W. FORSYTH.

SEWING MACHINE.

APPLICATION FILED MAY 28, 1914.

1,176,533. Patented Mar. 21, 1916.

Fig. 1.

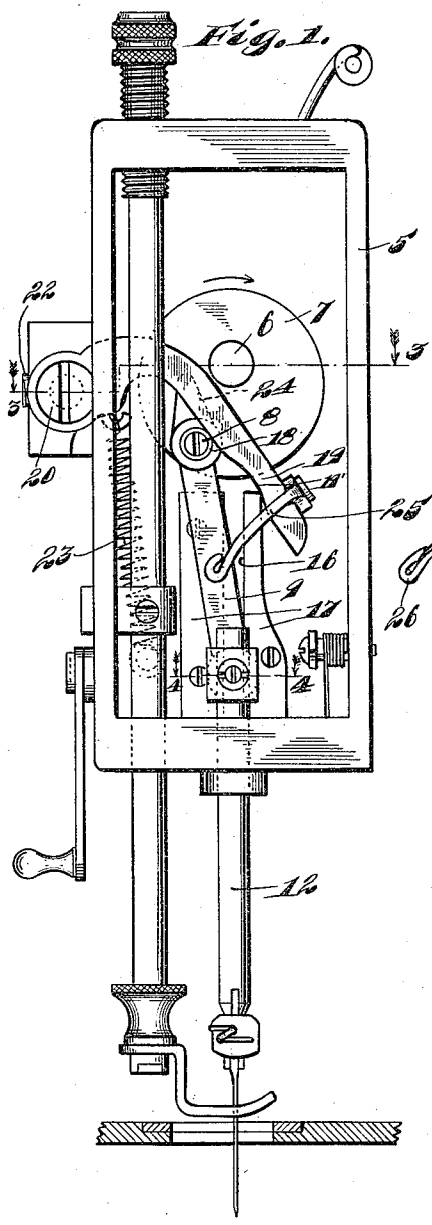


Fig. 2.

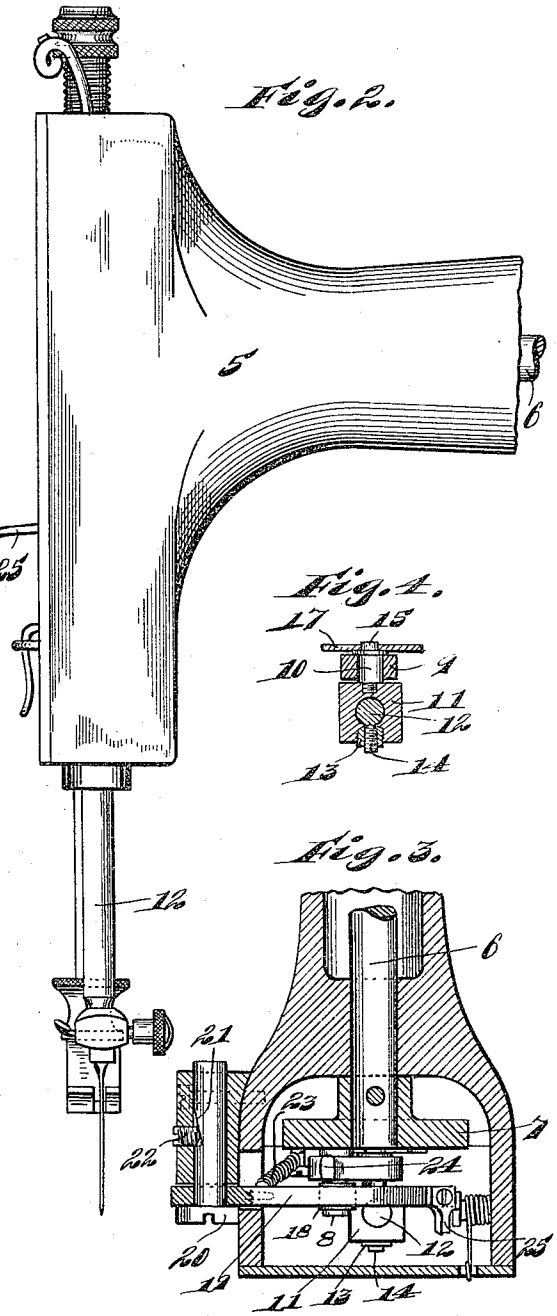


Fig. 4.

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM FORSYTH, OF BELVIDERE, ILLINOIS.

SEWING-MACHINE.

1,176,533. Specification of Letters Patent. Patented Mar. 21, 1916.

Application filed May 28, 1914. Serial No. 841,464.

To all whom it may concern:

Be it known that I, WILLIAM FORSYTH, a subject of the King of Great Britain, and a resident of the city of Belvidere, county of Boone, and State of Illinois, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates to improvements in sewing machines, and more especially to mechanism for operating the take-up arm and needle bar thereof, the object of the invention being to provide simple and efficient mechanism for this purpose.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which,

Figure 1 is a side elevation of a sewing mechanism head equipped with mechanism embodying my invention, with the face plate thereof removed, Fig. 2, a front view corresponding to Fig. 1, Fig. 3, a section taken on line 3—3 of Fig. 1, and Fig. 4, a section taken on line 4—4 of Fig. 1.

The preferred form of construction as illustrated in the drawing comprises an ordinary sewing machine head 5 equipped with the usual driving shaft 6 operating therein and provided at its end with a disk 7. Disk 7 carries a crank pin 8 in the form of a stud secured to said disk and a link 9 is pivotally connected at its upper end with said crank pin, and at its lower end with a stud 10, carried by a block 11 secured to the upper end of the needle bar 12, as shown. Block 11 is securely locked to needle bar 12 by means of an outer right-hand threaded set screw 13, and by an inner left-hand threaded set screw 14 operating in set screw 13, both of said set screws bearing on said needle bar, and each of them serving to lock the other in position, thus furnishing a secure fastening. Stud 10 is provided with an extension stud 15 operating in a gib or guide slot 16 in a guide plate 17 secured in head 5, as shown, said stud 15 serving to insure accurate travel of said needle bar.

Stud 8 is extended beyond link 9 and is provided with a friction roller 18, on which a cam lever 19 rides, said cam lever being pivoted on a stud 20 secured to head 5, and being provided with a recess 19′ forming a hump in its under side. Stud 20 is provided with an inwardly acting inclined bevel surface 21, and a set screw 22 is provided to impinge on such bevel surface and hold said stud securely in position. Cam lever 19 is normally held in yielding contact with roller 18 by means of a spring 23 and the upper end of link 9 is provided with a guard extension 24 adapted to prevent inward displacements of said cam lever and thus, in conjunction with the head of stud 20, serve as a means for maintaining said cam lever in proper position on roller 18. Adjacent its free end, cam lever 19 is provided with the usual take-up arm 25 projecting through the usual slot in the face plate of the head 5, and provided at its outer end with the usual eye 26 for the reception of the thread. By this arrangement, it will be observed, that upon rotation of shaft 6, cam lever 19 will be caused to oscillate vertically by the action of stud 8 thereon, thus causing corresponding oscillations of take-up arm 25 and consequently the proper manipulation of said arm to provide slack in the thread, and to remove such slack in order to tighten the stitch, as will be readily understood by those skilled in the art. The hump formed by recess 19′ causes a jump in the motion of arm 19 to more quickly draw up the thread when it arrives at the heel of the shuttle.

The arrangement set forth is a simple and efficient one, and one which consists of but few and simple parts, and consequently capable of economical manufacture.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In a sewing machine, the combination of a reciprocatory needle bar; a driving shaft; a crank pin on said shaft; an operative connection between said pin and said needle bar; a cam lever riding on said crank pin; a take-up arm on said lever; and a guard arranged to maintain said cam lever on said crank pin, substantially as described.

2. In a sewing machine, the combination of a reciprocatory needle bar; a driving shaft; a crank pin on said shaft; a link connecting said crank pin and said needle bar; a cam lever riding on said crank pin; a take-up arm on said cam lever; and a guard extension on said link adapted to maintain said cam lever on said crank pin, substantially as described.

3. In a sewing machine, the combination of a reciprocatory needle bar; a driving shaft; a crank pin on said shaft; a link connecting said crank pin and said needle bar; a spring held cam lever riding on said crank pin; a take-up arm on said cam lever; and a guard extension on said link adapted to maintain said cam lever on said crank pin, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM FORSYTH.

Witnesses:
JOSHUA R. H. POTTS,
HELEN F. LILLIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."