamp E, provided with a suitable tripper, pivoted lever *e*, arranged to be actuated by said tripper, lever *z*, with a catch to engage lever *e*, lever *y*, and brake 7, arranged to engage wheel F, and spring 3, arranged on rod *x*, connected with lever *y*, to engage said brake with the wheel, substantially as specified.

4. The combination of driving-wheel F, friction-disk *l*, loosely mounted on arbor *k*, slide *v* to actuate said arbor, rod *x*, releasing-spring 3, and lever *y*, with means for depressing, holding, and releasing the same, substantially as specified.

5. The combination of pivoted lever *e*, a clamp carried detachably arranged to actuate said lever, the returning-spring *j*, and brake 7, with devices for holding the same out of contact with wheel F by engagement with lever *e*, and a spring arranged to engage the brake with said wheel when said lever *e* is tripped, substantially as specified.

6. The combination of driving-wheel F, belt-driven friction-disk *l*, arbor *k*, with its oblique shoulders *t*, incline *v*, retracting-spring 4, rod *x*, with its elevating-spring 3, lever *y*, its brake 7, lever *z*, with its catch 2, lever *e*, its return-spring *j*, and tripper *i*, secured to and carried by clamp E, all substantially as specified.

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