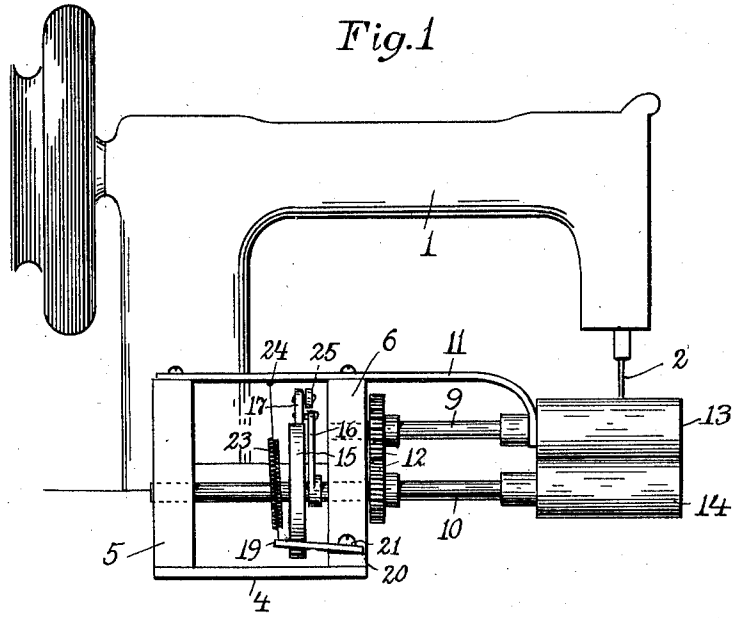
H. THORNE.

SEWING MACHINE ATTACHMENT.

APPLICATION FILED DEC. 17, 1918.

1,348,133. **Patented July 27, 1920.**

Fig. 1



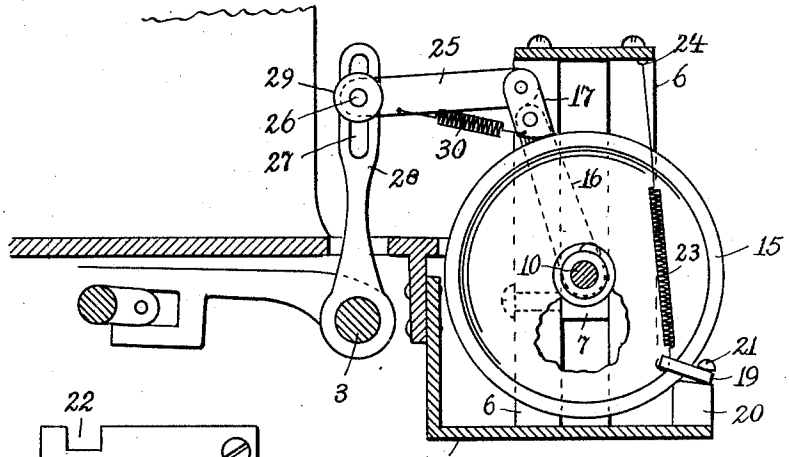


Fig. 3

Fig. 2

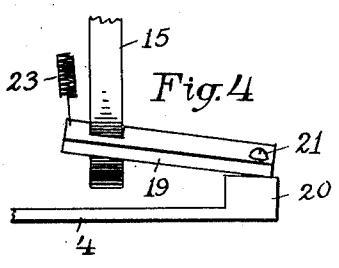


Fig. 4

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UNITED STATES PATENT OFFICE.

HERBERT THORNE, OF BOXFORD, MASSACHUSETTS.

SEWING-MACHINE ATTACHMENT.

1,348,133. Specification of Letters Patent. Patented July 27, 1920.

Application filed December 17, 1918. Serial No. 267,122.

To all whom it may concern:

Be it known that I, HERBERT THORNE, a citizen of the United States, and a resident of Boxford, in the county of Essex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Sewing-Machine Attachments, of which the following is a full, clear, and exact specification.

The object of this invention is the construction of improved means for drawing the work away from a sewing machine as fast as it is being stitched. In other attachments for this purpose, so far as I have observed, the pulling action is practically uniform for all grades of fabric and length of stitch, the pull being designed for the longest stitch of the sewing machine and slipping when the stitch is shortened.

In my attachment, on the other hand, I have so constructed the mechanism that the degree of the pull upon the fabric may be accurately adjusted to equal the speed of the sewing machine's feeding, and which also shall be adapted automatically to vary its speed of pull in accordance as the length of stitch is adjusted.

To do this I provide the work-pulling rolls with an adjustable friction clutch connected with the sewing machine feed in a manner to be actuated as the work is being fed but not otherwise, and to be capable both of being adjusted by hand, and to automatically vary its degree of pull in accordance with the adjustments of the sewing machine feed.

In this manner the pull upon the work, as the needle leaves it, is made always to equal the feed of the sewing machine, and a perfection of work accomplished never before found possible, especially in stitching broad hems upon thin fabrics, inserting edgings, and overcasting drawn work.

In the drawings forming part of this specification, Figure 1 is a rear view of a sewing machine showing my attachment applied thereto. Fig. 2 is a side sectional view on a larger scale showing the attachment connected with the rocker shaft of the feeding mechanism of the sewing machine. Fig. 3 is a face view of the friction stop for holding the pulling rolls against back action. Fig. 4 is an elevation of the same in engagement with the mechanism.

Referring to the drawings, the reference numeral 1 designates the sewing machine arm, and 2 the needle actuated in a well known manner; 3 is a rocker shaft for operating the feeding mechanism similar to that in a well known type of Singer sewing machine.

Attached to the rear of the sewing machine is a bracket 4, as shown in Fig. 2, for the support of the auxiliary feed mechanism. From this bracket rise two pairs of posts 5, 6, carrying between them boxes 7 as bearings for the two parallel shafts 9, 10, the pair 6 having two boxes but the pair 5 only one. The shaft 10 is supported in two of the boxes 7, while the shaft 9 has a bearing at one end in the box 7 held at the upper part of the posts 6, and is further supported at the extremity of the spring arm 11, spur gears 12 being provided for causing the two shafts to turn together.

Fixed on the outer ends of the shafts 9, 10, are the auxiliary feed rolls 13, 14 pressed tightly together by the spring arm 11, and thereby made to suitably grip the fabric being stitched.

Upon the shaft 10 between the posts 5 and 6 is mounted a disk 15 turning rigidly therewith. Rotatable on the shaft 10 between the disk and posts 6 is a swinging arm 16 at whose outer end is pivoted a detent, preferably a cam 17 disposed when moved in one direction to frictionally engage the periphery of the disk 15 and turn the latter with it, but when oppositely moved will be released therefrom. A friction clutch 19 confined to the boss 20 by a screw 21 and having a notch 22 clasping the rim of the disk 15, is adapted to hold the latter from turning in one direction while leaving it free for turning in the opposite direction, a tension spring 23 anchored at 24 serving to yieldingly retain the clutch in position. Figs. 3 and 4 show this clutch member more clearly.

For the actuation of the cam 17, a rod 25 is pivoted at one end to it, and at its other end to an arm 28 swung by the rocker shaft 3. The pivot screw 26 is movable in a slot 27 formed in the arm, so that by unloosening a nut 29 on said screw or bolt, the latter can be moved farther from or nearer to the shaft 3 and the throw of the arm be correspondingly changed. An increase in throw will, of course, lengthen the travel of the cam 17 and thereby make the auxiliary feed rolls 13, 14 have an increased distance of feed; and vice versa.

A tension spring 30 serves to maintain the contact of the cam with the disk at all times.

By suitably adjusting the bolt or screw 26 the feed of the rolls 13, 14 is made to accurately correspond to the sewing machine feed, both in degree and in time; then, when the latter feed is adjusted by increasing and diminishing the angular movement of the rocker shaft 3 in a well known manner, the action of the rolls 13, 14 is correspondingly varied so that no matter whether a long stitch or a short stitch is being sewed the rolls still act in harmony therewith. By thus having the auxiliary feed rolls applying no strain to the fabric being stitched, but simply acting continuously to take up all the slack in the fabric as it leaves the needle, the work is done evenly and uniformly; there is no twisting in the fabric as there is almost sure to be with other methods of pulling, especially in stitching a wide hem in a thin muslin, or in overcasting or stitching both sides of a line of drawn work.

What I claim is:

1. The combination with a sewing machine or the like having an intermittent feeding device controlled by a rocker shaft, of a pair of auxiliary feed rolls movable together, a disk rotatable with said rolls, a detent engaging the periphery of said disk, an arm pivoted on the axis of said disk and having its free end controlling said detent, an arm swinging with said rocker shaft, and connection between said swinging arm and detent.

2. The combination with a sewing machine or the like having an intermittent feeding device and a rocker shaft controlling the same, of a slotted arm carried by said shaft, a pair of auxiliary feed rolls movable together, a disk rotatable with said rolls, a friction cam adapted to engage the rim of said disk to move the same in one direction, and connection between said cam and slotted arm, a part of said connection consisting of a bolt and thumb nut coacting with the slot.

3. The combination with a sewing machine or the like, of a pair of auxiliary feed rolls, supporting shafts therefor, a disk mounted on one of said shafts, an arm rotative on the last-named shaft beside said disk, a friction cam carried by said arm in contact with the periphery of said disk, means for reciprocating said cam for giving a step-by-step motion to said disk, and a detent comprising a bar having a notch near one end embracing the rim of said disk and loosely supported at one end and resiliently supported at its other end near which is said notch.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 14th day of December, 1918.

HERBERT THORNE.