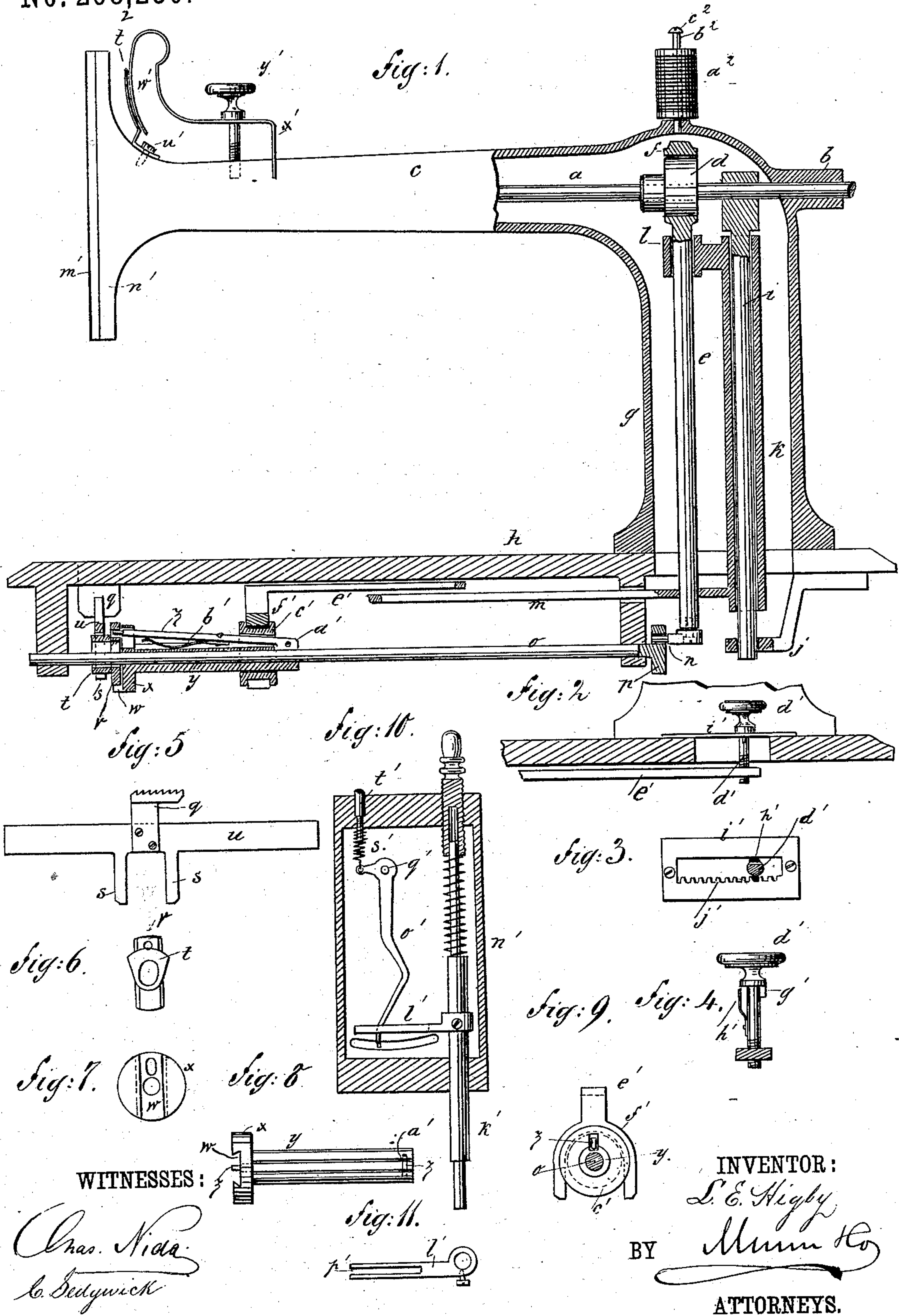


(No Model.)

L. E. HIGBY.
SEWING MACHINE.

No. 268,230.

Patented Nov. 28, 1882.



UNITED STATES PATENT OFFICE.

LUTHER E. HIGBY, OF BRATTLEBOROUGH, VERMONT, ASSIGNOR TO THE
HIGBY SEWING MACHINE COMPANY, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 268,230, dated November 28, 1882.

Application filed July 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, LUTHER E. HIGBY, of Brattleborough, in the county of Windham and State of Vermont, have invented a new and useful Improvement in Sewing-Machines, of which the following is a full, clear, and exact description.

This invention consists essentially of improved combinations, hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a section of the machine in the plane of the main driving-shaft and the shaft which works the feeder, with a part of the stationary arm and the tension device in side elevation. Fig. 2 is a detail section of the feed or stitch regulator. Fig. 3 is a plan of the feed or stitch regulating device, the adjusting-stud being sectioned. Fig. 4 is a side elevation of the said adjusting-stud. Fig. 5 is a side elevation of the feeder. Fig. 6 is a side elevation of the cam for working the feeder, said cam being adjustable for varying the length of the stitches. Fig. 7 is a side elevation of the grooved disk of the feed-driving shaft in which the aforesaid feed-cam works. Fig. 8 is a plan view of the cam-disk and a lever fixed in its sleeve to shift the cam to vary the stitches. Fig. 9 is a section of the feed-shaft and side elevation of the contrivance for working the aforesaid cam-shifting lever. Fig. 10 is a front elevation of the head of the needle-bar and presser-supporting arm with the plate removed, showing the presser-bar and take-up-lever guide of my improved arrangement; and Fig. 11 is a detail of the take-up and presser guide device.

The main driving-shaft *a* is mounted in suitable bearings, *b*, in the horizontal part *c* of the hollow stationary arm. On this shaft I place an eccentric, *d*, to give an orbital motion to a rod, *e*, suspended from said eccentric by strap *f*, and extending down through the vertical part *g* of the stationary arm and below the work-plate *h*. Alongside of this rod *e*, I have suspended another rod, *i*, from the shaft, which rod *i*, at its lower end, passes through a stay-bracket, *j*, also below the work-plate *h*. This

rod *i* serves for the pivotal support of the long sleeve *k*, which has oscillating motion imparted to it by rod *e*, passing through the arm *l* at the upper end of sleeve *k*. The said sleeve *k* works the shuttle-lever *m* at its lower end, and the rod *e* passes through said lever in a hole in line with the hole of arm *l*. The shuttle-lever *m* is supported in a downward projection from the work-plate *h*, and, being fast to the lower part of sleeve *k*, sustains said sleeve in its proper position. The lever *m*, sleeve *k*, and arm *l* serve to cause rod *e* to be worked by eccentric *d* in a true circular orbit corresponding to the throw of eccentric *d*, whereby pin *n* rotates the feed-shaft *o* by its connection with disk *p* on said shaft, and the rod *e* swings the lever *m*, as required, for working the shuttle. The shaft *o* works the feeder *q* by the cam *t*, which works between the studs *s* of the bar *u*, on which the feeder is mounted, and in order to vary the length of the stitches the cam *t* is attached to a plate, *v*, having bevel-edges, and being fitted in a dovetail groove, *w*, in the side of the disk *x* on the end of a long hub or sleeve, *y*, on shaft *o*, in which hub there is a lever, *z*, pivoted in a groove at *a'*, and connected at its opposite end with slide *v*, and provided with a spring, *b'*, to thrust out the slide and lengthen the throw of the cam, and also provided with a sliding collar, *c'*, to press the lever back and shorten the throw of the cam.

The collar *c'* is connected with the adjusting thumb-stud *d'*, for being shifted, when the stitch is to be changed, by the rod *e'*, having a forked head, *f'*, embracing the collar *c'*, which has a groove for the purpose. In this case I have represented a thumb-stud having a bit, *g'*, and a spring, *h'*, to be used with the slotted plate *i'*, having notches *j'* along one side for holding the shifting-rod *e'*, collar *c'*, and the cam *t* in the different positions, the stud being pressed back against the spring to be shifted along from one notch to another.

To prevent the bar *k'*, which carries the presser-foot, from turning in its position and swinging out of the proper line for the feed, I apply the arm *l'* to said bar inside of the cover *m'* of the head *n'*, and fitting between said cover and the back of the recess in the head behind the cover, and I utilize said arm for a steady-guide to the take-up lever *o'* by providing a

slot, p' , in said arm, suitable for the take-up to swing in and be thereby prevented from lateral play on the pivot q' .

To alter the tension of the take-up, I fit the
5 tension-spring s' of said take-up on an adjusting-screw, t' , for the supporting-stud of said spring, and fit the threads of the screw and the coils of the spring so that the spring
10 will be screwed forward and backward along the screw, according to the way said screw is turned. For the thread-tension device I employ the curved flat spring t^2 , secured to the
back of the head of the arm by a screw, u' , and the corresponding curved spring, w' , which
15 ranges along the face of spring t^2 , and is attached to the arm c by its bent shank x' and the adjusting-screw y' .

To prevent the spools a^2 from slipping off from the pin b^2 when the machine is turned
20 over for oiling or adjusting the parts below the work-plate, I make a small head, c^2 , to the pin, small enough to pass through the hollow spools readily when put on or taken off, but at the same time affording an efficient stop to
25 prevent the escape of the spools by catching the ends when they fall sidewise on the pin, as will be readily understood.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

30 1. The lever z and spring b' , combined with the cam t , arranged in a groove of disk x , as and for the purpose specified.

2. The combination, with the feed-shaft o , having an apertured end disk, the horizontal
35 shaft a , having the eccentric d , the rod e , sus-

pended by strap from the eccentric extending below the work-plate, and having the pin n , the lever m , and the rod i , hung from shaft a , of the sleeve k , loosely surrounding said rod, and connected by the hollow arm l with rod e ,
40 whereby the said rod e may operate as described, for the purposes specified.

3. In a sewing-machine, the pivot-rod i for the sleeve k , suspended from the shaft a for a support, and also suspended in a bearing, j ,
45 substantially as described.

4. The combination, with the presser-foot-carrying bar k' and the take-up lever o' , of the arm l' , having the slot p' , whereby said arm is
50 made both to guide the take-up lever and prevent the bar from turning, as described.

5. The combination of the adjustable cam t with the feeder q and its bar u and studs s , substantially as described.

6. The sliding collar c' , combined with lever
55 z , spring b' , disk x , and sliding cam t , substantially as described.

7. The combination of sliding collar c' , sleeve
60 y , lever z , spring b' , disk x , and sliding cam t , substantially as described.

8. The combination, with arm c , of the flat curved spring t^2 , secured to the top of said arm by a screw, u' , and the correspondingly flat curved spring w' , having bent shank x' and held by an adjusting-screw, y' , substantially as
65 and for the purpose specified.

LUTHER EDWIN HIGBY.

Witnesses:

EDGAR W. STODDARD,
MILTON A. GOODNOW.