(Model.) 2 Sheets—Sheet 1.

S. BORTON & C. H. WILLCOX.

MACHINE FOR SEWING WELTS OR HEMS ON FABRICS.

No. 255,580. Patented Mar. 28, 1882.

Fig. 1.

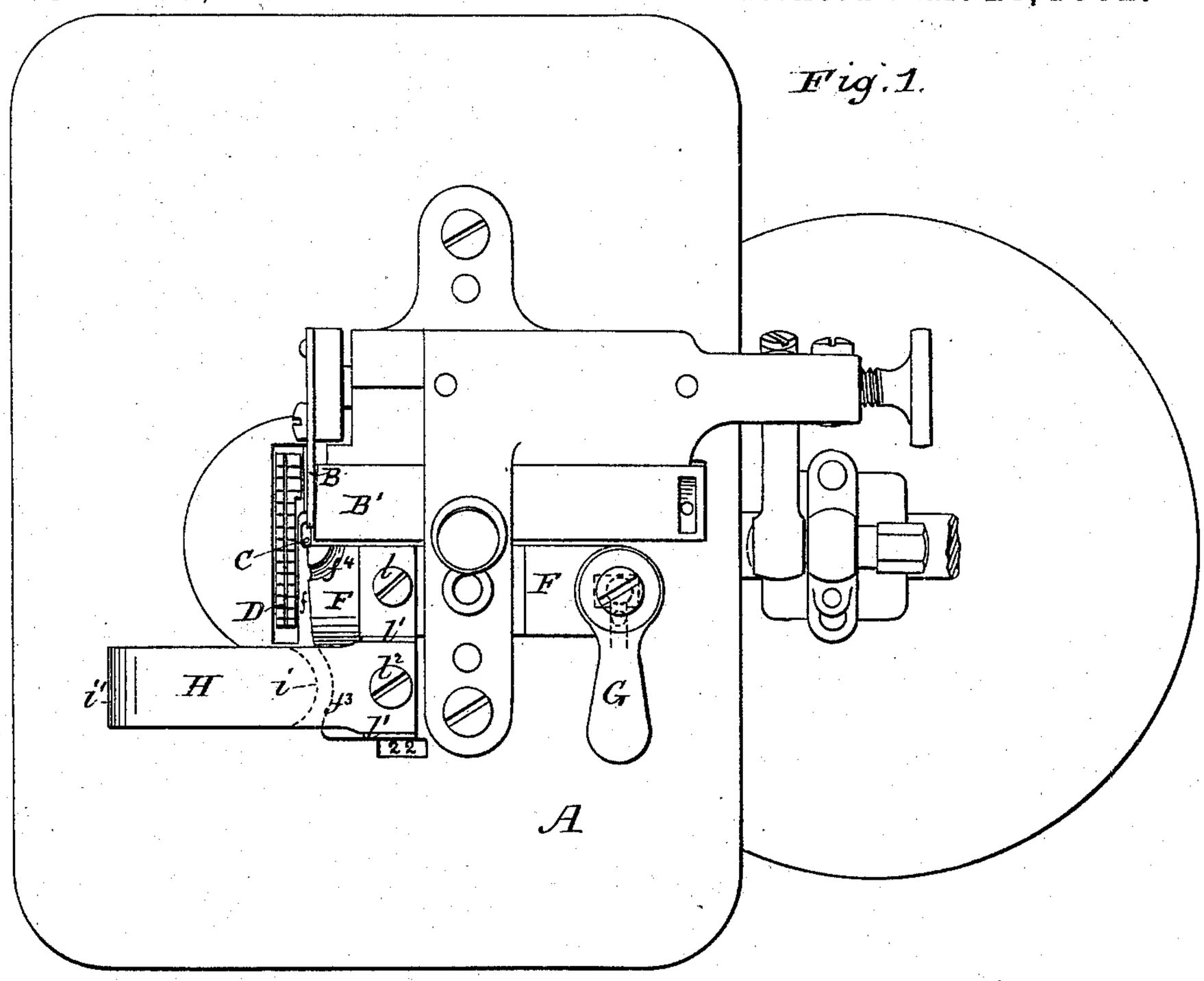


Fig. 2.

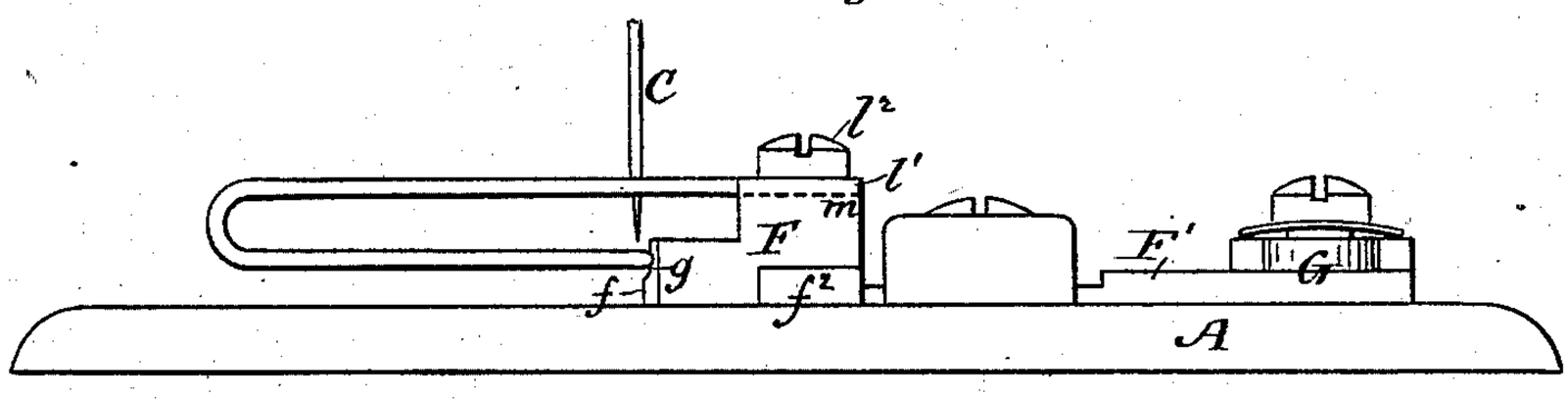


Fig. 11.

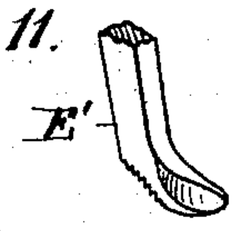
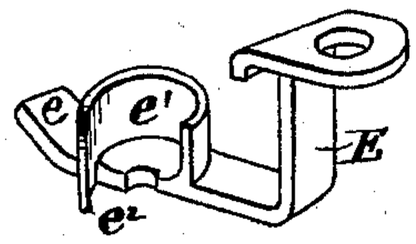


Fig. 10.



Witnesses:

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their attorney.

(Model.) 2 Sheets—Sheet 2.

S. BORTON & C. H. WILLCOX.

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Fig. 3.

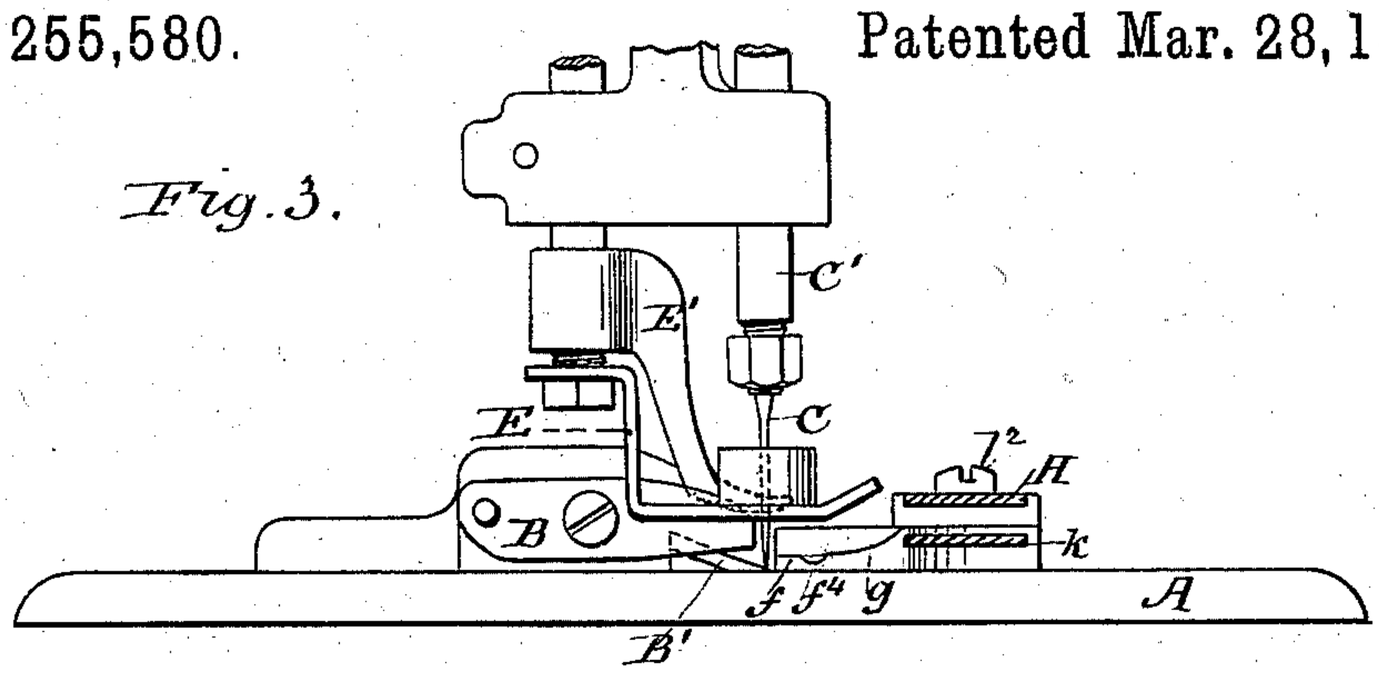


Fig. 4.

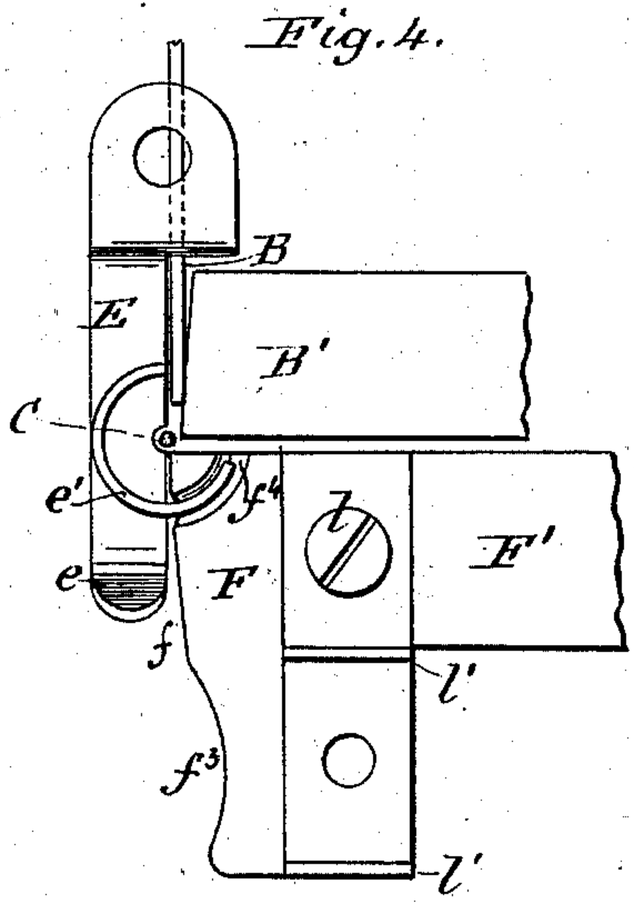


Fig. 5.

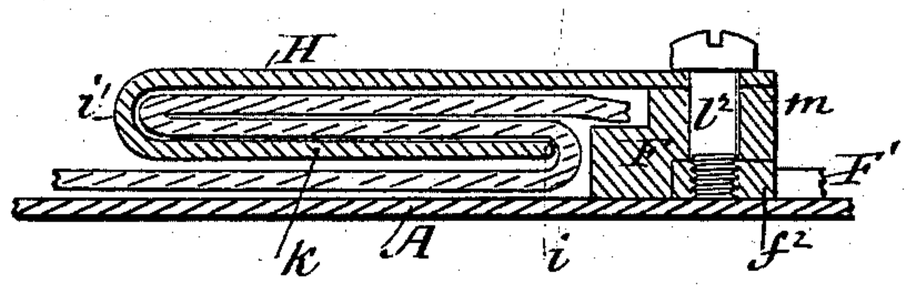


Fig. 6

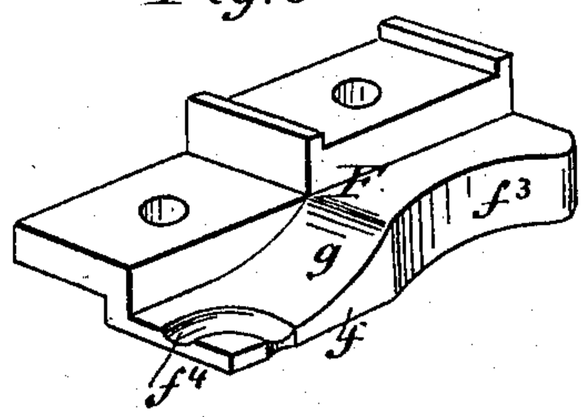


Fig. 7.

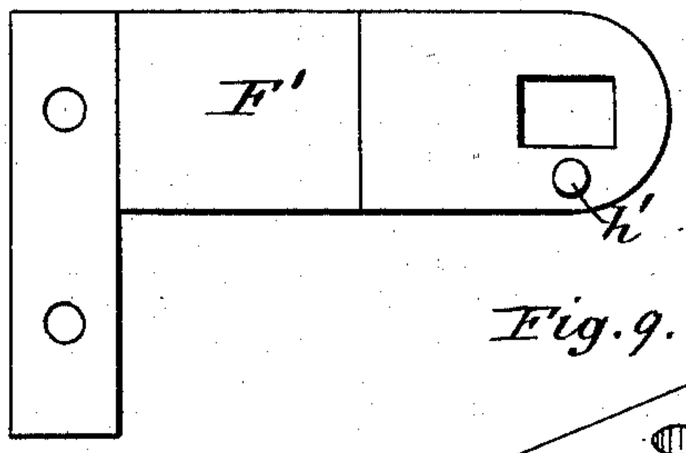


Fig. 8.

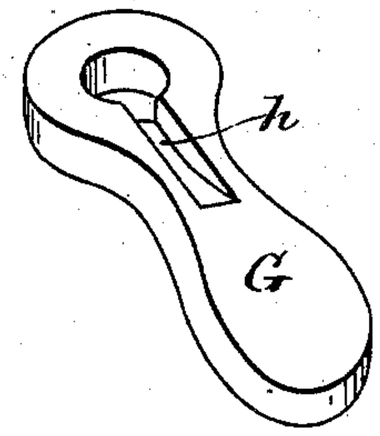
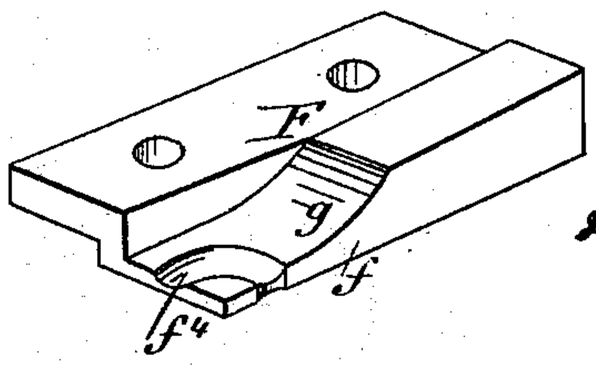


Fig. 9.



Witnesses:

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Inventors:

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their attorney

UNITED STATES PATENT OFFICE.

STOCKTON BORTON, OF PHILADELPHIA, PENNSYLVANIA, AND CHARLES H. WILLCOX, OF NEW YORK, N. Y., ASSIGNORS TO THE WILLCOX & GIBBS SEWING MACHINE COMPANY, OF NEW YORK, N. Y.

MACHINE FOR SEWING WELTS OR HEMS ON FABRICS.

SPECIFICATION forming part of Letters Patent No. 255,580, dated March 28, 1882.

Application filed January 10, 1882. (Model.)

To all whom it may concern:

Be it known that we, STOCKTON BORTON, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, and CHARLES H. WILLCOX, of New York city, in the county and State of New York, have invented a new and useful Improvement in Machines for Sewing Welts or Hems on Knit Goods and other Fabrics, which improvement is fully set forth in the following specification.

This invention is designed for use in forming welts upon hoisery, underwear, and other knit goods by stitching through a fold in the main body of the fabric, and also through the portion turned over to form the welt or hem, and by trimming the edge of the said turned-over portion simultaneously with the stitching. The said invention may, however, be used upon other fabric, and, at least in part, for other purposes and in other connections. It may be considered as an improvement upon the apparatus described in our application filed July 8, 1881, and numbered 37,422. In said application is described a guide for the folded edge of the material, combined with a sewing and trimming mechanism, and arranged between the line of trimming and the line of sewing.

The present invention comprises the combination, with a sewing and trimming mechanism, of an overhanging guide adapted to be in contact with the inner surface of the fold in the material, and also of a guide to regulate the width of the hem or welt, the two guides being preferably connected and made of one piece of metal.

It further comprises, first, the combination and arrangement of the overhanging guide and the folded-edge guide, and the combination of the same with the sewing and trimming mechanism; second, the construction of said guides so that seams or thick portions may pass between the two guides without interfering with their efficient action; and, third, certain peculiarities of construction, hereinafter indicated, whereby the efficiency of the guides and other devices is increased.

In the accompanying drawings, which form a part of this specification, Figure 1 is a plan showing the cloth-plate of a sewing-machine with the trimmer and improved guides attached; Fig. 2, a front elevation, showing cloth-plate and needle enlarged; Fig. 3, an end view; Fig. 4, a plan of presser-foot and guides, with the needle shown in cross-section; Fig. 5, a sectional view, illustrating the formation of the welt or hem; Fig. 6, a perspective view of one of the guide-pieces; Fig. 7, a plan of the bar for carrying the guides; Fig. 8, a bottom view of the lever for adjusting the guides on the cloth-plate; Fig. 9, a perspective view of a somewhat modified form of guide; Fig. 10, a perspective of the presser-foot, and Fig. 11 a perspective of the lower part of holding-finger for clamping the edge to be trimmed off.

A is the cloth-plate of the sewing-machine, on which the trimmer and guides are placed. The trimmer represented is that for which an application for Letters Patent was filed by us October 14, 1880, No. 18,811, and it comprises a vibratory blade, B, and a stationary cutter-bar, B′, as fully described in said application.

C is the needle of the sewing-machine, C′ the needle-bar, and D the feed-surface, the parts being of any ordinary or suitable construction. The presser-foot is of half-width, with a turned-up toe, *e*, and an upright curved projection, *e′*, in front of the needle-hole, which extends laterally also, the bottom of the lateral extension e^2 being flush, or nearly so, with the bottom of the presser-foot, as shown in Fig. 10.

E′ is a holding-finger for holding down the trimmed-off strip, and adjustable on the presser-bar.

The folded-edge guide F is adjustable at right angles to the line of stitching, and has its guiding-edge *f* oblique to the said line, and is in some other respects like the folded-edge guide in our application No. 37,422; but it differs therefrom in the following particulars: It is located entirely in front of the needle, so that the folded edge is left free after stitching, and a cutter-bar, B′, of full width may be used. The guiding-edge is also brought nearer to the needle in front. The upper surface at *g* is curved upward, corresponding with the toe *e* of the presser-foot. The bar F′ is made sep-

arate from the guide proper, F, which is detachably connected therewith by the screws l l^2, so that guides with different depth of guiding-edge may be substituted for one another, according to the thickness of the fabric. The lever G, instead of having an eccentric boss, has on the bottom a slot, h, in which the pin h' on the bar F′ works. The guide F is also specially adapted at the front to co-operate with the overhanging guide. The overhanging guide for the inside of the fold, which keeps the work against the folded-edge guide F, is formed by the edge i of an arm, k, overhanging the cloth-plate. This arm forms part of the bent strip H, and serves also as the guide to regulate the width of the welt or hem, its length from the extreme point of the edge i to the bend i' being equal to said width.

The strip H is attached to a raised portion, m, on the guide F, and is held in place by the screw l^2, which passes through the guide F, and is tapped into an arm, f^2, of said bar, and by ears or lugs l', which prevent it from moving horizontally. The guiding-edge i is curved, and the opposite edge of the folded-edge guide F is cut away or recessed at f^3, concentric therewith, so as to leave a curved passage of uniform width between them. The strip H being attached to an elevation, m, space is left below for the edge of the material to pass.

The upper surface of the folded-edge guide adjacent to the needle is cut away or provided with a curved or segmental groove, f^4, just below the lateral extension e^2 of the upright e'. The object of this groove is to allow the presser-foot to bear upon the thinnest fabric, the extension e^2 sinking more or less into the groove when the bottom of the presser-foot is below the top of the adjacent guiding-edge f. The upright e' prevents the fabric from curling over and being caught by the needle, while the extension e^2 is always close to if not scraping the free edge of the fabric, and effectually takes out the curl.

The position of the guides with respect to each other and to the needle-bar and presser-foot of the machine for medium-weight goods is shown in the drawings—that is to say, the extreme points of the folded-edge guide F and of the curved-edge guide i are in line with each other and lie in the same, or approximately the same, vertical plane, with the axis of the needle slightly oblique to the direction of the feed, the extreme point of the guide F at the rear being just in front of the needle. For heavier work the carrying-bar F′, with the guides, will be adjusted the required distance to the right.

It will of course be understood that the guides are selected with reference to the work to be performed. There is no need of having the strip H adjustable with reference to the guide F; but, if desired, the connection between the parts could be adjustable by having a slot in the strip H.

The guide shown in Fig. 9 is to be used without the overhanging guide k i, and is not provided with the curved recess f^3.

The manner of sewing a welt or hem is as follows: The edge of the fabric is folded over to give a hem of the desired width and leave a margin to be trimmed off. The fold is then inserted under the overhanging arm k, around guide i, into bend i', leaving the main body of the goods folded over the guide i, with the fold against the edge of guide F and the free edge of fabric projecting over said guiding-edge, as shown in Fig. 5. The machine, being started, sews through the upper layer of fabric and the fold beneath, which is held in position by the edge of guide F. The surplus material on the free edge is removed by the trimmer. The only care required on the part of the operator is to keep the fabric straight and well into the bend i'. The curved passage around the guide i allows seams to pass without difficulty, while the extension e^2 of the upright on the presser-foot takes out the curl in the edge of the fabric.

It is obvious that modifications may be made in the details of construction without departing from the spirit of the invention, and portions of the latter can be used separately. For example, the guide-strip H might be used without the guide F, or other suitable overhanging guide adapted to enter the fold could be employed; but the same should then be placed in closer proximity to the needle and the presser-foot should be adapted to receive it. The curved form of guiding-edge i would not of course be required in such case.

Having now fully described our said invention and the manner of carrying the same into effect, what we claim is—

1. The combination, with sewing and trimming mechanism, of an overhanging guide adapted to enter the fold of a welt or hem and arranged with respect to said sewing and trimming mechanism substantially as described.

2. The combination, with sewing and trimming mechanism and a folded-edge guide, of an overhanging guide adapted to enter the fold guided by the aforesaid folded-edge guide, substantially as described.

3. The combination, with sewing and trimming mechanism, of means for controlling the width of a welt or hem folded as described, and for guiding said welt or hem to the aforesaid mechanism, substantially as set forth.

4. The combination, with an edge-guide having its guiding-edge arranged relatively to the stitching mechanism of a sewing-machine as described, of an overhanging guide adapted to enter a fold and having its guiding-edge in front of the guiding-edge of said edge-guide and substantially in line therewith, so as to crowd the fold against the latter, substantially as described.

5. The combination, in a machine for sewing welts or hems on fabrics, of the folded-edge guide and the overhanging horizontal arm adapted to form a guide within the fold guided by the aforesaid folded-edge guide, and also by

guiding or supporting the welt or hem itself to control the width thereof, substantially as described.

6. The combination, with a guide formed by an overhanging arm adapted to enter a fold, of a guide recessed opposite the end of said arm, substantially as described.

7. The combination, with a guide formed by an overhanging arm adapted to enter a fold, of an edge-guide recessed opposite the end of the arm and provided with a guiding-edge in line or approximately in line with said end, substantially as described.

8. The combination, with a presser-foot having a turned-up toe, of an edge-guide alongside of said foot with its upper surface curved upward corresponding with said toe, substantially as described.

9. A sewing-machine guide adapted to guide the outer edge of a fold and located adjacent to and alongside of the presser-foot, and having a guiding-edge entirely in front of and in close proximity to the needle and slightly oblique to the line of stitching, substantially as described.

10. A set of guides for welting or hemming fabric, and comprising, in combination, a folded-edge guide and an overhanging guide attached to an elevation on the folded-edge guide back from the guiding-edge, the said edge being recessed or cut away opposite said overhanging guide, substantially as described.

11. A presser-foot having an upright projection in front of needle-hole, with lateral extension flush, or nearly flush, at its lower edge with the bottom of the presser-foot, substantially as described.

12. The combination, with a presser-foot having a lateral extension, of the folded-edge guide cut away or grooved, as described, beneath said extension, as set forth.

13. The combination, with a presser-foot such as described, of a folded-edge guide adapted to guide the outer edge of the fold and located adjacent to and alongside of said presser-foot, and an overhanging guide supported in front of the presser-foot and adapted to enter the fold guided by the aforesaid edge-guide, substantially as described.

14. The combination, with an overhanging guide, of a folded-edge guide having its guiding-edge of considerable depth opposite the said overhanging guide and diminishing in depth beyond the same, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

STOCKTON BORTON.
CHAS. H. WILLCOX.

Witnesses:
JOHN C. PURKIS,
GILMAN E. JOPP.