

(No Model.)

3 Sheets—Sheet 1.

D. FLANAGAN.
SEWING MACHINE.

No. 580,781.

Patented Apr. 13, 1897.

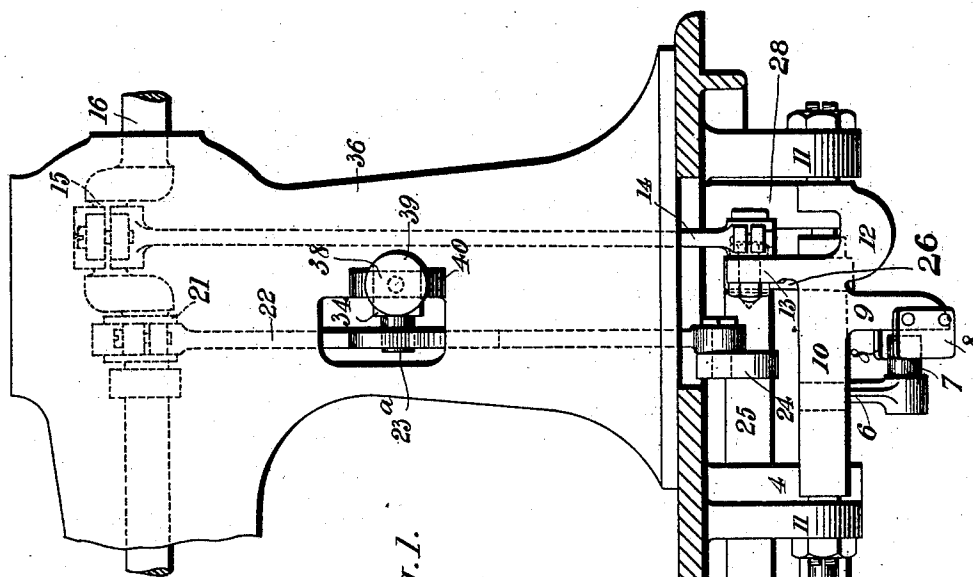


Fig. 1.

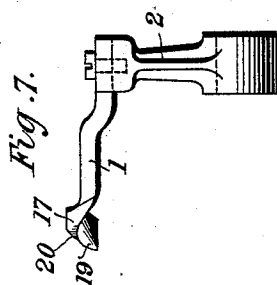


Fig. 7.

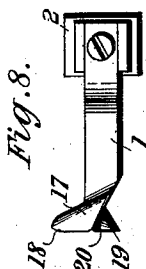
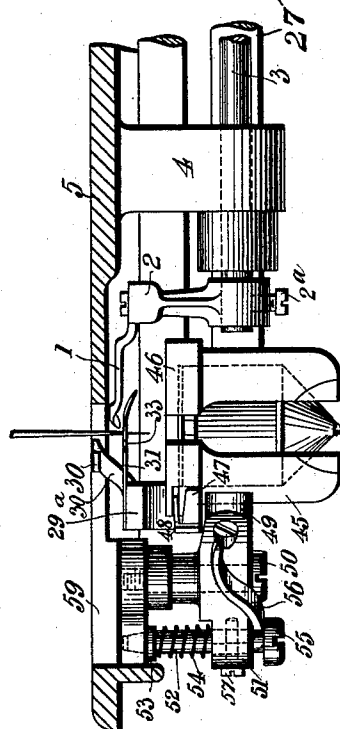


Fig. 8.



WITNESSES.

Walter Brierley
J. Brierley Howard

INVENTOR.

Dennis Flanagan

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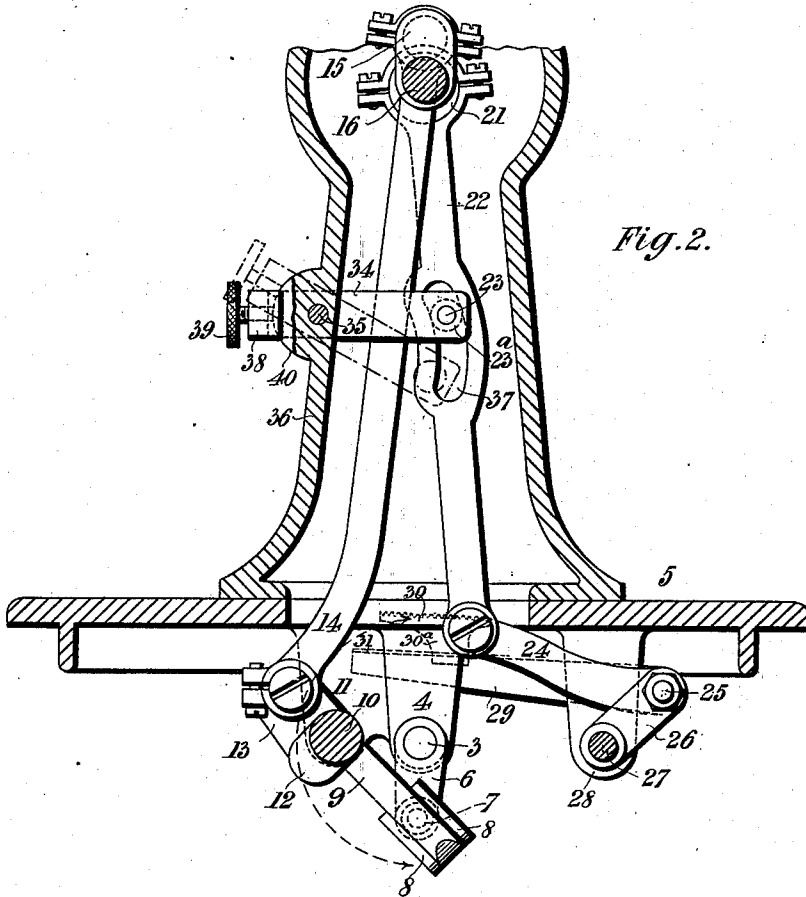


Fig. 2.

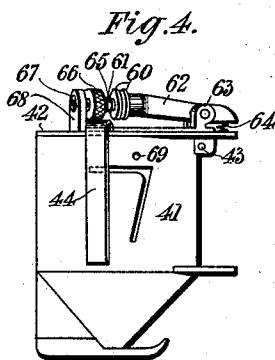


Fig. 4.

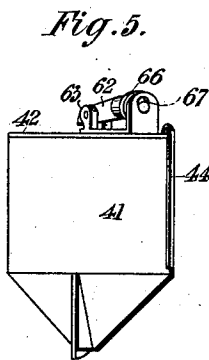


Fig. 5.

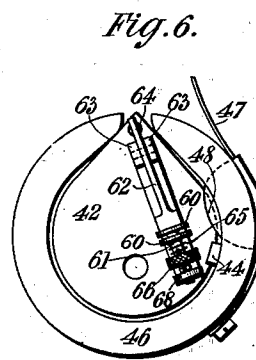


Fig. 6.

WITNESSES.

Walter Brierley
J. Brierley Howard

INVENTOR.

Denis Flanagan

(No Model.)

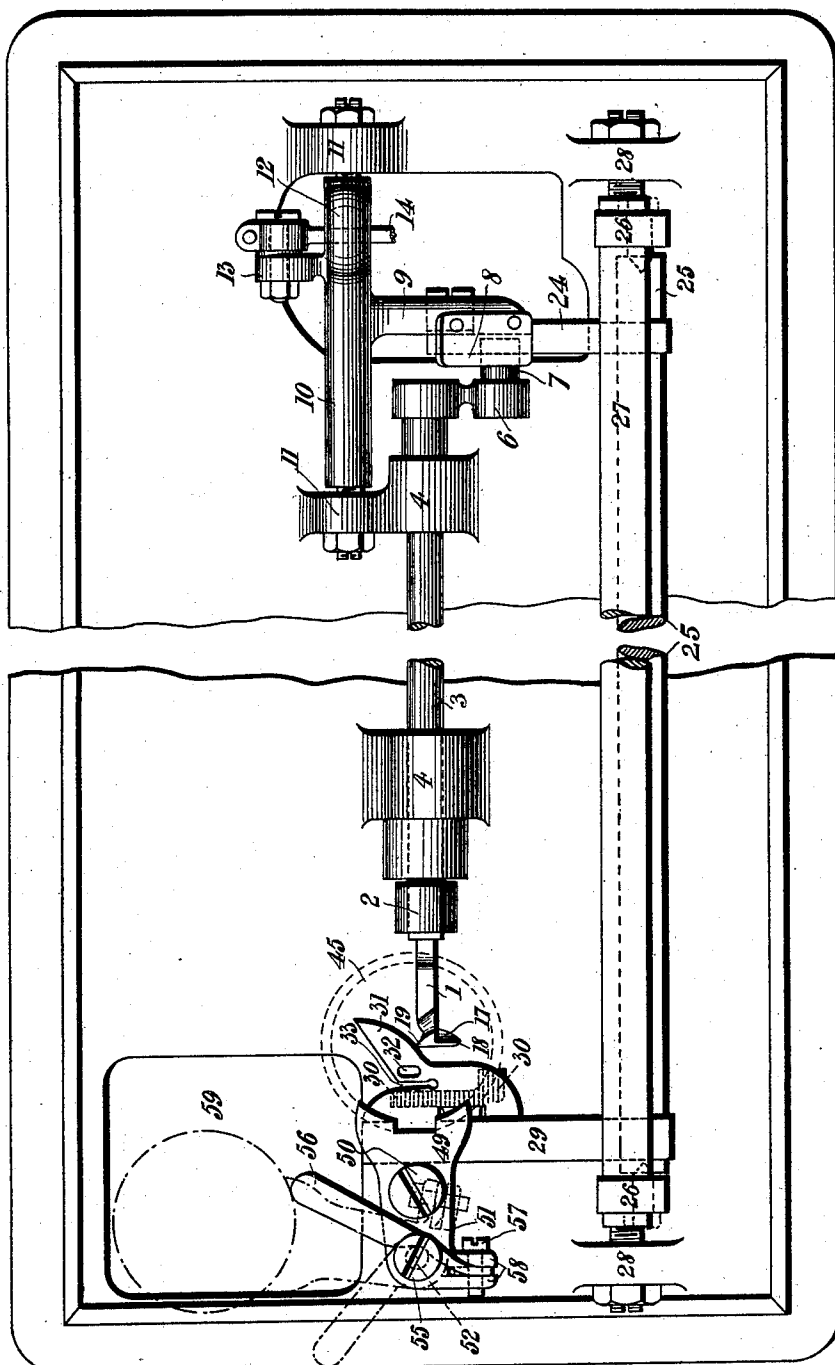
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Fig. 3.



WITNESSES.

Walter Brierley
J. Brierley Howard

INVENTOR.

David Flanagan

UNITED STATES PATENT OFFICE.

DENIS FLANAGAN, OF CLAYTON-LE-MOORS, ENGLAND.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 580,781, dated April 13, 1897.

Application filed August 11, 1896. Serial No. 602,389. (No model.)

To all whom it may concern:

Be it known that I, DENIS FLANAGAN, a subject of Her Majesty the Queen of Great Britain, residing at Clayton-le-Moors, in the county of Lancaster, England, 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 it consists in the novel construction and arrangement of parts which will be hereinafter fully described and claimed.

Referring to the accompanying drawings, in which the same parts are designated by the same numerals of reference throughout the several views—

Figure 1 is a side elevation, partly in section, of so much of a sewing-machine as is required to illustrate my invention. Fig. 2 is an end view of Fig. 1. Fig. 3 is a view of the under side of the machine. Fig. 4 is a side elevation of the reel-case. Fig. 5 is a back view. Fig. 6 is a plan of the reel-case and carrying-frame. Fig. 7 is an elevation, on an enlarged scale, of the looper; and Fig. 8 is a plan of same.

The looper consists of a bar 1, secured to an arm 2, adjustable by means of a nut 2^a on a shaft 3, supported in brackets 4 4, formed with the working plate 5 of the machine. The shaft 3 carries at its other end an arm 6, having a crank-pin 7, adapted to slide or oscillate in a slot which may be formed by plates 8 8, carried by arm 9 of a shaft 10, which is capable of rocking in bearing-brackets 11 11. This shaft is cranked at 12 and has a projecting arm 13, to which is attached the crank-rod 14, the cranked portion 12 giving the rod 14 clearance during the reciprocating movement which is given to it by the crank 15 of the upper shaft 16. The effect of this movement is to oscillate the shaft 10, thus giving the arm 9 a rocking movement, which is imparted through the crank-pin 7 to the shaft 3, so that the looper 1 is given a semicircular movement backward and forward from its highest point to its lowest, such movement being indicated by the dotted line and arrow-heads in Fig. 2.

The looper 1 has a head 17, consisting of a nose 18 and rearward projection or barb 19,

provided with a groove 20 at the point from which it springs from the head 17, which groove extends round underneath the head, as shown in Fig. 7.

The shaft 16 is provided with an eccentric 21, which operates a rod 22, pivoted on a fulcrum-pin 23, the other end of the rod being attached to a crank-arm 24, carried by a shaft 25, connected by links 26 26 to a shaft 27, hung on bearing-brackets 28 28. The eccentric communicates a reciprocating motion to the rod 22, thus rocking the shaft 25 on its bearing-shaft 27. The shaft 25 carries a bar 29, on which is secured the feed-dog 30, such dog being carried by a short arm 30^a, which raises it up to the level of the slot in the working plate. The arm 29 also carries a guard-plate 31, having a long slot 32 to allow the needle to pass through and a flaring-mouthed slot 33, the use of which is hereinafter described. The motion given to the shaft 25 is not only a rocking one, but by reason of its semicircular movement is also a rising-and-falling one, which motion is necessary for the feed-dog.

To regulate the length of movement of the feed-dog, and consequently the stitch, the pin 23, which is provided with a loose bushing forming a roller 23^a, is carried by a lever 34, pivoted at 35 on the upright 36, and the rod 22 is provided with a curved slot 37, in which the roller 23^a may move so as to occupy different positions. The other end of the lever 34 is provided with a head 38, in which is a setting-screw 39, the end of which may be screwed up into engagement with the rounded surface of a projection 40, cast or secured on the upright 36. By moving the lever 34 on its pivot 35 it will be seen that the length of throw of the rod 22 will be varied.

The reel-case 41 may be of any well-known construction and is provided with a lid 42, hinged at 43, kept closed by a spring 44, so as to enable a reel of thread to be easily inserted and removed. It is supported in a carrying-frame 45, of some well-known construction, such as that shown, such frame having a flange 46 on its upper portion, to which is secured a spring 47, a lip 48 on which projects through a slot in said flange and over the lid 42 of the reel-case to retain it in position. The frame 45 is screwed or otherwise secured to a carrying-arm 49, pivotally hung on a pin 50,

an extension 51 of said arm carrying a pin 52, such pin having a washer 53 secured thereon, between which and the part 51 is a spring 54.

Under the head 55 of the pin 52 passes a thumb-lever 56, pivoted on a pin 57 between ears 58 58, so that by pressing down the thumb-lever, which is on view through the opening 59 of the working plate, the pin 52 can be forced down, the end of same withdrawn from a hole in the under side of the working plate, in which the spring normally holds it, and the arm 49 be swung around to bring the reel-case and frame under the opening 59.

As the reel-case 41 is liable to vibrate or shake up and down, I apply thereto an automatic tension device for the thread. This consists of a pair of disks 60, mounted on a reduced portion 61 of an arm 62, pivoted between ears 63 63, carried by the cover 42. The end of this arm 62 projects beyond the ears and is upwardly pressed by a spring 64, bearing on the extension or V-shaped portion of lid 42. One of the disks is fixed and the other is pressed against it by a spring 65, which bears against a nut 66, adjustable on the reduced portion 61, which is threaded for the purpose, the extreme end of the part 61 passing through a slot or guide 67 in a lug 68, secured to the cover 42. The spring 64 thus tends to keep the part 61 at the other end of the lever in its lowest position at the bottom of the slot 67, so that the drag of the thread, which issues as is understood from the opening 69 of the case and passes between the disks 60, tends to lift the arm, so that while the reel-case is vibrating the slight amount of movement allowed the arm 62 will keep a proper tension on the thread. The looper takes the thread from the needle after it passes through the working plate, the nose 18 opening the loop and the barb 19 catching the thread while the groove 20 catches and guides one portion of the loop around the front or V-shaped portion of the reel-case, the other portion of the loop passing down the other side of the reel-case.

When the looper has carried the thread to the bottom of the spool-case, the loop of thread slips off the looper-head and the ordinary take-up (which is not shown) then takes up part of the slack thread forming the loop, and the looper on its next stroke takes up the remaining slack and by so doing tightens and completes the previous stitch. The thread when it slips off the looper and over the spool-case is left in the slot 33 of the guard-plate 31, and said slot prevents the thread entangling with any of the mechanism, as the guard-plate in its reciprocation with the feed-dog carries it away from and clear of the path of the looper and needle.

What I claim is—

1. In a sewing-machine the combination with a reel-case, looper and means for operating the same; of a bar 29, a feed-dog secured to the said bar, and means for giving the proper movement to the said bar, a guard-plate also secured to the said bar to move with the feed-dog, the said guard-plate having a flaring-mouthed slot in which a part of the loop of the thread is held, so that it may be carried by the movement of the said plate, clear of the path of the looper, substantially as described.

2. In a sewing-machine, the combination with the reel-case, of an arm pivoted near its end, means for supporting same on the reel-case, a spring acting on one end of the arm to keep the other end down, a guide for the other end, disks carried by said arm between which the thread from the case is passed, and means for pressing said disks together, the whole forming a tension device for the thread, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DENIS FLANAGAN.

Witnesses:

WALTER BRIERLEY,
J. BRIERLEY HOWARD.