R. G. WOODWARD.

THREAD CONTROLLING DEVICE FOR SEWING MACHINES.

APPLICATION FILED JUNE 25, 1904.

1,067,293.

Patented July 15, 1913.

3 SHEETS—SHEET 1.

FIG. 5.

FIG. 4.

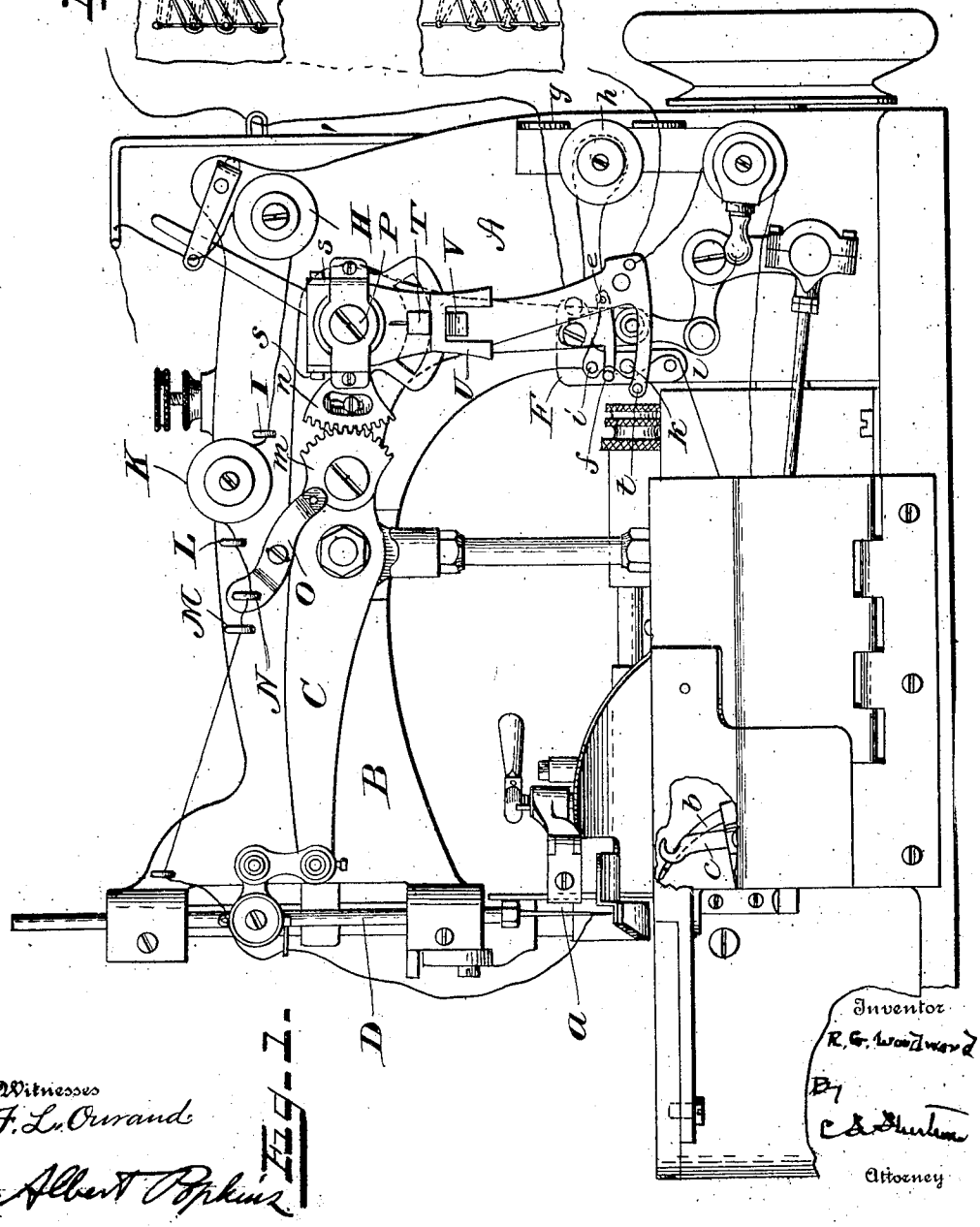


FIG. 7.

Witnesses

F. L. Ourand

Albert Popkins

Inventor

R. G. Woodward

By

C. A. Blunden

Attorney

R. G. WOODWARD.

THREAD CONTROLLING DEVICE FOR SEWING MACHINES.

APPLICATION FILED JUNE 25, 1904.

1,067,293.

Patented July 15, 1913.

3 SHEETS—SHEET 2.

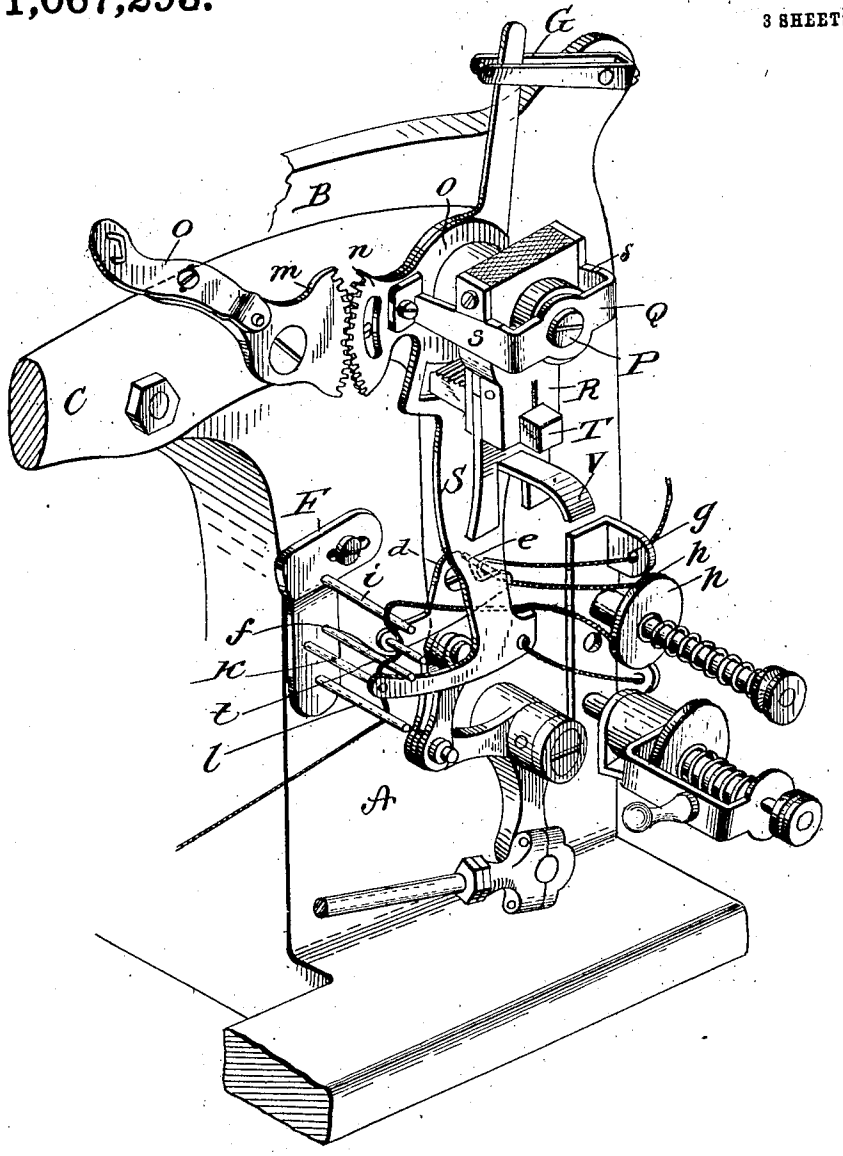


Fig. 2.

Witnesses

F. L. Ormand

Albert Popkins

Inventor

R. G. Woodward

By R. G. Woodward

Attorney

R. G. WOODWARD.

THREAD CONTROLLING DEVICE FOR SEWING MACHINES.

APPLICATION FILED JUNE 25, 1904.

1,067,293. Patented July 15, 1913.

3 SHEETS—SHEET 3.

Fig. 8.

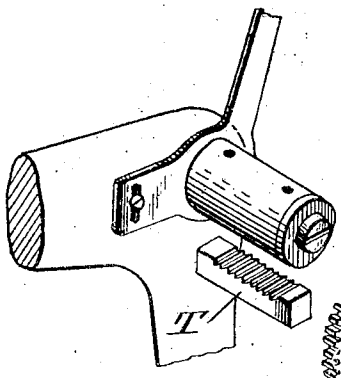


Fig. 7.

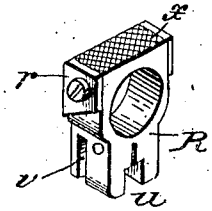


Fig. 6.

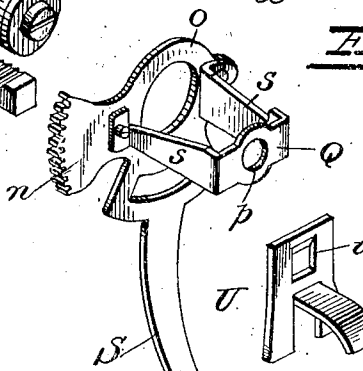


Fig. 7.

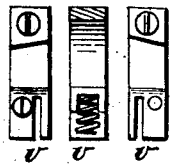
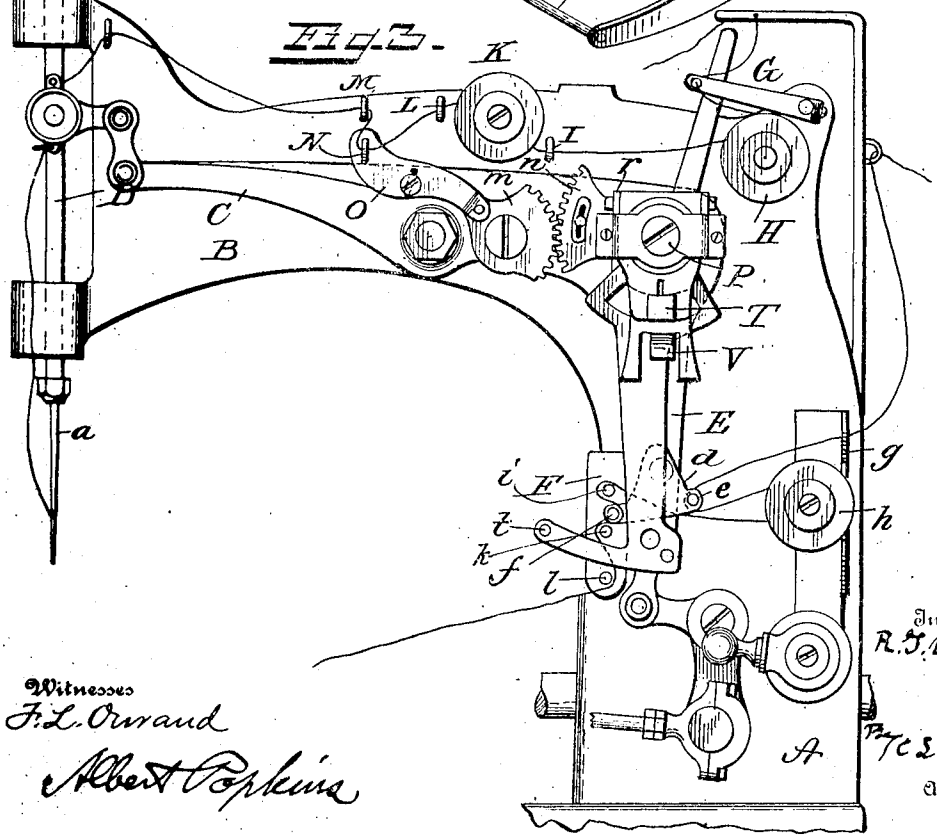


Fig. 2.



Witnesses
F. L. Ourand
Albert Popkins

Inventor
R. G. Woodward
By C. L. Stinchcomb
Attorney

UNITED STATES PATENT OFFICE.

RUSSEL G. WOODWARD, OF WAUKEGAN, ILLINOIS, ASSIGNOR TO UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES.

1,067,293. Specification of Letters Patent. Patented July 15, 1913.

Application filed June 25, 1904. Serial No. 214,110.

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States, residing at Waukegan, in the county of Lake, State of Illinois, have invented certain new and useful Improvements in Thread-Controlling Devices for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

My invention relates to an improvement in overseaming machines, particularly those in which the needle thread loop is drawn to one side to allow the passage therethrough of a looper which lays its thread on the face of the fabric in position for the needle in its descent to pass through the looper loop.

The invention is herein shown as applied to an overseaming sewing machine, having stitch-forming devices, including a thread-carrying needle, a spreader adapted to take a loop of needle thread and carry it to one side, into position where a thread carrying looper will carry a loop of its own thread therethrough, and up over the edge of the fabric into position to be engaged by the needle in its next descent. By regulating the thread-controlling devices on the various threads, stitches presenting different appearances may be formed.

The object of the present invention is to provide a convenient and ready mechanism on an overseaming machine of the type referred to, for taking up and regulating the slack for both the needle and looper thread, whereby the character of stitch may be quickly changed from one in which the looper thread lies substantially only upon the upper surface of the fabric, while the needle thread lies upon the under surface of the fabric and is concatenated with the looper loop at the edge of the fabric, to one in which the needle thread practically only passes vertically through the fabric, the looper thread not only lying on the upper surface of the fabric, but being drawn around to cover the edge and lie upon the under surface thereof. I accomplish the result in the first instance by loosening up on the needle thread, and tightening up on the looper thread, while in the second instance the needle thread slack is practically all taken up, and the looper thread drawn by the needle thread loop, around onto the under surface of the fabric. The mechanism for accomplishing these purposes embodies in general a means for controlling the slack, or pulling back on the needle thread, and simultaneously operating on the looper thread, but means are provided whereby when the needle thread is to be left to lie on the under side of the fabric, a minimum amount of slack therein is taken up, while a maximum amount of slack in the looper thread is taken up, but when a maximum amount of slack in the needle thread is taken up and the stitch drawn tight, a minimum amount of slack in the looper thread is taken up.

The invention consists in the various matters of construction and arrangement hereinafter described and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of so much of a sewing machine with my invention applied, as is necessary to a complete understanding of the same; Fig. 2 is a perspective view, with parts of the machine omitted, illustrating the position of the parts when the needle thread lies on the under surface of the fabric, and the looper thread only on the upper surface; Fig. 3 is a side view, showing the position of the parts when the looper thread is drawn around onto the under surface of the fabric; Fig. 4 represents a view of the upper surface of the fabric with the stitches; the left hand portion showing the form of stitches when the parts are in the position shown in Fig. 2, and the right hand portion showing the form of stitches when the parts are in the position shown in Fig. 3; Fig. 5 is a similar view of the under side of the fabric; Fig. 6 is a detail perspective of the bracket which carries a portion of the take up mechanism, and upon which the shifting block slides; Fig. 7 is a detail perspective of the shifting block; Fig. 8 is a detail perspective of a portion of the needle lever, the stud and the neck-guide; and Fig. 9 is a detail view of the three parts of the shifting block.

In these drawings, A represents the sewing machine standard; B the gooseneck; C

the needle lever; D the needle bar; *a* the needle; *b* the looper; and *c* the spreader, these parts operating in the usual manner.

E is the needle lever extension upon which is secured the plate *d*, having the pull off pin *e* and slack take up pin *f*, the lower thread being led from the spool in a proper manner to the eye *g*, around the pin *e*, between the tension disks *h*, around the pin *i* on adjustable plate F, around pin *f*, over pin *k*, on plate F, back of pin *l* on said plate to the looper.

The upper thread is guided from the spool to the pull-off mechanism represented as a whole at G. This pull-off mechanism consists of an arm carried by and vibrating with the needle lever which arm vibrates between two thread guides formed in the bracket on the head of the machine. These parts are of the usual construction. The thread is led from the pull-off between the tension disks H to an eyelet I on the head of the machine, and thence between tension disks K on the head of the machine. The thread passes from the tension K through stationary eyelets L and M on the head of the machine, and also through an eyelet N on the swinging arm O. The thread is then led from the eyelet M to the needle. The swinging arm controls the slack in the needle thread between the tension K and the needle. This swinging arm O is pivoted to the needle lever, and is made in sections, one of which is adjustable relative to the other. The arm carries the segment *m* which meshes with a similar gear segment *n* formed on a plate *o* embracing the needle lever stud D. The plate *o* carries a bracket or yoke I having an opening *p* in its outer end through which passes a pivot screw into the needle lever stud.

Upon the needle lever stud slides the shifting block R, which has upon opposite sides plates *r*, oppositely beveled to ride upon the oppositely inclined upper edges of the side plates *s* of the yoke Q, whereby when the shifting block R is slid back and forth on the needle stud it will rock the yoke and the plate *o*, and, therefore, also the take up arm O for the needle thread, and change its operative position, as well also as changing the operative position of the arm S, which carries at its lower forward end the auxiliary slack controlling finger *t*. The shifting block R is slotted at its lower end, as at *u*, and fits over the guiding rack T, having teeth on its upper surface, this guiding rack being attached to the needle lever, parallel with the needle lever stud. The shifting block R is slotted at *v* as shown in Figs. 7 and 9. A plate U is fixed within the slot and is normally spring pressed downward by a spring housed within the shifting block, and bearing against the upper edge of said plate. The rack bar extends through a slot *w* in the plate U, and the upper edge of the slot *w* is adapted to engage the teeth in the rack T. The finger-piece V carried by the plate U serves as a means for raising and lowering the plate. To slide the shifting block back and forth, and, therefore, to rock the yoke Q, the plate U is pressed upwardly to release the wall of the slot *w* from the rack, and then by means of the friction surface *x* the block can be shoved in and out.

In the position of the parts shown in Fig. 2, the arm O controlling the slack of the needle thread does not act to pull back on the needle thread, except sufficiently to bring it about to the edge of the fabric, while the slack of the looper thread is controlled by all the fingers *f*, *i*, *k*, *l* and *t*, thus tightening the looper thread, so that it only rests on the upper surface and along the edge of the fabric, making the stitch shown in the left hand portions of Figs. 4 and 5. By shifting the block to the position shown in Fig. 3, the arm S is swung forward, so that in its movement the finger *t* will not engage the looper thread at all, and thus will give it more slack, while the needle thread controlling arm O will have more of a throw and tighten the needle thread, so that the needle thread will pull the looper thread around on the under side of the fabric, giving to the stitch the appearance shown in the right hand half of Figs. 4 and 5.

Various modifications and changes may be made without departing from the spirit of my invention.

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

1. In a machine for making irregular stitches, stitch-forming devices including a plurality of stitch-forming members, means for taking up the thread carried by the stitch forming members, including controlling devices operating upon the threads carried by the stitch forming members, and means for simultaneously changing the operative position of the controlling devices to vary the appearance of the stitch; substantially as described.

2. In a machine for making overedge stitches, stitch-forming devices including a thread-carrying needle and a thread-carrying looper, means for taking up the needle and looper threads including controlling devices for the needle and looper threads, and means for simultaneously changing the operative position of the controlling devices to vary the appearance of the stitch; substantially as described.

3. In a machine for forming overedge stitches, stitch-forming devices including a needle and a looper, a take-up acting on both the needle and looper threads, means to si-

multaneously increase the take up action on the upper thread and reduce the take up action on the lower thread, and means to operate said take up; substantially as described.

4. In a machine for forming overedge stitches, stitch-forming devices including a needle and a looper, a take-up acting on both the needle and looper threads, means to simultaneously increase the take up action on the upper thread and reduce the take up action on the lower thread, and means to operate said take-up, including a vibrating part; substantially as described.

5. In a sewing machine, a needle, means for reciprocating the same, complemental stitch-forming mechanism coöperating with said needle to form an overedge stitch, thread controlling mechanism operating to take up both the upper and lower threads, and means under the control of the operator for changing the effective action of the thread-controlling mechanism upon both of said threads, whereby the appearance of the overedge stitch may be changed; substantially as described.

6. In a sewing machine, stitch forming mechanism, including a plurality of thread carrying devices, a thread controlling mechanism coöperating with each of said thread carrying devices to take up the thread carried thereby, and means for changing the effective action of said controlling mechanism upon each of the threads, whereby the appearance of the stitch is changed; substantially as described.

7. In a sewing machine, a vibrating lever for operating the needle and a take-up mounted thereon and vibrating with said lever and manually controlled means for shifting the operative position of said take-up, whereby the appearance of the stitch may be changed.

8. In a sewing machine suitable stitch forming mechanism including a thread carrying needle, a vibrating lever having an extension for operating said needle, thread guides mounted on the same, having vertical and horizontal movements respectively, stationary thread guides coöperating with the movable thread guides to take up said needle thread and means for simultaneously adjusting the position of said movable guides.

9. In an adjustable take-up and pull-off device, movable thread-engaging members, means for moving the same, thread guides carried by said members, stationary thread guides coöperating therewith, and means to simultaneously adjust both movable thread guides nearer to or farther from their coöperating stationary guides; substantially as described.

10. In a sewing machine stitch forming devices including a needle and looper each carrying a thread, thread controlling mechanism including means acting simultaneously on the needle thread to take it up and on the looper thread to allow an additional supply of slack and means to adjust the amount of take up action on the needle thread.

11. In a sewing machine, stitch forming devices including a needle and looper each carrying a thread, thread controlling mechanism including means acting simultaneously on the needle thread to take it up and on the looper thread to take it up, and means to adjust the amount of take up action on the looper thread.

12. In a sewing machine, stitch forming devices including a needle and looper, each carrying a thread, thread controlling mechanism including means acting simultaneously on the needle thread to take it up and on the looper thread to take it up, and means to adjust the amount of take up action on the needle and looper threads.

13. In a sewing machine suitable stitch forming mechanism, a vibrating part, thread guides attached thereto, stationary coöperating thread guides, a slack controller and means for changing its operative position to change the locking points of the threads.

14. In an overseaming machine, including a thread carrying needle, and a thread-carrying looper, with means for controlling the needle thread and the looper thread, including vibrating thread-controlling devices and means for simultaneously changing the operative position of the thread-controlling devices; substantially as described.

15. In an overseaming machine, including a thread-carrying needle, and a thread-carrying looper, a needle thread controlling arm, a looper thread controlling arm, connections between the two and means for shifting the position of the throw of the arms simultaneously, whereby when the needle thread controlling arm is shifted to take up more of the needle thread slack, less of the slack of the looper thread is taken up; substantially as described.

16. In a sewing machine, having stitch forming mechanism including a thread-carrying needle and a thread-carrying looper, means for controlling the slack thereof, including an operating part, connections between said operating part and the slack controlling devices, and means for shifting said operating part, and thereby changing the operative position of the slack-controlling devices; substantially as described.

17. In a sewing machine having a stitch forming mechanism, including a thread-carrying needle and a thread-carrying looper, means for controlling the needle thread comprising a swinging arm, means for controlling the looper thread, comprising a take-up device operated by a moving part of the machine, an auxiliary device for aiding in the control of the looper thread, and

a vibrating part adapted to control the needle thread controlling arm and the auxiliary looper thread controlling device, and means for shifting the position of the vibrating part, and thereby the position of the controllers operated thereby; substantially as described.

18. In a sewing machine, having stitch-forming mechanism including a thread-carrying needle and a thread-carrying looper, means for controlling the needle thread, comprising a swinging arm, means for controlling the looper thread, comprising a take-up device operated by a moving part of the machine and coöperating with stationary members on the machine frame, a vibrating lever having engagement at one end with the said swinging arm and having at its lower end an auxiliary device adapted to coöperate with the looper thread controlling device, with means for shifting the position of the vibrating part whereby the position of the swinging arm may be changed, and whereby the auxiliary device may be thrown into position so that it engages or does not engage the looper thread; substantially as described.

19. In a sewing machine take up device, a take-up member, a vibrating part, a pivotal stud therefor, means mounted on said stud to rock said take up member and change its operative position.

20. In a sewing machine take up device, a take-up member, a vibrating part, a pivot stud therefor, means mounted on said stud to rock said take-up member and change its operative position, said means being manually controlled.

21. In a sewing machine take up device, a take-up member, a vibrating part, a pivot stud therefor, means mounted on said stud to rock said take-up member and change its operative position, said means being manually moved by the operator and including a sliding finger piece.

22. In a sewing machine take up device, a take-up member, a vibrating part, a pivot stud therefor, means mounted on said stud to rock said take-up member and change its operative position, said means being manually moved by the operator and including a sliding finger piece having means to rock it and swing the take-up on its pivot.

23. In a sewing machine take-up device, a take-up member, a vibrating part, a pivot stud therefor, means mounted on said stud to rock said take-up member and change its operative position, said means being manually moved by the operator, and including a sliding finger piece, and means to lock said sliding finger piece.

24. In a sewing machine, suitable stitch forming mechanism, a take-up device, including a take-up member, and means for operating the same, a controller for said take-up device, comprising a rocking frame pivoted upon a stationary part of the machine, extensions on said frame for changing the position of operation of said take-up member, stationary thread guiding devices coöperating with said take-up member to take up the thread.

25. In a sewing machine, a needle and a vibrating member for reciprocating the same, a take-up pivoted on said member and moving therewith, stationary thread eyes cooperating with said member, a rocking frame pivoted on a stationary part of the machine, connections between said take-up and said rocking frame, whereby the vibrating position of said take-up may be changed; substantially as described.

26. In a sewing machine take-up device having members to operate on a plurality of threads passing in separate paths through the machine, an arm swinging vertically carrying a thread guide, an arm swinging horizontally carrying a thread guide, and means for swinging said arms and stationary thread guides coöperating with said moving thread guides and means for simultaneously adjusting the operating position of said arms.

27. In a sewing machine for making irregular stitches, stitch-forming devices including a plurality of stitch-forming members, constant tension devices, and controlling devices operating upon the threads carried by the stitch-forming members, and means for simultaneously changing the operative position of the controlling devices to vary the appearance of the stitch.

In testimony whereof I affix my signature, in presence of two witnesses.

RUSSEL G. WOODWARD.

Witnesses:
J. D. SHIRE,
CARRIE RASMUSSON.