

Feb. 28, 1928.

V. TURNER ET AL

1,661,023

SEWING MACHINE

Filed April 13, 1927

2 Sheets-Sheet 1

Fig. 1.

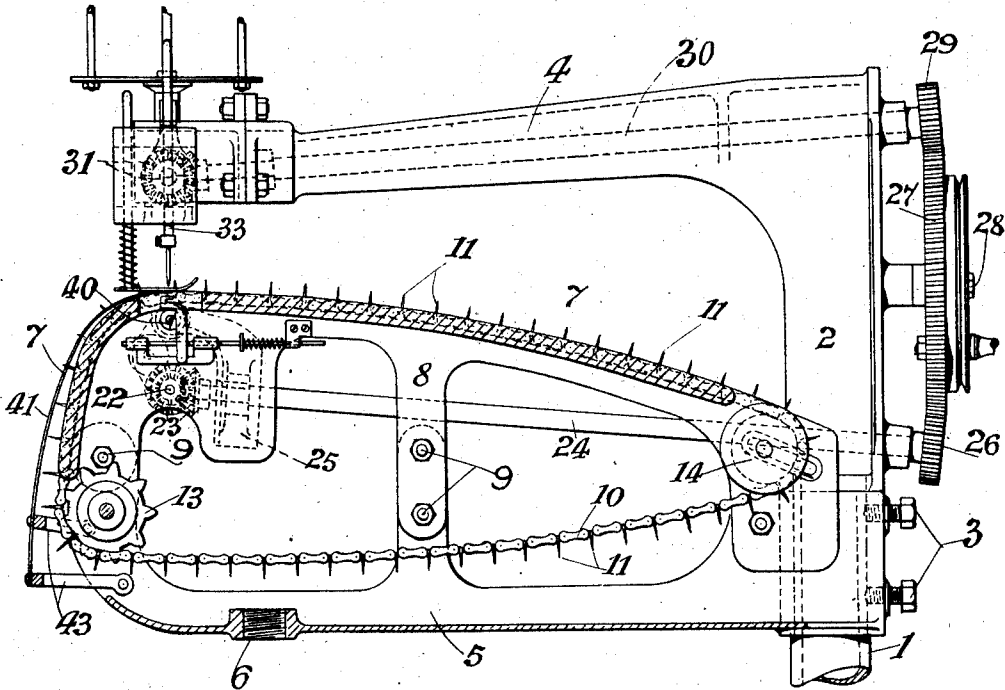
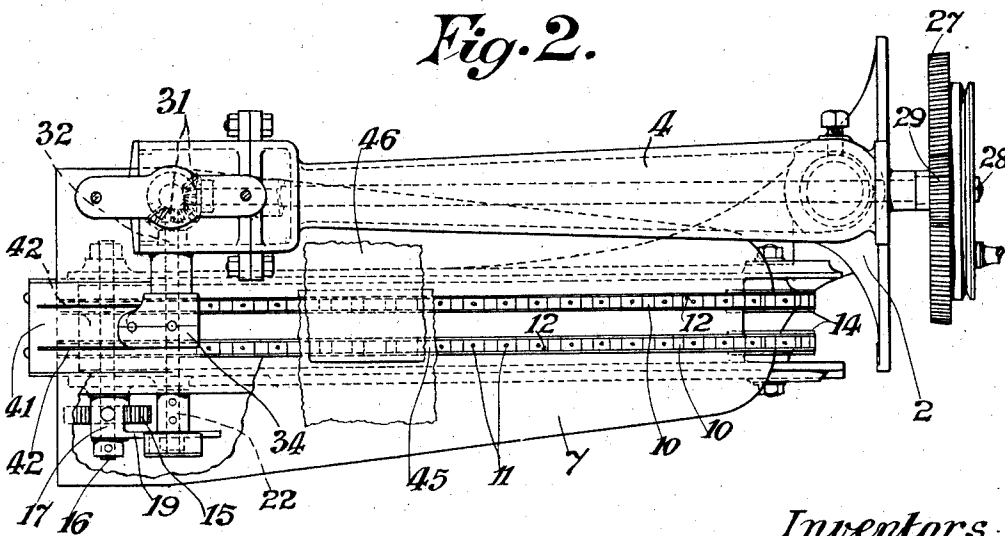


Fig. 2.



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2 Sheets-Sheet 2

Fig. 3.

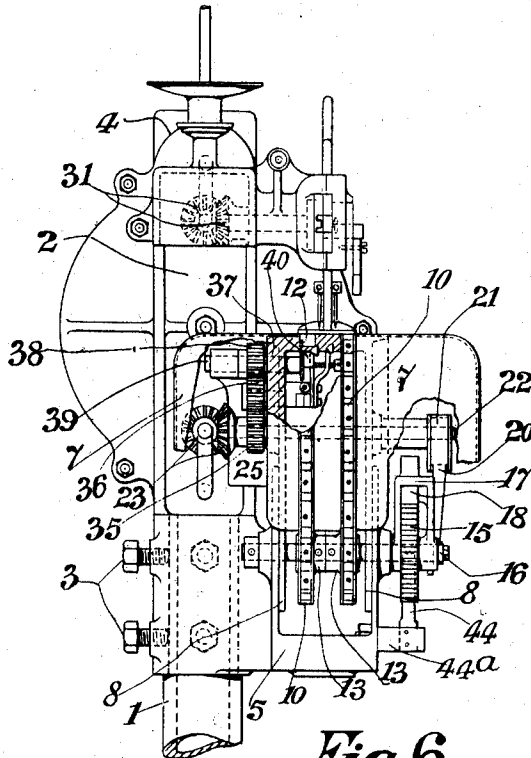


Fig. 4.

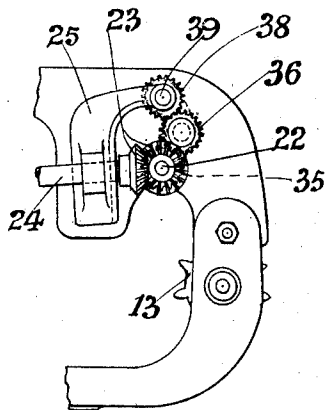


Fig. 7.

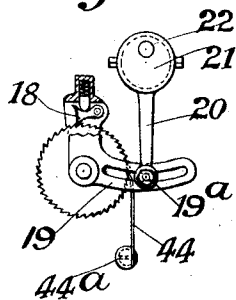


Fig. 5.

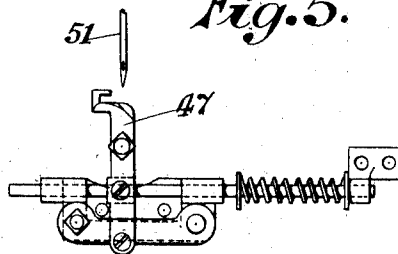
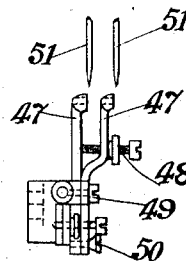


Fig. 6.



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UNITED STATES PATENT OFFICE.

VERNON TURNER AND ALBERT HENRY LOMAX, OF LOWER BROUGHTON, MANCHESTER, ENGLAND.

SEWING MACHINE.

Application filed April 13, 1927, Serial No. 183,488, and in Great Britain February 2, 1926.

This invention relates to sewing machines of the kind usually employed for sewing together the ends or selvages or lists of pieces of fabric preparatory to subjecting them to industrial processes, such as bleaching, milling and so forth.

In previously known sewing machines of the said kind it was only possible to sew the ends or selvages or lists together by bringing the parts together so that both the edges thereof lay to one and the same side of the stitching, this form of joint being usually known as a sewn-type seam. Seams in which the edges of the fabric overlapped, usually known as pasted-type seams could only be obtained by pasting the overlapping edges together, or sewing them by hand. The pasted-type seam possesses considerable advantages over the sewn-type seam.

The object of our invention is to enable a pasted-type seam to be produced by sewing on a sewing machine.

Previous to our invention it has been proposed in a sewing machine to provide a horizontal shaft connected at right angles by bevel gearing to a cross shaft which actuates the looper and driving through worm gearing two pairs of flanged pulleys carrying and driving two endless bands of wire filleting which served whilst sewing to feed the fabric towards the supported end of the needle arm in a direction parallel to the said horizontal shaft.

According to our invention the feed mechanism of the sewing machine consists of feed chains mounted on sprocket wheels which are rotated to cause the fabric during sewing to travel away from the supported end of the arm of the machine along a path lying in a plane which is parallel or at an angle other than a right angle to the said arm.

The arm and feed mechanism are both supported at one end only on a pillar or pillars or bracket, stand, foot or bench or the equivalent.

The feed chains are supported by the feed table at either side of the needle hole or holes in the said table.

The feed chains extend right up to the supported end of the needle arm.

In the accompanying drawings—

Figure 1 is a side view in section of a chain stitch sewing machine.

Figure 2 is a plan view with a part broken away, and

Figure 3 an end view, partly in section and with parts broken away.

Figure 4 is a fragmentary, detached side view which illustrates certain details.

Figure 5 is a detached side view and

Figure 6 a detached front view of parts of the sewing mechanism and illustrates a modification.

Figure 7 is a fragmentary side view, partly in section, of a part of the feed mechanism shown in Figures 1 to 4.

Referring to the drawings, in the construction shown therein, as applied by way of example to a chain stitch sewing machine, we provide a vertical supporting pillar 1 which has mounted on its upper end a member 2, set screws 3 being provided on the member 2 to secure the said member to the pillar 1. The member 1 has an arm 4 projecting from its upper part. The length of the arm 4 is preferably equal in length to or substantially equal in length to the width of the pieces of cloth to be sewn, but may be of considerably less length than the said width.

The member 2 is provided with a bracket 5 of substantially U-shape in cross section and preferably having a hole 6 for the reception of a supporting rod (not shown) where the length of the arm 4 renders such additional support advisable or permissible. A cloth supporting table 7 has two depending plate-like extensions 8 which serve to support the table 7 and other parts and are secured by bolts 9 to the support 5. The extensions are displaced to one side of the centre line of the arm 4.

Two endless chains 10 provided with pins 11 slide in grooves 12 provided in the table 7 and run on sprocket wheels 13 rotatably mounted in the support 5 and on guide pulleys 14 rotatably and adjustably mounted between the extensions 8. The sprocket wheels 13 are both adapted to be intermittently turned by means of a ratchet wheel 15 mounted on a shaft 16 on which the wheels 13 are mounted. The shaft 16 carries a stirrup 17 provided with a spring controlled pawl 18 adapted to co-operate with the ratchet wheel 15. The stirrup 17 is formed with an arm 19 by means of which it can be oscillated by a lever 20 which is adjust-

ably connected at 19^a to the arm 19 and is operated by an eccentric 21 provided on a shaft 22. A back pawl 44 is mounted on a stud 44^a provided on the support 5, to act on the ratchet wheel 15.

The shaft 22 is rotated by means of a pair of bevel gears 23 one of which is provided on a shaft 24 carried by the member 2 and a bracket 25 on one of the extensions 8. The shaft 24 is provided with a bevel pinion 26 meshing with a bevel wheel 27 mounted by means of a stud 28 on the member 2 and adapted to be rotated by hand and/or power.

The bevel wheel 27 also drives a bevel pinion 29 provided on a shaft 30 which is mounted in the arm 4 and drives a pair of bevel gears 31 one of which is provided on a shaft 32 which drives the needle bar 33 which is mounted in an off-set head 34 provided on the arm 4.

The counter shaft 24 also serves to drive the looping mechanism by means of a pinion 35, see particularly Figure 4, mounted on the shaft 22 and meshing with a pinion 36 mounted on a thickened part 37 of one of the extensions 8. The pinion 36 meshes with a pinion 38 provided on the shaft 39 of the tappet 40 of the usual hook and tappet mechanism, the said shaft being supported at one end in the bracket 25.

A stripping plate 41 having slots 42 for the passage of the pins 11 is attached by brackets 43 to the support 5. This plate is not shown in Figure 3.

It will be appreciated that in lieu of a single pillar 1, two or more pillars may be provided and that in lieu of a pillar or pillars to support the member 2, a stand, pedestal, bracket or the like may be provided or the member itself may be provided with a suitable foot for example for attachment to the edge of a bench or the like. Furthermore where the length of the arm 4 renders it advisable, the member may extend upwardly beyond the arm and one or more tie rods be provided between the extended part of the said member and the arm. Furthermore spiral or other suitable gearing may be employed in lieu of the hereinbefore described bevel gearing and any suitable number of feed chains 10 from one upwards may be provided.

In operation, assuming the ends 45 and 46 of two pieces of cloth, of which fragments are shown in Figure 2 for the purpose of illustration only, are to be sewn together, the end 45 of one piece is placed on the pins 11 of the chains 10 from one side of the table 7 and the end 46 of the other piece is placed on the pins 11 from the other side of the table 7, the ends 45 and 46 being thereby caused to overlap. The machine is

now set in motion and the two pieces are fed laterally away from the member 2 and between the needle bar 33 and looping mechanism, a row of stitching parallel with but situated between the two overlapping edges 45 and 46 being thus obtained. The seam produced is therefore the same as a pasted seam in formation, but the means of connection consists of stitches instead of paste.

Where the length of the arm proper and feed arm is less than the width of the fabric, as much of the ends of the fabric as will conveniently lie on the table 7 is placed on the pins 11 and sewn together. The remaining part of the ends hang down on either side of the table and when sewing of the first part is completed, the other or another part of the said ends is placed on the pins 11 for sewing together. This is repeated as often as is necessary to complete the sewing of the ends together. Thus it will be appreciated that without bunching the cloth any widths of cloth can be sewn together.

If it is desired to produce a similar seam for attaching the two selvages or lists of a piece of cloth together the said selvages or lists are placed on the feed pins 11 in a similar manner to the ends of two pieces, fresh parts of the selvages or lists being placed on the pins as stitching proceeds. Here again owing to the formation of our improved machine no difficulty is experienced in producing a pasted-type seam along the whole length of the piece and without bunching of the cloth.

For the purpose of obtaining two rows of stitches and therefore producing a stronger seam, the needle bar may be provided with two needles 51, see Figures 5 and 6, and the looping mechanism be provided with two looping hooks 47, means such as a set screw 48 acting to force the two hooks apart and set screws 49 and 50 acting to draw the two hooks together, being provided for adjusting the second hook 47 relative to the first hook 47.

We claim:—

A sewing machine of the hereinbefore specified kind comprising an arm supporting the needle bar mechanism, a needle bar off set to one side of the said arm, and a table carrying two feed chains both off set to one side of the said arm and arranged to feed fabric in the general direction of the said arm away from the supported end of the said arm.

In testimony whereof, we have signed our names to this specification at Manchester in the county of Lancaster, England, this 30th day of March, 1927.

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