

Dec. 28, 1926.

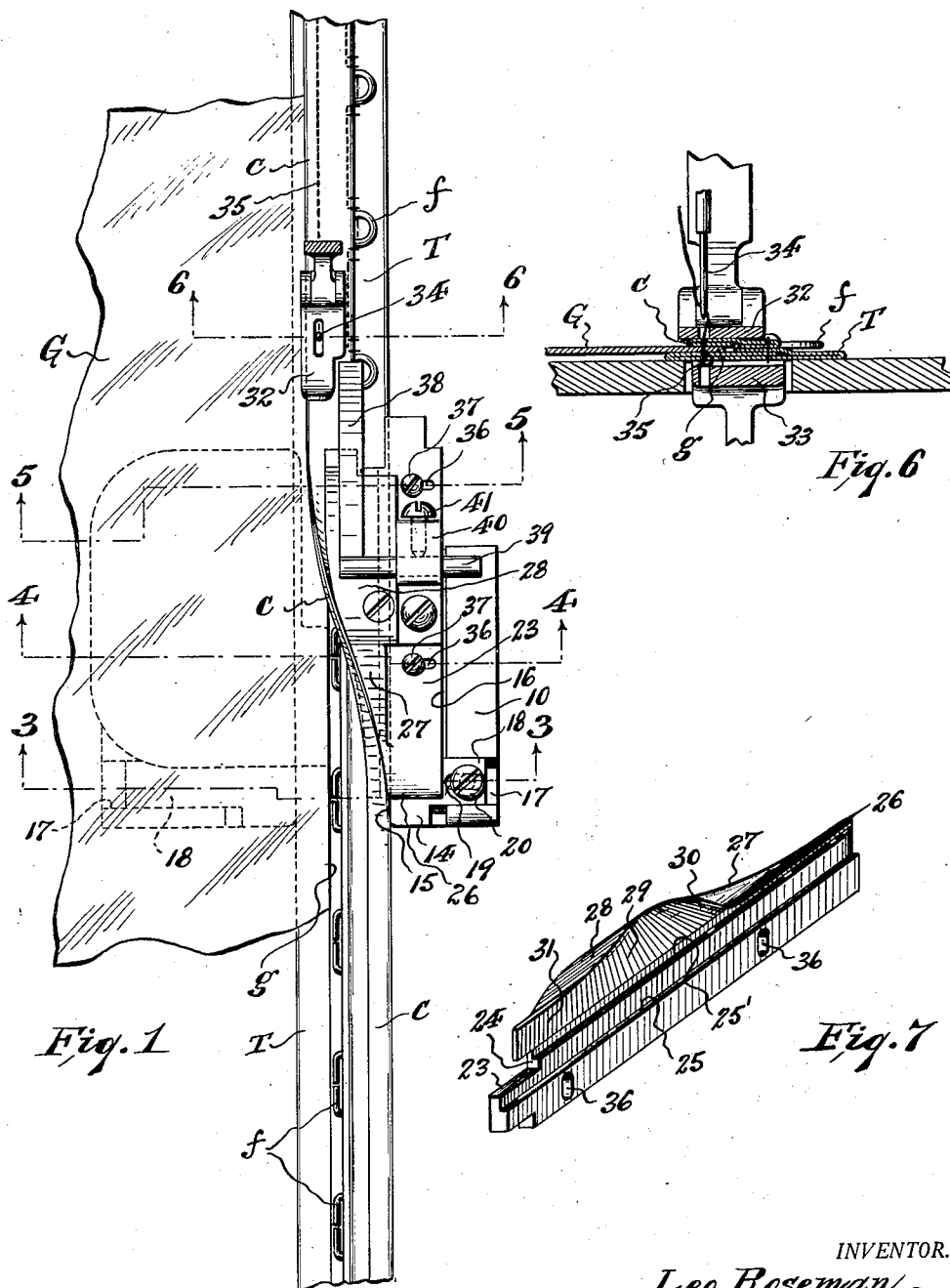
1,612,397

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TURNOVER GUIDE PLATE FOR APPLYING CONCEALED FASTENER TAPE TO GARMENT
EDGES BY SEWING MACHINE OPERATIONS

Filed Jan. 9, 1926

2 Sheets-Sheet 1



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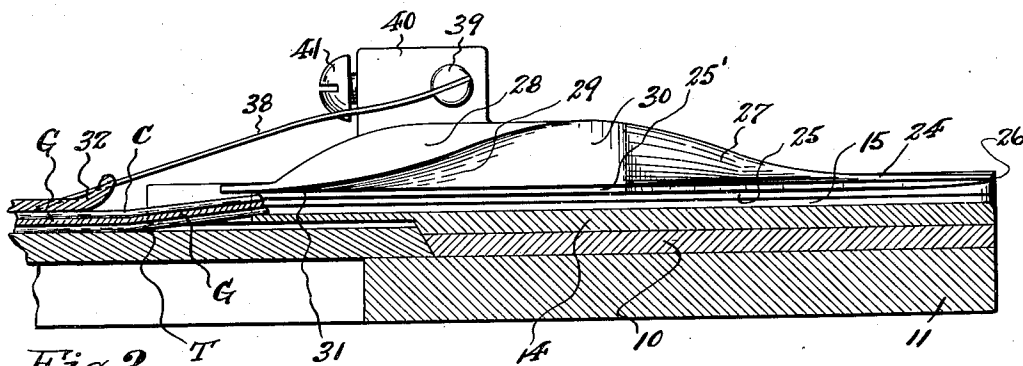


Fig. 2

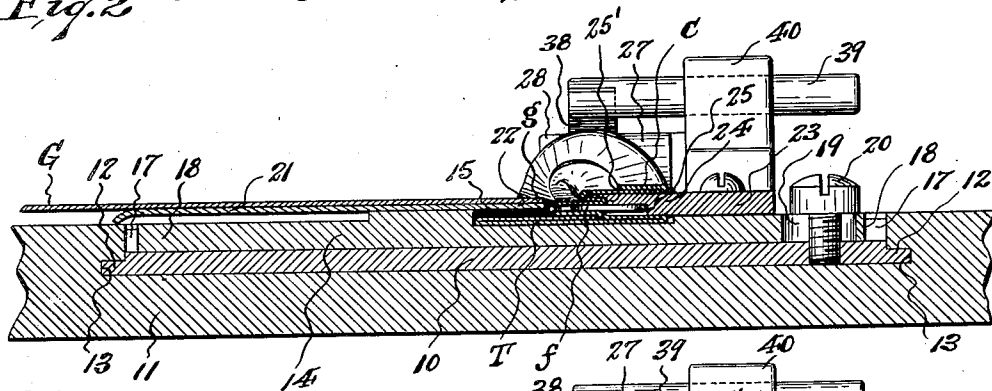


Fig. 3

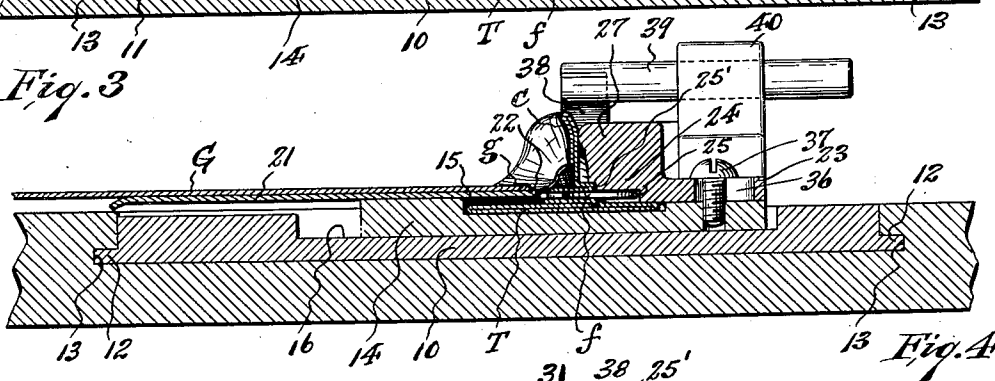


Fig. 4

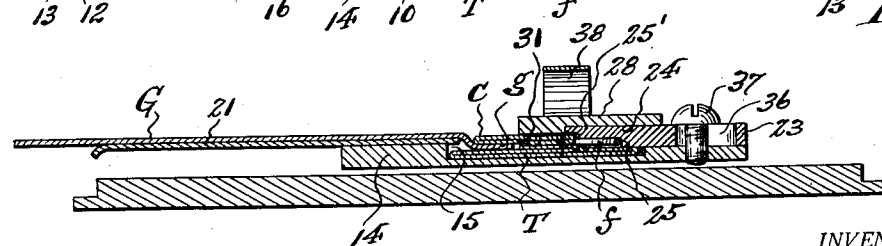


Fig. 5

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TURNOVER GUIDE PLATE FOR APPLYING CONCEALED FASTENER TAPE TO GARMENT EDGES BY SEWING-MACHINE OPERATIONS.

Application filed January 9, 1926. Serial No. 80,178.

This invention relates, generally, to improvements in turn-over guide-plates for sewing machines adapted to apply fastener tape, of the so-called "concealed" type, to a garment opening edge, subject to the stitching operations of the sewing machine.

Manufacturers of women's garments, such as brassières and similar garments, have heretofore employed fastener tape, provided at spaced intervals with fastening devices, such as hooks and eyes, which tape is sewn to the garment opening edges by machine, thus avoiding necessity for separately sewing each fastener per se to the garment, while at the same time assuring the proper spaced relation of the fasteners along the garment edge.

For use in connection with the better classes of women's garments, a fastener tape of the so-called "concealed" type has been provided. In this kind of fastener tape, the body of the tape, upon which the fasteners are mounted, is provided with a covering strip or section having one edge stitched to the main tape body and over the fasteners, and arranged to overlie and conceal the bodies or bases of the fasteners, leaving only the operative forward portions thereof exposed at or on the face and adjacent to the outer edge of the main tape member, the opposite edge of the covering strip or section being initially free.

In applying such concealed fastener tape to a garment, the garment edge is inserted, at one or the inner side of the tape, intermediate the main tape member and the free edge portion of said covering strip or section, whereupon the thus related parts of the tape and garment are suitably stitched together so as to operatively secure the tape to the garment, and at the same time also conceal the raw edge of the garment opening. In order to facilitate the application of the garment edge to the tape, said covering strip or section is preferably initially turned forward to overlie the outer marginal portions of the tape, to thus expose the inner marginal portions of the latter with which the garment edge is to be engaged. Prior to the sewing operation the initially outwardly or forwardly turned cover strip or section must be turned inward and back upon the applied garment edge to enclose the same, and so that the subsequently produced stitching may join the tape body, gar-

ment edge portion and the free edge of the covering strip or section all firmly together, thus not only producing a strong and secure attachment of the tape to the garment, but also providing a very neat and pleasing finish to the garment edge opening.

It is the object of this invention to provide a simple and effective turn-over guide plate, in advance of the sewing needle mechanism of a sewing machine, which will not only properly guide the tape and the applied garment to the sewing needle mechanism, but which will also automatically manipulate the covering strip or section so as to turn the same over and back upon the applied garment edge portion preparatory to the stitching operation.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of the novel turn-over guide plate, showing the relation thereto of a presser foot and needle of a sewing machine, and also showing the operative relation thereto of the fastener type and garment edge portion to which the tape is applied; Figure 2 is a detail vertical longitudinal section through the turn-over guide plate, drawn on an enlarged scale; Figures 3, 4 and 5 are respectively transverse sections taken respectively on lines 3—3, 4—4, and 5—5 in Figure 1, said views being also drawn on an enlarged scale. Figure 6 is an enlarged transverse section, taken on line 6—6 in Figure 1; and Figure 7 is an enlarged detail perspective view of the turnover elements of the guide-plate.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to said drawings, the reference character 10 indicates a base plate adapted to be mounted in connection with the work table 11 of a sewing machine. Said base plate 10 may be connected with said work table 11 in any manner found convenient or desirable; e. g., said base plate may be provided at its opposite sides with tongues 12 slidably receivable in corresponding grooves 13 provided in said work table 11. Supported upon said base-plate 10, preferably so as to be subject to lateral ad-

justment thereon, is a guide channel plate 14, having a longitudinal guide channel 15 to receive the body of the fastener tape T to be fed therethrough. Said base plate 10 is preferably provided with a counter-sunk seat space 16 in which said guide channel plate 14 is disposed, and extending transversely from opposite sides of said seat space are alined slide grooves 17. Said guide channel plate 14 is provided with laterally extending arms 18 projecting from each side thereof so as to be slidably engaged in said slide grooves 17. At least one of said arms 18 is provided with a slotted opening 19 through which passes a lock screw 20 that screws into said base plate 10. By loosening said lock screw 20 the guide channel plate 14 may be shifted laterally in either direction to position the same so as to align its guide channel 15 in desired relation to the stitching mechanism of the sewing machine. When adjusted to desired position said guide channel plate may be locked by tightening said lock screw 20.

Secured upon the top of said guide channel plate 14 adjacent to one side of said guide channel 15 is a garment supporting plate 21, the inner marginal edge portion 22 of which preferably overhangs one side of said guide channel 15, thus acting as a keeper portion for retaining the inner side of the fastener tape T passing through said guide channel 15 from upward displacement from the latter, while at the same time supporting the opening edge portion *g* of the garment G above said inner marginal edge portions of the tape body T so that the cover strip *c* of the tape may be turned back over said garment edge portion *g*, and both garment G and tape T moved forward to the sewing point with the garment edge portion *g* inserted and enclosed between the inner edge portion of the tape T and the cover strip *c* of the latter.

Secured upon the top of said guide channel plate 14 adjacent to the opposite side of said guide channel 15 is a guide member 23 provided with a keeper portion 24 arranged to overhang said opposite side of said guide channel 15, thus acting to retain the outer side of the fastener tape T passing through said guide channel 15 from upward displacement from the latter. The under or guide channel facing side of said keeper portion 24 is shaped to provide a guiding shoulder 25 adapted to be engaged by the outer freely projecting extremities of the fasteners *f* of the tape T, whereby said tape is held against lateral displacement or shifting while passing through said guide channel 15, and the true properly aligned forward movement of the tape relative to the sewing mechanism of the machine is assured. As a further aid in guiding the tape, the under or guide channel facing side of said keeper portion 24 is fur-

ther provided with an additionally undercut portion to form a second guide shoulder 25' positioned to abut, engage and guide the initially stitched margin of the cover strip *c*. The rearward end of said guide member 23 located adjacent to the receiving end of the guide channel 15 is preferably sharpened laterally to provide a thin blade-like portion 26 adapted to enter between the tape body T and the initially outwardly or forwardly turned cover strip *c* thereof, whereby as the tape body enters the guide channel 15, the cover strip *c* will ride upwardly upon the upper or top surface of said overhanging keeper portion 24 of said guide members 23 (see Figure 3). Connected with the rearward end portion of said guide member 23 is a forwardly and upwardly inclined lifting member 27, which is disposed on the top of said overhanging keeper portion 24 so as to lie in the path of the cover strip *c* of the tape. As the tape T is fed forward through the guide channel 15, with the cover strip *c* moving forward on the said keeper portion 24, said cover strip *c* will ride upward on said lifting member 27, which will operate to turn said strip upwardly as shown in Figure 4.

Suitably connected with said guide member 23 to abut the forward end of said lifting member 27, and to extend forwardly from the latter, is a turn-over member or block 28 disposed to overhang the discharge end portion of said guide channel 15. Said turn-over member or block 28 is provided with a helicoid guide surface 29 bordering or overhanging said guide channel 15; said helicoid guide surface 29 beginning at its rearward end, where the same abuts the end of said lifting member 27, in a substantially vertical plane, as at 30, and proceeding forward in constantly changing plane to a substantially horizontal plane, as at 31, so as to overhang the discharge end of said guide channel 15, all as shown more particularly in Figures 2 and 7.

As shown in Figure 1, the tape T proceeds through the guide channel plate 14, with the garment G moving therewith over the supporting plate 21 so that its edge *g* is registered above the inner marginal portions of said tape T. As the tape T and garment G thus progress, the cover strip *C* of the tape will ride upwardly on the lifting member 27, being thereby turned upward as already explained, whereupon, after leaving the lifting member 27, said cover strip *C* will be engaged by the helicoid guide surface 29 of turn-over member or block 28, so that by its continued progress in such contact, it will be gradually turned rearwardly and downwardly, until at the point of issue from the guide-channel 15 it will be positioned to overlies the garment edge *g*, as shown in Figure 5 of the drawings, ready

for the stitching operations of the needle mechanism of the machine.

Upon issuing from the guide channel 15 the assembled tape and garment passes beneath the presser foot 32 of the sewing mechanism of the machine, so as to be engaged between the same and the feed-dog 33 (see Figure 6), whereby the assembled materials are fed onward beneath the reciprocated sewing needle 34, all in the manner familiar to those acquainted with the sewing machine art. The reciprocation of the sewing needle 34 will produce the line of stitching 35 which securely interconnects the assembled tape and cover strip edges with the garment edge interposed therebetween. It will be understood that, if it is so desired, a two-needle sewing mechanism may be provided to form lines of stitching respectively through the edge portion of the cover strip *c*, garment edge *g* and tape body *T*, and through the garment *G* and underlying main tape body *T* beyond the edge of said cover strip *C*, or any other arrangement of stitching be employed.

It may be here pointed out that the guide-member 23, with its lifting member 27 and turn-over member or block 28, may be so mounted on said guide channel plate 14 as to be subject to lateral adjustment relative to the guide channel 15, so that the same may be fitted to cooperate properly with the tape *T* and its cover strip *c*, and with the guiding shoulder 25 properly disposed relative to the free extremities of the fasteners *f* with which the tape is provided, and with the guiding shoulder 25' abutting the initially stitched margin of the cover strip *c*. The means for so adjustably mounting said guide-member 23 may e. g. consist in the provision therein of transverse slots 36, through which fastening screws 37 may be passed to screw into the body of said guide channel plate 14.

Means is provided in connection with the above described turn-over guide plate for engaging the cover strip *c* as the assembled tape and garment issues from said turn-over guide plate, and in advance of the sewing mechanism, which is adapted to assure the smooth and flat lying of said cover strip *c* over the inclosed edge *g* of the garment, free from puckers or partial displacements. This means consists of a resilient tension arm adapted to bear upon the assembled tape and garment material, and particularly upon the cover strip *c* of the former, with sufficient pressure to iron or smooth down the latter. Said resilient tension arm consists, preferably, of a flat spring body 38 secured by its rearward end to a laterally disposed carrying arm 39. Said carrying arm 39 is supported in a bearing block 40, which is fixed on said guide-member 23, so that the same may be rotatably adjusted to regulate

the bearing tension of the free end of said spring 38 upon the assembled material. A set screw 41 threaded into said bearing block 40 is utilized to lock said carrying arm 39 in desired adjusted position.

I am aware that some changes may be made in the various arrangements and combinations of the several devices and parts, as well as in the details thereof, without departing from the scope of the present invention as described in the foregoing specification, and as defined in the appended claims. Hence, I do not limit this invention to the exact arrangements and construction of said devices and parts as described in the foregoing specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

I claim:—

1. In a device of the kind described, a channeled guide plate through and over which fastener tape provided with an initially opened cover strip may be passed together with the tape receiving edge portion of a garment arranged to overlie that portion of the fastener tape exposed by said opened cover strip, a guide-member connected with said channeled plate having a member to overhang the outer side of the channel in said channeled guide plate, said overhanging member having a guide shoulder to engage the extremities of the fasteners of said tape, and said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip preparatory to sewing the assembled tape and garment together.

2. In a device of the kind described, a channeled guide plate through which fastener tape provided with an initially opened cover strip may be passed, a supporting plate adjacent to one side of the channel of said channeled guide plate over which a garment portion may be passed in overlying relation to the main tape body, a guide member connected with said channeled guide plate cooperatively with the opposite side of the channel thereof, and said guide-member having means to lift and fold over on to said overlying garment portion said opened cover strip preparatory to sewing the assembled tape and garment portion together.

3. In combination with the stitching mechanism of a sewing machine, a channeled guide plate in advance of said stitching mechanism through and over which fastener tape provided with an initially opened cover strip may be passed together with the tape receiving edge portion of a garment arranged to overlie that portion of said fastener tape exposed by said opened cover strip, means for adjustably supporting said

channeled guide plate for operative alignment with said stitching mechanism, a guide member connected with said channeled guide plate, said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip prior to delivery of the assembled tape and garment to said stitching mechanism, and a resilient tension arm operative to engage and smooth out said assembled tape and garment as the same passes from said channeled guide plate to said stitching mechanism.

4. In combination with the stitching mechanism of a sewing machine, a channeled guide plate through which fastener tape provided with an initially opened cover strip may be passed together with the tape receiving edge portion of a garment arranged to overlie that portion of the fastener tape exposed by said opened cover strip, means for adjustably supporting said channeled guide plate for operative alignment with said stitching mechanism, a guide member connected with said channeled plate having a member to overhang the outer side of the channel of said channeled guide plate, said overhanging member having a guide shoulder to engage the extremities of the fasteners of said tape, and said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip prior to delivery of the assembled tape and garment to said stitching mechanism.

5. In combination with the stitching mechanism of a sewing machine, a channeled guide plate through which fastener tape provided with an initially opened cover strip may be passed together with the tape receiving edge portion of a garment arranged to overlie that portion of the fastener tape exposed by said opened cover strip, means for adjustably supporting said channeled guide plate for operative alignment with said stitching mechanism, a guide member connected with said channeled plate having a member to overhang the outer side of the channel of said channeled guide plate, said overhanging member having a guide shoulder to engage the extremities of the fasteners of said tape, said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip prior to delivery of the assembled tape and garment to said stitching mechanism, and a resilient tension arm operated to engage and smooth out said assembled tape and garment as the same passes from said channeled guide plate to said stitching mechanism.

6. In combination with the stitching mechanism of a sewing machine, a channeled guide plate through which fastener tape provided with an initially opened cover strip

may be passed, a supporting plate on said channeled guide plate adjacent to one side of the channel thereof over which a garment portion may be passed in overlying relation to the main tape body, means for adjustably supporting said channeled guide plate for operative alignment with said stitching mechanism, a guide member connected with said channeled guide plate having a member to overhang the opposite side of the channel thereof, said overhanging member having guide shoulders to engage both the extremities of the fasteners of said tape and an edge of the cover strip thereof, and said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip prior to delivery of the assembled tape and garment to said stitching mechanism.

7. In combination with the stitching mechanism of a sewing machine, a channeled guide plate through which fastener tape provided with an initially opened cover strip may be passed, a supporting plate on said channeled guide plate adjacent to one side of the channel thereof over which a garment portion may be passed in overlying relation to the main tape body, means for adjustably supporting said channeled guide plate for operative alignment with said stitching mechanism, a guide member connected with said channeled guide plate having a member to overhang the opposite side of the channel thereof, said overhanging member having guide shoulders to engage both the extremities of the fasteners of said tape and an edge of the cover strip thereof, said guide member having means to lift and fold over on to said overlying garment edge portion said initially opened cover strip prior to delivery of the assembled tape and garment to said stitching mechanism, and a resilient tension arm operative to engage and smooth out said assembled tape and garment as the same passes from said channeled guide plate to said stitching mechanism.

8. In a device of the kind described, a guide plate having a tape receiving channel, a guide member on said guide plate bordering and overhanging one side of said channel, said guide member having at its rear end portion an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel.

9. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate

bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having at its rear end portion an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel.

10. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having at its rear end portion an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel, and means for supporting said guide plate subject to lateral adjustment.

11. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having at its rear end portion an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel, and a resilient tension arm having its free end projected beyond the discharge end of said guide plate channel, and means for supporting said tension arm.

12. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having a portion overhanging said guide plate channel, said overhanging portion having at its under side stepped guide shoulders engageable respectively by the fasteners of tape passing through said guide plate channel and the initially stitched margin of a cover strip on said tape, said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a

teners of tape passing through said guide plate channel and the initially stitched margin of a cover strip on said tape, said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel.

13. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having a portion overhanging said guide plate channel, said overhanging portion having at its under side stepped guide shoulders engageable respectively by the fasteners of tape passing through said guide plate channel and the initially stitched margin of a cover strip on said tape said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a substantially horizontal plane adjacent to the discharge end of said guide plate channel, and means for supporting said guide plate subject to lateral adjustment.

14. In a device of the kind described, a guide plate having a tape receiving channel, a supporting plate on said guide plate bordering one side of the channel thereof, a guide member on said guide plate bordering the opposite side of said channel, said guide member having a portion overhanging said guide plate channel, said overhanging portion having at its under side stepped guide shoulders engageable respectively by the fasteners of tape passing through said guide plate channel and the initially stitched margin of a cover strip on said tape, said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guide surface changing in plane from a substantially vertical plane adjacent to said lifting member to a

substantially horizontal plane adjacent to the discharge end of said guide plate channel, and a resilient tension arm having its free end projected beyond the discharge end of said guide plate channel, and means for supporting said tension arm.

15. In a device of the kind described, a guide plate having a tape receiving channel, a guide member on said guide plate bordering one side of said guide plate channel, said guide member having a portion overhanging said guide plate channel, said overhanging portion having at its under side a guide shoulder engageable by the fasteners of tape passing through said guide plate channel, said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guiding surface.

16. In a device of the kind described, a guide plate having a tape receiving channel, a guide member on said guide plate bordering one side of said guide plate channel, said guide member having a portion overhanging said guide plate channel, said overhanging portion having at its underside a guide shoulder engageable by the initially stitched margin of a cover strip with which said tape is provided, said overhanging portion having adjacent to the receiving end of said guide plate channel an upwardly and forwardly inclined lifting member, a turn-over block on said guide member extending forwardly from said lifting member, and said turn-over block having in overhanging relation to said guide plate channel a helicoid guiding surface.

In testimony that I claim the invention set forth above I have hereunto set my hand this 24th day of November, 1925.

LEO ROSEMAN.