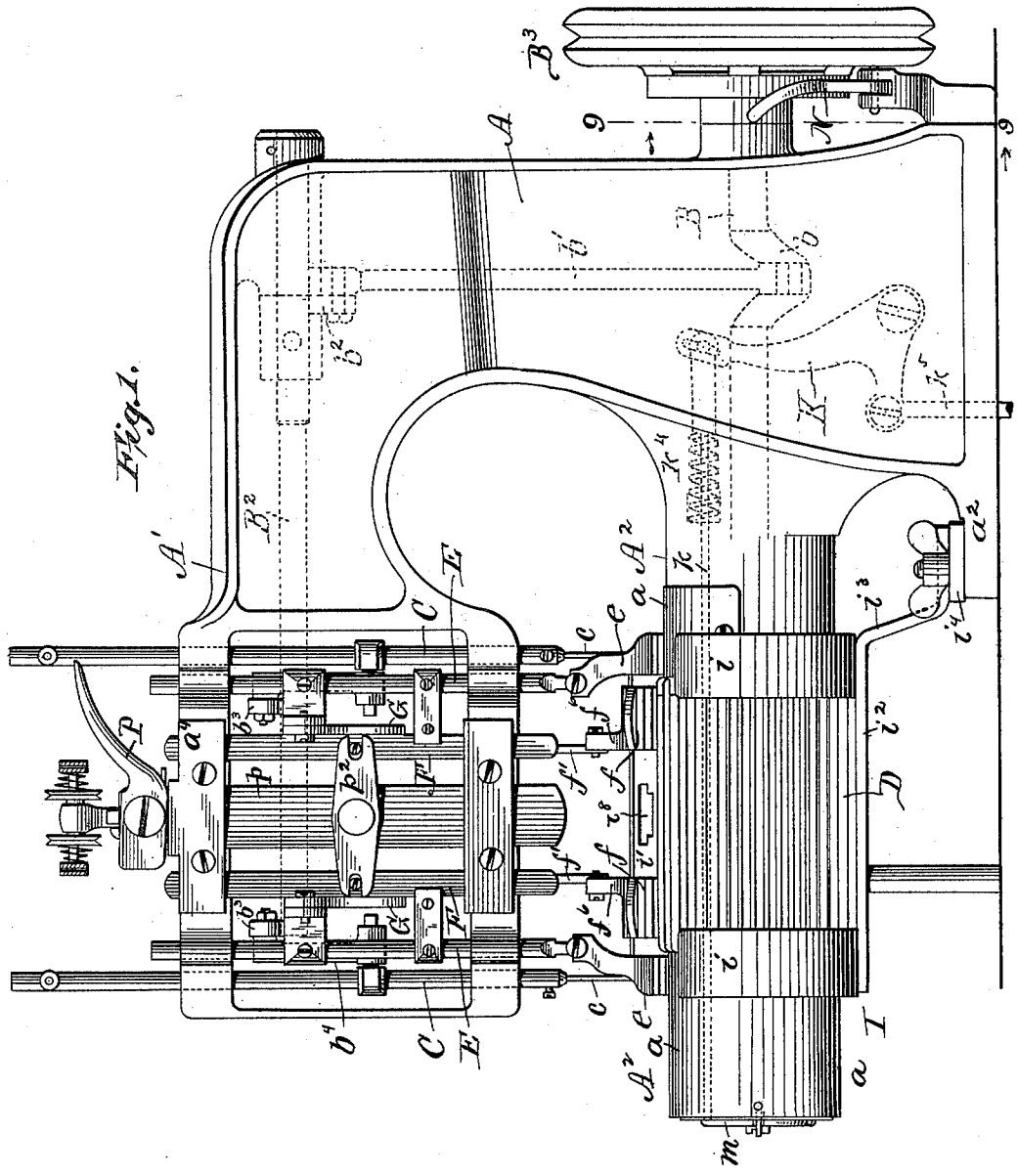
(No Model.) 4 Sheets—Sheet 1.

J. DOUGLAS & V. HANSEN.

BOTTLE COVER SEWING MACHINE.

No. 600,521. Patented Mar. 15, 1898.

Fig. 1.



Witnesses:
C. W. Benjamin.

Inventors:
John Douglas
and Victor Hansen,
by Henry Calvert, Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 2.

J. DOUGLAS & V. HANSEN.

BOTTLE COVER SEWING MACHINE.

No. 600,521. Patented Mar. 15, 1898.

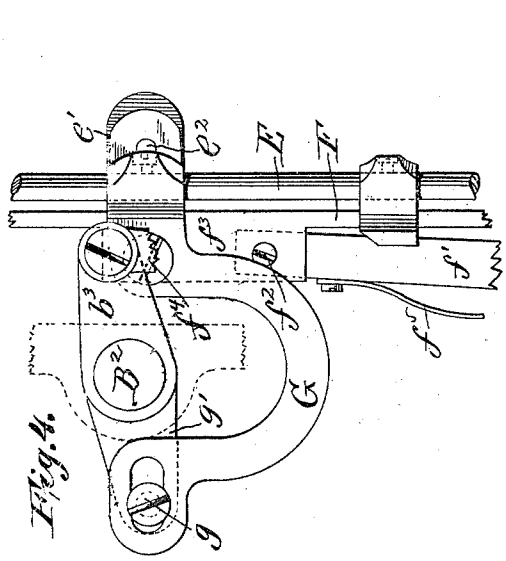


Fig. 4.

Fig. 2.

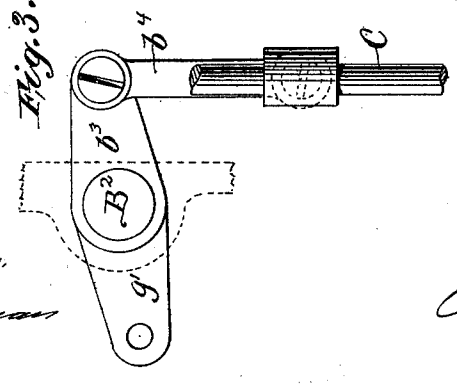


Fig. 3.

Witnesses:
C. W. Benjamin.
A. Richman

Inventors:
John Douglas and
Victor Hansen
by Henry Calvert
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 3.

J. DOUGLAS & V. HANSEN.

BOTTLE COVER SEWING MACHINE.

No. 600,521. Patented Mar. 15, 1898.

Fig. 5.

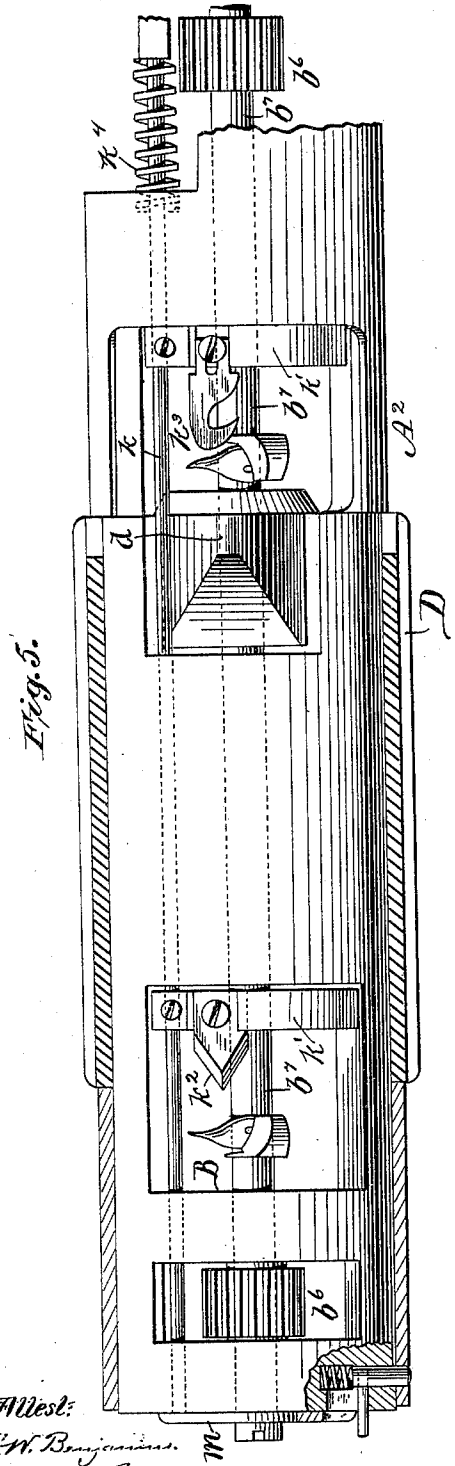
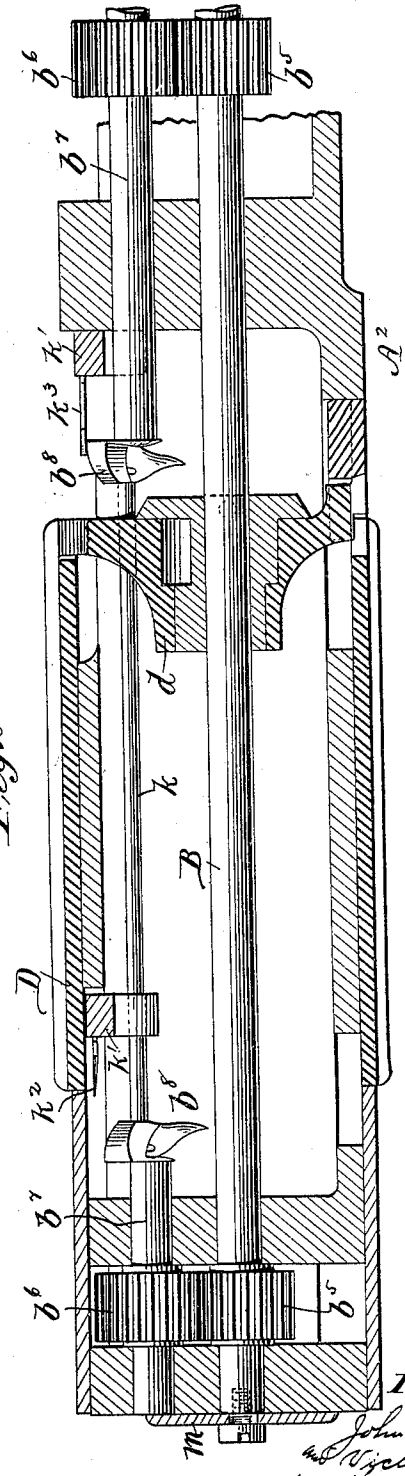


Fig. 6.



Witnesses:
C. W. Benjamin.
[illegible]

Inventors
John Douglas
and Victor Hansen,
by Henry Calver,
Atty.

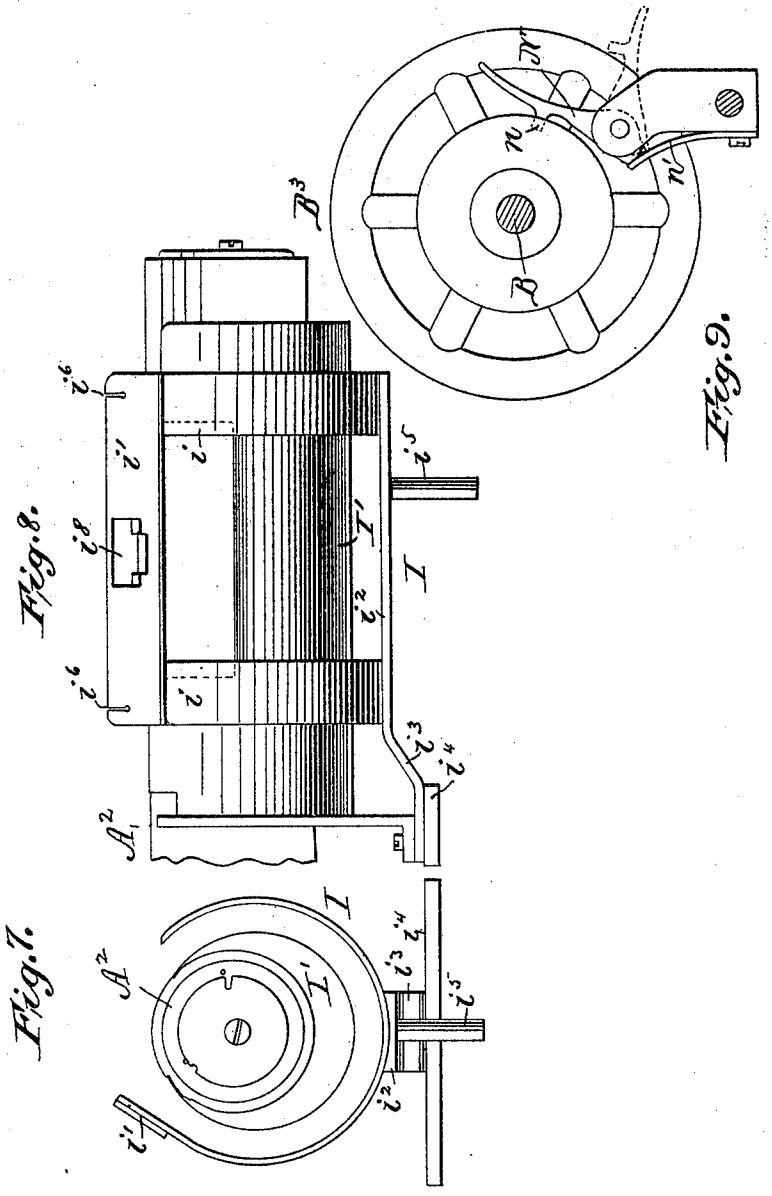
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 4.

J. DOUGLAS & V. HANSEN.

BOTTLE COVER SEWING MACHINE.

No. 600,521. Patented Mar. 15, 1898.



Witnesses:
C. M. Benjamin.

Inventors:
John Douglas and Victor Hansen
by Henry J. Calvert, Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN DOUGLAS AND VICTOR HANSEN, OF ELIZABETH, NEW JERSEY, ASSIGNORS TO THE SINGER MANUFACTURING COMPANY, OF NEW JERSEY.

BOTTLE-COVER-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 600,521, dated March 15, 1898.

Application filed March 25, 1897. Serial No. 629,188. (No model.)

To all whom it may concern:

Be it known that we, JOHN DOUGLAS and VICTOR HANSEN, citizens 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 Bottle-Cover-Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a machine for sewing straw, reeds, or similar packing materials together for forming circular or hollow jackets to be used for bottle covers or wrappers.

To this end the improved machine comprises a hollow cylindrical work-supporting arm or horn, above which are arranged the vertically-reciprocating needle-bars and needles and within which are placed the loop-taking devices coöperating with the needles in forming stitches. Surrounding the work-supporting cylinder a curved or circular work-guide is preferably employed to direct the end of the mat first formed around the said cylinder, so that said first end of the mat may be joined to the last-formed end thereof to produce a complete hollow or circular jacket. The work is preferably fed by an intermittingly-rotating toothed cylinder or feed-wheel arranged between the needles, and to coöperate with this feeding-cylinder a pair of "alternating" or alternately rising and falling pressers or presser-feet for each needle are preferably employed, one presser of each pair resting on and swinging forward with the work as the latter is advanced in feeding, the other presser of each pair being meanwhile lifted and the non-swinging pressers holding the work stationary when the swinging pressers are lifted and being returned. To sever the threads when a bottle-cover has been completed, thread-cutters or knives arranged below the throat-plate or within the work-supporting cylinder are employed, these thread-cutters or knives (one for each stitch-forming mechanism) being attached to or operated by a longitudinally-sliding rod within said cylinder and which is moved to sever the threads by the attendant preferably by means of a treadle-actuated lever. The material to form the jackets or wrappers is fed to the stitch-forming mechanisms at the upper side of the work-supporting cylinder and preferably from a table the front edge of which is on a level, or approximately so, with the upper side of said cylinder, said table for convenience being preferably connected with the work-bench on which the machine is mounted by a double hinge-joint. The loose material is advanced to the needles by the attendant by means of a sliding leveling plate or bar having a depending gage or pusher to shove the material forward.

In the drawings, Figure 1 is a front side elevation of the improved machine, the table for supporting the material being removed. Fig. 2 is a front end view of the same, partly in section, showing the material-supporting table. Fig. 3 is a detail view of the needle-bar-operating mechanism, and Fig. 4 is a detail view of the presser-foot-operating mechanism. Fig. 5 is a plan view, partly in section, of the work-supporting arm and its mechanism; and Fig. 6 is a vertical sectional elevation of the same. Figs. 7 and 8 are detail views of a slightly different form of work-guide from that shown in Figs. 1 and 2; and Fig. 9 is a detail view of the locking device which determines the position in which the machine is to be stopped before the thread-cutters are operated to sever the threads, this view being partly in section on line 9 9 of Fig. 1.

The frame of the machine comprises the standard A, the overhanging arm A′, and the cylindrical work-supporting arm or horn A^2, within which latter is journaled the rotating driving-shaft B, having the crank b connected by a pitman b' to an arm b^2 of the needle-operating rock-shaft B^2, journaled in the arm A′. The rock-shaft B^2 is provided with crank-arms, as b^3, connected by pitmen, as b^4, with the needle-bars C, carrying the needles c to operate said needle-bars in the usual manner. The shaft B is provided with gears b^5, meshing with similar gears b^6 on short shafts b^7, journaled within the cylindrical work-support A^2, said shafts b^7 carrying ordinary rotating single chain-stitch loopers or hooks b^8, coöperating with the said needles c in forming single-thread chain-stitch seams in the usual manner. It will be understood that any

desired number of these or equivalent stitch-forming mechanisms may be employed, although two, as herein shown, will ordinarily be sufficient.

The work is fed by means of an intermittingly-rotating serrated feeding ring or cylinder D, turning freely on a portion of the arm A^2 and operated by the lever-dog *d*, receiving its movements from cams on the shaft B, as fully described in United States Patent No. 541,840.

Coöperating with the feeding-cylinder D are two pairs of alternating pressers *e f*, one pair for each stitch-forming mechanism. The pressers or presser-feet *e* are carried by bars E, having vertical movements only, and the pressers or presser-feet *f* are carried by swinging bars f', pivoted at their upper ends, as at f^2, to vertically-movable bars F, properly guided in the machine-frame. Pivoted at f^4 to lugs or thickened parts f^3 of the bars F are levers G, the rear ends of which are slotted for engagement with pins or screws *g*, carried by arms g', fixed to the rock-shaft B^2, the forward ends of said levers being jointed at e^2 to brackets e', attached to the presser-bars E. Thus as the shaft B^2 is rocked alternate vertical movements will be imparted to the bars E and F and to the pressers *e* and *f*, connected thereto, the pressers *f* resting on the work during the time the feeding movements are occurring and swinging forward with the work as the latter is advanced and the pressers *e* resting on and holding the work when the pressers *f* are lifted and being returned to their first positions by the springs f^5, attached at their upper ends to the swinging bars f' and bearing at their lower ends against parts of the stationary arm A′. In these alternating rising and falling movements of the pressers the fulcrums of the lever G alternate between the pivotal points e^2 and f^4. Thus when the pressers *e* are being lifted the fulcrums of the levers G are at the points f^4 of the lugs f^3 of the bars F, while the weights being lifted are at the points e^2; but when the pressers *f* are being lifted the fulcrums of the levers are at the points e^2, and the points f^4 represent the weights. All of the pressers are preferably serrated on their under sides, as shown, and the pressers *f* are also preferably hinged or jointed (see Fig. 2) to the brackets f^6, by which they are attached to the bars f'.

H denotes a table on which the loose straw or reeds from which the bottle covers or jackets are to be made is placed and on which it is evened and leveled by the attendant preparatory to being fed to the stitch-forming mechanisms. The forward edge of this material supporting and feeding table is on a level, or approximately so, with the top of the work-supporting cylinder A^2 and of the feeding-cylinder D, said table preferably inclining downward slightly toward the machine, as shown in Fig. 2, and being provided at its right-hand end (referring to the position of the attendant) with a flange *h*, against which the ends of the straw or reeds may be evened and by which the loose material will be guided in being moved forward to the stitch-forming mechanism. The table is hinged at h' to the upper ends of plates or bars h^2, which are in turn hinged at their lower ends at h^3 to the upturned parts h^4 of plates or brackets h^5, secured to the work-bench or table which supports the machine. The hinges h' h^2, it will be observed, are so placed as to bend or fold in opposite directions. This double-hinged connection of the table with the work-bench permits said table to be moved readily back and forth or from and toward the machine, as is necessary in operation, and still permits the table to be retained in an approximately level position.

Nearly surrounding the work-supporting arm or cylinder A^2 is a curved or circular work-guide I, which is detachably secured to the base of the standard A and which preferably consists of two curved bars *i*, connected at their tops on the rear side of the cylinder A^2 by a longitudinal bar i' and at their bottoms by a second longitudinal bar i^2, which latter inclines downward at i^3 and is rigidly joined to the attaching cross-bar i^4, detachably secured by screws or set-nuts to the flange a^2 at the base of the standard A, said bar i^2 being preferably provided with a supporting or steadying pin or standard i^5. The bar i' is preferably provided with thread-retaining slots i^6, into which the ends of the needle-threads may be drawn previously to commencing to sew a bottle cover or wrapper to prevent said ends from being drawn down by the loopers.

The work guides or formers I are made in different sizes, according to the sizes or diameters of the wrappers or jackets which are to be made. Thus the guide or former shown in Figs. 1 and 2 has its curved bars *i* separated from the cylinder A^2 only far enough to permit of an easy passage of the sewed mat between said bars and cylinder as the end of the mat first formed is brought around to be joined to the last end to make the complete wrapper or jacket, while the guide or former shown in Figs. 7 and 8 has its bars *i* more widely separated from the cylinder and is provided with a curved filling portion I′, interposed between said bars and cylinder.

J is a leveler or feeder, preferably having a roughened or serrated lower surface and provided with a depending flange *j*, which holds said leveler or leveling-bar a determined distance above the table H and which engages the leveled loose material, so that the attendant by advancing said leveling-bar can push the material forward to the stitch-forming mechanisms as the work is advanced by the feed of the machine. The upper bar i' of the work-guide I is provided with an opening i^8, so that said bar i' may guide and support the leveler-bar to assist in keeping it in proper position.

To sever the needle-threads at the comple-

tion of each wrapper and in such a manner as to leave a suitable length of thread beyond the last stitch, so that the seam will not readily ravel or rip, a thread-cutting device, which is within the cylinder A^2 or beneath the work-supporting parts or throat-plates a a thereof, is provided. This thread-cutting device, as herein shown, comprises a sliding rod k, jointed at its rear end to a bell-crank lever K, to the lower arm of which is attached a rod or connection k^5, extending to a suitable treadle, so that the attendant may actuate the thread-cutting device by the foot, leaving the hands free to manipulate the work. To the sliding rod k are attached arms k', to which the knives or thread-cutters k^2 k^3 are in turn secured. These knives are so placed that they can be moved into the path of the thread running from the loopers b^8 to the work and are so constructed and arranged as to sever the threads held by the loopers on the proper sides of the loops to leave long ends of threads extending from the last stitches in the work. The loopers b^8 face in opposite directions, or, as they are termed, are "right" and "left" hand loopers, and thus if the threads of both seams were simultaneously severed at the forward movement of the sliding bar k one thread end extending from the work would be short and the other would be long, owing to the fact that one thread-loop would be severed on the wrong side. To avoid this objection, the knives or cutters are differently formed, the knife k^2 having its cutting edge at its forward end, while the knife k^3 is made in the form of a hook with its cutting edge within the hook. Thus when the sliding bar is moved forward the knife k^2 severs its adjacent thread; but at this forward movement the hooked knife k^3 (the outer end of which is blunt) moves past its thread, which falls into the loop of the hook and is severed when the bar k is retracted by its returning-spring k^4.

The knives k^2 k^3, when moved forward to sever or catch the thread, come within the range of travel of parts of the loopers b^8, and to avoid injury to the knives or loopers by collision it is necessary to prevent movement of the sliding rod k and of the knives movable therewith except when said loopers are in such position that the knives may pass over them without coming into contact therewith. To this end a disk m is attached to the squared outer end of the driving-shaft B, the periphery of the said disk overlapping the forward end of the rod k, so that said rod cannot be slid outward excepting when the notch m' in the edge of said disk registers with said rod, at which time the loopers b^8, geared to said driving-shaft, are in such positions that the knives may freely pass over them.

To gage the stopping of the machine in proper position to have the notch m' register with the end of the rod k, a spring-acted locking-dog N, having a lug n to enter a hole in the hub portion of the fly-wheel B^3, rigidly fixed to the driving-shaft B, is provided. This locking-dog is not intended to serve as a stopping device when the machine is running at much speed; but when the speed of the machine has been slackened at the completion of a cover or jacket and the dog has been thrown over, so as to have its lug n pressed against the periphery of the hub of the fly-wheel by the spring n', said lug will enter said hole when the latter comes into register with said lug, and the machine will be stopped and locked with the notch m' in the disk m in register with the end of the rod k, the hole in the hub of the fly-wheel being properly placed to secure this result.

P is a lifting-lever impinging against the top of a plate a^4 and pivoted to a lifting-bar p, to which is secured a cross head or bar p^2, notched at its end to engage pins or screws entering the bars F, with which the swinging pressers f are connected. The bars F are connected through the levers G with the brackets e', attached to the bars E, so that when the lifting-lever P is turned to raise the lifting-bar p the bars F and E and the pressers f and e, connected therewith, will also be lifted.

In the operation of the machine, in sewing a bottle cover or jacket, the attendant will preferably first lower the needles and then taking a handful of the loose straw or reeds spreads the same on the table H and evens the ends against the flange h of the table H and levels and pushes the same forward against the needles by means of the leveling and feeding bar J, the two separated needles serving at this time as a gage to bring the forward part of the loose material parallel to the work-supporting cylinder D. The machine is now started, and the mat formed by sewing the loose material together by the two parallel seams is directed around the cylinder A^2 by the guide I until the first end of the mat meets the end thereof last sewed, and the attendant now ceases to push the loose material forward. As the sewed mat is directed around the cylinder A^2 by the guide I and the end first sewed reached the edge of the table H, said table, the front or inner end of which rests lightly against the work-supporting cylinder A^2, yields backward slightly to permit the rising end of the mat to pass it. If the right quantity of material to form a bottle cover or jacket has been spread on the table H forward of the pushing-flange j of the leveling and feeding bar J, the stop-pin j' on the said bar will now be in engagement with the bar i' of the guide I, so that by this contact of said stop-pin with said bar the attendant may be apprised that enough material to form a cover or jacket has been fed into the machine. Two complete circles of stitches will now have been made; but to prevent the seams from raveling a few more stitches to overlap the ends of the seams are formed, and then the machine is stopped in proper position, as hereinbefore described, and the cutting device is actuated to sever the threads, leaving

the completed bottle cover or jacket free to be drawn off from the cylinder A^2. Prior to commencing to make each cover or jacket the ends of the threads are secured by being drawn into the retaining-slots i^6 in the bar i' of the work-guide I.

We do not wish to be understood as limiting our invention to the details shown and described, as these may be varied widely without departing from the spirit of the invention. Any other well-known or equivalent kind of stitching mechanism may be substituted for those herein shown, although the single-thread chain-stitch mechanisms are preferred owing to the elastic seams produced thereby and which permit the bottle-wrappers to stretch.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. In a machine for sewing bottle-covers, the combination with stitch-forming mechanisms, of a cylindrical work-support, a feeding ring or cylinder sustained by said work-support, and a curved or circular work-guide encircling said work-support but separated therefrom.

2. In a machine for sewing bottle-covers, the combination with stitch-forming mechanisms, of a cylindrical work-support, a feeding ring or cylinder sustained by said work-support, a curved or circular work-guide encircling said work-support but separated therefrom, and a feeding-table the forward end of which is adjacent to the top of said work-support.

3. In a machine for sewing bottle-covers, the combination with stitch-forming, feeding, work-guiding and thread-cutting devices, of a pair of alternating pressers for each set of stitch-forming devices, one presser of each pair resting on and moving forward with the work when the latter is advanced by the feed and the other presser of each pair holding the work when the swinging or horizontally-movable presser is lifted.

4. In a machine for sewing bottle-covers, the combination with stitch-forming and feeding mechanisms, and a work-supporting cylinder, of a non-automatic thread-severing device within said cylinder, and means for preventing said thread-severing device from being actuated by the attendant excepting at a particular point in the rotation of the driving-shaft.

5. In a machine for sewing bottle-covers, the combination with stitch-forming mechanisms each comprising a needle and a lower loop-taking device, of a work-supporting cylinder, a driving-shaft extending longitudinally of said cylinder and to which the said loop-taking devices are geared, a feeding mechanism, a rod longitudinally movable in said cylinder and provided with thread-severing knives, and a notched or recessed disk or device rotating with said shaft and arranged to overlap the end of said rod and thereby prevent the same from being actuated by the attendant to sever the threads excepting when the notch or recess thereof comes into register with the end of said rod.

6. In a machine for sewing bottle-covers, the combination with stitch-forming and feeding mechanisms, of a thread-cutting device the knives of which are arranged to sever the threads adjacent to the loop-taking devices of said stitch-forming mechanisms, and a device for locking the driving-shaft of the machine in a predetermined position so that the threads will be severed in certain desired places relative to said loop-taking devices.

7. In a machine of the character described, the combination with stitch-forming mechanisms having reversely-arranged or right-and-left loopers or loop-taking devices, of a thread-severing device having reversely-arranged knives so that the threads of the different stitch-forming mechanisms will be similarly severed.

8. The combination in a sewing-machine provided with a work-supporting cylinder, as A^2, of a driving-shaft, as B, within said cylinder, looper-carrying shafts also within said cylinder and geared to said driving-shaft, needle-carrying bars placed above said cylinder and operatively connected with said driving-shaft and a feeding ring or cylinder encircling said work-supporting cylinder.

9. The combination in a sewing-machine provided with a work-supporting cylinder, as A^2, of a driving-shaft, as B, within said cylinder, looper-carrying shafts also within said cylinder and geared to said driving-shaft, needle-carrying bars placed above said cylinder and operatively connected with said driving-shaft, a feeding ring or cylinder encircling said work-supporting cylinder, and a thread-cutting device also within said work-supporting cylinder.

10. In a machine for sewing bottle-covers, the combination with stitch-forming mechanisms, of a work-supporting cylinder and a feeding ring or cylinder encircling said work-supporting cylinder, of a material supporting and feeding table the forward or inner edge of which is on a level, or approximately so, with the top of said feeding-cylinder.

11. The combination with a machine for sewing bottle-covers, of a material supporting and feeding table, and a leveling and feeding plate or bar having a depending gage and pusher, as *j*, which serves to hold the said plate or bar a predetermined distance above the said table and which also serves, as the said plate or bar is advanced by the attendant, to feed the leveled material beneath the said plate or bar forward to the stitch-forming mechanisms of the machine.

12. The combination with a machine for sewing bottle-covers, of a material supporting and feeding table and a leveling and feeding plate or bar provided with a rough-

ened or serrated lower surface and having a depending gage and pusher, as *j*, which serves to hold the said plate or bar a predetermined distance above the said table and which also serves, as the said plate or bar is advanced by the attendant, to feed the leveled material beneath the said plate or bar forward to the stitch-forming mechanisms of the machine.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN DOUGLAS.
VICTOR HANSEN.

Witnesses:
JOSEPH F. JAQUITH,
CHAS. H. MORGAN.