

D. BARCELLOS.
Thread-Controller for Sewing-Machine.
No. 203,102. Patented April 30, 1878.

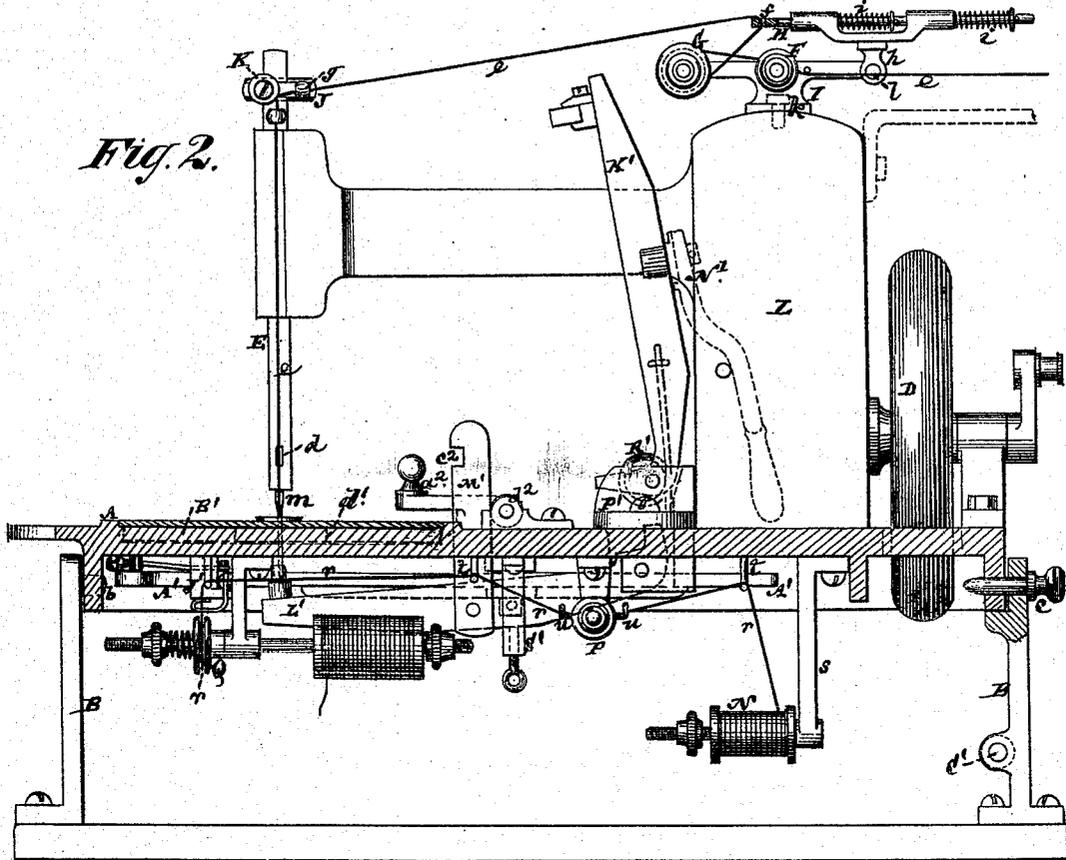


Fig. 1.

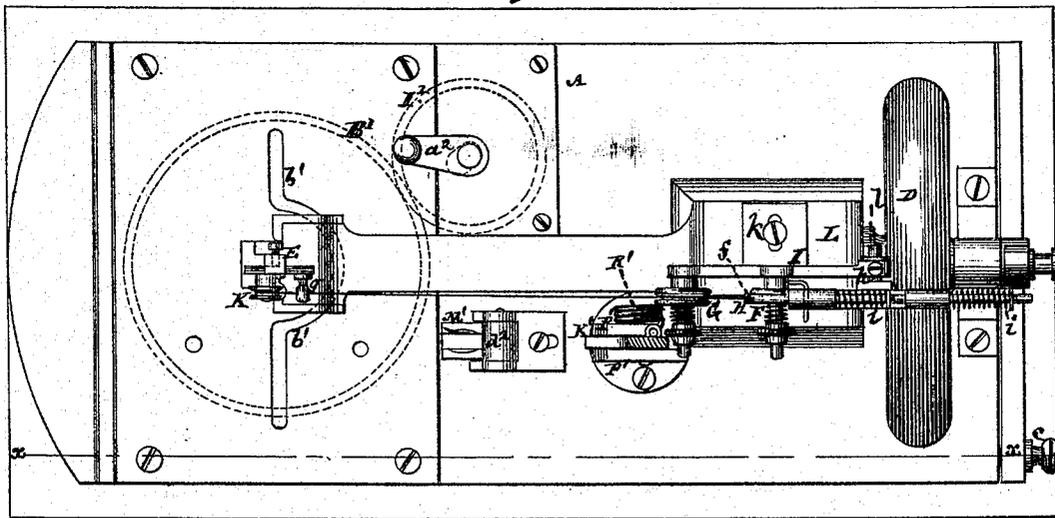
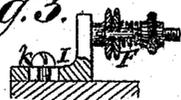


Fig. 3.

Witnesses
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Fred. Haugus



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FIG. 4.

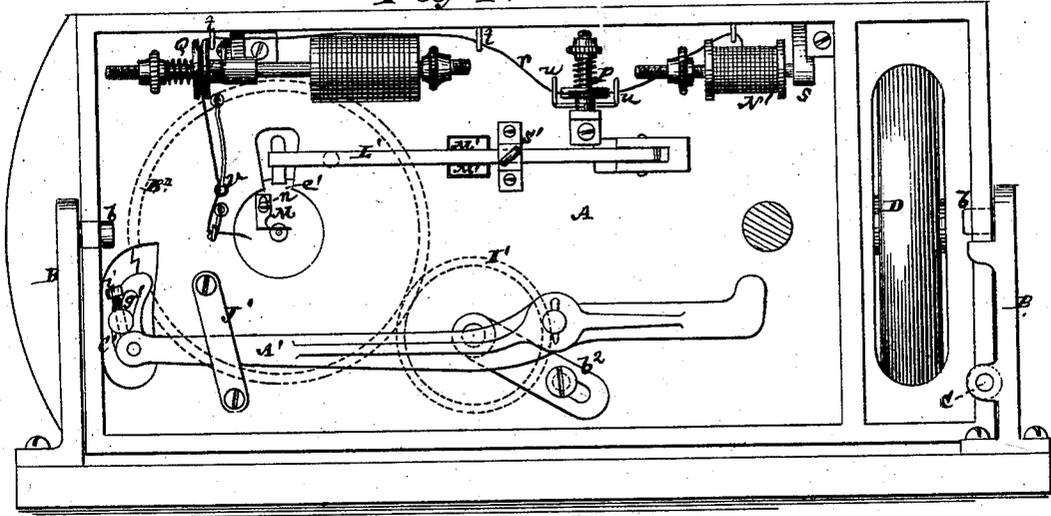
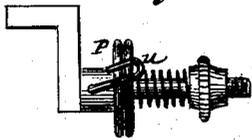


FIG. 5.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN THREAD-CONTROLLERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **203,102**, dated April 30, 1878; application filed December 15, 1877.

To all whom it may concern:

Be it known that I, DANIEL BARCELLOS, of Williamsburg, in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

This invention principally relates to machines for working button-holes; and consists in various novel constructions and combinations of certain tension and take-up devices more particularly applicable to machines for such purpose, and designed to control, respectively, both the upper and under threads of the machine, whereby increased efficiency and durability and numerous conveniences are obtained.

This invention is generally designed to be applied to what is known as the "Union Button-Hole Machine," upon which it is an improvement, the button-hole-cutting part of the apparatus comprising upper and lower levers and cutter-link, for operation in connection with a handle as now in use, and the devices for working or stitching the button-hole being similar in many or most respects to those described in the patents issued to D. W. G. Humphrey, dated, respectively, October 7, 1862, and August 29, 1865. Thus a clamp holding the cloth is secured to a turning and moving plate on the table, and below said plate is a circular feeding plate or wheel fitted to turn in a cavity in the table, and having a cam-groove in its upper surface to impart the requisite motions to the clamp. Said wheel has ratchet-teeth on its periphery, engaging with which is a pawl on a lever, which lever vibrates on a fulcrum, and has its one end adapted to enter a cam-groove in the face of a wheel on a cam driving-shaft, said lever vibrating back and forth twice during each revolution of the cam-shaft.

Figure 1 represents a plan of a button-hole cutting and sewing machine in part, having my invention applied, and Fig. 2 a longitudinal vertical section of the same on the line *x x*. Fig. 3 is a view of an adjustable tension device for the needle-thread detached. Fig. 4 is a longitudinal elevation, showing the bed of

the machine when upset. Fig. 5 is a view of a tension device applied to the lower thread.

A is the table or bed of the machine, supported by end pivots *b b* in frames B B, to provide for its being upset or turned over on its side when necessary to get at the under works, as shown in Fig. 4.

D is the hand or driving wheel, from the shaft of which motion is derived to operate the several working parts of the machine. This wheel is provided with bearings on opposite sides of it, to prevent sagging and breakage of the gearing immediately connected with it.

E is the needle-bar, which has the usual up-and-down motion, and is vibrated laterally by its holder to carry the needle alternately through and over the edge of the material worked upon, to form an edge finish and button-hole stitch, as in the machine patented to D. W. G. Humphrey, hereinbefore referred to.

The needle-thread *e* is first passed over and between a rear and adjustable double-disk tension-leader, F, from thence once, twice, or oftener, as required, over a forward second leader, G, which is in the form of a pulley turning loosely on its spindle, and subjected to friction by screw and spring against a collar on its one side or face. After leaving the pulley or leader G, said needle-thread is rove through the eye *f* of the take-up H, which latter, as well as the tension devices or leaders F G, are all carried by what may be termed a "tension-carrier," I. From the eye *f* of the take-up the thread *e* passes forward to and through an eye, *g*, on a bar, J, which is carried by the needle-bar.

The take-up H is composed, in part, of the usual sliding rod controlled by a spring; but in the present instance said rod and the holder *h*, through which it slides, are of extended construction, to admit of two light springs, *i i*, instead of one, arranged around said rod at different portions of its length, being used. This provides for a more lively action of the take-up than when a single spring of equal tension with the two springs is used for sewing heavy goods, or when the tension is strong, and it affords the facility of reducing the spring force of the take-up, when the tension is a light one, by simply removing one of the

springs *i*. To this end the take-up holder *h* is bifurcated, and contains one of the springs within it, while the other spring, which is readily removable, is outside of or in rear of it, and around that portion of the sliding rod which extends back of the holder.

The tension-carrier I is adjustable laterally by a slot and screw, *l*, upon the gear chamber or upright L of the machine, to provide for bringing the leaders F G and take-up in line with the needle bar or leader K, carried by said bar; and the take-up is furthermore and independently adjustable laterally by a shank, *l*, on its holder *h* in an arm of the carrier I, and also capable of being rocked up or down on said arm to bring the take-up in line with and otherwise in proper relation to the needle-thread leaders or pulleys.

Referring, in the next instance, to that part of the invention which relates to the working and controlling of the under thread, N is the spool of the under or secondary thread *r* used to form the stitch. This spool is carried by a back bracket, *s*, and the silk or thread *r* from it passes through eyes or guides *t*, subject to an intervening tension-leader, P, constructed of adjustable spring-pressure disks, between which the thread passes, and through adjustable rocking leader-hooks *u* arranged on opposite sides of the axis of said disks, and serving to assist in regulating the tension. From the tension device P, and after passing through the advance eye or guide *t*, the thread *r* passes under or around a second tension device, Q, which consists of a simple adjustable friction-pulley, and from thence said thread passes to the usual elastic wire guide *v*. The two devices P and Q operate to produce a steady continuous tension, and the friction-pulley Q guides or directs the thread in a comparatively straight course, free from any angular strain

or bend due to the unreeling of the thread alternately from opposite ends of the spool N.

The drawings also show, more or less imperfectly, certain improvements in the feeding mechanism, in devices for cutting the button-hole, and in a guard for the needle; but as these form no part of the present invention, and it is my intention to make them the subjects of separate applications for Letters Patent, it has not been considered necessary to describe them in detail here.

I claim—

1. The take-up H, having its rod which carries the thread extended through opposite ends of its holder *h*, in combination with the duplicate springs *i i*, essentially as described.

2. The combination of the gear chamber or upright L, tension-carrier I, made adjustable in a lateral or crosswise direction, and the take-up H, independently adjustable in a similar direction on said carrier, and capable of being rocked vertically thereon, substantially as specified.

3. The holder *h* of the take-up, provided with a shank, *l*, and supported by said shank to admit of its being rocked vertically and adjusted laterally, in combination with one or more needle-thread leaders in advance of the take-up, and one or more interposed tension devices, essentially as specified.

4. The combination, with the eyes or guides *t t'*, which conduct the under thread from its spool, of the intervening tension-leader P, composed of adjustable spring-pressure disks, the forward adjustable tension friction-pulley Q, and the elastic wire guide *v*, essentially as shown and described.

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Witnesses:

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