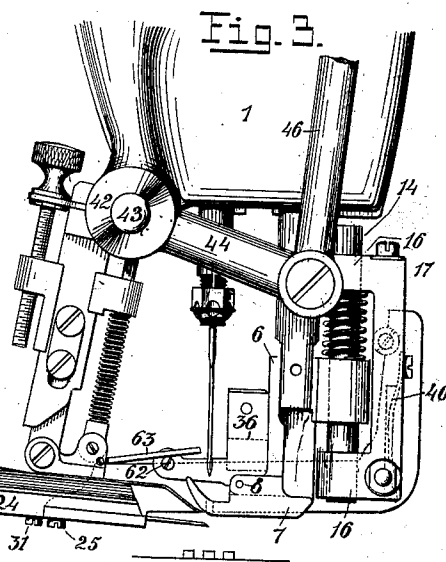
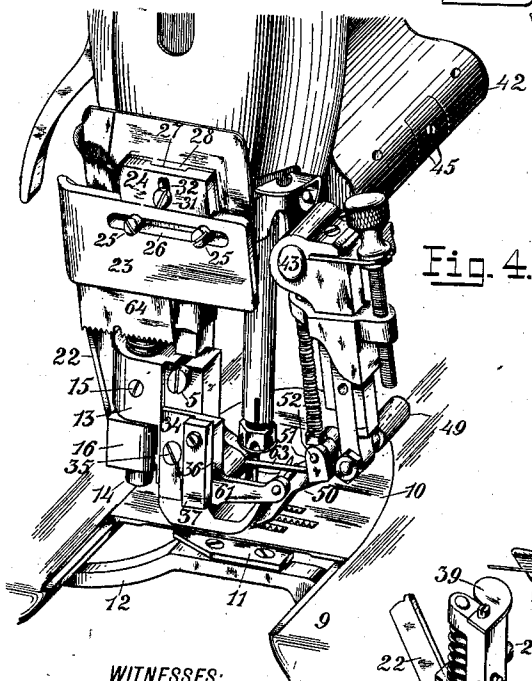
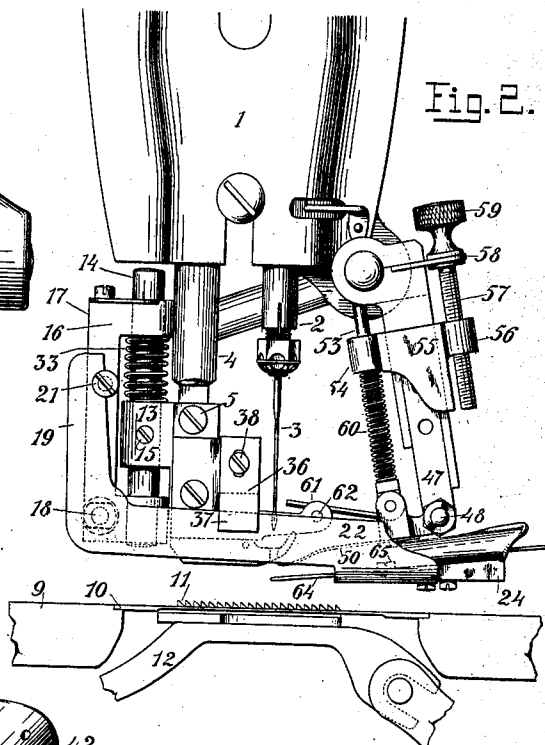
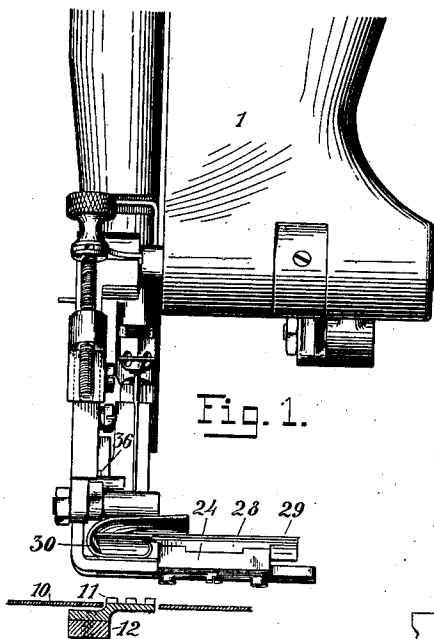


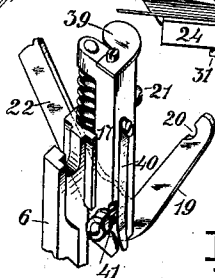
A. H. DE VOE.
 BUFFLING AND FOLDING ATTACHMENT.
 APPLICATION FILED APR. 22, 1907.

991,428.

Patented May 2, 1911.



WITNESSES:
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RUFFLING AND FOLDING ATTACHMENT.

991,428.

Specification of Letters Patent.

Patented May 2, 1911.

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To all whom it may concern:

Be it known that I, ALBERT H. DE VOE, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Ruffling and Folding Attachments, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a ruffling and folding attachment for sewing machines which is effective in operation and conveniently handled for the various kinds of work which such attachments are required to perform. In connection with such operations upon ladies' skirts and similar articles involving the folding, ruffling and stitching of endless seams extending completely around the garment, it is necessary to shift the folding member out of operative relation with the work preparatory to stitching the latter portion of the seam, as is well known, and it has been customary heretofore to withdraw such member in a direction opposite to that of the travel of the work, with the consequent provision of a considerably larger remainder of work to be stitched after such withdrawal, the material being also laterally displaced from the ruffling member as well as the folding member to permit of the latter's disengagement.

It is one of the primary objects of the present improvement to so mount the folding member as to permit its lateral withdrawal from the fold without displacing the body of the material, and merely temporarily turning over the overlapped portion of the fold for such disengagement preparatory to refolding by hand the unstitched portion of the material before finishing the seam.

To this end, the present improvement comprises, in its preferred form, a folding member adjustably mounted upon a carrier having a universal connection with the presser-foot of the sewing machine and means for maintaining it in operative and inoperative positions. The separator-blade of the ruffling device is preferably secured to and sustained by the carrier for the folding member, and thus adapted to be shifted into and out of operative position with the same, and means are provided whereby, when the presser-foot is lifted for insertion

or removal of the work, the ruffler and separator-blades are separated to permit of the easy adjustment of the material between the same while the separator-blade is raised with the presser-foot sufficiently to afford ample clearance beneath it for the body fabric to which the ruffled and folded fabric is to be stitched.

The invention will be understood by reference to the drawings annexed, in which—

Figure 1 is a front elevation representing a portion of the forward end of the bracket-arm and the bed-plate of a sewing machine provided with the present improvement, Figs. 2 and 3 elevations of the same from opposite sides, Fig. 4 a perspective view of the same with the folding member shifted into its inoperative position, and Fig. 5 a detail perspective view of a portion of the carrier for the folder and the connected parts.

The head of the bracket-arm 1 is provided with the usual needle-bar 2 carrying the needle 3 and with the presser-bar 4 to which is secured by the screw 5 the shank 6 of the presser-foot having a foot portion 7 pivoted thereto by means of a pin 8. The bed-plate 9 is provided with a throat-plate 10 having the usual feed-openings for the feed-dog 11 carried by the feed-bar 12.

The shank of the presser-foot is provided with a rearwardly extending lug 13 having a vertical aperture to which is fitted the post 14 secured therein by means of the set-screw 15. To the upper and lower end portions of the post 14 are fitted the spaced lateral arms 16 of a sliding and rocking frame 17 upon the lower end of which is pivotally mounted by means of its transverse stud 18 an angular lever having one arm 19 formed with a lateral notch 20 to engage a stop-screw 21 upon the frame 17, and another arm 22 having a laterally extending portion bent into angular relation therewith to form a carrier-plate 23 for the edge-folding member.

The carrier-plate is provided with a straight outer edge serving as a kind of guide-way to which is fitted the adjacent edge of a block 24 secured to the same by means of fastening-screws 25 passing through a parallel slot 26 in the plate 23 and entering an overlying portion of such block. The block 24 is provided with a channel or guide-way 27 disposed crosswise of the guid-

ing edge of the plate 23, to which is fitted a corresponding rib of a backing plate 28 attached to the lower face of the folder-plate 29 embraced by the edge-turning scroll 30 of the folding member in a manner well known. The intermediate block 24 is secured to the backing plate 28 by means of a fastening-screw 31 passing through a slot 32 in the block 24 parallel with its rib and entering said rib.

By loosening the fastening-screws 25 or 31, or both, the folder may be shifted longitudinally or transversely of the carrier-plate 23 for adjustment of its position in respect of the other members of the attachment.

Intermediate the lug 13 and the upper arm 16 of the frame 17 is interposed a spring 33 for maintaining such frame yieldingly in raised position, the lever-arm 22 being locked in operative position by means of a keeper afforded by a plate 34 secured to the presser-foot shank by a screw 35 and notched in its lower portion to form a shoulder 36 to receive the upper edge of the arm 22, which is confined therein from sidewise movement by means of a depending finger 37 secured to the plate 34 by means of a screw 38.

When the presser-foot is lowered to operative position, the upper edge of the arm 22 rests against the shoulder 36, and is confined from lateral disarrangement by means of the finger 37, but when the presser-foot is raised, as represented in Figs. 1, 2 and 3 of the drawings, the frame 17 may be readily depressed against the action of its spring 33 by a slight downward pressure upon the finger-piece 39 upon the carrier-sustaining frame 17 for disengagement of the arm 22 from its keeper, when the bracket with the parts carried thereby may be readily swung around away from the needle-path, and the angle-lever 19 22 turned upwardly as represented in Fig. 4, being maintained in such inoperative position by engagement of the flat spring 40 with a flattened portion 41 of the pivotal stud 18.

The ruffling mechanism of the machine herein partially represented is or may be that of my United States Patent No. 837,668, of December 4, 1906. The head of the bracket-arm 1 is provided with a longitudinally disposed bearing 42 in which is mounted a short rock-shaft 43 deriving its rocking movements from a crank-arm 44 fixed to said shaft by means of a set-screw 45 and having its outer end connected with a reciprocating link 46 forming a member of the actuating mechanism. To the forward end of the rock-shaft 43 is secured a two-part rock-lever 47 having endwise-adjustable sections, of which the lower is connected by means of a pivotal pin 48 with the ruffler-blade carrier 49 to which is attached the ruffler-blade 50.

As indicated in the drawings, the ruffler-blade is not perfectly flat as is usual, but its

forward end portion has a double bend, whereby the extreme forward end having the serrated knife-edge is substantially parallel with but offset from that portion adjacent the carrier 49. The object of this is to permit the folder to be adjusted comparatively close to the position in which the ruffler-blade engages the work without interfering with the action of the same, and at the same time to insure the engagement of the operative edge of the ruffler-blade at the most effective angle with the work upon which it acts. By this means also, the connected end of the carrier 49 is permitted to extend downwardly near the work so as to direct the thrust of the ruffler-blade upon the material in the most advantageous manner, while serving as a stop whereby, when the folder is lifted with the presser-foot it engages the lower face of the ruffler-blade carrier and serves to lift the blade entirely clear of the work, as represented in Figs. 1, 2 and 3, for insertion or removal of the same from the machine.

The ruffler-blade carrier 49 is shown provided with lugs 51 between which is pivoted by means of the pin 52 the eyed end of a guide-rod 53 extending upwardly through a guide-lug 54 of a channeled slide-block 55 fitted to slide upon the rock-lever 47 and provided upon its opposite side with an ear 56 entered by an adjusting screw 57 swiveled in a thrust-plate 58 projecting from the upper end of the lever 47 and provided with a head 59 for turning the same to shift the slide-block 55. The guide-rod 53 is provided near its lower end with a collar between which and the guide-lug 54 is interposed a spring 60 serving to normally press the carrier 49 downwardly, and hence maintain the ruffler-blade 50 in engagement with the work. By turning the screw 57 and shifting the slide-block 55 upon the lever 47, the pressure of the spring 60 upon the carrier 49, and hence the pressure of the blade 50 upon the work, may be varied to suit the class of work operated upon.

While the lifting of the presser-foot with the folding member sustained thereby normally causes the lifting of the ruffler-blade from contact with the work, means are herein represented for maintaining the ruffler out of engagement with the work when the folding member is shifted out of operative relation with the presser-foot as represented in Fig. 4. To this end, the plate 34 carried by the presser-foot is provided with an arm 61 carrying a laterally extending lifting screw-pin 62, which is adapted to engage a pin 63 projecting forwardly from the ruffler-blade carrier. The pins 62 and 63 are so disposed upon their respective supporting parts that when the presser-foot is lowered into operative relation with the work, such pins are out of contact, but when the presser-foot is raised

from the goods the pin 62 by engagement with the pin 63 serves to hold the ruffler-blade in its raised position.

As represented in Fig. 2, partially in dotted lines, the separator-blade 64, of usual form, is secured by means of screws 65 upon the carrier-plate 23, and acts in the usual manner to shield from the feed-dog the fabric engaged by the ruffler-blade, and to detain the same beneath the forward portion of the presser-foot while the ruffler-blade recedes after each forward or operative stroke. By securing the separator-blade to the carrier-plate which is subject to the yielding pressure of the spring 33, the blade 64 need not be made thin to give flexibility so as to insure the necessary yielding quality, but may be made rigid, and sufficiently thick to form with the upturned forward end of the presser-foot and the upper face of the feed-dog a space to receive the folds of the fabric presented by the ruffler-blade and thereby insure their detention upon the retraction of the latter.

In the normal use of the attachment, the needle being in elevated position, the presser-foot is raised as represented in Figs. 1, 2 and 3, whereby not only is a clear space left intermediate the several members of the attachment and the work-plate and feed-dog, but the ruffler-blade 50, which is engaged by the top of the folder, is forcibly lifted in opposition to its spring above the separator-blade 64. The body of the material is then readily introduced between the presser-foot and work-plate, and the edge of the fabric to be folded and ruffled is introduced into the folding member above and around the left-hand edge of the plate 29 and within the scroll 30, after which the presser-foot is lowered, which releases the ruffler-blade and allows it to descend into engagement with the folded fabric resting upon the separator-blade 64. The machine is now operated to stitch the seam until the starting point is nearly reached, when the presser-foot is raised and the frame 17 depressed in opposition to its spring 33 sufficiently to free the arm 22 from the finger 37, when the same is swung outwardly away from the needle and is then turned upwardly upon its pivotal-stud 18 into the position represented in Fig. 4. The portion of the fold temporarily disturbed by withdrawal of the folding member is then returned by hand and the operation of the machine continued to stitch the remainder of the seam, the lower fabric, maintained taut by the operator for the purpose, serving to shield the serrated edge of the ruffling blade from the feed-dog.

A material advantage is gained by sustaining the folding member and separator-blade upon the vertically yielding supporting member afforded by the frame 17, as by such means the several parts not only main-

tain their proper relations under all conditions, insuring the uniform efficiency of the device, but the separator-blade is prevented from effecting the slight advancing and receding movements in respect of the forward position of the ruffler-blade knife-edge which would result in operation upon materials of different thickness were the separator-blade carried by a vertically-swinging instead of a bodily-yielding part. The support of the separator-blade as herein described enables the latter to follow the rising and falling movements of the presser-foot with the feed-dog when the machine is in operation so as to insure a uniform action upon the work in connection with the ruffler-blade delivering successive folds between such parts, and also to maintain a uniform pressure upon the forward portion of the pivoted foot-member when tilted in passing over seams or other obstructions, and the spring-connection of the separator-blade with the presser-foot has therefore an additional function when the latter has a pivoted foot-portion.

As will be observed by reference, more particularly to Fig. 4, the fastening-screws 25 and 31, by which the carrier-plate 23 and backing plate 28 of the folder are adjustably secured to the intermediate block 24, are so applied that their heads are exposed upon the under faces of the parts which they engage, whereby they are exposed for convenient manipulation when the folder is thrown upwardly into elevated inoperative position, as represented in Fig. 4.

The present improvement is susceptible of considerable modification in the construction and arrangement of its various parts without departure from the present invention. It is to be understood that, as the presser-foot is rigidly secured to the presser-bar by which it is carried, these parts may be considered, as related to the present improvement, as portions of the same pressure member from either of which the folder may be supported.

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

1. The combination with a sewing machine constructed with a bed-plate and an overhanging bracket-arm, and stitch-forming mechanism comprising a reciprocating needle, of an attachment comprising a guiding member, a carrier therefor, a support for said carrier sustained by the bracket-arm, and a universal joint connection between said carrier and its support and disposed rearward of the needle, whereby said guiding member may be shifted from operative position in front of the needle to an inoperative position above said universal joint connection and at one side of the needle.

2. The combination with a sewing machine constructed with a bed-plate and an overhanging bracket-arm, and stitch-forming

mechanism comprising a reciprocating needle, of an attachment comprising an oscillating frame, a fulcrum sustained by the bracket-arm parallel with the needle path and upon which said frame is loosely mounted, a carrier pivotally mounted upon said frame and having its fulcrum disposed transversely to that of said frame, whereby the same is adapted to be shifted laterally and upwardly for arrangement at the side of the stitch-forming mechanism, and a guiding member mounted upon said carrier and normally directed toward the stitch-forming mechanism.

3. The combination with a sewing machine constructed with a bed-plate and an overhanging bracket-arm, and stitch-forming mechanism comprising a reciprocating needle, of an attachment comprising a guiding member, a carrier therefor, a support for said carrier sustained by the bracket-arm, a universal joint connection between said carrier and its support and disposed rearward of the needle, whereby said guiding member may be shifted from operative position in front of the needle to an inoperative position above said universal joint connection and at one side of the needle, positively acting means engaging the carrier for retaining it in operative position, and spring-actuated means for maintaining the carrier in elevated inoperative position.

4. A sewing machine attachment comprising a presser-foot, a guiding member, a carrier therefor, a sustaining frame for said carrier having a vertically yielding pivotal connection with said presser-foot, and a keeper carried by said presser-foot and having a vertically extending notch or socket entered by a member of the carrier for retaining the same against movement upon its pivotal connection with the presser-foot.

5. A sewing machine attachment comprising a presser-foot, a vertically-sliding yieldingly-supported swinging frame carried by said presser-foot, a guiding member, a carrier therefor supported by said swinging frame, and means whereby said rocking frame is prevented from turning.

6. A sewing machine attachment comprising a presser-foot, a vertically-sliding and yieldingly-supported swinging frame carried by said presser-foot, a guiding member, a carrier therefor having a pivotal connection with said swinging frame adapted to permit a vertical movement upon the same, a stop for limiting the downward movement of said carrier in respect of said swinging frame, and a keeper carried by said presser-foot and adapted to engage and maintain said carrier against upward movement when in operative position.

7. A sewing machine attachment comprising a presser-foot, a vertically-sliding and yieldingly-supported swinging frame car-

ried by said presser-foot, a guiding member, a carrier therefor including an angular lever pivotally mounted upon said swinging frame and having a supporting arm and a stop-arm, a stop-shoulder upon the swinging frame for engagement with said stop-arm, and a keeper carried by the presser-foot and having a downwardly presented notch or socket to receive said supporting arm of the carrier.

8. A sewing machine attachment comprising a presser-foot, a swinging carrier connected therewith and provided with a guide-way, a block fitted to said guide-way and itself having a guide-way disposed crosswise of that of said carrier, a folding member having a portion fitted to the guide-way of said block, and means for securing said folding member and carrier to said block adjustably along the respective guide-ways.

9. A sewing machine attachment comprising a presser-foot, a carrier having a double pivotal connection therewith and provided with a guide-way, a block fitted to said guide-way and itself having a guide-way disposed crosswise of that of said carrier, a folding member having a portion fitted to the guide-way of said block, and fasteningscrews for securing said folding member and carrier to said block adjustably along the respective guide-ways and having their heads exposed upon the faces of the respective parts opposite from the folding member.

10. A sewing machine attachment comprising a ruffling device, a folder including a supporting tongue and an edge turning member embracing the same and normally disposed in alinement with the ruffling device, a carrier for said folder, a support for said carrier, a vertically yielding pivotal connection between said carrier and said support whereby the folder is adapted to be shifted out of operative position transversely of the direction of action of said ruffling device, and positively acting means having interengaging parts held in operative relation under the action of said vertically yielding pivotal connection whereby said carrier is locked against lateral displacement for maintaining the folder in operative relation with the ruffling device.

11. A sewing machine attachment comprising a ruffling device, including a vibrating lever and a ruffler-blade pivotally secured thereto, a presser-foot, a folder, a carrier for said folder having a vertically sliding yielding pivotal connection with said presser-foot, and a separator-blade secured to and sustained by said carrier beneath the folder, the folder normally extending beneath the ruffling blade, whereby the lifting of the presser-foot with the folder serves to engage the latter with the ruffler-blade which is thus spaced above the separator-blade, while the ruffler-blade carrying lever serves

as a stop to limit the upward movement of the folder with the presser-foot and thereby insures a clearance space between the separator-blade and the presser-foot.

5 12. A sewing machine attachment comprising a ruffling device, including a vibrating lever and a ruffler-blade pivotally secured thereto, a presser-foot, a folder, a carrier for said folder having a sliding connection with said presser-foot and yieldingly supported thereby, and a separator-blade secured to and sustained by said carrier and adapted to cooperate with said ruffler-blade.

10 13. A sewing machine attachment comprising a ruffling blade and means for actuating the same, a presser-foot, a carrier supported by said presser-foot and adapted to yield bodily in respect of the same, and a folder and a stiff separator-blade rigidly connected with said carrier.

15 14. A sewing machine attachment comprising a folder, a carrier therefor, a support for said carrier, and a connection intermediate said carrier and its support whereby the folder is adapted to be shifted transversely of its folding edge into and out of operative position, of a ruffling device comprising a vibrating lever disposed above said folder, and extending into proximity thereto, a ruffling blade connected with said vibrating lever and having an offset operative end portion substantially parallel with its body portion and disposed substantially in alinement with said folder with said body portion directly above the folder, and means for lifting the folder and with it the ruffling blade.

20 15. A sewing machine attachment comprising a reciprocating ruffler-blade, a presser-foot, a separator-blade, a folder, a carrier by which said separator-blade and folder are supported, and an upwardly acting spring for maintaining said separator-blade pressed against the lower operative face of the presser-foot to maintain a continuous pressure upon the work delivered intermediate the same by the ruffler-blade.

25 16. A sewing machine attachment comprising a reciprocating ruffler-blade, a presser-foot provided with a shank-portion and a foot-portion having a horizontal pivotal connection therewith, a separator-blade, a folder, a carrier by which said separator-blade and folder-blade are supported, and an upwardly acting spring for maintaining said separator-blade pressed yieldingly against the lower operative face of the pivoted member of the presser-foot.

30 17. A sewing machine attachment comprising a ruffling device, including a vibrating lever and a ruffler-blade carrier pivot-

ally secured thereto, a ruffler-blade secured to said carrier, a presser-foot, a folder, a carrier for said folder having a vertically sliding pivotal connection with said presser-foot, a spring for pressing the folder-carrier normally upward, a separator-blade secured to and sustained by said folder-carrier, the folder normally extending beneath said ruffling blade and adapted to lift the same when the presser-foot is lifted, a lateral pin extending from said ruffler-blade carrier, and a supporting pin carried by said presser-foot and adapted to engage said lateral pin of the ruffler-blade carrier to maintain the ruffler-blade elevated when the folder is shifted out of operative position and while the presser-foot is lifted.

18. The combination with a sewing machine constructed with a bed-plate and an overhanging bracket-arm, and stitch-forming mechanism comprising a reciprocating needle, of an attachment comprising a guiding member, a carrier therefor, a support for said carrier sustained by the bracket-arm, a universal joint connection between said carrier and its support and disposed rearward of the needle, whereby said guiding member may be shifted from operative position in front of the needle to an inoperative position above said universal joint connection and at one side of the needle, and means applied to said carrier for retaining it in operative position.

19. The combination with a sewing machine constructed with a bed-plate and an overhanging bracket-arm, and stitch-forming mechanism comprising a reciprocating needle, of an attachment comprising an oscillating frame, a fulcrum sustained by the bracket-arm parallel with the needle path and upon which said frame is loosely mounted, a carrier pivotally mounted upon said frame and having its fulcrum disposed transversely to that of said frame, whereby the same is adapted to be shifted laterally and upwardly for arrangement at the side of the stitch-forming mechanism, means independent of the fulcrum of said swinging frame for retaining the latter normally in operative position, and a guiding member mounted upon said carrier and normally directed toward the stitch-forming mechanism.

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

ALBERT H. DE VOE.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN.