





No. 715,267.

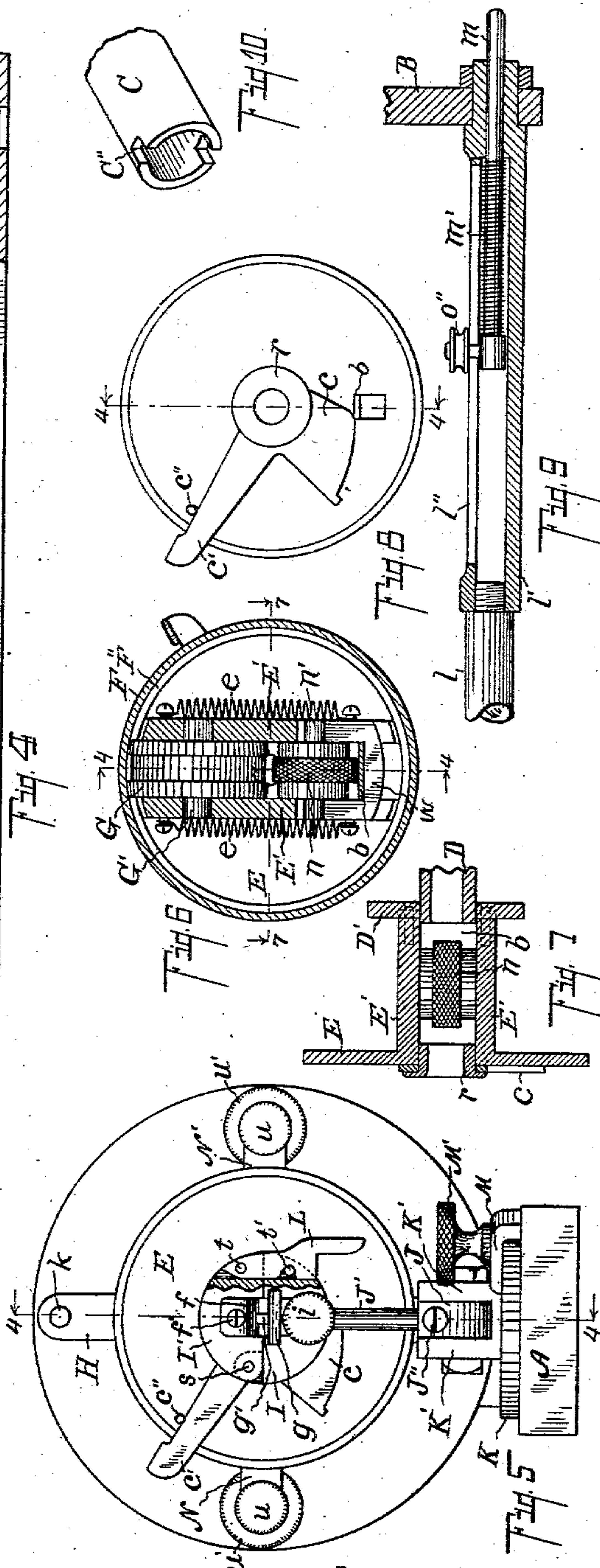
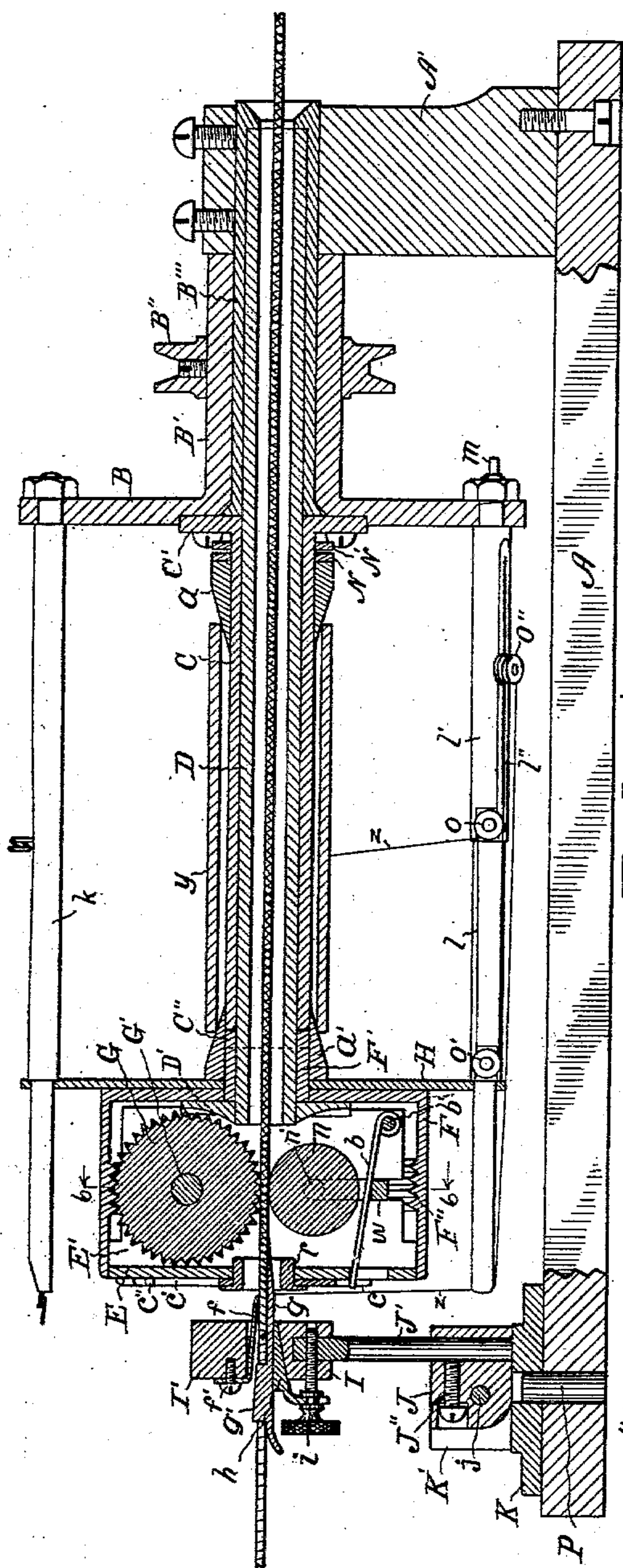
Patented Dec. 9, 1902.

J. H. HOLDEN & A. A. ACKERMAN.  
MACHINE FOR MAKING CORSET STIFFENERS.

(Application filed Apr. 29, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

JONAS H. HOLDEN AND ALBERT A. ACKERMAN, OF THREEOAKS, MICHIGAN, ASSIGNORS TO THE WARREN FEATHERBONE COMPANY, OF THREEOAKS, MICHIGAN.

## MACHINE FOR MAKING CORSET-STIFFENERS.

SPECIFICATION forming part of Letters Patent No. 715,267, dated December 9, 1902.

Application filed April 29, 1901. Serial No. 58,100. (No model.)

*To all whom it may concern:*

Be it known that we, JONAS H. HOLDEN and ALBERT A. ACKERMAN, citizens of the United States, residing at the village of Threeoaks, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Machines for Making Flat Stiffening-Blades, of which the following is a specification.

10 This invention relates to improvements in a machine for winding or securing flat blades of featherbone or similar stiffening material together.

The objects of the invention are, first, to provide a machine for joining the flat blades of stiffening material wherein the operation is continuous. Heretofore the blade has been first wound and then by a separate operation a row of stitches put through the same; second, to provide improved means of retaining or holding the blades while they are being joined or bound together; third, to provide an improved winder for the purpose having an improved feed device; fourth, to provide an improved guide for properly locating the blades in relation to each other; fifth, to provide improved tension devices whereby the complete operation is made continuous.

Further minor objects will definitely appear from the detail description to follow.

We accomplish the objects of our invention by the devices and means described in this specification.

35 The invention is clearly defined, and pointed out in the claims.

We fully illustrate all of the features of our invention in the accompanying drawings, forming a part of this specification, in which—

40 Figure 1 is a plan view of the winder part of the machine, portions being detached and broken away to show details of construction. Fig. 2 is a detail view showing the arrangement of guides for delivering the tapes to a sewing-machine after the said tapes have been wound. Fig. 3 is a detail elevation view of the weighted tension device. Fig. 4 is an enlarged vertical longitudinal detail sectional view through the winder part alone, taken on line 4 4 of Figs. 1, 5, 6, and 8. Fig. 5 is a

front elevation of the construction illustrated in Figs. 1 and 4. Fig. 6 is a detail sectional view of the feed device, taken on line 6 6 of Fig. 4. Fig. 7 is a horizontal detail sectional view through the feed device, taken on a line corresponding to line 7 7 of Fig. 6 looking down. Fig. 8 is an enlarged detail view of the face end of the rotatable part of the winder, showing the lever, cam, and connection for separating the feed-rolls to release the blades held between the same. Fig. 9 is a detail view of the tension device or guide for the thread as it is delivered from the spool. Fig. 10 is a detail view of the forward end of the sleeve C at the point where the winder-head is withdrawn to permit the spool or bobbin to be put in place.

In the drawings similar letters of reference refer to similar parts throughout the several views and all the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines.

Referring to the lettered parts of the drawings, A is a suitable base for supporting the winder. This is provided with a bracket A' at its rear end. In this bracket is secured a sleeve B''' by a pair of set-screws above. Supported on the sleeve B''' is a revoluble sleeve B', carrying a disk B, which has forwardly-extending arms or fingers k or l, or both, to serve as guides and support tension devices for threads from the spools. A disk C' is secured to the head B and has a forwardly-extending tube C, which is revoluble therewith. On this sleeve C is supported an adjustable tension-cone  $\alpha$ , and this is held adjustably into the spool or cylinder  $\gamma$  and has a gentle tension upon the same, so that any threads wound thereon will be easily drawn off. A tube D extends within the sleeve B''' and is held in position by a thumb-screw R. On this tube C is supported a hub D', to which are secured side plates E' E', to which a disk E at the front of the machine is secured, which is perforated at its center for the passage of the tapes to be wound, a suitable thimble, as  $\tau$ , being provided to form a suitable guide. The sleeve C is revoluble, as are also the arms H, which fit onto the ends



of the thread-guides and support them in position, and the casing F, which is also secured thereto. The casing F is provided with a worm F' within the same, which engages a worm-gear G on the pin G', extending transversely through the plates E E'. An annular groove is around this worm-gear G, which serves as one of a pair of feed-rolls in carrying forward the wound tapes of stiffening material. The opposite roller has no gear connection for its actuation and appears distinctly in Figs. 4 and 6, a journal  $n' n'$  extending from each end of it into a suitable vertical slot, and a yoke  $w$  is in the slot and held normally upward by springs  $e e$ . (See Fig. 6.) The central part of this roller  $n$  is knurled and fits into an annular groove in the roller or gear G. The lever  $b$  extends through the yoke, being fulcrumed at B', and projects out through a slot in the face-plate E. A lever  $c'$  is fulcrumed around the thimble  $r$  and is provided with a cam at  $c$ , which acts upon this lever  $b$  when the lever  $c'$  is depressed and throws the lower feed-roll  $n$  out of engagement, permitting the stiffener to be pulled out or pushed in without hindrance. This lever normally rests against the pin  $c''$  in the plate E. The revoluble part of the winder is actuated from a small pulley B'' on the revoluble sleeve B'.

The guide for delivering the tape for the winder is especially constructed, first, so that it can be opened and the tapes taken therefrom without cutting the same, and it is further especially constructed so that it can be swung to one side when it is desired to move the front plate of the machine to permit the introduction of a new spool of winding or wrapping thread. To this end a pivoted bracket K on the front end of the plate A swings freely on the pin P. A clamp M, with thumb-screw M', embraces the bracket K to securely lock the same in any position desired. The bracket K is a kind of turn-table and has upwardly-projecting ears K' K' thereon, between which is pivoted the block J at  $j$ . In the block J is secured an adjustable standard J' by means of a set-screw J''. Supported on the upper end of this standard in the block I is the guide, which embraces the strands  $xx$  or blades to be wound. These are delivered over a small shoe  $g$ , having a partition  $g'$ , which is somewhat wedge-shaped in form. This is secured to a small wedge-shaped support  $h$ , which is adjustable back and forth by means of a thumb set-screw  $i$ . The shoe  $g$  extends into a point or flat blade-like part into the thimble  $r$ , before referred to. A small blade  $f$  is secured adjustably by the set-screw  $f'$  to the top or hinged portion I' of the guide and extends inwardly toward the winder projecting beyond the inner edge of the said hinged part. This part I' is hinged on a pivot  $s$ , which is on the lower block I, (seen distinctly in Fig. 5,) and the opposite side is provided with a latch L, pivoted at  $t$  on the hinged block I', notched to engage the

pin  $t'$  on the lower block I. The blade  $f$  is thus shut down upon the narrow strands  $xx$  and holds them securely in position, while the feed-rolls of the winder draw them forward therethrough. The thread, a strand of which appears at  $z$ , is on the spool and is delivered by the fingers  $l$  and  $k$  and wrapped around the blades  $xx$ , as indicated in the drawings. The threads embrace the forward end of the flattened shoe  $g$  and the blade  $f$ , which holds the blade in a flat form while they are being thus wound. The rolls retain them in the flat position as it carries them and the blade  $x'$  over a suitable pulley-wheel S on a suitable support, as T, back of the winder. The blade is then carried rearwardly to one side of the winder, as indicated in Fig. 1, and given a quarter-turn around a guiding pulley or sheave S'. Thence the blade is passed onward and around a pulley S'', thence back to another pulley S''', where it is given another half-turn, and is then delivered to a sewing-machine W, which inserts a row of stitches W' through the center thereof between the flat blades  $xx$ . The machine being run separately from the winder, its feed carries the tape forward rapidly and independently of the winder. Both the machine and the winder can be run from the same counter-shaft. The pulley S'' is put on a slide U' in a suitable guide, as U. The cord  $v$  is attached to the same and extends over a small pulley  $v'$ , and the weight  $v''$  is attached to keep the blade under tension as it is delivered from the winder to the sewing-machine. It is necessary to do this in order that the blade may be held perfectly flat and the winding and stitching be done to the best possible advantage. By careful manipulation and frequent stopping of the machine for adjustment the sewing-machine might be placed next to the winder.

We provide a tension device for the wrapping-thread  $z$  consisting of a small roller-guide O'', supported on a lateral pin on the rod  $m$  in the guide I'. A coiled spring  $m'$  surrounds the rod  $m$  and affords tension and permits a slight motion, as clearly appears from Figs. 4 and 9. A thread could also be extended through the finger  $k$ , if desired.

We have described the various parts of our machine in detail, but desire to state that they can be considerably modified without departing from our invention. By the devices we have employed the machine is substantially automatic in its workings, and a single attendant is able to attend to several machines at the same time and keep them all in operative condition without any perceptible waste of time. The devices for delivering the flat blade under tension to the sewing-machine could be used in connection with a variety of winders, although it is quite necessary to have some means for holding the blade in proper position to receive the threads. The particular mechanism we have shown for that purpose is most effective. It will be ob-



served that the rotation of the winder operates the feed-rolls at a regular rate of speed and properly spaces the wrapping-thread, because each revolution carries the same forward a fixed and definite amount. In case of any accident the machine can be stopped and the rolls separated and the guide for the strands thrown open, and the blade drawn back and spliced, or any obstruction removed, or any accidental misplacement of parts corrected.

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

1. In a machine for winding cords or tapes into blades, the combination of a suitable winder with guides for retaining the cords side by side consisting of grooved pulleys for receiving the wound strands, one of which is movable and held under tension by a weight, and a sewing-machine for stitching longitudinally through the blade as it is so delivered under tension, for the purpose specified.

2. In a machine for winding cords or tapes into blades, the combination of a suitable winder with guides for retaining the cords side by side, consisting of grooved pulleys for receiving the wound strands, one of which is movable and held under tension, and a sewing-machine for stitching longitudinally through the blade as it is so delivered under tension, for the purpose specified.

3. In a winder, the combination of the base A; a bracket A' thereon; a sleeve B''' suitably clamped in said bracket; a revoluble sleeve B' with a pulley B'' thereon, carrying a suitable spool-holder and hollow cylindrical head F at the forward end, having an internal worm F''; an inner sleeve D within the sleeve B''' extending through the spool-holder and carrying a head D'' and side plates E', E', with front plate E fitting within the open end of cylinder F; and a pair of feed-rolls supported by the plates E', E', one of which is provided with a worm-gear to engage the internal worm F'' in the head F, and the other of which is held yieldingly against the same;

means of releasing the movable roller; and a guide in front of the winder to deliver the strands axially therethrough, all coacting for the purpose specified.

4. In a winder, the combination of a base A; a bracket A' with fixed sleeve thereon; a revoluble sleeve mounted on the said fixed sleeve carrying a suitable spool-holder with a hollow cylinder at the front end having a worm therein; a second fixed sleeve extending axially through the spool-holder and having a head at its front end, carrying feed-rolls one of which has a worm-gear engaged by the worm within the said hollow cylinder; and a suitable guide to deliver strands into the winder, for the purpose specified.

5. In a winder, the combination of a fixed sleeve; a revoluble sleeve mounted thereon, carrying a suitable spool-holder with a head at its front end, a second fixed sleeve extending axially through the spool-holder and having a head at its front end with feed-rolls thereon; a gear on the revolving head and gears on the feed-rolls meshing therewith, coacting for the purpose specified.

6. The combination with a winder of a guide for delivering strands to the winder consisting of a lower block I with an adjustable shoe extending therethrough; a cap-block pivoted to the said lower block with a suitable latch for retaining it in position and with a spring-finger for resting it upon the strands passing therethrough, for the purpose specified.

7. A guide for delivering strands to a winder, consisting of a lower block with a suitable guideway thereon and an upper block hinged thereto with a spring-finger for holding the strands in position, for the purpose specified.

In witness whereof we have hereunto set our hands and seals in the presence of two witnesses.

JONAS H. HOLDEN. [L. S.]

ALBERT A. ACKERMAN. [L. S.]

Witnesses:

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