G. E. MOLYNEUX.

SEWING MACHINE GUIDE.

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1,011,473.

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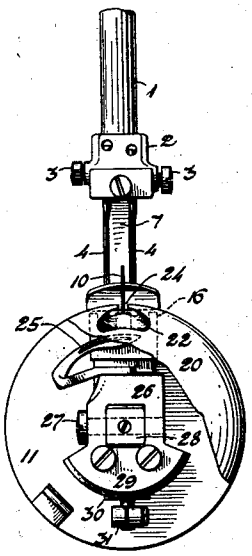

Fig. 1.

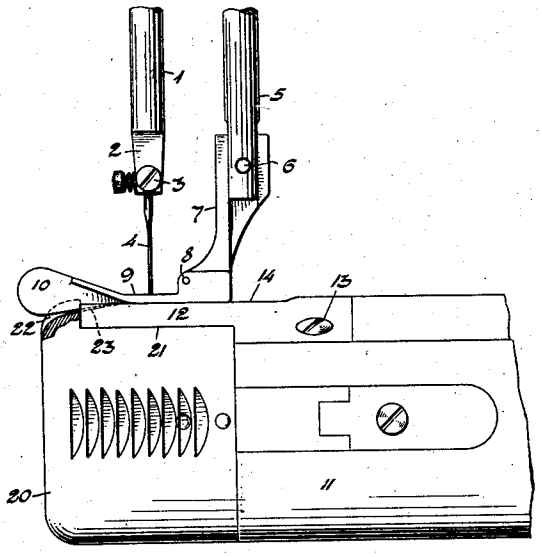

Fig. 2.

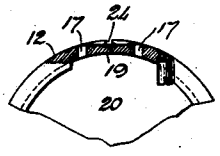

Fig. 4.

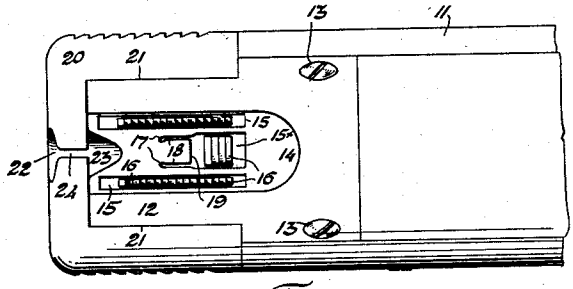

Fig. 3.

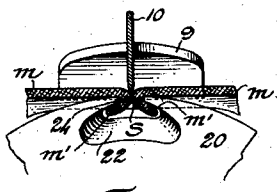

Fig. 5.

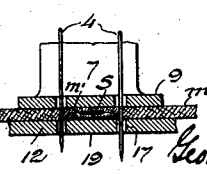

Fig. 6.

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SEWING-MACHINE GUIDE.

1,011,473. Specification of Letters Patent. Patented Dec. 12, 1911.

Original application filed February 25, 1910, Serial No. 545,825. Divided and this application filed April 14, 1911. Serial No. 621,011.

To all whom it may concern:

Be it known that I, GEORGE E. MOLYNEUX, a citizen of the United States, residing at Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machine Guides, of which the following is a specification, reference being had therein to the accompanying drawings.

This application is a division of my application Serial No. 545,825, filed February 25, 1910, and the present improvement relates more particularly to that class of sewing machines provided with a tubular work-supporting arm or horn longitudinally of which the work is fed in stitching tubular articles, as disclosed more fully in my pending application Serial No. 521,801, filed October 9, 1909.

The invention has for its principal object to provide an effective means of guiding to the covering stitch-forming mechanism a seam formed by overlapping and stitching together the marginal portions of two plies of fabric subsequently opened out to receive the covering seam for protecting the raw edges.

As preferably constructed, the end-cap has at the upper side of its closed end a longitudinal aperture or guideway having a comparatively narrow slit at the top and capable of receiving the opened-out marginal portions of the lap-seam to be presented to the covering stitch-forming mechanism comprising two needles and a single coöperating thread-carrying looper arranged crosswise of the direction of feed.

In the accompanying drawing, Figure 1 is a front end view of the tubular work-support, the needles and presser-foot of a sewing machine, with a portion of the end-cap omitted to expose the looper mechanism housed therein, and Fig. 2 a side elevation of the same. Fig. 3 is a plan of the work-support with the end-cap applied thereto, and Fig. 4 an elevation taken from the inner end of the cap, and showing the throat-plate in section. Figs. 5 and 6 are views taken from the outer end of the work-support and showing upon an enlarged scale the material and the guiding and supporting members for presenting it to the stitch-forming mechanism, these views being partly in transverse section respectively through the guide-slot of the end-cap and through the needle apertures of the throat-plate.

As herein represented, the machine is provided with a reciprocating needle-bar 1 carrying the twin needle-clamp 2 in which are secured by means of the fastening screws 3 the shanks of two eye-pointed needles 4. The presser-bar 5 has secured to its reduced lower portion by means of the fastening screw 6 the shank 7 of the presser-foot having pivotally connected therewith by means of the pin 8 the tilting foot portion 9 provided in its forward portion with the central guide-fin or keel 10 adapted to enter the angle between the united marginal portions of a lap-seam flattened out to receive the covering stitches for the exposed raw edges.

The tubular marginally extending horn or work-support 11 is provided with the usual arched throat-plate 12 secured thereon by means of screws 13 and having a flat operative portion 14 extending beyond the extremity of the arm and upon which the presser-foot normally rests. The top 14 of the throat-plate is provided with the longitudinal apertures or slots 15 for the laterally spaced operative portions of the feed-dog 16 and needle-apertures 17 arranged side by side and connected by parallel slits 18 with the central feed-aperture $15^{\times}$ to form a fabric-supporting tongue 19 intermediate and rearward of the needles.

The tubular end-cap 20 is shown of general cylindrical form with closed forward end and is cut away to form a recess 21 in its upper side to receive the reduced forward portion of the throat-plate 12. The circular forward end of the cap 20, whose peripheral portion extends in advance and somewhat above the flattened top of the throat-plate, has formed therein a forwardly flaring and somewhat flattened upwardly inclined clearance aperture 22 leading into a similarly inclined clearance groove or channel 23 extending backwardly from the forward extremity of the upper face of the throat-plate, said clearance aperture having leading into its top a longitudinally arranged central guide-slot 24 directed toward the space intermediate the needles to admit the previously stitched overlapped plies of fabric at the seam, the marginal portions

m' of such plies entering the clearance aperture 22 and the bodies m of such plies resting upon the top of the cap adjacent the same, as shown in Fig. 5. By this means, the opposite edges of the slot 24 serve, by positive engagement with the opposite faces of the two plies of fabric stitched together, to center the uniting seam relatively to the covering stitch-forming mechanism, while the sharpened lower edge of the fin or keel 10 upon the presser-foot enters the crease between such plies at the seam and directs the work with precision to the stitch-forming devices.

In practice, as the aperture 22 merely affords a space for the outer marginal portions of the two united plies of fabric beneath the guiding edge-walls of the slot 24, this aperture may be made of any suitable or convenient width to accommodate such marginal portions of fabric consistent with the gage or spacing apart of the needles or needle-thrusts, its sole function being that of affording clearance for the material beneath the upper peripheral portion of the cap over which the body of the work is drawn by the longitudinally operating feeding mechanism. While in a cylinder-bed machine such as that represented in the drawings the end-cap is the part which is provided with guiding channels 22 and 24, it is evident that these channels are in practice applied to any suitable guiding member adapted for application to the type of machine which it is desired to equip with the present improvement.

It will be observed that the clearance channel 23, merging into the flat upper face of the throat-plate, serves to receive from the clearance aperture 22 the raw-edged marginal portions of the fabrics and lead them in distended arrangement beneath the presser-foot for proper presentation to the stitch-forming mechanism.

By reference to the drawing, it will be seen that the guide-slot 24 is considerably narrower than the clearance aperture 22, the former having a width only slightly in excess of the combined thickness of the overlapped plies m of fabric, while the latter has a width equivalent to at least the combined widths of the marginal portions m' of the plies beyond the uniting seam. The intersection of the slot 24 with the aperture 22 thus forms two laterally projecting and inwardly extending guide-lips adapted to enter the folds produced by opening out the initial uniting seam, as represented in Fig. 5, and serves not only to positively guide the two connected plies m at their uniting line of stitching s but to direct the underturned marginal portions m' smoothly to the covering stitch-forming mechanism without the puckering and consequent unevenness of the final product of the machine when provided with the parallel-sided groove heretofore employed to receive the downturned marginal portions. In other words, the guide thus afforded upon the cap serves to open out and direct flatwise between the throat-plate and the presser-foot the marginal portions of the united plies of fabric, as represented in Fig. 6.

As described more fully in my said application Serial No. 521,801, the shank of the single eye-pointed thread-carrying looper 25, coöperating with the needles 4 in the production of the covering seam, is secured in the tilting carrier 26 mounted upon a fulcrum-pin 27 sustained by the arm 28 of the looper-supporting and actuating rock-shaft, the carrier having guide-wings 29 affording a slideway for a block 30 which is carried by a jogging member 31 for rocking the looper upon its fulcrum-pin 27 to produce the sidewise needle-avoiding movements of the same. The looper in its cooperation with the needles, thus lays the covering thread upon the under side of the work to secure its marginal portions to the body and protect the raw edges against raveling. It is evidently immaterial to the present improvement what class of needle mechanism is employed to present to the looper needle-thread loops upon opposite sides of the uniting seam, as the manner of laying the needle-thread or threads upon the upper face of the fabric does not affect the nature of the seam as regards the lower face of the work; nor is it material relative to the present invention what class of loop-taker is employed to coöperate with the needle or needles beneath the work, so long as covering threads are laid intermediate the parallel rows of needle-punctures upon opposite sides of the uniting seam.

The guide-member, constructed as described, is obviously capable of use in producing a seam in which both of the raw-edged marginal portions m' of the fabric are turned under in the same direction and stitched to the lower face of one of the body fabrics by means of straight-away stitching mechanism.

Although the present improvement is herein disclosed in connection with a cylinder-bed machine, it is evidently adapted for embodiment in other types of machines, and is susceptible of considerable modification in the form and arrangement of its parts without departure from the scope of the invention.

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

1. In a sewing machine, the combination with stitch-forming mechanism including a needle, feeding devices, and a throat-plate having a plurality of needle-apertures arranged side by side relative to the direction

of feed, of a guide-member disposed in advance of said throat-plate and provided in the upper side with a longitudinal guide-slot narrower than the spacing apart of said needle-apertures and disposed in a line intermediate the same, said guide-member being formed with a longitudinal clearance aperture materially wider than said guide-slot and disposed beneath and in communication with the same and adapted to receive the marginal portions of two overlapped plies of fabric whose body portions rest upon the top of the guide-member with the attached intermediate portions extended through said guide-slot.

2. In a sewing machine, the combination with stitch-forming mechanism including a needle, feeding devices, and a throat-plate having a plurality of needle-apertures arranged side by side relative to the direction of feed and formed in its upper face with a clearance channel extending from the forward edge toward the space intermediate said needle-apertures and merging into the upper face, of a guide-member disposed in advance of said throat-plate and provided in the upper side with a longitudinal guide-slot narrower than the spacing apart of said needle-apertures and disposed in a line intermediate the same, said guide-member being formed with a longitudinal clearance aperture materially wider than said guide-slot and disposed beneath and in communication with the same and with said clearance channel of the throat-plate and adapted to receive the marginal portions of two overlapped plies of fabric whose body portions rest upon the top of the guide-member with the attached intermediate portions extended through said guide-slot.

3. In a sewing machine, the combination with a tubular work-supporting arm, a throat-plate secured upon said arm and overhanging its forward extremity, and stitch-forming mechanism including a reciprocating needle and a coöperating loop-taker supported by said arm beneath the throat-plate, of a tubular end-cap fitted to said arm and provided with a closed outer end having a peripheral portion extending in advance of the extremity of said throat-plate and provided in its upper side with a longitudinal aperture and a longitudinal guide-slot narrower than and adapted to connect the same with the periphery of the cap to form laterally projecting guide-lips extending toward each other and adapted to enter marginal folds of connected plies of fabric, said cap being cut away rearward of said aperture to form a recess embracing the needle-path, and means for securing said cap in operative position upon the extremity of the arm.

4. In a sewing machine, the combination with a tubular work-supporting arm, a throat-plate secured upon said arm and overhanging its forward extremity, stitch-forming mechanism including a pair of parallel reciprocating needles and a coöperating thread-carrying looper supported by said arm beneath the throat-plate, and feeding mechanism for advancing the work longitudinally of said arm, of a tubular end-cap fitted to said arm and provided with a closed outer end having a peripheral portion extending in advance of the extremity of said throat-plate and provided in its upper side with a longitudinal aperture of flattened cross-section directed toward the space intermediate the needles and a longitudinal guide-slot narrower than and adapted to connect the same with the periphery of the cap, said cap being cut away rearward of said aperture to form a recess embracing the needle paths, means for securing said cap in operative position upon the extremity of the arm, and a presser-foot provided with a fin or keel in register with said guide-slot of the cap.

5. In a sewing machine, the combination with stitch-forming mechanism including a needle, feeding devices, and a throat-plate, of a guide-member disposed in advance of said throat-plate and provided in the upper side with a longitudinal guide-slot directed to one side of the path of movement of said needle and formed with a longitudinal clearance aperture materially wider than said guide-slot and disposed beneath and in communication with the same for reception of the marginal portions of two overlapped plies of fabric whose body portions rest upon the top of the guide-member with the attached intermediate portions embraced by said guide-slot.

6. An end cap adapted for application to the tubular work-supporting arm of a sewing machine and formed with a tubular body cut away at one side to form a longitudinal recess and provided with a closed end having a longitudinal aperture in register with said recess and a central longitudinal guide-slot narrower than and adapted to connect said aperture with the periphery, and means whereby the cap may be secured to said arm.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE E. MOLYNEUX.

Witnesses:
HENRY A. KORNEMANN, Jr.,
W. P. STEWART.