

1,216,475.

C. A. LOOMIS.
FOLDER.
APPLICATION FILED DEC. 2, 1914.

Patented Feb. 20, 1917.
4 SHEETS—SHEET 1.

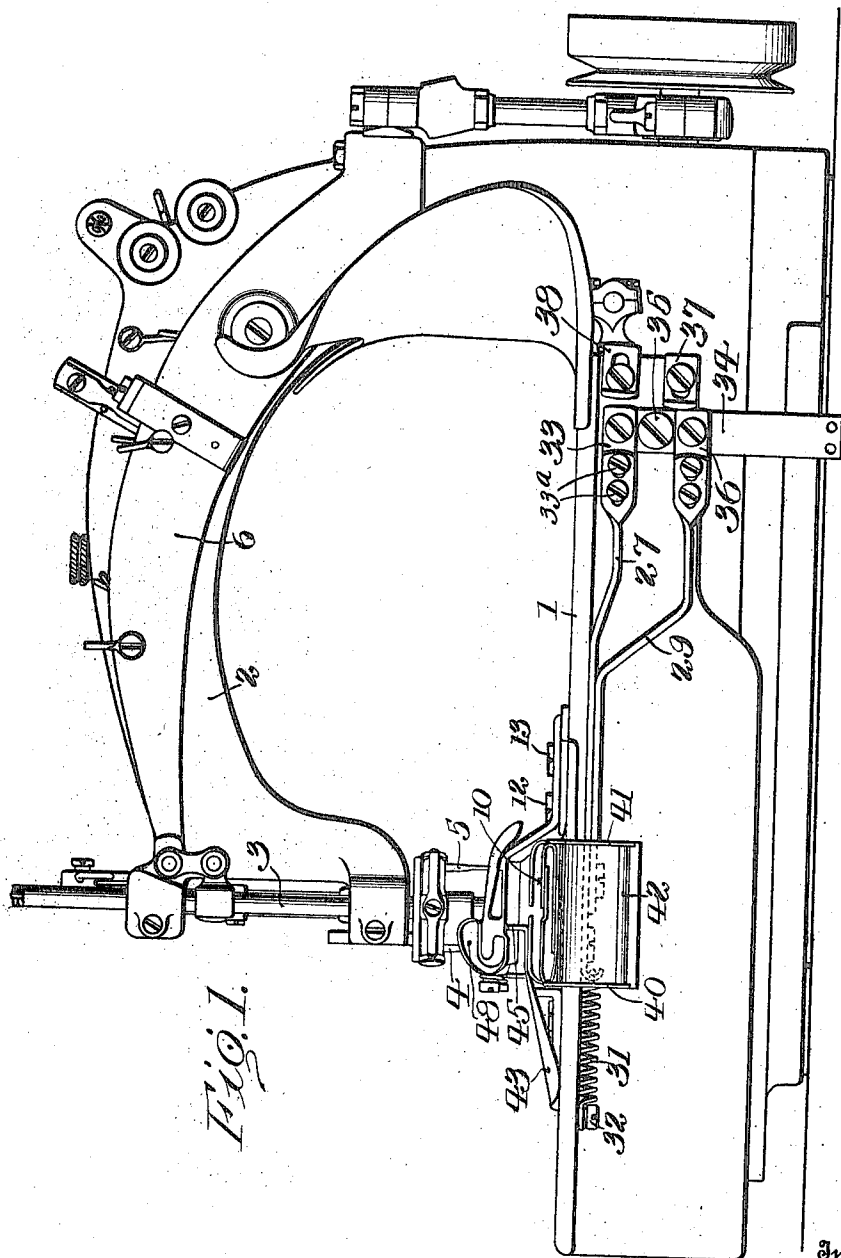


Fig. 1.

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4 SHEETS—SHEET 2.

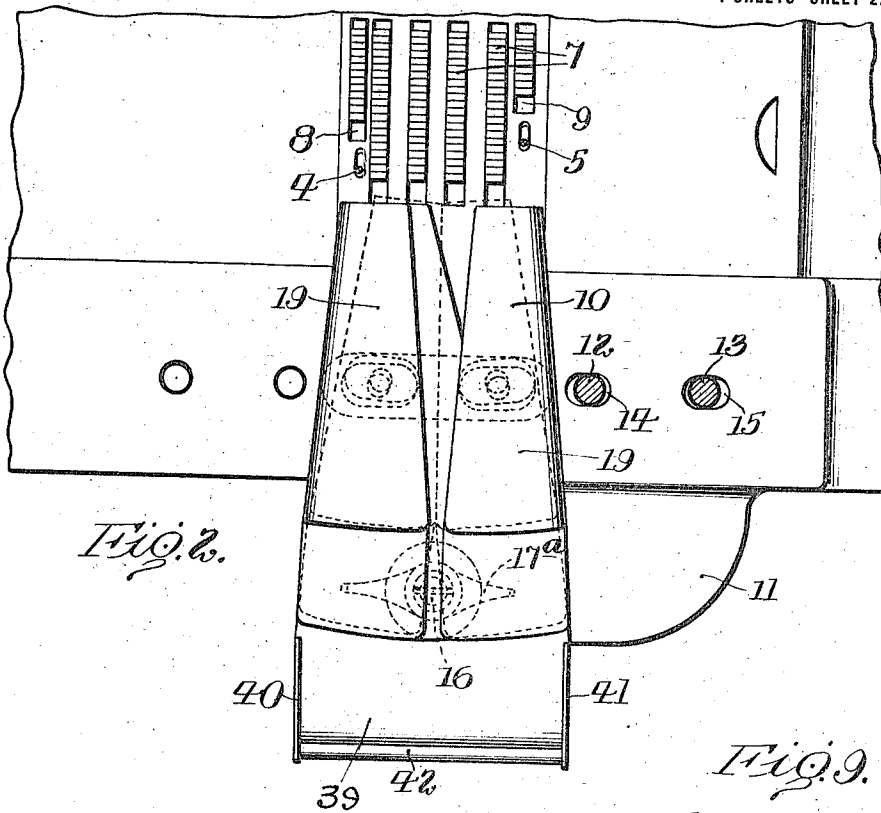


Fig. 2.

Fig. 9.

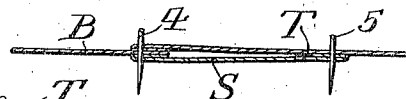


Fig. 3.

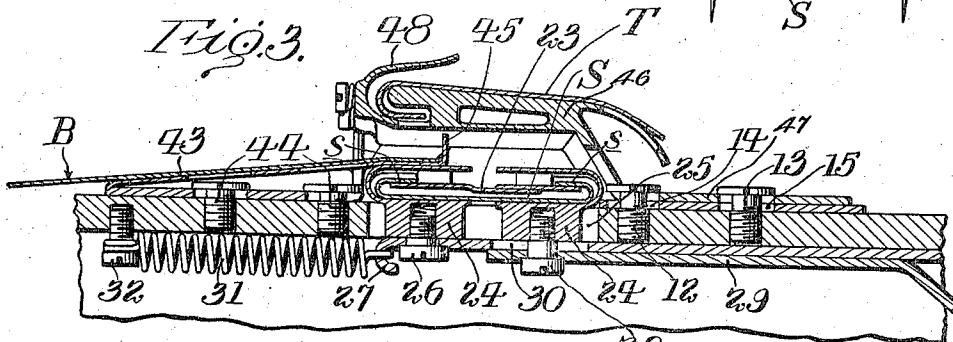


Fig. 10.

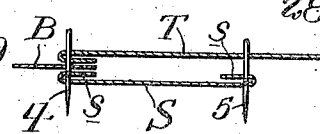
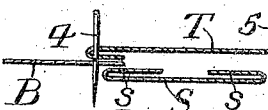


Fig. 11.



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4 SHEETS—SHEET 3.

Fig. 4.

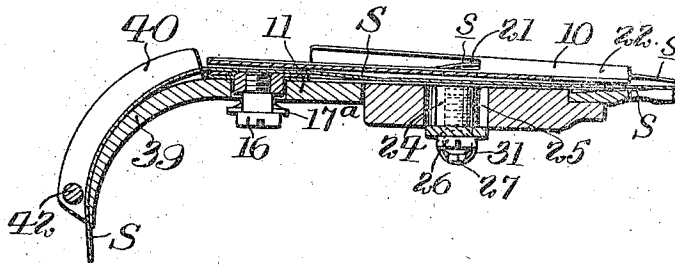


Fig. 5.

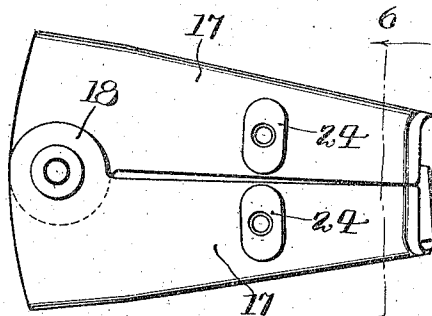


Fig. 7.

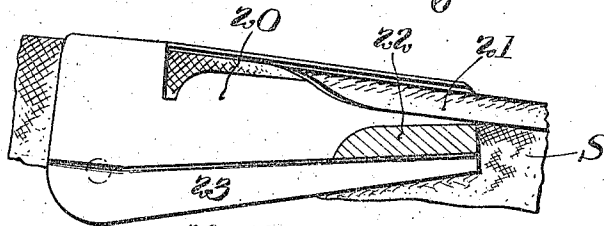


Fig. 8.

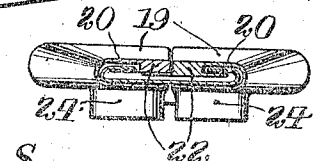
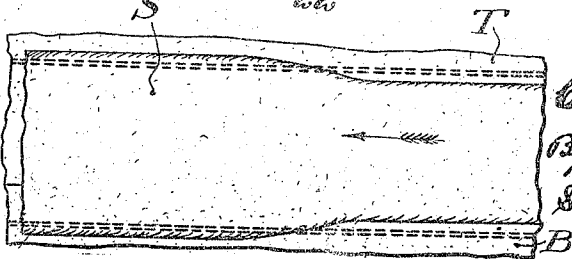


Fig. 6.



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4 SHEETS—SHEET 4.

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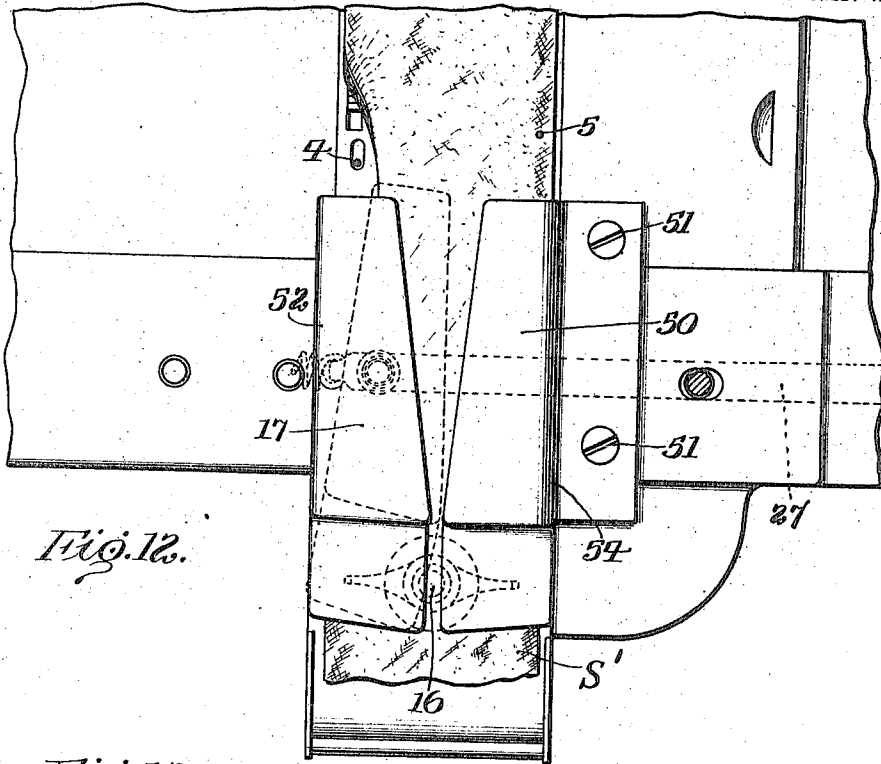


Fig. 12.

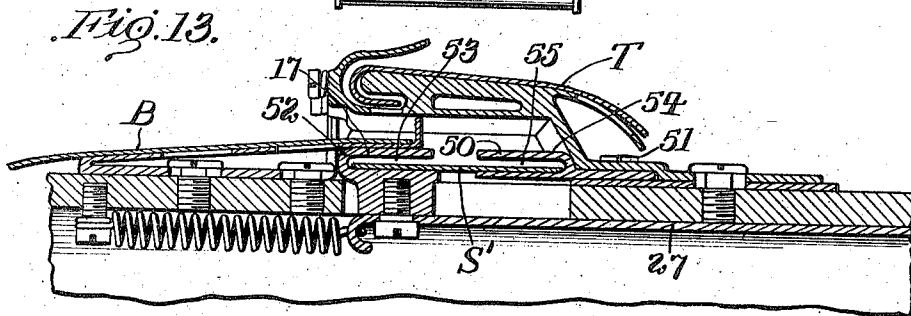


Fig. 13.

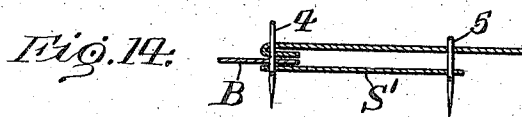


Fig. 14.

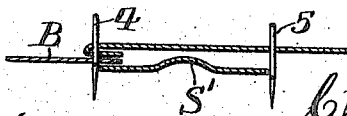


Fig. 15.

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UNITED STATES PATENT OFFICE.

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FOLDER.

1,216,475.

Specification of Letters Patent.

Patented Feb. 20, 1917.

Application filed December 2, 1914. Serial No. 875,111.

To all whom it may concern:

Be it known that I, CHARLES A. LOOMIS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Folders, 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 guides or folders for sewing machines, and more particularly to guide a strip to a stitching mechanism, whereby the same is secured to a body fabric, or the like.

An object of the invention is to provide a guide or folder of the above character with means for supporting the same, whereby said guide or folder may be shifted without stopping the stitching mechanism for withdrawing the edge of the material from the range of the needle.

A further object of the invention is to provide a shiftable guide or folder of the above character with means for automatically returning the same to its normal position whereby the folded edge of the material may be again brought into the range of the needle without stopping the stitching mechanism.

A still further object of the invention is to provide a folder for folding in the opposite edges of a strip or strap and directing the same to spaced needles of a stitch forming mechanism, which folder is so constructed that the same may be collapsed or contracted for withdrawing the folded edges from the range of the needles without stopping the stitching mechanism, so that the folded strip or strap will pass between the needles without being stitched to the body fabric and which may be again expanded for returning the folded edges to the range of the needles, at the will of the operator.

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

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

Figure 1 is a front view of a sewing machine having my improved folder applied thereto;

Fig. 2 is a plan view of the work support, showing the feed dogs; the needles and my improved folder in position for guiding a folded strip to said needles and in dotted lines the position of the folder when collapsed or contracted for guiding the strips between the needles;

Fig. 3 is a transverse sectional view through the work support and through the folder and also through an auxiliary folder which may be used in connection with my improved collapsible folder;

Fig. 4 is a longitudinal sectional view centrally through the folder and also through the work support at the point of attachment of the folder thereto;

Fig. 5 is a bottom plan view of the movable parts of my improved folder;

Fig. 6 is a sectional view through the same near the delivering end thereof on the line 6—6, Fig. 5;

Fig. 7 is a detail partly in plan and partly in horizontal section, showing the folding tongue and the manner of folding over one of the edges;

Fig. 8 is a bottom plan view, showing a strap stitched to a body fabric and the edges of the strap drawn in by collapsing the folder, so as to be out of the range of the stitching mechanism;

Fig. 9 is a sectional view, showing a strap stitched to a body fabric, which is made in sections;

Fig. 10 is a diagrammatic view, showing the positions of the sections of the body fabric and the strap relative to the needles when the strap is being stitched to the body fabric;

Fig. 11 is a similar view, showing the position of the edges of the strap relative to the needles when said edges are withdrawn from the range of the needles;

Fig. 12 is a view similar to Fig. 2, showing a modified form of the invention, 100

wherein one edge only of the strip is moved to withdraw the same from the range of the needles;

Fig. 13 is a transverse sectional view similar to Fig. 3, showing the folder moved for guiding a selvage edge strip;

Fig. 14 is a diagrammatic view, showing a selvage edge strip attached to a body fabric; and

Fig. 15 is a similar view, showing the edges of the strip withdrawn from the range of the needles.

The invention, as above noted, is directed broadly to a guide, whether the guide operates upon a strip having selvage edges or whether it operates upon a strip wherein the edges are to be folded. I have, however, shown and described in detail the guiding device as embodied in a folder for folding the edges of the strip.

In the drawings, I have shown my improved folder applied to a sewing machine comprising a work support 1, and an overhanging arm 2, in which reciprocates the needle bar 3 carrying two spaced needles 4 and 5. The needle bar 3 is reciprocated by a needle lever 6 which is oscillated in the usual manner. Coöperating with each needle beneath the work support is a suitable complementary stitch forming mechanism. In Fig. 2 of the drawings, I have shown the feed sections 7, which operate through the usual feed slots 8 and 9, and also needle openings which receive respectively the needles 4 and 5. Mounted in front of the needles is my improved folder 10. The folder is carried by a suitable supporting shank 11, which is adjustably attached to the work support by screws 12 and 13 passing through slots 14 and 15, respectively, formed in the shank. The folder proper is formed in two sections, each of which is pivoted to the shank by a pivot bolt 16. This pivot bolt passes through an opening in the shank and a tension washer 17^a engaging the head of the bolt bears against the underface of the shank.

Each section of the folder consists of a bottom plate 17 which is provided with a projecting ear 18 adapted to engage the pivot bolt 16. The bottom plates at their outer edges are curved upwardly and inwardly forming the top plates 19 which are spaced from the bottom plates. Each top plate also supports a folding tongue 20, which is spaced from the bottom plate and the upwardly turned part thereof, so that the edge of the fabric may be folded over on to said folded tongue, as indicated at 21 in Fig. 7 of the drawings. The extreme inner edge of the top plate 19 is separated from and secured to the folding tongue by a solid section 22. The sections of the folder are duplicates with the exception that there is a laterally projecting extension 23

on one of the folding tongues which projects underneath the folding tongue on the other section. The purpose of this extension is to keep the body of the strap flat as it passes through the folder. Each section of the folder is provided with a downwardly projecting lug 24. These projecting lugs extend through a slot 25 in the work support. One of these projecting lugs is secured by a screw 26 to a sliding bar 27. The other projecting lug 24 is secured by a screw 28 to a sliding bar 29. The sliding bar 27 is slotted at 30, so that the screw 28 may pass through the bar and said bar still be permitted to reciprocate within certain limits. A spring 31 is attached to the sliding bar 27 at one end and at the other end to a bolt 32 attached to the underface of the work support. This spring normally tends to pull the sliding bar 27 to the left, as viewed in Fig. 3 of the drawings. The sliding bar 27 is adjustably attached at 33^a to an arm 33 pivoted to the upper end of an operating lever 34. The operating lever 34 is pivoted at 35 to the downwardly projecting apron of the work support. The sliding bar 29 is also adjustably attached to an arm 36 which is pivotally connected to the lever 34. The pivot 35 of the lever is between the arms 33 and 36, so that as said lever swings about its pivot the sliding bar 27 will be forced in one direction when the sliding bar 29 is forced in the other direction. Attached to the apron is an adjustable stop 37. The spring 31 normally retains the lever 34, so that it engages the stop 37. The lever may be shifted by the operator by a suitable knee shift or treadle until it engages the stop 38. This shifting of the lever 34 moves the sections of the folder about the pivot bolt 16. The stops 37 and 38 are respectively below and above the pivot 35.

The shank of the folder extends forwardly and is bent downwardly to form a receiving guide 39 for the strip to be folded. Said guide has upturned edges 40 and 41 which direct the strip into the folder. A rod 42 extends between said upturned edges and the strip indicated at S, Fig. 4, passes underneath the rod between the two guiding edges 40 and 41 and through the folder. As clearly shown in Fig. 3 of the drawings, the strip S as it is passing through the folder has its side edges s turned over on to the upper face of the strip. When the folder is in the position shown in full lines in Fig. 2, the folded in edges of the strip will be presented to the needles 4 and 5, and said folded edges will be stitched to a body fabric passing above the strip. In Fig. 10 of the drawings, I have shown diagrammatically the strip S being stitched by the needles 4 and 5 to a body fabric B, which, as herein shown, consists of two sections.

By shifting the lever 34, the sliding bars 27 and 29 will be moved in opposite directions, so as to bring the lugs 24 near together and this moves the sections of the folder about the pivot bolt 16 to the dotted line position shown in Fig. 2. In this position, the edges of the strap will be turned in to a greater extent, as indicated at S in Fig. 11 of the drawings, and the folded edges of the strap will now pass between the two needles 4 and 5 and will not be stitched to the body fabric. As soon as the operator releases the lever the spring will automatically return the sections of the folder to their normal full line position, as indicated in Fig. 2, and this will in turn bring the folded edges of the fabric again into the range of the needles. It will thus be seen that I have provided a folder which may be, at the will of the operator and without stopping the stitching mechanism, collapsed or contracted, so as to withdraw the edges of the strip or part being folded out of range of the stitching needles and upon releasing the controlling means the folder will at once be expanded so as to return the edges of the folded strips to the range of the needles.

There are many purposes to which my improved folder may be applied. One of these purposes is the stitching of a strap to a garment, as, for example, in the placing of a band on bib overalls. In this operation, it is desirable to leave the strap unattached at each edge of the bib for further finishing processes in the garment.

In Fig. 3 of the drawings, I have shown an edge guide 43, which is secured to the work support by screws 44, and said edge guide has an upwardly turned lip 45 for directing the top of the trousers for forming the overalls. This edge guide extends above a portion of my improved collapsible folder which guides the strap which is to be stitched to the trousers and bib of the overalls. Located over the edge guide and the collapsible folder is a second folder 46 which is carried by a shank 47 secured to the work support by the screws 12 and 13 which hold the shank of the collapsible folder. This folder 46 has a guiding wall 48 which receives the edge of the bib and turns the same underneath the body portion of the bib. The folded edge of the bib and the edge of the trousers are adapted to be stitched by the needle 4, as clearly shown in Fig. 9 of the drawings, where the bib is indicated at T, the trousers at B and the strap at S. The other edge of the strap is secured to the bib by the needle indicated at 5. It will be noted that the bib and the trousers which are to be joined are guided through their respective folder and guide and are secured by the needle 4. The folder and the guide are supported independently of my improved collapsible folder, which may be at

the will of the operator contracted or expanded, as desired. The folder is first contracted, so that the strip as it passes through the folder will have its edges withdrawn from the range of the needles and during the first part of the operation the bib will be attached to the trousers and the line of stitching formed by the needle 5 will pass through the top of the bib without in any way securing the straps thereto. This is indicated in Fig. 8 of the drawings, wherein the direction of stitching is indicated by the arrow. When that portion of the garment is reached where it is desired to secure the strap thereto, the operator releases the lever 34 and the spring 31 at once automatically expands the folder, thus bringing the folded edges of the strap within range of the needles which now pass through the strap and secure the same to the bib and the trousers covering the connecting seam between these parts. When the opposite side of the bib is reached, the folder is again collapsed so as to draw the edges of the strap out of the range of the needles, thus leaving the free ends of the strap at each side of the bib for the further finishing of the garment.

While I have described my invention as applied to a collapsible folder adapted for withdrawing the edges of a strap from the range of the needles at the will of the operator, it will be obvious that the collapsible folder may be used for other purposes, and may also be used for withdrawing one edge only of a folded part from the range of the stitching mechanism without disturbing the other edge of the folded part at will or returning the same to the range of the stitching mechanism whenever it is desired.

In Fig. 12 of the drawings, I have shown such modified form of the invention. In this view, the section 50 of the folder is fixed to the work support by suitable screws 51. The section 17 is similar to that above described where both sections of the folder are shiftable. This section 17 is pivoted at 16 to the fixed section of the folder and is moved back and forth by a rod 27 which is secured to a lug carried by the folder. The needles are indicated at 4 and 5. It will be apparent from the above description that one section of the folder only may be shifted for withdrawing one edge of the strip from the range of one of the needles, while the other edge is stitched to the body fabric.

In Fig. 13, I have shown the sections of my improved folder as adapted to guide a previously folded edge or a strip having a selvage edge, that is, said sections of the folder do not have folding lips but merely guiding spaces. The section 52 is formed from a strip of metal bent into U-shape, so as to provide a pocket 53, while the section 54 is also similarly constructed so as to provide a pocket 55. The strip S', as

shown in Fig. 13, is a selvage edge strip and the edges are guided by the end walls of the pockets 53 and 55. The two sections 52 and 54 are mounted so that they may be shifted, as described in connection with the folder above.

In Fig. 14 of the drawings, I have shown diagrammatically a strip S' being stitched to a body fabric B by the needles 4 and 5.

In Fig. 15, I have shown the folder contracted so as to withdraw the edges of the strip S' from the range of the needles, said strip between its edges being buckled or bent for this purpose.

It is obvious that minor changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention, as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with stitch forming mechanism, including spaced needles, and a feeding mechanism, of a folder having means for guiding and folding the opposite edges of a strip and directing the said opposite edges to the respective needles, and means whereby said folder may be contracted within the limit of the needles for simultaneously withdrawing said folded edges from the range of the needles without stopping the stitching mechanism.

2. The combination with stitch forming mechanism, including spaced needles and a feeding mechanism, of a folder having means for guiding and folding the opposite edges of a strip and directing the said folded edges to the respective needles, means whereby said folder may be contracted within the limits of the needles for simultaneously withdrawing said folded edges from the range of the needles without stopping the stitching mechanism, and means for automatically returning said folder to its normal condition whereby the edges are directed within the range of the needles.

3. A folder including in combination two sections coöperating to direct a strip of fabric and fold the opposite edges thereof, and means whereby said sections may be simultaneously moved toward and from each other at the will of the operator without stopping the stitching mechanism.

4. A folder including in combination two sections coöperating to direct a strip of fabric and fold the opposite edges thereof, means for simultaneously moving the said sections toward each other at the will of the operator, and a spring for returning said sections to normal position when released by the operator.

5. A folder including in combination two sections coöperating to guide and fold the opposite edges of a strip, means for pivotally supporting said sections adjacent the receiving ends thereof, and means for moving said sections at the delivering end thereof simultaneously toward and from each other for varying the width of the folded strip at the will of the operator without stopping the stitching mechanism.

6. A folder including in combination two sections coöperating to guide and fold the opposite edges of a strip, means for pivotally supporting said sections at points adjacent the receiving ends thereof, a sliding bar connected to each section, a pivoted lever attached to said sliding bars, the pivot of the lever being located between the bars, whereby a swing of the lever will simultaneously move said sections toward or from each other.

7. A folder including in combination two sections coöperating to guide and fold the opposite edges of a strip, means for pivotally supporting said sections at points adjacent the receiving ends thereof, a sliding bar connected to each section, a pivoted lever attached to said sliding bars, the pivot of the lever being located between the bars, whereby a swing of the lever will simultaneously move said sections toward or from each other, and stops for limiting the movement of the lever for determining the extreme position of the sections of the folder.

8. A folder including in combination two sections coöperating to guide and fold the opposite edges of a strip, means for pivotally supporting said sections at points adjacent the receiving ends thereof, a sliding bar connected to each section, a pivoted lever attached to said sliding bars, the pivot of the lever being located between the bars, whereby a swing of the lever will simultaneously move said sections toward or from each other, stops for limiting the movement of the lever for determining the extreme position of the sections of the folder, and a spring for moving the lever in one direction.

9. The combination of a work support, stitch forming mechanism including spaced needles, a presser foot, a feeding mechanism coöperating with the presser foot, a folder located in front of the presser foot and comprising two sections coöperating to fold upwardly the opposite edges of a strip and direct said edges to the respective needles, means for guiding a fabric above said folder, whereby the strip is stitched to the underface thereof, means for pivotally supporting said sections of the strip folder adjacent their receiving ends, said work support having a slot extending therethrough, a lug mounted on each section and projecting through said slot, a sliding bar mounted beneath the work support and connected to each lug, a spring attached to one of said sliding bars, a lever attached to both of said sliding bars, means for pivotally supporting

said lever between the sliding bars, and adjustable stops for limiting the movement of said lever.

10. The combination of a work support, 5
stitch forming mechanism including spaced needles, a presser foot, a feeding mechanism coöperating with the presser foot, a folder located in front of the presser foot and comprising two sections coöperating to fold 10
upwardly the opposite edges of a strip and direct said edges to the respective needles, means for guiding a fabric above said folder, whereby the strip is stitched to the under- 15
face thereof, means for pivotally supporting said sections of the strip folder adjacent their receiving ends, said work support having a slot extending therethrough, a lug mounted on each section and projecting through said slot, a sliding bar mounted be- 20
neath the work support and connected to each lug, a spring attached to one of said sliding bars, a lever attached to both of said sliding bars, means for pivotally supporting said lever between the sliding bars, adjust- 25
able stops for limiting the movement of said lever, said means for guiding a fabric including an edge guide for a body fabric, and a folder for folding the edge of a second piece of fabric and directing the same and 30
the edge of the body fabric to one of said needles.

11. The combination with a stitch forming mechanism including spaced needles, and a feeding mechanism, of a guiding device dis- 35
posed in advance of the needles for normally delivering the opposite edge portions of a strip of fabric to the respective needles, said devices including members movable relative to each other for deflecting one of 40
said edges from the path of its corresponding needle.

12. The combination with a stitch forming mechanism including spaced needles, and a feeding mechanism, of a guiding device dis- 45
posed in advance of the needles for normally delivering the opposite edge portions of a strip of fabric to the respective needles, said device including laterally movable delivery end portions, and means for moving said de- 50
livery end portions inwardly to deflect both edge portions of said strip from the paths of said needles.

13. The combination with a stitch forming mechanism including spaced needles and 55
a feeding mechanism, of a guiding device disposed in advance of the needles for normally delivering the opposite edge portions of a strip of fabric to the respective needles, said device including laterally movable de- 60
livery end portions, means under the control of the operator for moving said delivery end portions inwardly to deflect both edge portions of said strip from the paths of said needles, and means for automatically return-

ing said delivery end portions to their normal positions upon the release of said moving means. 65

14. A guiding device for a strip of fabric, including in combination, guiding sections having spaced side walls, the delivery end 70
portions of said guiding sections being laterally movable, and means for moving said end portions to vary the width of the delivery end of said guiding device without varying the width of the receiving end of said device. 75

15. A guiding device for a strip of fabric, including in combination, guiding sections having spaced side walls, the delivery end portions of said guiding sections being laterally movable, means for moving said end 80
portions to vary the width of the delivery end of said guiding device without varying the width of the receiving end of said device, and means for automatically returning said delivery end portions of said sections to 85
their normal position upon the release of said first-named means.

16. In a sewing machine, the combination with a stitch-forming mechanism including spaced needles, of a feeding mechanism, a 90
guide including two laterally movable sections between which a strip is guided to the needles of said stitch-forming mechanism, and means whereby said movable sections may be simultaneously moved toward each 95
other without stopping the stitch-forming mechanism for withdrawing the strip from the path of the needles.

17. In a sewing machine, the combination with stitch-forming mechanism including 100
spaced needles, of a feeding mechanism, a folder provided with two laterally movable sections between which a strip is guided and folded and directed to the needles of the stitch forming mechanism, and means under 105
the control of the operator whereby said movable sections may be simultaneously moved toward and from each other at the will of the operator.

18. In a sewing machine, the combination 110
with a stitch-forming mechanism, including spaced needles, of a feeding mechanism, a guide including two laterally movable sections between which a strip is guided to the needles of the said stitch-forming mecha- 115
nism, and means whereby said sections may be simultaneously moved toward and from each other without stopping the stitch-forming mechanism.

19. In a sewing machine, the combination 120
with a stitch-forming mechanism including spaced needles, of a feeding mechanism, a guide for directing a body fabric to said stitch-forming mechanism, said guide including two laterally movable sections for 125
directing a strip to the needles of said stitch-forming mechanism, means including a knee press and connections between said knee

press and said movable sections, whereby
said sections may be simultaneously moved
toward each other, without stopping the
switching mechanism, and a spring for auto-
5 matically returning said guide sections to
their initial positions upon release of said
knee press.

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

CHARLES A. LOOMIS.

Witnesses:

JOSEPH L. STENGEL,
M. R. DEMPSEY.