Jan. 5, 1943. P. GARDNER 2,307,623

SEAM OPENING DEVICE

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Fig. 1

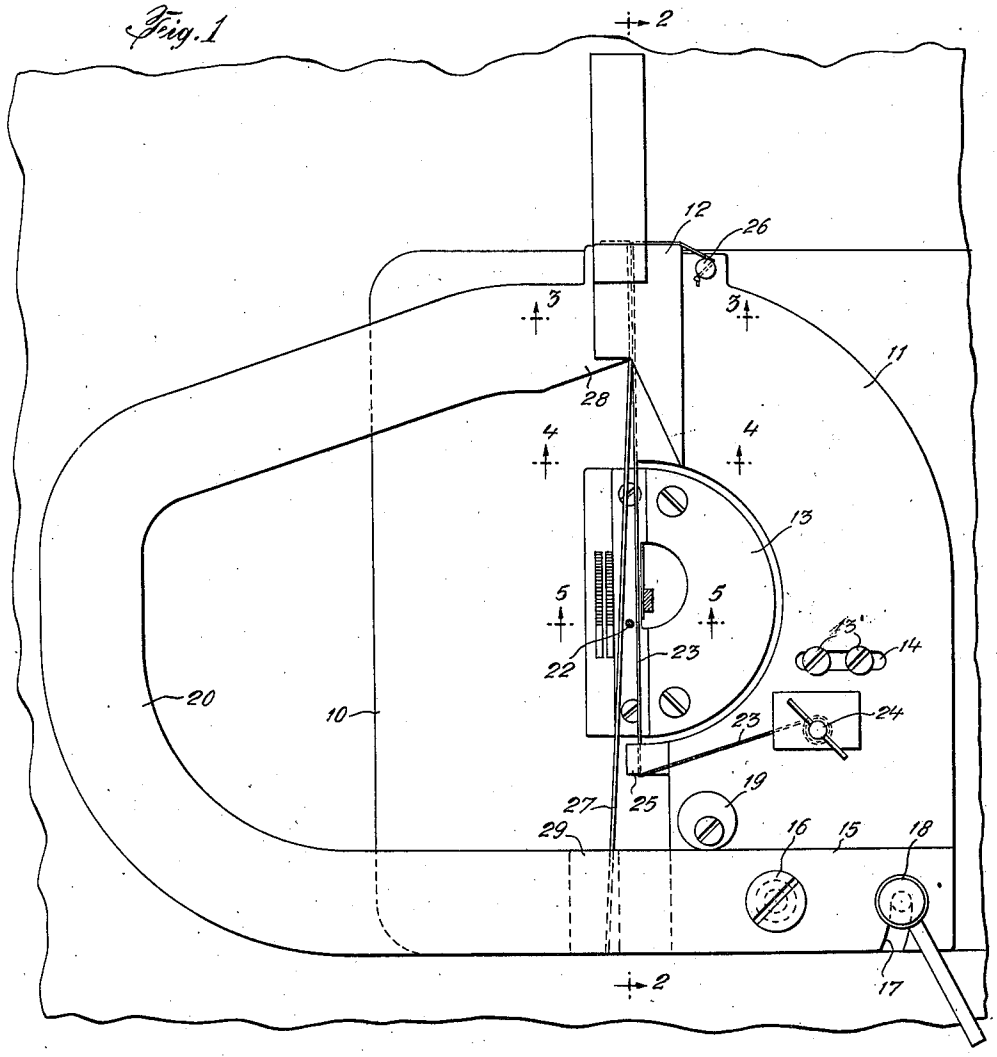
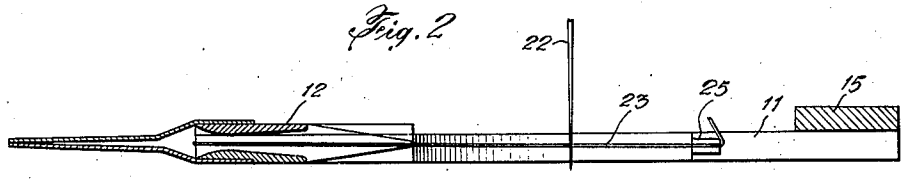


Fig. 2



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Fig. 3

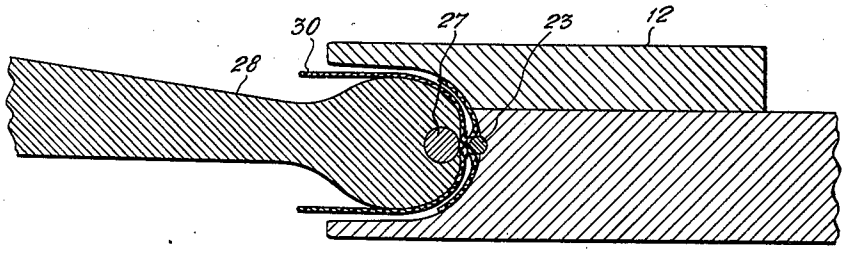


Fig. 4

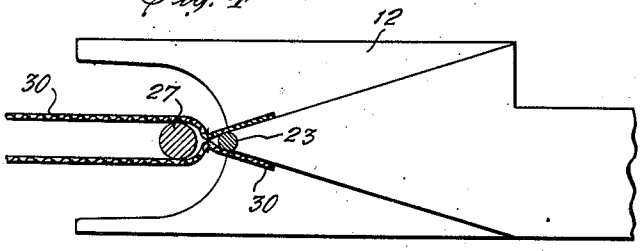


Fig. 5

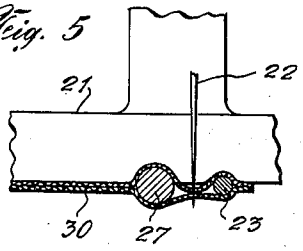


Fig. 7

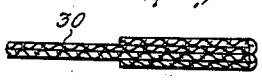
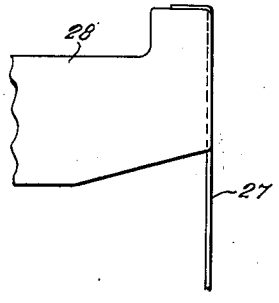


Fig. 6



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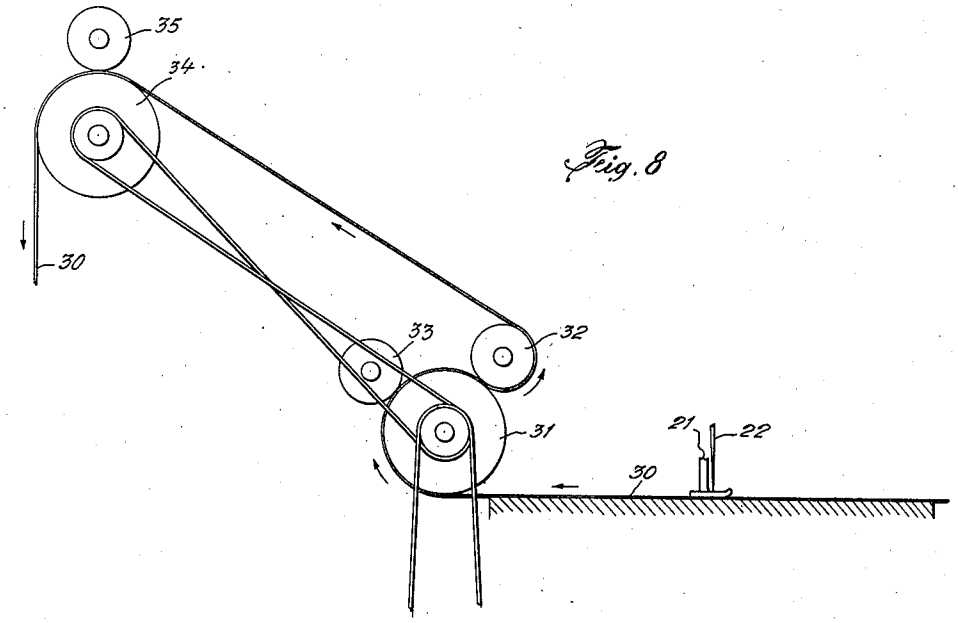


Fig. 8

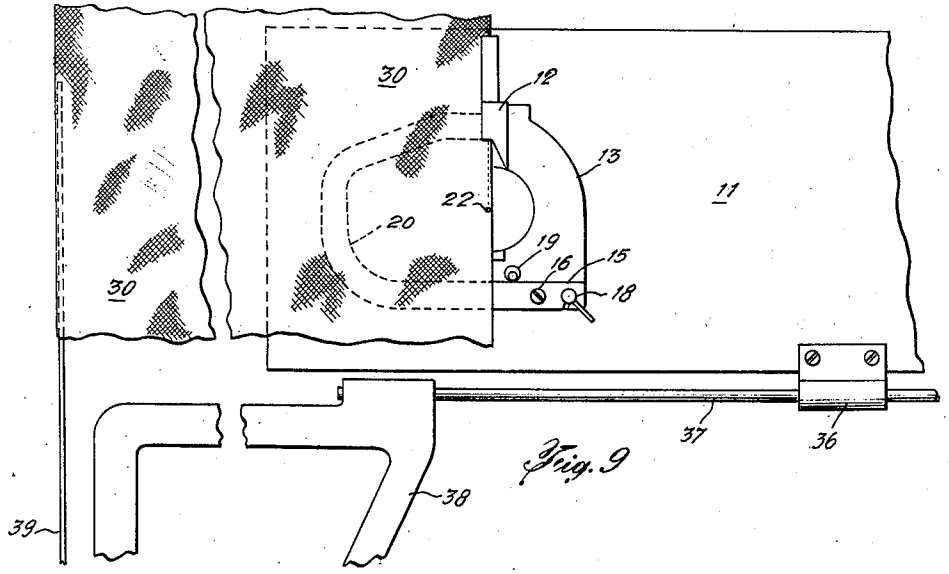
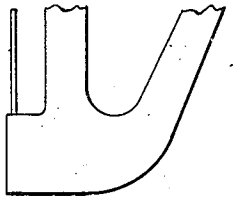


Fig. 9



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Patented Jan. 5, 1943 2,307,623

UNITED STATES PATENT OFFICE

2,307,623

SEAM OPENING DEVICE

Percy Gardner, East Orange, N. J., assignor to Lever Bias Machine Corporation, New York, N. Y., a corporation of New York

Application October 11, 1939, Serial No. 298,907

3 Claims. (Cl. 112—217)

This invention relates to new and useful improvements in seam opening apparatus.

It has for an object the certain control of the sewed material all the way from the point of entrance into the apparatus past the stitching point to the turning point.

A further object is to combine with the above achievement that of pulling the material through the apparatus by means of the pressing and pulling rollers and using the sewing device not to feed but merely to sew and momentarily clamp the material each instant it is being sewed.

Generally speaking the invention comprises guiding means extending on each side of the line of stitching all the way from the sewing point to the turning point. It also comprises a sewing machine in which the presser foot is so adapted that when when each stitch is being made the foot merely clamps the layers of material, but does not in any way feed it in the customary manner.

More particularly, the invention comprises a pair of filamentary elements such as wires extending continuously from the sewing point to the turning point, one on each side of the line of stitching. Preferably the wire on the inside of the line of stitching is of larger cross section than the other and gradually gets closer and closer to the other wire as it nears the turning point.

A preferred present form of the invention is shown in the drawings, of which,

Fig. 1 is a partial plan view of the apparatus;

Fig. 2 is a longitudinal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a cross section taken on the line 3—3 of Fig. 1;

Fig. 4 is a cross section taken on the line 4—4 of Fig. 1;

Fig. 5 is a cross section taken on the line 5—5 of Fig. 1;

Fig. 6 is a partial plan view of the end of one of the wire supporting arms in Fig. 1;

Fig. 7 is a section through the sewed material showing the seam turned over and pressed flat;

Fig. 8 is a diagrammatical side view of the apparatus showing the pulling device; and,

Fig. 9 is a partial plan view showing the means for holding the folded material in a flat smooth state of tension while being sewed.

As shown in the drawings one form which the invention may assume comprises a bed plate 10 on which is placed a plate 11 cut away to receive the base 13 of a sewing machine and having a seam opener or turning device 12 at its rear end. The plate 11 has a slot 14 to receive adjusting elements 13' to adjust the plate with respect to the sewing line.

On plate 11 is adjustably mounted a bracket 15 with pivot screw 16, a slot 17 and adjusting nut 18 to enable bracket 15 to be pivoted to a desired position. On plate 11 is an adjustable cam 19 which bears against bracket 15 to limit its inward position as desired. The bracket 15 has a laterally extending curved arm 20 as shown with an end portion 28 adapted to lie close in the groove of opener 12 as seen in Fig. 3.

The sewing machine 13 is provided with a presser foot 21 which is adapted in any suitable manner to merely and only clamp but not feed the material 30 which passes thereunder. It is also provided with a sewing needle 22. The plate 11 has a wire 23 extending substantially parallel to the line of stitches from arm 25 thereon to be fastened at one end to screw 24 and at the other to screw 26 passing along the bottom of the groove in the turning device 12 as shown in Fig. 4.

The other larger wire 27 is clamped in any suitable manner to the front end of bracket 15 somewhat close to the line of stitching and then gradually approaches closer and closer thereto as it extends to the other end 28 of the bracket 15 where (as shown in Fig. 4) it lies very close. In this position the larger inner wire and the smaller outer wire are snug against each side of the line of stitches. This certain close continuous control of the material along the line of stitching gives a much more evenly turned seam and a much simpler and cheaper construction of device.

To feed the material and press it, it passes, after being turned, over roller 31 and under rollers 32 and 33 and then over roller 34 and under roller 35 thence it drops into a basket. The rollers are pressure rollers of suitable design and relation and may be driven by belting as shown. This presser and pull off constitutes the only means for advancing the material through the apparatus. The inner fold of the material across from the line of stitching may be kept fairly taut and smooth by means of spring guide rod 39 mounted on plate 38 adjustable on rod 37 also adjustable on bracket 36 fastened to plate 11 or to plate 10 as may be desired.

The bracket 15 can be swung around screw pivot 16 to swing the wire 27 away from the associated parts when adjustment or other necessity arises. The wires may be readily and

quickly replaced by others as the needs of different material may require.

While the invention is herein shown in its preferred form, it is not limited to such form and is only limited by the scope of the appended claims which express the invention as broadly as the specific structure illustrated.

What I claim as new, and desire to secure by Letters Patent, is:

1. A seam opening device for sewing machines having a base member, a sewing point, and a turning point, which comprises a plate disposed on the base member and having spaced arms on one of which is disposed an element of the seam opening device, a wire stretched between said arms and adapted to be disposed along one side of the line of sewing, a second plate disposed on the base member and pivotally associated on said member with the first plate, a wire on said second plate stretched between spaced points thereon and adapted, when the second plate is disposed in operative position, to lie on the other side of the line of sewing in close proximity to the other wire, the corresponding outer end of the second plate having a portion cooperating with the seam opening device on the first plate.

2. A seam opening device for sewing machines having a base member, a sewing point, and a turning point, which comprises a U-shaped plate disposed on the base member and having spaced arms on one of which is disposed an element of the seam opening device having a U-shaped groove therein, a wire stretched between said arms and adapted to be disposed along one side of the line of sewing, said wire at one end lying in the bottom of the groove of the seam opening element to which it is connected, a second plate disposed on the base member and pivotally associated on said member with the first plate, a wire on said second plate stretched between spaced points thereon and adapted, when the second plate is disposed in operative position, to lie on the other side of the line of sewing in close proximity to the other wire, the corresponding end of the second plate having a portion cooperating with the grooved seam opening element on the first plate.

3. A seam opening device for sewing machines having a base member, a sewing point, and a turning point, which comprises a plate adjustably secured to the base member and having spaced arms, a seam turning element disposed on the end of one of said arms, said element having a grooved U-shaped surface, a wire extending between said arms on one side of the line of sewing and adapted to lie along the bottom of the groove in said turning element, said wire extending to said turning element from a point prior to the sewing point, a second plate pivotally associated with the first plate and also having spaced arms, a wire on said second plate extending between said spaced arms and adapted to lie close to the other wire when the second plate is disposed in operative position, an element on the outer end of the second plate beyond the sewing point adapted to cooperate with the turning element on the first plate when the two plates are disposed in operative relation, the wire on the second plate also extending from a point prior to the sewing point to the cooperative element on its outer end.

PERCY GARDNER.