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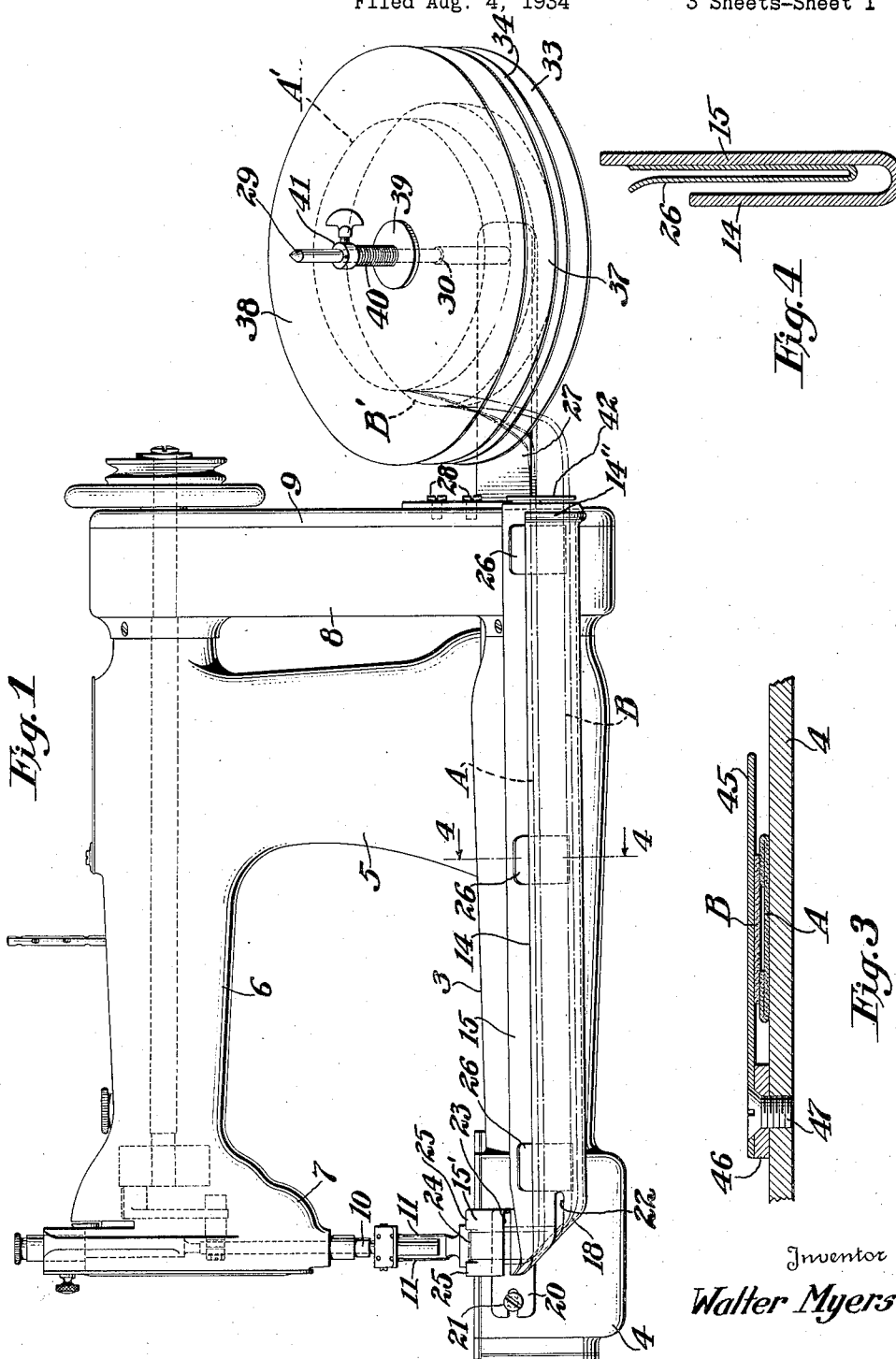
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2,060,631

STRIP GUIDE FOR SEWING MACHINES

Filed Aug. 4, 1934

3 Sheets-Sheet 1



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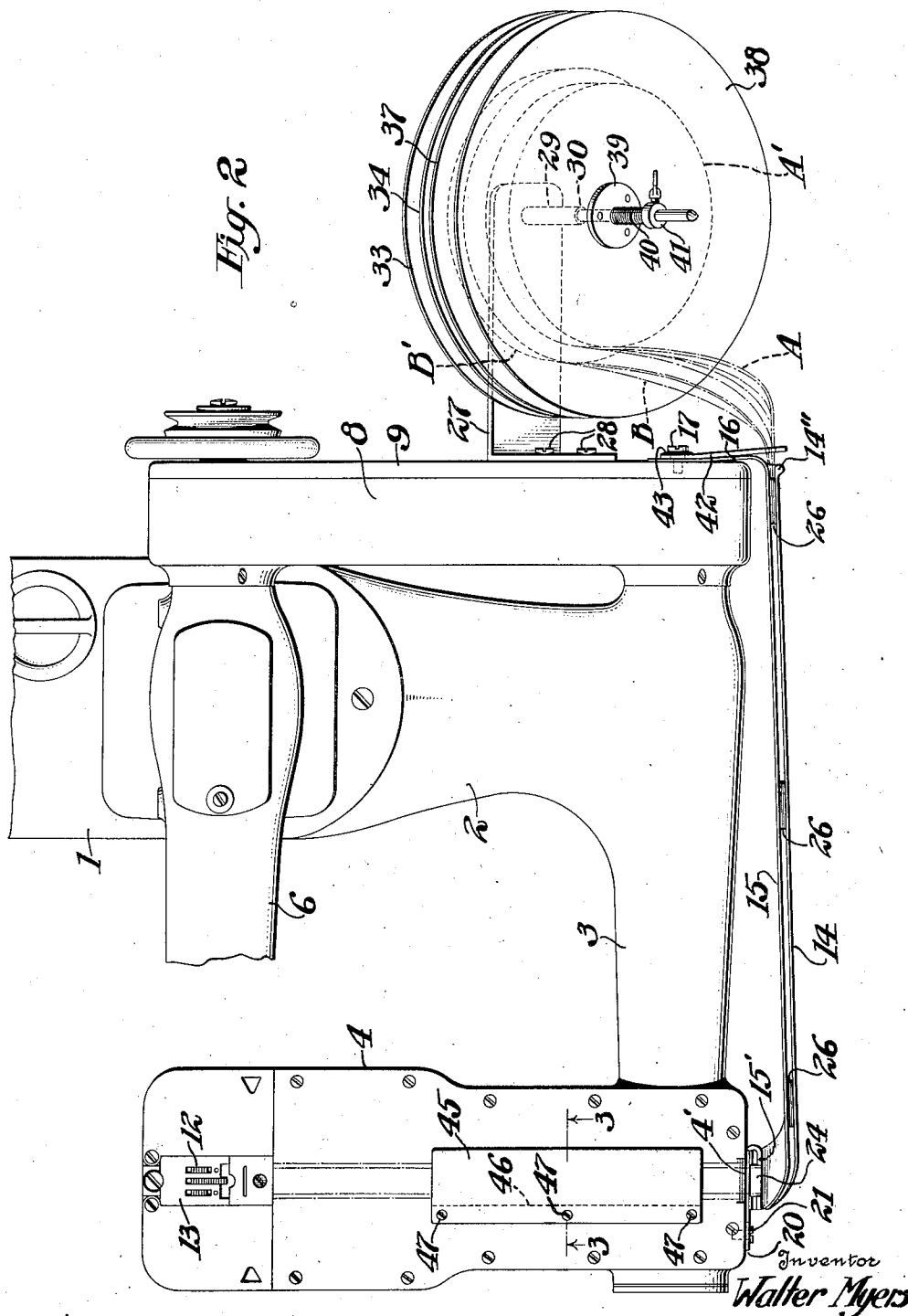
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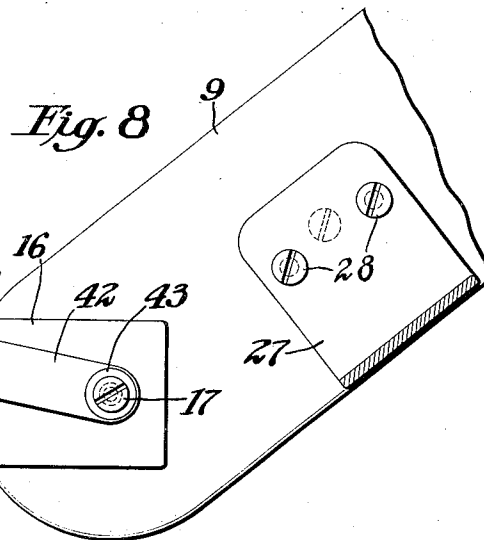
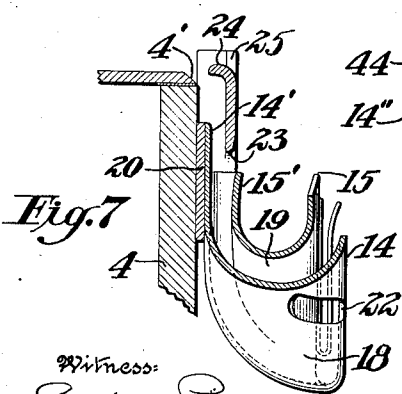
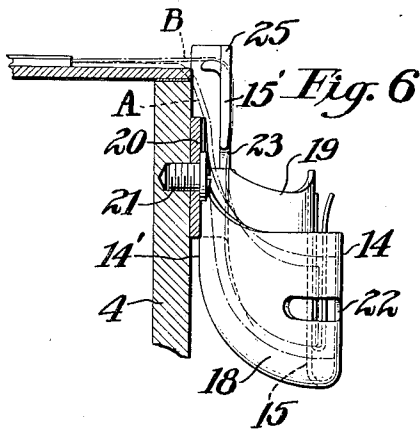
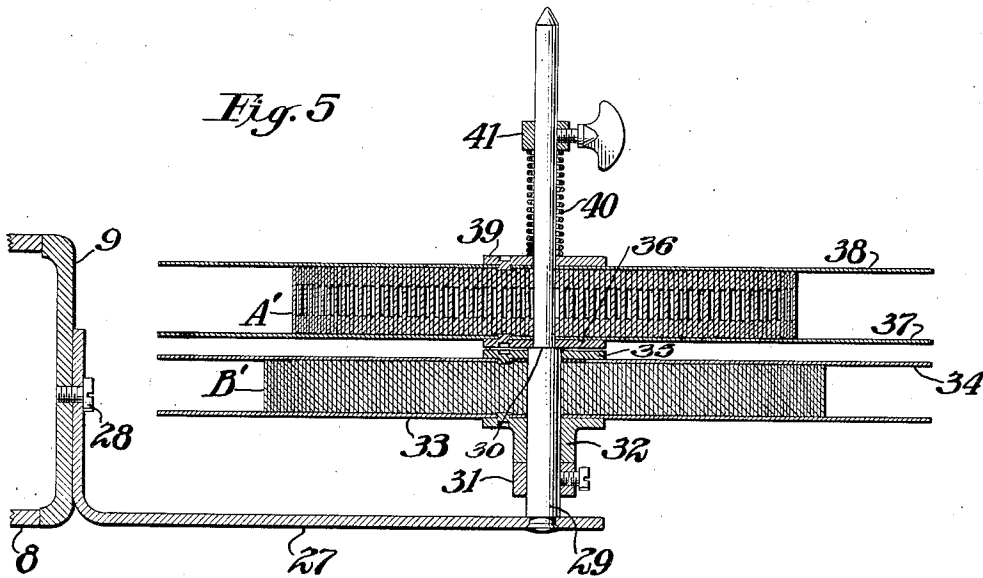
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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STRIP-GUIDE FOR SEWING MACHINES

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Application August 4, 1934, Serial No. 738,487

11 Claims. (Cl. 112—152)

This invention relates to improvements in strip or tape guiding devices for sewing machines and has for its primary object to provide improved means for directing a strip, either folded or unfolded, to the stitch-forming mechanism of a feed-off-arm sewing machine, without interfering with the convenient handling of work to which said strip is to be stitched, and without obstructing the operator's view of the work.

A further object of the invention is to provide strip-guiding means of a simple character for automatically delivering a plurality of strips, in superposed relation and drawn from supply reels, to the stitch-forming mechanism of a sewing machine.

With the above and other more specific objects in view, the invention comprises the devices, combinations and arrangements of parts hereinafter described in connection with the accompanying drawings which illustrate a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the accompanying drawings, Fig. 1 is a front side elevation of a feed-off-arm sewing machine and of the improved strip-guiding means applied thereto. Fig. 2 is a top plan view of the machine and the strip-guiding means. Fig. 3 represents a cross-section of the work-arm strip-covering plate and substantially on the line 3—3 of Fig. 2. Fig. 4 represents a cross-section, substantially on the line 4—4 of Fig. 1, of the strip-guiding means applied to the work-arm carrier-arm. Fig. 5 represents a cross-section of the strip-supply reels. Fig. 6 is an end view of the strip-inverting portion of the strip-guide, the work-arm being shown in section. Fig. 7 represents a vertical section of the strip-inverting end of the strip-guide. Fig. 8 is a side view of a portion of the belt-guard cover-plate, from the strip-reel side thereof and with the strip-reel bracket shown partly in section.

As herein described and as illustrated in the accompanying drawings, the improved strip-guiding means is applied to a feed-off-arm sewing machine such as shown and described in my prior patent application Serial No. 627,409, filed Aug. 4, 1932.

The sewing machine shown in the drawings has a frame comprising a supporting bed 1 provided with a forwardly extending arm 2, which carries a laterally extending hollow arm 3 which, in turn, carries the rearwardly extending and hollow work-arm 4. The arms 2, 3 and 4 are

substantially coplanar or at the same level, thereby forming a U-bed. Rising from the base 1 is the standard 5 of the gooseneck or bracket-arm 6 terminating in the head 7 which overhangs the free end of the work-arm 4. A belt-guard or housing 8, having a detachable side cover-plate 9, extends in a downwardly inclined direction from the bracket-arm 6 to the end of the work-arm carrier 3 at the juncture of said arm 3 with the forwardly extending arm 2.

Reference may be made to said prior patent application Serial No. 627,409, for a detailed disclosure of the stitch-forming and work-feeding mechanisms of the present machine. In general, the needle-bar 10, which is journaled for vertical reciprocation in the bracket-arm head 7, carries a pair of needles 11 cooperating, in the formation of stitches, with suitable loop-takers (not shown) housed within and near the free end of the work-arm 4, while the work is advanced lengthwise of and toward the free end of the work-arm 4 by a feed-dog 12 operating through a suitably slotted throat-plate 13 disposed upon and adjacent the free end of said work-arm.

Referring now more particularly to the present invention, a primary strip-guide comprises a trough or substantially U-shaped sheet-metal plate providing spaced front and back members or walls 14 and 15, of which the back wall 15 is preferably slightly higher than the front wall 14. The primary strip-guide 14, 15 is disposed directly in front and extends lengthwise of the carrier-arm 3 of the work-arm, so as to be disposed between the upper and lower planes of said carrier-arm 3. This disposition of the primary strip-guide leaves the space between the arms 2, 3 and 4 clear for manipulation of the work. At the belt-guard end of said carrier-arm 3, the back-wall 15 of the primary strip-guide is bent rearwardly to provide a strip-guide supporting arm 16 secured by a screw 17 upon the belt-guard cover-plate 9. One end 14' of the front wall 14 of the primary strip-guide terminates substantially at the bent portion of the rear wall 15 providing the supporting arm 16, i. e., said end 14' of the front wall terminates substantially in the vertical plane of the outer face of the cover-plate 9.

Adjacent the front end of the work-arm 4, the walls 14 and 15 of the primary strip-guide are bent rearwardly, about a line oblique to the length of said walls and while maintaining substantially the spaced parallelism of the walls, and thence vertically upwardly into substantial parallelism with the front wall of the work-arm,

thereby providing inclined strip-inverting surfaces 18 and 19 terminating in upwardly extending and spaced walls 14' and 15'. The upwardly extending portion 14' of the primary strip-guide wall, which wall is now the rear wall of said strip-guide, terminates slightly short of the upper front and suitably beveled edge 4' of the work-arm 4, and has a supporting arm 20 which is suitably slotted to receive a securing screw 21 threaded into the front end wall of the work-arm 4. At its bend 18, the strip-guide wall 14 is preferably provided with a slot 22 to provide for access to the strip during insertion into the strip-guide. The upwardly extending portion 15' of the wall 15 is provided with a transverse strip-emergence slot 23 and terminates in a rounded upper end 24 at substantially the same height as the upper face of the work-arm 4, said rounded end 24 being disposed between upstanding strip-edge guiding ears 25 of the wall 15'.

Disposed at intervals between the primary strip-guiding walls 14 and 15, along the carrier-arm 3 portion thereof, are a plurality of spaced and substantially U-shaped guide-loops 26 constituting secondary strip-guiding means. These guide-loops are carried by one of the walls 14, 15, being preferably secured, as by solder, to the inner face of the wider or rear wall 15 of the primary strip-guide. The closed bottoms of the several guide-loops are equally spaced vertically from the closed bottom of the U-shaped primary strip-guide, while the open upper ends of said guide-loops preferably extend above the upper edge of the wall 14.

Strips A and B of suitable material are supplied to the described strip-guides from reels supported by a bracket 27 secured by screws 28 upon the belt-guard cover-plate 9, and preferably in a position such that the reels are disposed above the plane of the lower face of the machine frame, whereby said reels do not interfere with the mounting of the sewing machine upon a supporting table.

Rising from the bracket 27 is a reel post 29 having a portion of its length reduced in diameter to provide a shoulder 30. Secured upon the post 29, below the shoulder 30, is a collar 31 supporting the hub 32 of a roll-supporting sheet-metal disk 33, suitably apertured to receive the post and rotatable thereupon. A roll B¹ of the strip-material B is placed upon the post 29 and is disposed between the disk 33 and a roll-covering disk 34 having its apertured hub 35 preferably also disposed below the post shoulder 30.

Supported by the post-shoulder 30, in vertically spaced relation to the disk-hub 35 is the apertured hub 36 of the lower disk 37 of another reel for the supply roll A¹ of strip material A. Overlying the supply roll A¹ is a cover-disk 38 having an apertured hub 39. The cover-disk 38 is yieldingly pressed against the roll A¹ by a spring 40, coiled about the post 29 and interposed between the disk-hub 39 and a collar 41 adjustably secured upon the post, thereby tensioning the strip A.

The strip A, which may have its longitudinal margins folded to serve as a covering strip, is led from the supply roll A¹ and may be inserted edgewise into the primary strip-guide 14, 15 so as to be disposed edgewise vertically and in front of the auxiliary guide-loops 26. The strip-material B, which is narrower than the strip A, is led from its supply roll B¹ and may be inserted edgewise into the vertical guide-loops 26, whereby the strip B is supported with its lower longitudinal

edge above the lower edge of the strip A and its upper edge below the upper edge of said strip A.

Disposed adjacent to the strip-receiving end of the strip-guides is a strip-confining guide 42 having its shank pivotally secured to the belt-guard cover-plate 9 by the screw 17, said guide 42 being held in position by a friction washer 43. The member 42 is provided with suitably dimensioned slots 44 and 44' to receive the respective strips, said slots being open at the lower edge of the member 42 and having their closed ends opposed to the open sides of the U-shaped strip-guides 14, 15 and 26.

The strips A and B are together inverted between the guide-bends 18 and 19 and are directed toward the upper face of the work-arm 4 by the walls 14', 15' which extend upwardly in a direction substantially normal to the strip-guide passage lengthwise of the carrier-arm 3. The strip A emerges from the strip-guide between the rounded end 24 of the wall 15' and the beveled edge 4' of the work-arm 4, while the strip B passes out of the strip-guide through the slot 23 in the wall 15' and thence over the rounded end 24 of said wall, said strip B being confined against lateral movement by the guide-ears 25. It will be observed that the covering strip A is now disposed underneath the narrower stiffening or lining strip B and that the strip A extends widthwise substantially equal distances beyond the longitudinal margins of strip B. The strips A and B pass lengthwise of the upper face of the work-arm 4 to the stitch-forming mechanism at the free end of said work-arm, said strips being preferably further guided directly in front of the needles by suitable means, as for instance by suitable slots in the throat-plate 13.

In order to provide for manipulating work to which the strips are to be secured, without disarrangement of said strips, the work-arm 4 is provided with a strip-covering plate 45 supported at one side of the strips by a spacing-block 46 and secured by screws 47 upon the upper face of the work-arm. This arrangement provides for convenient insertion of the strips laterally under the covering plate 45.

Having thus set forth the nature of the invention, what I claim herein is:—

1. The combination with a feed-off-arm sewing machine having a frame including a suspended work-arm free at one end thereof and a work-arm carrier-arm substantially coplanar with the work-arm, and stitch-forming mechanism at the free end of said work-arm, of a strip-guide extending lengthwise and disposed between the upper and lower faces of said carrier-arm, and means for directing a strip passed through said strip-guide upon the upper face of said work-arm.

2. The combination with a feed-off-arm sewing machine having a frame including a horizontally disposed suspended work-arm free at one end thereof and a work-arm carrier-arm substantially coplanar with the work-arm, and stitch-forming mechanism at the free end of said work-arm, of a widthwise vertically disposed U-shaped strip-guide extending horizontally lengthwise of said carrier-arm, said strip-guide being bent intermediate its ends about a line oblique to the length of the strip-guide and terminating in vertically disposed strip-guiding walls for directing a strip upon said work-arm.

3. The combination with a feed-off-arm sewing machine having a frame including a suspended work-arm free at one end thereof and a carrier-

arm connected to said work-arm, and stitch-forming mechanism at the free end of said work-arm, of a strip-guide disposed at the side of said carrier-arm opposite to the work-arm free end side thereof for directing a strip of material to the work-arm.

4. The combination with a feed-off-arm sewing machine having a frame including a suspended work-arm free at one end thereof and a carrier-arm connected to said work-arm, and stitch-forming mechanism at the free end of said work-arm, of a strip-guide disposed at the end of said work-arm opposite to the free end thereof and below the upper face of the work-arm for directing a strip of material upwardly and upon the work-arm.

5. In a feed-off-arm sewing machine, a suspended work-arm free at one end thereof and having a work-supporting face, stitch-forming mechanism at the free end of said arm, a strip-guide disposed to direct a strip of material flatwise upon the work-arm for delivery of the strip lengthwise along the work-arm to said stitch-forming mechanism, and a covering plate disposed upon the work-arm to extend widthwise across and completely overhang a strip delivered upon said work-arm by said strip-guide, said covering plate being spaced from the work-supporting face of the work-arm lengthwise along one side edge of said plate and secured against said work-supporting face lengthwise along the opposite side edge thereof.

6. A feed-off-arm sewing machine having a work-arm free at one end thereof, stitch-forming mechanism at the free end of said work-arm, and strip-guides disposed to deliver strips of unequal widths in superposed relation upon said work-arm at a point remote from the free end thereof, said strip-guides being relatively arranged to deliver the narrower strip flatwise upon and centrally of the wider strip.

7. In a sewing machine, a work-support, stitch-forming and work-feeding mechanisms, a plurality of strip-supply reels, a primary U-shaped strip-guide disposed widthwise vertically and extending lengthwise between one of said strip-supply reels and said work-support, and a secondary U-shaped strip-guide disposed adjacent to and in parallelism with said primary strip-guide to direct a strip from the other strip-supply reel for delivery to said work-support in superposed

relation to the strip directed by said primary strip-guide, said primary strip-guide having its bottom wall disposed below the bottom wall of said secondary strip-guide.

8. In a sewing machine, a work-support, stitch-forming and work-feeding mechanisms, means for directing a plurality of strips of material to said work-support comprising upwardly open primary and secondary U-shaped strip-guides disposed widthwise vertically, the secondary strip-guide being disposed within and having its bottom wall spaced vertically from the bottom wall of the primary strip-guide.

9. A strip-guiding device for sewing machines comprising, a primary U-shaped strip-guide, and a secondary U-shaped strip-guide disposed within said primary strip-guide and having its bottom wall adjacent to and spaced from the bottom wall of the primary strip-guide, one of the side walls of said secondary strip-guide being spaced from the adjacent side wall of said primary strip-guide.

10. A strip-guiding device for sewing machines comprising, a primary U-shaped strip-guide, and a plurality of secondary U-shaped strip-guiding loops disposed within and spaced from each other longitudinally of said primary strip-guide, said loops having the bottom walls thereof spaced from and disposed substantially parallel to the bottom wall of said primary strip-guide and the side walls of said loops extending from the bottom wall in the direction of extension of the side walls of the primary strip-guide from its bottom wall, one of the side walls of each of said loops being connected to one of the side walls of the primary strip-guide and the other side walls of said primary strip-guide and loops being spaced from each other.

11. A strip-guiding device for sewing machines comprising a primary strip-guide having spaced side walls and bent between its ends about a line oblique to the length of said strip-guide to provide an open end strip-delivery portion extending in a direction substantially normal to the length of said primary strip-guide, one of the side walls of said strip-delivery portion having a transverse strip-emergence slot in advance of the end of said side wall, and a secondary strip-guide disposed within said primary strip-guide.

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