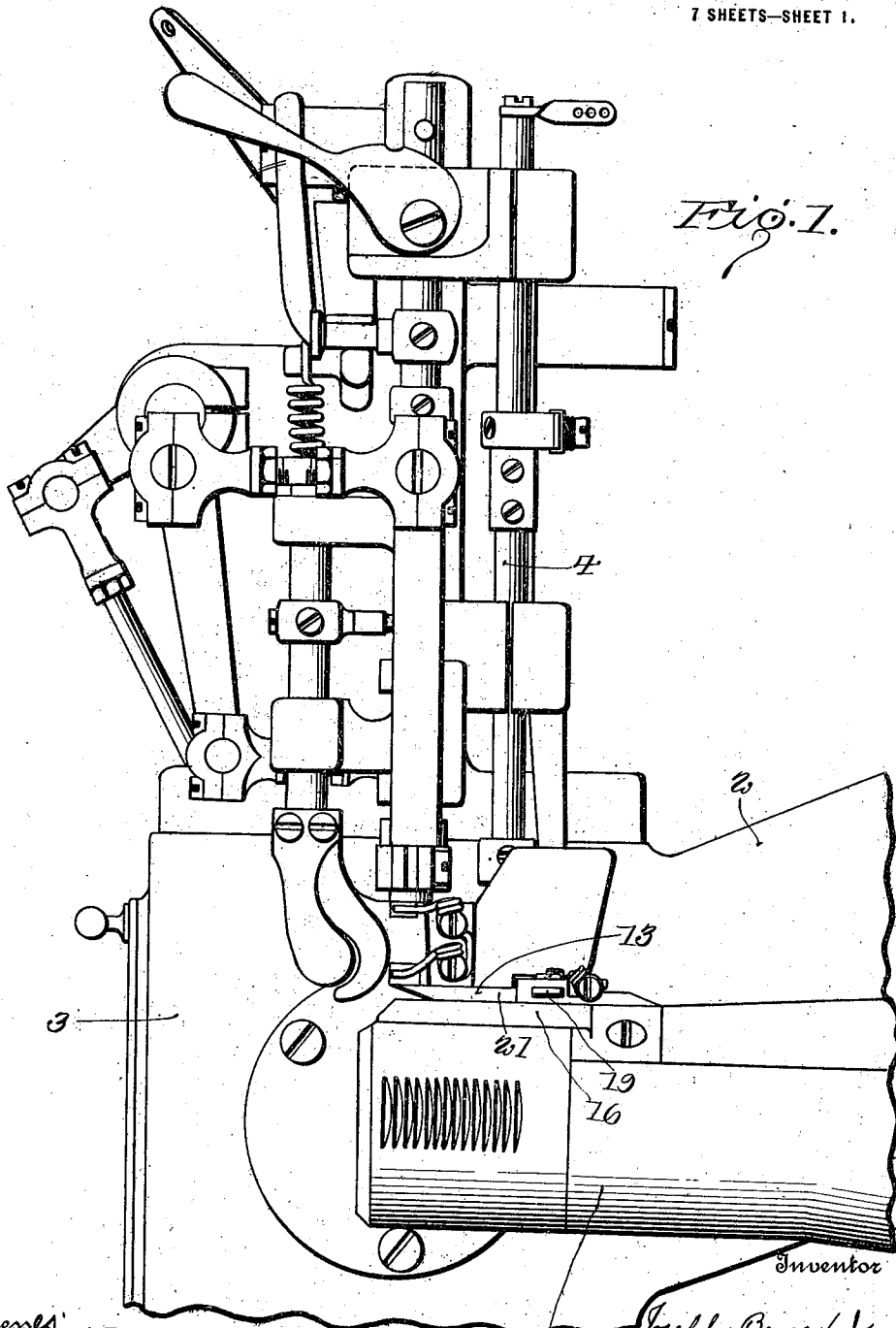


J. BERGER, JR.,
SEWING MACHINE.
APPLICATION FILED DEC. 30, 1916.

1,247,072.

Patented Nov. 20, 1917.
7 SHEETS—SHEET 1.



Witnesses
Wm. H. Murray
Wm. P. Breckton

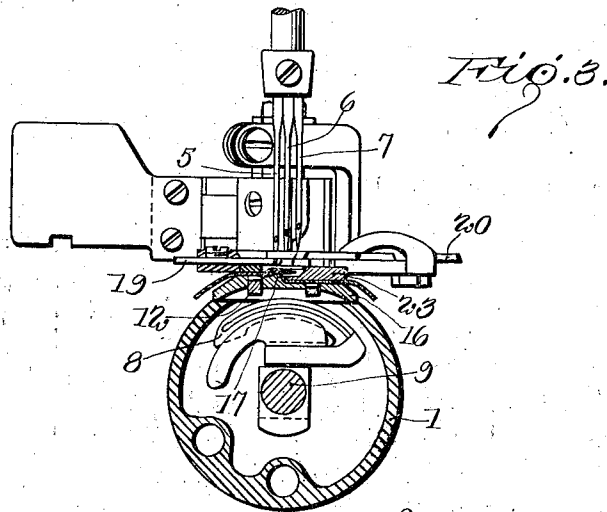
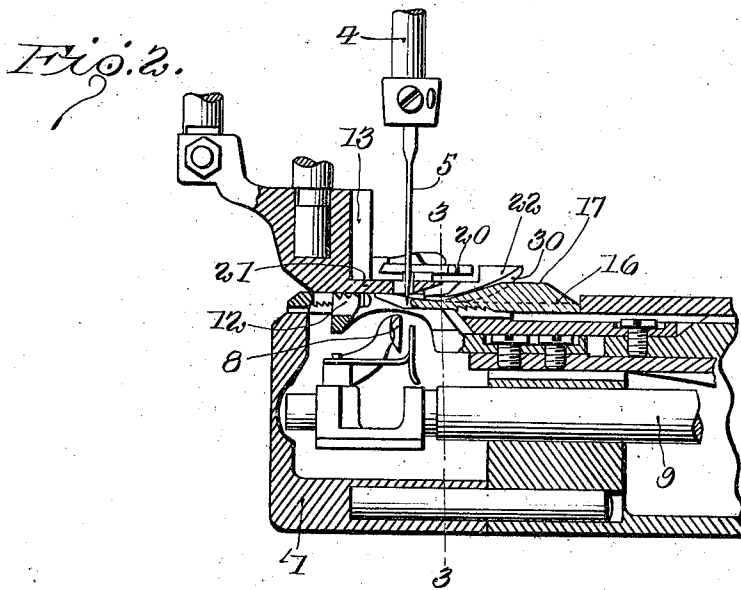
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7 SHEETS—SHEET 2.



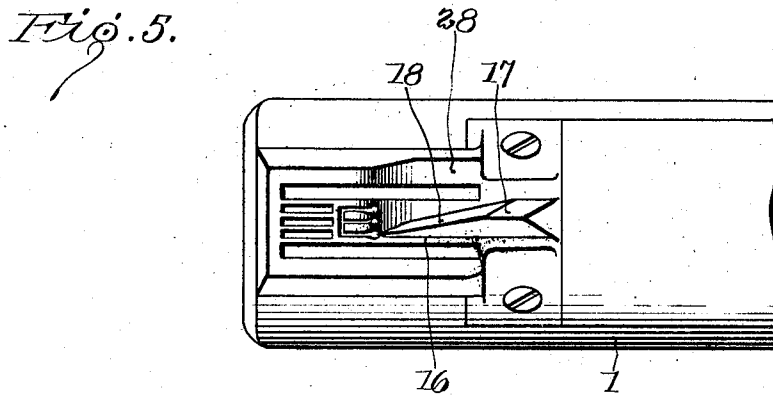
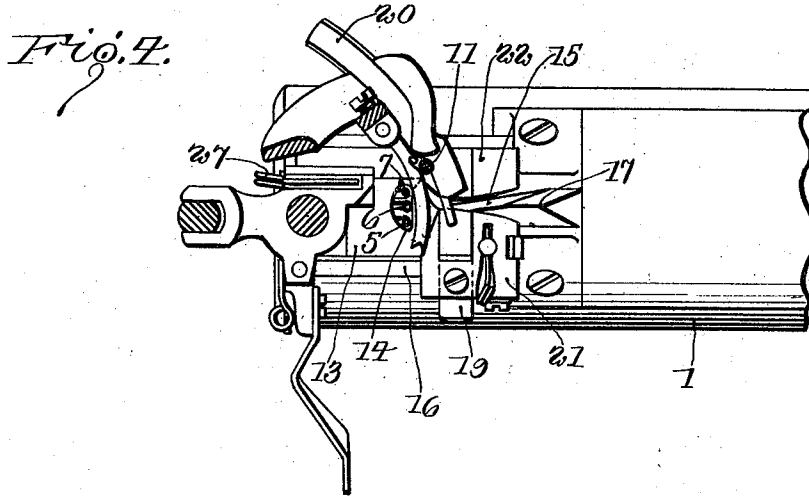
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7 SHEETS—SHEET 3.



Witnesses
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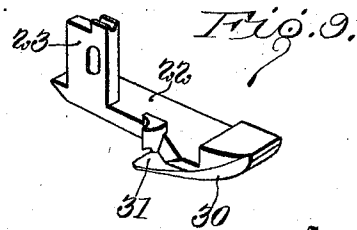
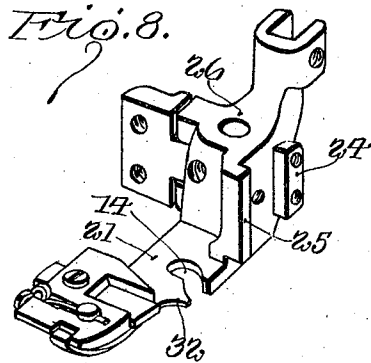
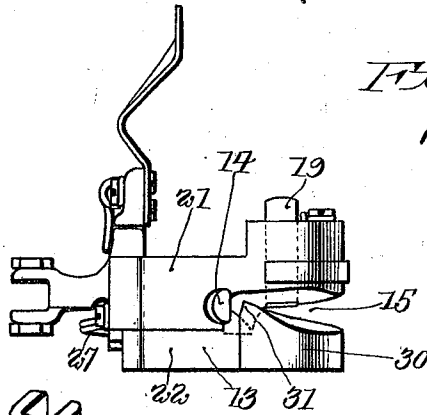
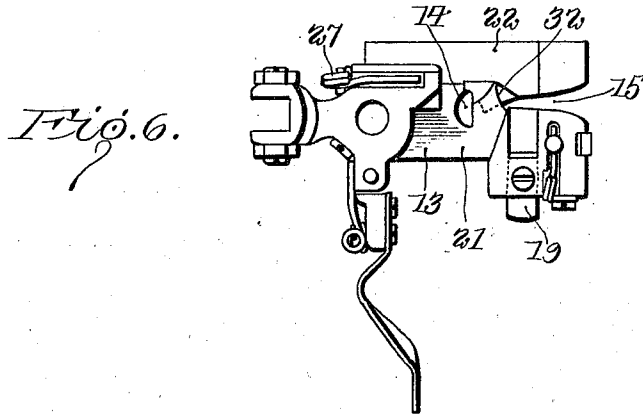
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1,247,072.

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7 SHEETS—SHEET 4.



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APPLICATION FILED DEC. 30, 1916.

1,247,072

Patented Nov. 20, 1917.
7 SHEETS—SHEET 5.

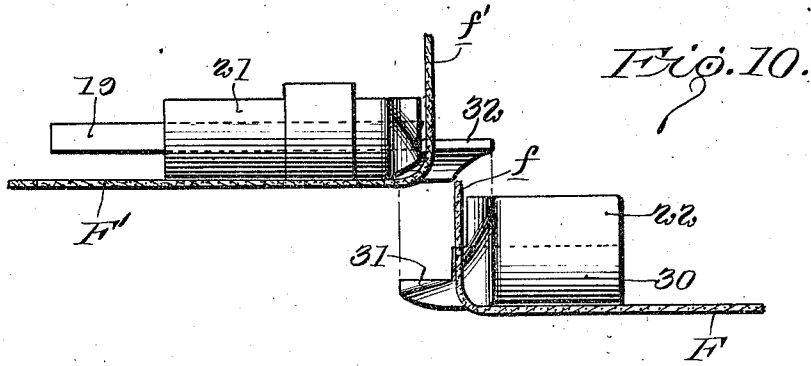


Fig. 10.

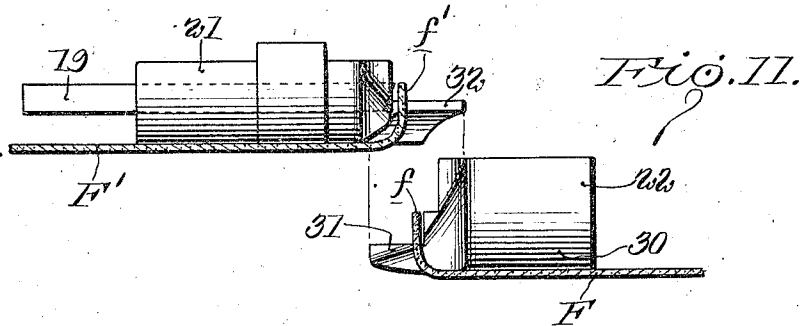


Fig. 11.

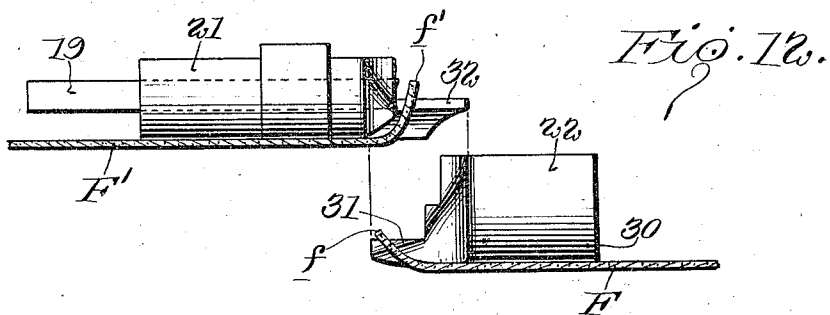


Fig. 12.

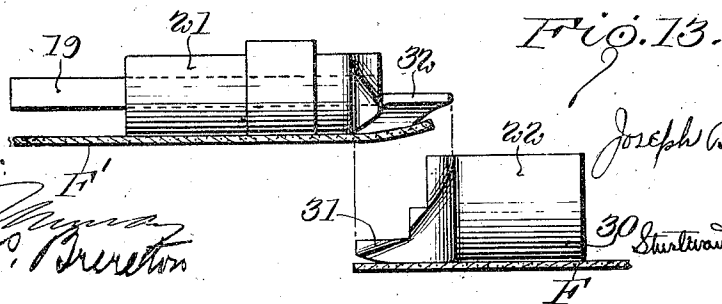


Fig. 13.

Witnesses:

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Wm. P. Burton

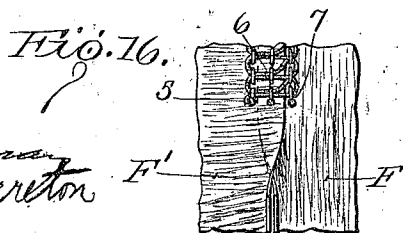
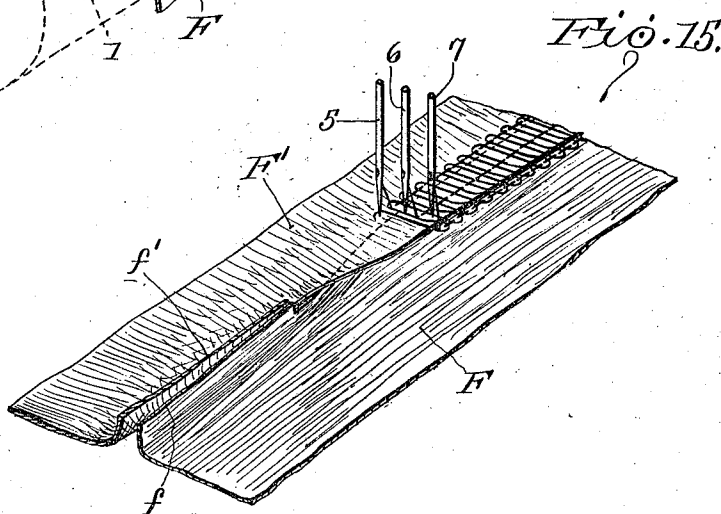
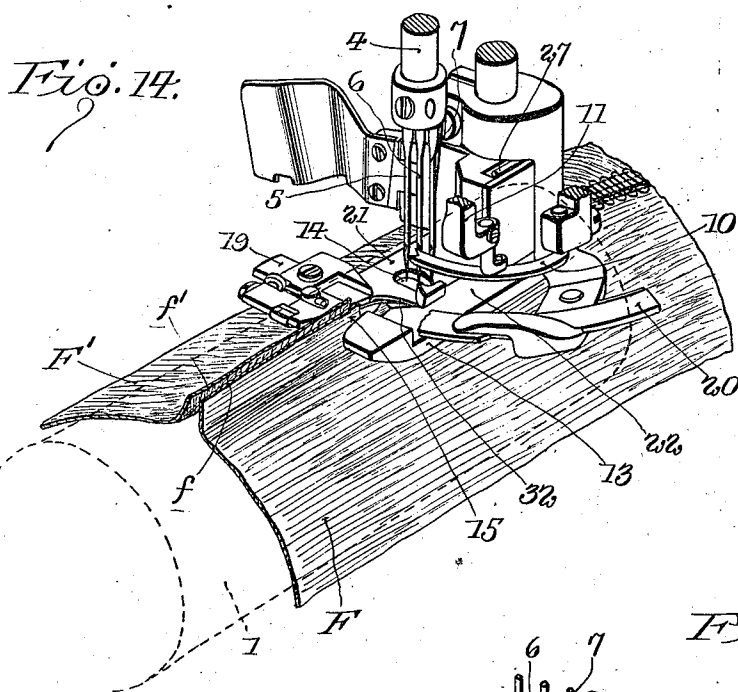
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1,247,072.

7 SHEETS—SHEET 6.



Witnesses:
 [Signature]
 Grace P. Brereton

Inventor

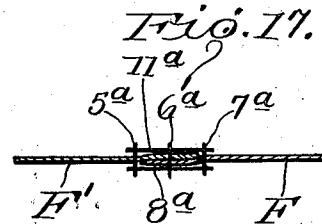
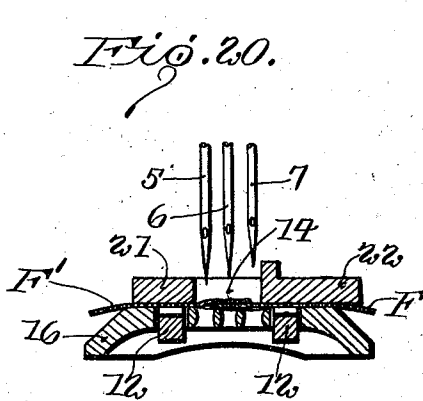
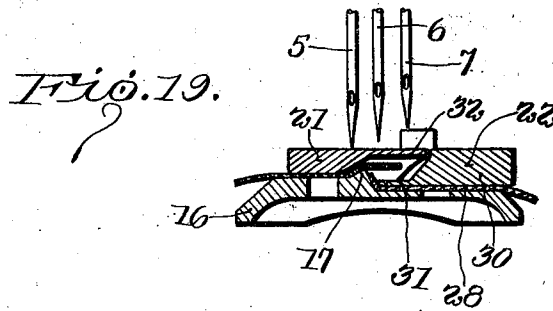
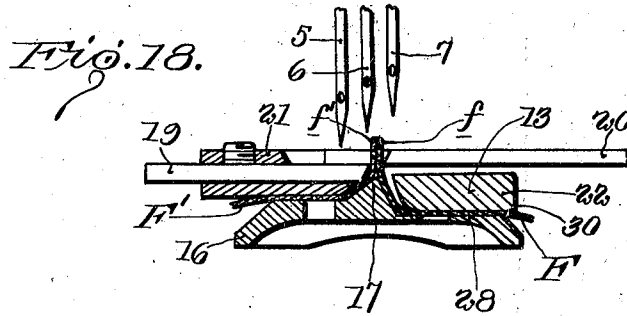
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APPLICATION FILED DEC. 30, 1916.

1,247,072.

Patented Nov. 20, 1917.

7 SHEETS—SHEET 7.



Inventor

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Witness

Albert Poplema

UNITED STATES PATENT OFFICE.

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SEWING-MACHINE.

1,247,072.

Specification of Letters Patent.

Patented Nov. 20, 1917.

Application filed December 30, 1916. Serial No. 139,823.

To all whom it may concern:

Be it known that I, JOSEPH BERGER, Jr., a citizen of the United States, residing at Utica, in the county of Oneida, State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in sewing machines, and more particularly to a sewing machine for uniting and covering the edges of fabric sections.

An object of the invention is to provide a sewing machine of the above character wherein the edge portions of fabric sections may be turned out of the plane of the fabric sections and trimmed, and afterward returned to the plane of the fabric sections in overlapped relation to each other so that the overlapped edge portions may be joined by stitching, which extends through as well as around the overlapped portions.

A further object of the invention is to provide a machine of the above character wherein the overlapped portions of the fabric sections are wholly within the limits of the stitching mechanism so that the trimmed edges will be covered by the stitching.

A still further object of the invention is to provide a sewing machine of the above character wherein the trimmed edge portions are operated upon after leaving the trimming mechanism by devices which positively turn one of the edge portions underneath the other so that the edge portions overlap before they reach the stitching mechanism.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings, which show by way of illustration one embodiment of the invention:

Figure 1 is a view in end elevation showing a part of a sewing machine embodying my improvements;

Fig. 2 is a longitudinal sectional view through the presser foot and the end of the work support, also showing the needle bar and needles;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a view, partly in top plan and

partly in section, showing the work support, the presser foot, the trimming blades, the needles, and the cross thread laying devices;

Fig. 5 is a top plan view of the work support;

Fig. 6 is a top plan view of the presser foot with the strip deflector in its inoperative position;

Fig. 7 is a bottom plan view of the same;

Fig. 8 is a perspective view of the main portion of the presser foot;

Fig. 9 is a perspective view of the auxiliary portion of the presser foot;

Fig. 10 is a diagrammatic view showing the parts of the presser foot separated and the relation of the fabric sections thereto as they enter the slot at the front end of the presser foot;

Fig. 11 is a similar view, but showing the positions of the fabric sections after they are trimmed;

Fig. 12 is a similar view, but showing the edge portion of one of the fabric sections as turned down underneath the other;

Fig. 13 is a similar view, but showing both edge portions returned to the plane of their respective fabric sections and overlapped for stitching;

Fig. 14 is a perspective view showing the work support, the presser foot, the trimming devices, the needles, and the cross thread laying devices and the fabric sections which are being joined;

Fig. 15 is a perspective view showing, more or less diagrammatically, the needles and the manner of manipulating and joining the fabric sections;

Fig. 16 is a plan view of a portion of the fabric sections as shown in Fig. 15;

Fig. 17 is a view showing, more or less diagrammatically, the overlapped fabric sections and the relation of the stitching threads joining the same;

Fig. 18 is a transverse sectional view through the work support and the presser foot at a point in front of the trimming blades;

Fig. 19 is a similar transverse sectional view at a point in rear of the trimming blades; and

Fig. 20 is a similar transverse sectional view substantially at the stitching point.

My invention is directed to a sewing machine which is especially adapted for trimming the edges of fabric sections, then over-

lapping the trimmed edge portions and uniting said overlapped trimmed edge portions by stitching. The edge portions of the fabric sections to be united are upturned and are directed to the trimming mechanism in part by a rib on the throat plate and in part by the slotted end of the presser foot which receives the up-turned portions. The trimming mechanism includes horizontally disposed trimming blades which cooperate to trim these up-turned portions. The rib is cut-away on one side thereof in rear of the trimming point so that the edge portion at that side of the rib may be turned down underneath the other edge portion. The presser foot is provided with a guide which positively turns down this edge portion of the fabric section while the other edge portion is positively held raised. There is a clearance space in the foot over this guide for the other or upper edge portion. The rear end of the slot in the foot positively turns down this upper edge portion so that said edge portions are overlapped before they reach the stitching mechanism. The distance of the trimmer blades above the work support is so proportioned that the overlapped edges lie within the limits of the stitching mechanism. The stitching mechanism preferably consists of three needles with which a single threaded looper cooperates beneath the work support, and a cross thread laying mechanism cooperates with the needles above the work support, so that the overlapped edge portions are not only joined but the trimmed edges are covered by the stitching.

My improvements may be applied to sewing machines of various types and, therefore, I have illustrated in the drawings only a portion of one of the types of machine to which the invention is adapted. In the type of machine illustrated the material is fed off over the end of a cylindrical work support which is indicated at 1 in the drawings. This work support is carried by a projecting arm 2 which in turn is carried by a standard 3. The standard also carries an overhanging arm in which a needle bar 4 is mounted. The needle bar 4 is reciprocated by the usual mechanism and is provided with three needles, indicated at 5, 6 and 7. Cooperating with the needles below the work support is a looper 8 which is located in the work support, and this looper is carried by a looper supporting shaft 9. Cooperating with the needles above the work support is a thread hook 10 which is adapted to engage a cross thread extending through the fixed guide 11 and lay said cross thread in the form of a loop for certain of the needles to enter so that the cross thread will connect all three of the needle threads. The looper cooperating with all the needles beneath the work support causes

the looper thread to concatenate with all three of the needle threads.

The material is fed along the work support by a feeding device 12 which is shown as constructed so as to feed the material off from the end of the work support. The material is held on the work support by a presser foot 13. The presser foot is formed with an opening 14 for the needles and with a slot 15 which is in front of the needle opening and leads from the front end of the presser foot. This slot is adapted to receive the up-turned edge portions of fabric sections. The throat plate 16 of the machine is formed with an inverted V-shaped rib 17 which extends into the slot 15. This rib 17 is cut-away, as indicated at 18 in Fig. 5 of the drawings. Mounted on the presser foot is a fixed trimming blade 19. Cooperating with this fixed blade is a movable blade 20. This movable trimming blade moves back and forth in a horizontal plane and is adapted to trim the up-turned edge portions of the fabric sections which are fed along the slot 15.

The presser foot is formed with a main section 21 and an auxiliary section 22. The auxiliary section 22 is carried by a shank 23 which slides between lugs 24 and 25 carried by the main shank 26 supporting the main section 21 of the presser foot. A spring 27 bearing against the upper end of this shank 23 yieldingly forces the auxiliary section downwardly, and the downward movement is limited by a suitable stop pin. The throat plate is formed with a depressed section 28 at one side of the rib 17, and the auxiliary section 22 of the presser foot has a depending portion 30 which is located so as to hold the fabric on this depressed section 28. The auxiliary section 22 is provided with a projecting guide 31 which extends into the slot 15 and close to the cut-away portion 18 of the rib. The main section of the presser foot is formed with a projecting guide 32 which forms the rear wall of the slot 15.

The two fabric sections to be joined are indicated at F and F', in the drawings. The edge portions f and f', respectively, of these fabric sections are turned up, as shown in Figs. 14 and 15 of the drawings, and these up-turned portions are guided into the slot in the presser foot. The rib 17 serves as a support for these up-turned portions and directs the same into the slot in the presser foot. The movable trimming blade 20 operating across the slot trims the up-turned portions of the fabric sections. The throat plate, as above noted, has a depressed section, and the surface thereof is slightly lower than the surface of the throat plate on the other side of the rib 17, as clearly shown in Fig. 18 of the drawings. This elevates the section F' above the section F and facilitates the turning of the edge por-

tion *f* underneath the edge portion *f'*. The guide 31, which is located just in rear of the trimming blades, operates upon the edge portion *f* after it is trimmed to crowd the same underneath the edge portion *f'*. There is a clearance space above this guide 31 for the edge portion *f'*, and the guide 32 which is in reality the rear end of the slot 15 serves to turn down the edge portion *f'* on top of the edge portion *f*. Thus the two edge portions are overlapped before they cross the needle opening 14 in the presser foot.

The needles are so disposed that the center needle 6 passes through the overlapped edge portions of the fabric sections, while the needle 5 passes through the fabric section *F'* only and the needle 7 passes through the fabric section *F* only. In Fig. 17 of the drawings, the thread of the needle 5 is indicated at 5^a; the thread of the needle 6 is indicated at 6^a, and the thread of the needle 7 is indicated at 7^a. The cross thread laid by the hook 11 is indicated at 11^a, and the looper thread is indicated at 8^a. It will be seen from this figure that the needle thread 6^a passes through the overlapped fabric sections, while the needle threads 5^a and 7^a pass respectively through the fabric sections *F'* and *F* only. The cross thread and the looper thread not only join the needle threads 5^a and 7^a, but they cover the trimmed edges of the fabric sections which lie close to these threads. In other words, the overlapped sections lie wholly within the limits of the stitching mechanism.

The trimming blades 19 and 20 are disposed a certain distance above the throat plate on which the fabric sections rest so that the up-turned trimmed edges when brought back into the plane of the fabric sections will lie close to the outer needles, respectively, but within the paths of the needles. Inasmuch as the throat plate on one side of the rib 17 is depressed below the surface on the other side of the throat plate, the rib, as clearly shown in Fig. 18 of the drawings, is at one side of the center needle. This insures the overlapped edge portions being properly centered between the needles when brought back to the plane of the fabric sections, notwithstanding that one of the up-turned edges is of greater height than the other.

The presser foot *per se* forms no part of the present invention, but is shown, described and claimed in my co-pending application Serial No. 139,820, filed of even date herewith. The throat plate *per se* likewise forms no part of this invention, but is shown, described and claimed in my co-pending application, Serial No. 139,824, filed of even date herewith.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from

the spirit of this invention as set forth in the appended claims.

Claims:

1. The combination of stitching mechanism adapted to form covering stitches, of a work support having a rib for guiding and supporting upturned edge portions of fabric sections to be united, a trimming mechanism including horizontal trimming devices for trimming the upturned edge portions, means located between the trimming mechanism and the stitching mechanism for positively turning one of the trimmed edge portions underneath the other trimmed edge portion whereby said trimmed edge portions are overlapped before they reach the stitching mechanism, said work support having a depressed section at one side of the rib and in front of the stitching mechanism whereby one section of the fabric is guided underneath the presser foot in a lower plane than the other to facilitate the overlapping of the edge portions of the fabric sections.

2. The combination of stitching mechanism adapted to form covering stitches, a work support having an inverted V-shaped rib for guiding and supporting upturned edge portions of fabric sections to be united, the trimming mechanism including horizontal trimming devices for trimming the upturned edge portions, means located between the trimming mechanism and the stitching mechanism for positively turning one of the edge portions underneath the other trimmed edge portion whereby said trimmed edge portions are overlapped before they reach the stitching mechanism, said V-shaped rib being cut away to permit the underneath edge portions to be turned down.

3. The combination of stitching mechanism adapted to form covering stitches, a work support having an inverted V-shaped rib for guiding and supporting upturned edge portions of fabric sections to be united, the trimming mechanism including horizontal trimming devices for trimming the upturned edge portions, means located between the trimming mechanism and the stitching mechanism for positively turning one of the edge portions underneath the other trimmed edge portion whereby said trimmed edge portions are overlapped before they reach the stitching mechanism, said V-shaped rib being cut away to permit the underneath edge portion to be turned down and said work support having a depressed section alongside of said rib on the cutaway side thereof to facilitate turning of the lower edge portion underneath the other edge portion.

4. The combination of a work support, stitching mechanism including three needles, a cross thread laying device cooperating with the needles above the work support, and a looper cooperating with the needles

beneath the work support, a trimming mechanism including horizontal trimming devices located in front of the needles, means for directing the upturned edges of the fabric sections to the trimming mechanism, and means located between the trimming mechanism and the needles for positively turning the trimmed edge portions into overlapped relation so that said overlapped edge portions may be joined by the stitching mechanism, said trimming mechanism being disposed relative to the work support so that the overlapped edge portions lie entirely between the outer needles whereby the trimmed edges will be covered by the stitches.

5. The combination of a work support, stitching mechanism including three needles arranged in line, a cross thread laying device cooperating with the needles above the work support, a looper cooperating with the needles below the work support, trimming mechanism including horizontal trimming blades located in front of the needles, means for directing the up-turned edges of fabric section to the needles, a guide located between the trimming mechanism and the needles for positively crowding one of the up-turned edges under the other, and guid-

ing means for turning the last-named edge portion down onto the first-named edge portion whereby said edge portions are overlapped substantially in the plane of the fabric sections.

6. The combination of a work support, stitching mechanism including three needles arranged in line, a cross thread laying device cooperating with the needles above the work support, a looper cooperating with the needles below the work support, trimming mechanism including horizontal trimming blades located in front of the needles, means for directing the up-turned edges of fabric sections to the needles, a guide located between the trimming mechanism and the needles for positively crowding one of the up-turned edges underneath the other, and guiding means for turning the last-named edge portion down onto the first-named edge portion whereby said edge portions are overlapped substantially in the plane of the fabric sections.

In testimony whereof, I affix my signature in the presence of two witnesses.

JOSEPH BERGER, JR.

Witnesses:

A. J. BAECHLE,
ARTHUR L. WILCOX.

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