Jan. 20, 1931. G. W. JOHNSON ET AL 1,789,704

TUCKING ATTACHMENT FOR SEWING MACHINES

Filed Oct. 31, 1927 2 Sheets-Sheet 1

Fig. 1.

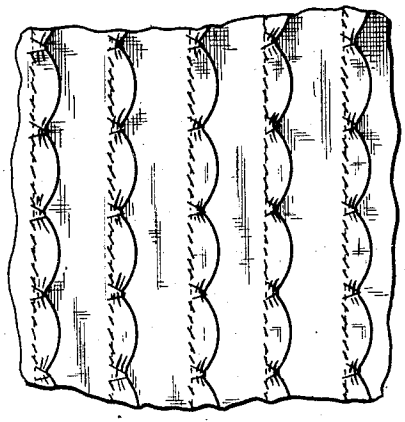
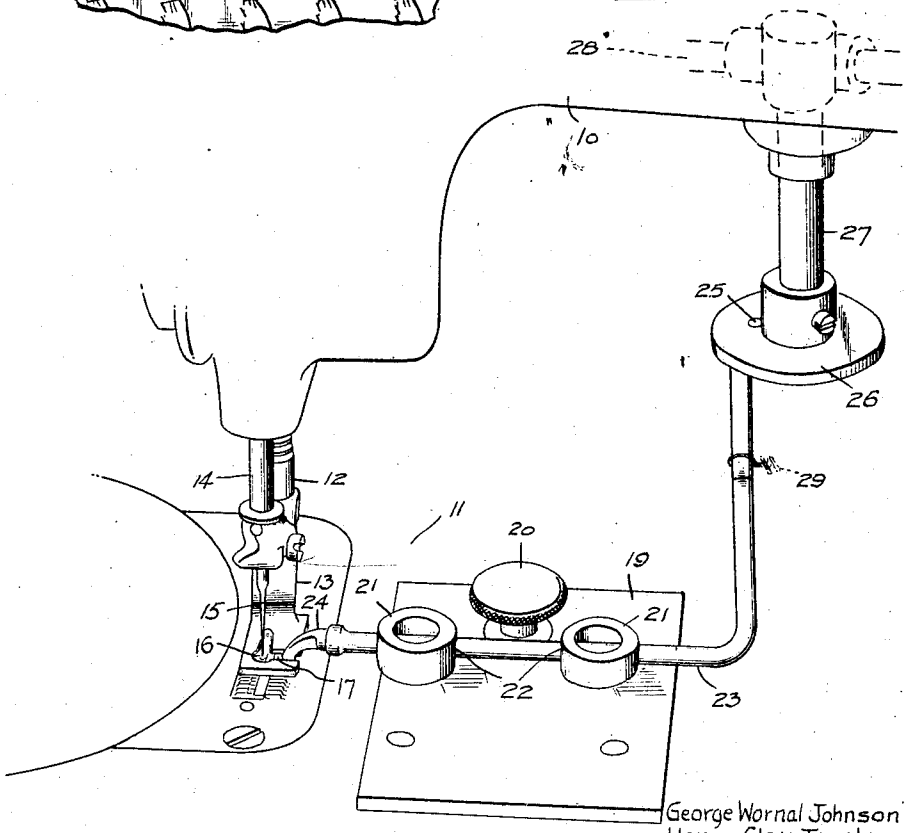


Fig. 2.



George Wornal Johnson
Henry Clay Truslow
INVENTORS

BY Otto Munk

their ATTORNEY.

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Fig. 3.

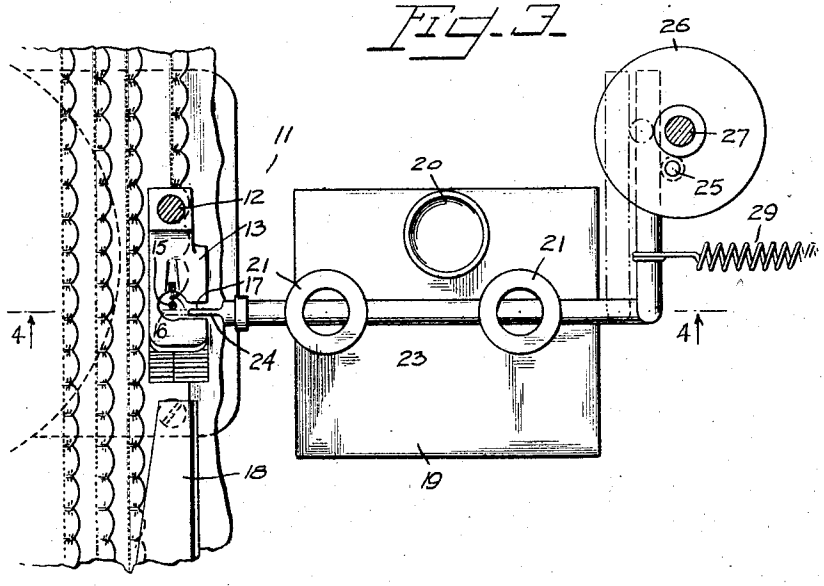
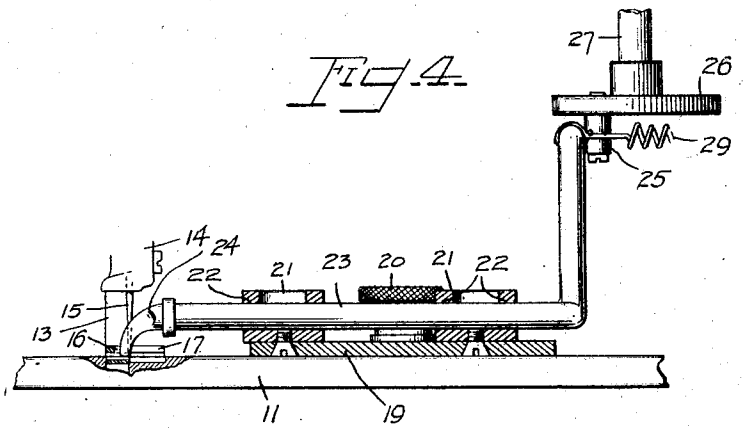


Fig. 4.



George Wornal Johnson
Henry Clay Truslow
INVENTORS

BY Otto Munn

their ATTORNEY.

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UNITED STATES PATENT OFFICE

GEORGE WORNAL JOHNSON AND HENRY CLAY TRUSLOW, OF NEW YORK, N. Y., ASSIGNORS TO JOSEPH W. JOHNSON, OF NEW YORK, N. Y.

TUCKING ATTACHMENT FOR SEWING MACHINES

Application filed October 31, 1927. Serial No. 229,969.

This invention relates to sewing machines and particularly to that class of devices which are adapted to form tucks or plaits in cloth, and our invention has for its object to provide a tucking device by means of which the ordinary tucks or plaits, being folded and guided to the stitch forming mechanism, may be gathered in at spaced intervals and caught by the stitching to effect a scolloped edge, better known to the trade as shell tucking.

We have accomplished this object by means of the attachment hereinafter described and claimed and illustratively exemplified in the accompanying drawings, in which, Figure 1 is a plan view of a section of material provided with our improved shell tucking; Figure 2 is a perspective view of a portion of a sewing machine and attachment; Figure 3 is a plan view of the same; and Figure 4 is a substantially longitudinal sectional view of our attachment taken on lines 4—4 of Figure 3.

Referring to the drawings 10 denotes the arm of a sewing machine and 11 the bed plate thereof. The arm 10 carries a presser bar 12 at the lower end of which is secured the presser foot 13. Carried by the arm 10 in advance of the presser bar 12 is the usual needle bar 14 from which depends a needle 15 adjusted to reciprocate in an opening 16 disposed in the presser foot 13, the opening 16 being in communication with one side of the foot 13 through a slot 17. The slot 17 is disposed transversely with respect to the axis of the lateral portion of the foot 13 and projects from the opening 16 slightly in advance of the center thereof. Leading into the slightly upturned nose of the foot 13 is the delivery end of a tucking or folding attachment 18 of any well known type utilized for the purpose of forming and leading the material in folds into the path of the reciprocating needle 15. The apparatus thus far briefly described with the exception of the slot 17, is common to sewing machines and tucking attachments now in use.

Mounted on the bed plate 11 beneath the arm 10, is a plate 19, which is fixed in position by means of thumb screw 20, and which is provided with two spaced upstanding guide blocks 21. The blocks 21 have radial openings 22 disposed so as to coincide with a common axis which projects directly over the longitudinal axis of the slot 17. The openings 22 accommodate a reciprocating bar 23 which comprises a metal wire, round in cross section and provided with a downwardly curved gatherer or nose 24 at its extreme needleward end. This nose is flattened on both sides and its tip is intended to reciprocate in the slot 17 of the foot piece 13 and in advance of the upright path of the needle 15. The portion of the bar 23 projecting through the openings 22 of the guide blocks is necessarily straight, but beyond the latter the wire is bent upwardly at right angles and then at right angles again in a rearwardly direction. Reciprocal motion is imparted to the bar 23 by contact with a pin 25 depending from a disc 26 which rotates with the operation of the machine through an upright shaft 27 carrying the disc 26 and a worm gear connection (not shown) to the needle bar actuating or main shaft 28 enclosed within the arm 10. The shaft 27 and its connection are well known and have been utilized heretofore to operate other attachments for working on materials being stitched by machine. Rotary movement of the pin 25 will push the bar 23 in the direction of the needle but the bar is withdrawn by means of a spring connection 29 attached at one end to a fixed portion of the machine while the other end embraces a portion of the reciprocating bar itself.

The operation of the invention is as follows:—The material to be worked is introduced into the tucking device in the well known manner, which requires no explanation here, and as a consequence the folded portion approaches the needle bar and foot so as to bring the crease of the under fold of the tuck being formed directly in line with the path of the needle which under ordinary conditions picks up its stitch through the upper portion of the material and the fold of the under portion. Such an operation if continued throughout the material would result in the ordinary tucked row. According to the present invention it is con-

templated to feed and fold the tuck in the manner just briefly described, but as the folded material forming the tuck is drawn under the foot piece 13 and into the path of the needle 15 the latter forms only a certain number of stitches, in the present instance six are provided, which catch the material in the usual way, i. e. straight along the crease of the under fold and through the upper layer forming the face of the tuck. At this point in the operation of the machine the disc 26 and pin 25 have rotated until the bar 23 has crowded the nose 24 against the free edge of the tuck being formed and held beneath the shoe 13, the material as a consequence having become gathered up to a point past the needle as the nose continues to advance through the slot 17 in front of the needle. The needle 15 then descends to pick up its next stitch which catches over the edge of the tuck in its gathered condition and fastens its position. A second operation of the needle and a second stitch is taken as illustratively exemplified in Figure 1, before the nose is withdrawn from the slot 17 and the material allowed to proceed under normal tucking conditions for the succeeding six stitches. It will be clear that the tuck between its gathered points will assume an outwardly curved shape, giving it the very desirable scollop or shell appearance.

Other apparatus designed to accomplish the same purpose as that attained by the present invention, are built into the sewing machines and because of the more or less complicated nature of the devices, tend to slow up the operation of the tucking machine. The present attachment is applicable to substantially any type of machine of this character and because of the very simplicity and minimum number of parts involved and its independent operation with respect to the needle, the ordinary speed of the latter may be resumed without interference from the nose which as previously stated herein and illustrated in the drawings, constantly moves in a path which is always in advance of the upright path of movement of the needle 15.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent is:—

1. In a tucking device for a sewing machine, the combination of a presser foot having a portion overlying the work provided with a needle opening and a slot projecting at an angle to the travel of the work and in communication with the needle slot in advance of the center thereof, a reciprocating member axially alined with the axis of said slot, a downwardly curved hook-shaped nose piece for the end of the member projecting into said slot and disposed to crowd the free edge of the tuck being formed at spaced intervals as the tuck advances under the presser foot, said nose being disposed to advance to the opposite side of the needle opening and in a path in advance of the center thereof, a guide attachable to the sewing machine and provided with guide blocks to carry the reciprocating member, means for resiliently holding the member in retracted position, and means receiving its power from the sewing machine mechanism to project the member through said slot.

2. In a tucking device for a sewing machine, the combination of a presser foot having the portion engaging the work provided with a needle opening and a slot between the latter and the side of the foot, a reciprocating bar terminating in a downwardly curved hook-shaped nose projecting into said slot, a guide means for said bar, and a crank operating from the sewing machine and engaging said bar to cause the nose to traverse the slot beyond the center of the needle opening to crowd the free edge of the tucking at spaced intervals during its travel under the said foot.

In testimony whereof we affix our signatures.

GEORGE WORNAL JOHNSON.
HENRY CLAY TRUSLOW.