(No Model.) 2 Sheets—Sheet 1.

E. K. COOLEY.

MACHINE FOR THE MANUFACTURE OF BOTTLE COVERS FROM TULE.

No. 332,640. Patented Dec. 15, 1885.

Fig. 1.

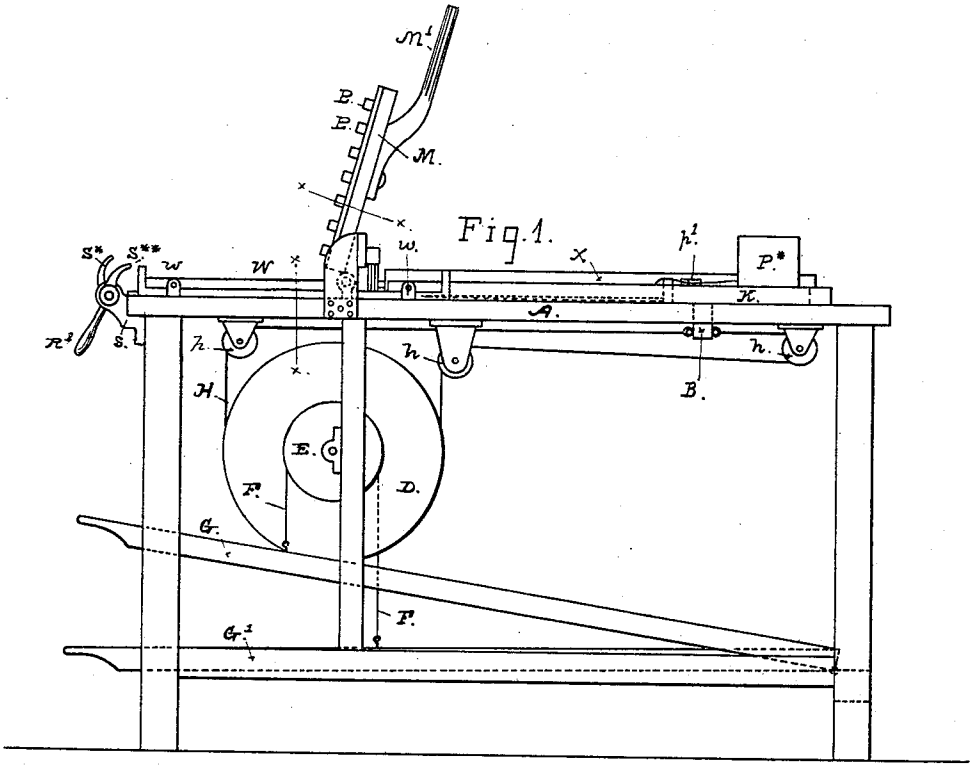


Fig. 2.

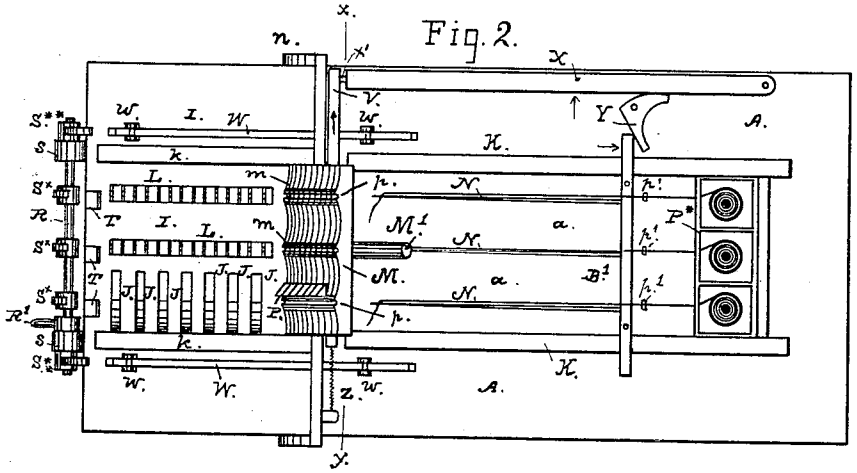
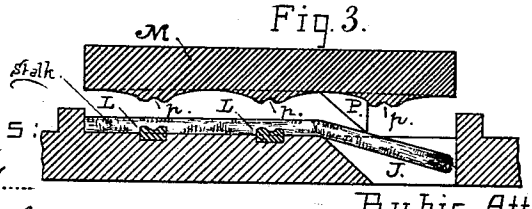


Fig. 3.



Witnesses:
Wm. Mayer
Wm. B. Singleton

Inventor:
Earl K. Cooley
By his Atty., E. K. Dodson

(No Model.) 2 Sheets—Sheet 2.

E. K. COOLEY.

MACHINE FOR THE MANUFACTURE OF BOTTLE COVERS FROM TULE.

No. 332,640. Patented Dec. 15, 1885.

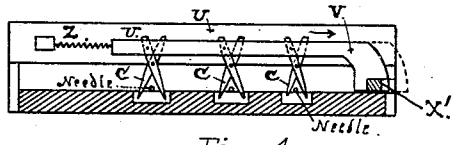


Fig. 4.

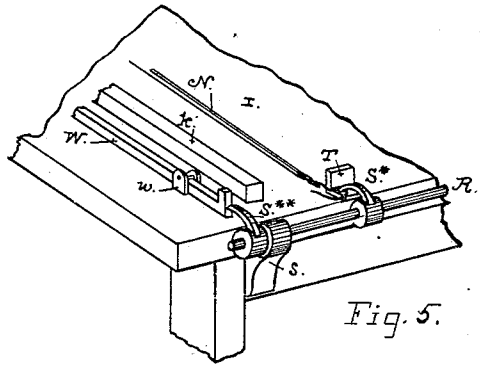


Fig. 5.

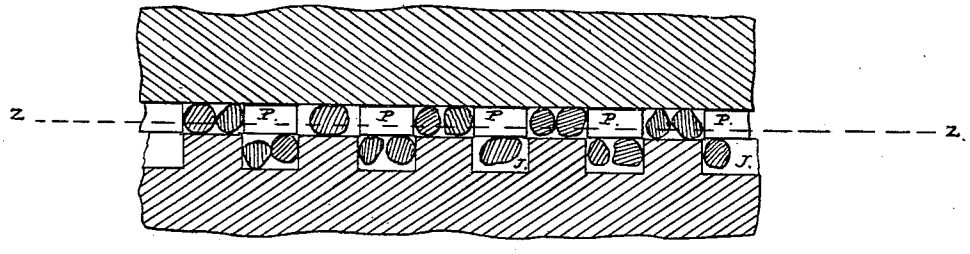


Fig. 6.

Witnesses:

Geo. A. Dickson.
Wm. Mayer.

Inventor:

Emil K. Cooley,
by Edson Bros.
his Attorney.

UNITED STATES PATENT OFFICE.

EARL K. COOLEY, OF SAN FRANCISCO, CAL., ASSIGNOR OF ONE-HALF TO JOHN H. GILLESPY AND WALTER C. CHILDS, OF SAME PLACE.

MACHINE FOR THE MANUFACTURE OF BOTTLE-COVERS FROM TULE.

SPECIFICATION forming part of Letters Patent No. 332,640, dated December 15, 1885.

Application filed July 29, 1884. Serial No. 139,101. (No model.)

To all whom it may concern:

Be it known that I, EARL K. COOLEY, a citizen of the United States, residing in the city and county of San Francisco, in the State of California, have invented certain new and useful Improvements in Machines for the Manufacture of Bottle-Covers from Tule; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to an improved machine for stitching together stalks of tule to produce tubular envelopes or covers for bottles and other fragile ware. This machine is designed to make covers after the plan of the improved envelope with contracted neck patented on the 18th day of October, 1881, to George Grisel and myself, jointly; and it consists in certain novel construction and combination of parts by the co-operation and action of which a cover with a contracted or tapering end is produced.

Referring to the accompanying drawings, Figure 1 is a side elevation of a machine constructed according to my invention. Fig. 2 is a top view. Fig. 3 is a cross-section at *x x* through the platen or hinged presser-plate. Fig. 4 is a cross-section at about *x y*, giving details of the thread-cutters. Fig. 5 shows details of the thread-clamps at the end of the table, that operate to hold the ends of the threads while the needles draw back. Fig. 6 is a longitudinal section, on a larger scale, taken through the bed across the grooves with the presser-plate closed and the path of the needle indicated by the broken line *z z*.

A represents the top of a suitable bench or table, having a longitudinal slot, *a*, for the head B of the needle-carrier B′ to travel in. This head receives reciprocating movement from mechanism situated beneath the table, consisting of the large sheave D, the drums or sheaves E, only one of which is shown, with cords F F, one wound opposite to the other, and the treadles G G′. It will be understood that the other sheave E is on the opposite side of large sheave D, and, as shown, its cord connects with treadle G′. From the large sheave a cord or belt, H, is carried over guide-pulleys *h h* to the cross-head B, where the ends are connected, thus forming a traveling cord or belt. Depression of one treadle throws the needle-carrier forward, and of the other treadle draws the carrier back again. As one treadle is pressed down, the other is brought up into position by the rotation of the axle, so that no springs are required. Along the edge of the slot or opening in the table are strips K, that form guides for the needle-carrier, and that portion of the table-surface not taken up by the needle-actuating mechanism forms the bed or stationary stalk-supporting surface I. This bed has raised strips *k k* along the sides at suitable distance apart to take in the lengths of stalks, which, being laid in close order upon the surface of the bed, are then placed transversely to the line of the needles, and are held in position to lie evenly and resist the thrust of the needles by means of the fixed corrugated strips L L on the bed, and the similar corrugations, *m m*, upon the face of the presser-plate M. This plate is hinged to the table at *n n*, and is provided with a lever-handle, M′, both for raising and holding it down upon the stalks. In the under face are needle-grooves *p p*, running across the stalk-holding corrugations *m*, and these grooves are also repeated in the corrugated strips on the bed, the two co-operating to keep the needle in practically the same line of travel, so that it shall penetrate the stalk at the thickest part and pass through it neither too high nor too low. The carrier B′ has a number of eye-pointed needles, N N, set into it, the length of which is somewhat greater than the width of the blank or the stitched cover before it is rolled up into the tubular form. A bottle-cover of ordinary size, such as will suit for wine-bottles, can be produced with three threads, and this number of needles, as shown in the machine, Figs. 1 and 2, will answer for many different sizes of covers. For a greater number of threads the machine will be constructed accordingly.

At the back of the traveling carrier upon the table is a twine-case, P*, with compartments to hold a ball of twine for each needle.

The thread is carried through a guide, p', on the table in front of the case, and thence forward to the eye of the needle.

In the operation of stitching sufficient thread is drawn through the needle before beginning the stroke to prevent it pulling out of the eye, and this free end is caught and held by a clamping device when the needle passes out of the last stalk and reaches the end of the stroke, so that the thread is held at this end while the needle draws back. This thread-clamping device (shown in Figs. 2 and 5 of the drawings) consists of a rock-shaft, R, set in small brackets *s s* across the end of the table, with a handle, R′, for turning it, and a number of curved fingers, $S^{\times}$ $S^{\times}$, one to each needle, fixed on it in such position with reference to a small angle-plate, T, on the table that the point of the finger will be turned down and pressed against the plate as the shaft is turned forward. The vertical edge of the plate T is set close to the line of movement of the needle, so that while suitable space for the thread between needle and plate is afforded, the thread shall run against this stationary edge, or so close to it that after the needle has completed its forward stroke it will cause a loop or bow to be formed in the thread as the needle is thrown back a short distance. This backward movement of the needles to form the loops is produced by or from the motion of the rock-shaft that brings the fingers down, and also a little in advance of such movement to form the loops before the fingers close against the plate. The rock-shaft has on each end a curved stop or finger, $S^{\times\times}$, similar in form to the thread-clamping finger, but set in advance of them and also in line with the ends of two slide-bars, W, held in guides *w w* on the table, the opposite ends of which lie in the path of the projecting ends of the needle-carrier, and are struck and carried forward by the needle-carrier at the end of the forward stroke. When the rock-shaft is turned by the handle R′, the fingers $S^{\times\times}$ press against the bars W and throw the needle-carrier back. The thread at the points of the needles are thus looped or sprung out under the finger $S^{\times}$, which are brought down as the rotation of the rock-shaft is completed. The thread-cutters *c* are placed across the table just back of the end of the stalk-holding surface, and are also operated by the movement of the needle-carrier. They are formed of cross-levers *c c*, each like one limb of a pair of scissors, the handle or upper end of one lever being pivoted to the fixed bar U, and the other lever attached at the end to a sliding bar, V. The lower ends are the cutting-points, and when spread apart they rest on the opposite sides of the path traversed by the needle.

After the needles pass out of the stalks, and as the end of the backward stroke is reached the carrier is caused to strike a bell-crank lever, Y, pivoted to the table in position to act against a long lever, X, which, being connected at the free end to the slide-bar, gives movement to this bar and closes the cutting-points together upon the thread.

When the needle-carrier moves forward, the slide-bar is retracted by a spring, Z, applied at one end, and the cutters are thrown open again to allow the needles to pass through. The point or end X′ of lever X projects into lever V, so that as the carrier for the needles comes against bell-crank lever Y in direction indicated by arrow, lever X will be forced outward in direction of arrow by it, and lever V will be drawn in direction of arrow on it in Fig. 2.

In Fig. 4 is seen a detail of the shears or thread-cutting devices, one blade of which is attached to lever V and the other to fixed bar U, while both blades are pivoted together centrally, as shown. Now, when lever V is moved in direction shown by arrow it is evident that the blades pivoted to it will be caused to close upon the blades pivoted to fixed bar U, and cause the severance of the threads. As soon as severed, the spring Z will cause the scissors to open again.

Now, as thus constructed and combined these parts will operate to stitch together a number of tule-stalks in close regular order. In connection with this holding and stitching mechanism, however, I employ a means whereby a conical cover or wrapping, contracted at one end, is produced. To obtain this shape, several of the stalks at one end of the bed are depressed or thrown out of line of the needle, so that instead of being stitched in with the others these stalks escape, and when the formed mat or blank is brought into tubular form they are thrown inside the circle and confined in this contracted position when the thread is tied.

At and along one side of the bed are formed several transverse inclined slots, J, parallel with one another, and extending about one-third way across the bed. Upon the face of the presser-plate and in line with these slots are an equal number of blocks, P, having a straight edge and an inclined face. The slots are of suitable width to admit one thick or two smaller stalks, and the spaces between them are level with the general surface of the bed.

When the stalks are placed in position, and the presser-plate is closed down upon them, the projecting blocks press all those out of line which lie over the slots, and only those on the level surface are caught by the needle. In the final operation of drawing together the end of the blank and tying the thread, these unstitched stalks are thrown inward, and the closed circular end is formed of about one-half the number of stalks that form the larger end.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described machine for stitching stalks of tule together, consisting of the bench or table having guides for the needle-carrier B, the traveling needle-carrier having long eye-pointed needles, the axle D, sheaves E, cords F F′, and treadles G G′, and the cord H, as a means for throwing the needle-carrier forward and back, the stalk-supporting bed, the hinged presser-plate M, with needle-grooves *p*, and the thread-clamping device composed of rock-bar R, with handle R′, the clamping-fingers S^{x}, and the stop-plates T on the bed at one side of the lines of the needles, substantially as set forth.

2. In a machine for the purposes described, the combination of a reciprocating needle-carrier carrying a gang of needles, the stalk-supporting bed, the hinged presser-plate, the rock-bar with clamp-fingers adapted to seize the ends of the thread brought forward by the needles and held there while the needles draw back, the slide-bars in line with the needle-carriers, and the fingers on the ends of the rock-shaft, substantially as set forth.

3. In a machine for the purposes described, the combination of a reciprocating needle-carrier carrying a gang of needles, the stalk-supporting bed with slots or depressions J along one side, and the removable presser-plate having the projecting blocks P, as a means for pressing down a stalk or stalks at intervals from among the row of stalks upon the bed to bring a portion of the number out of line of the needle, substantially as set forth.

4. In a machine for the purposes described, the combination, with the stationary bed having the corrugated strips L L with longitudinal needle-slots, of the presser-plate M, provided with similar corrugations, *m*, in which are needle-slots *p*, substantially as and for the purpose set forth.

EARL K. COOLEY. [L. S.]

Witnesses:
EDWARD E. OSBORN,
M. B. SINGLEY.