No. 861,267. PATENTED JULY 30, 1907.

F. W. COOPER.

MEANS FOR AUTOMATICALLY SEVERING HAT SWEAT BANDS.

APPLICATION FILED SEPT. 6, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

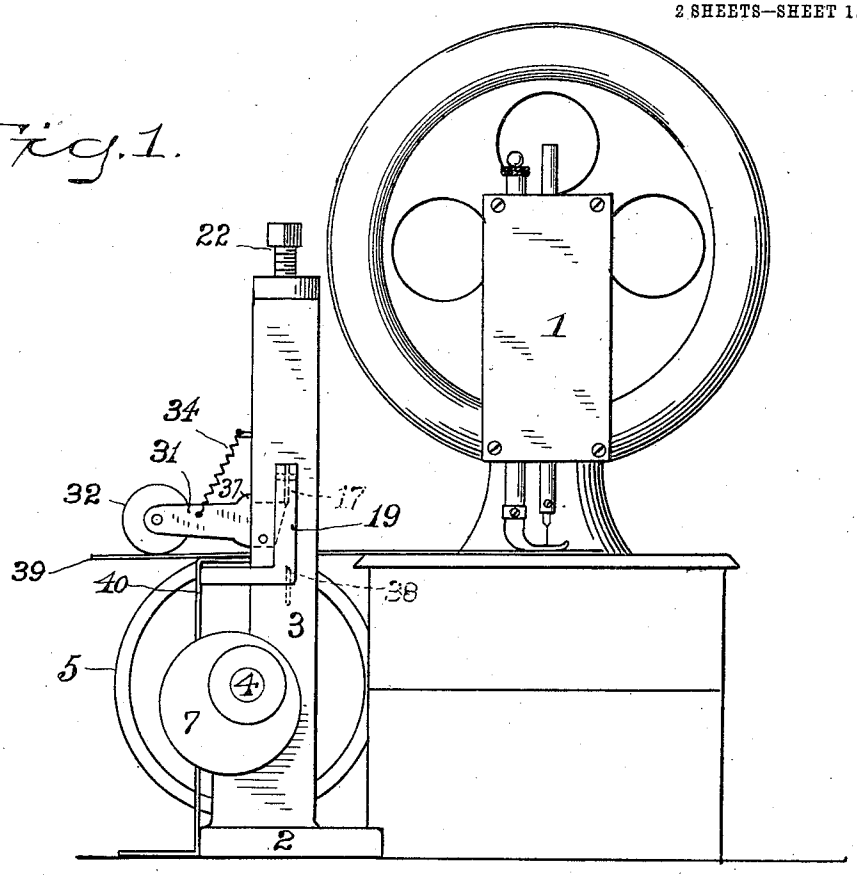


Fig. 7.

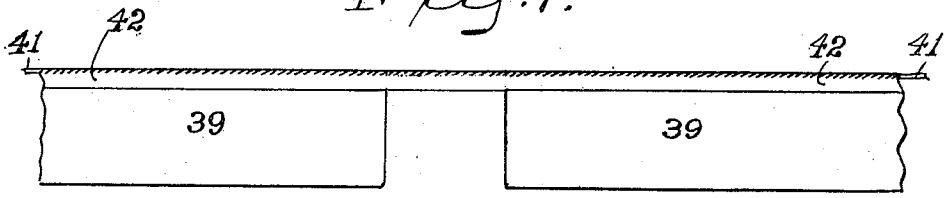
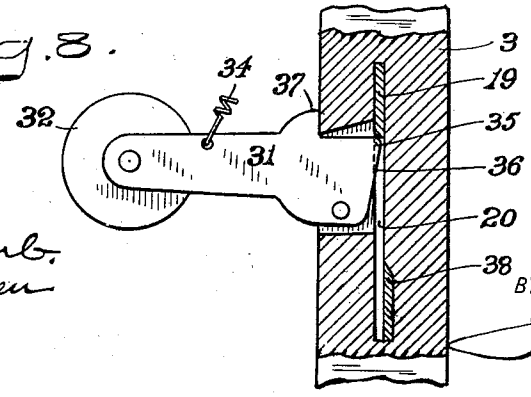


Fig. 8.



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2 SHEETS—SHEET 2.

Fig. 2.

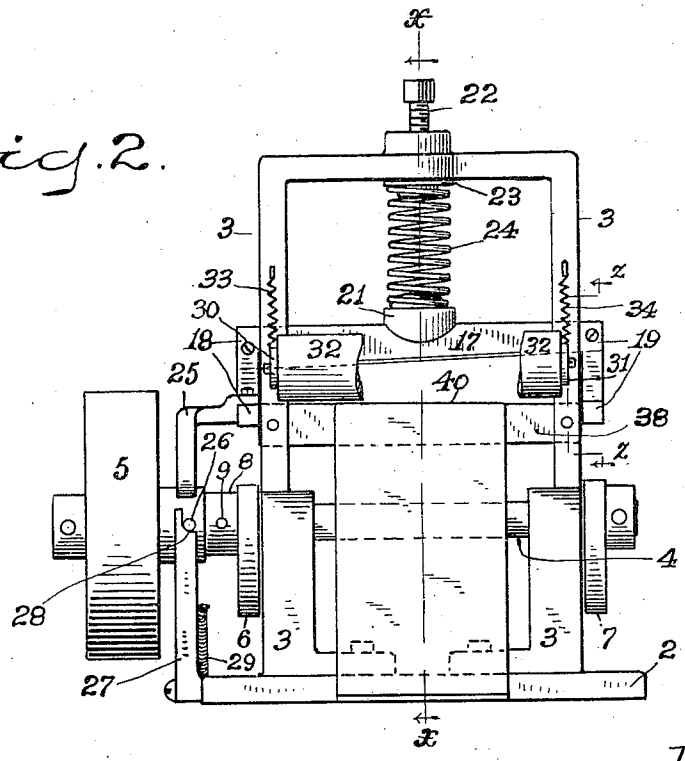


Fig. 3.

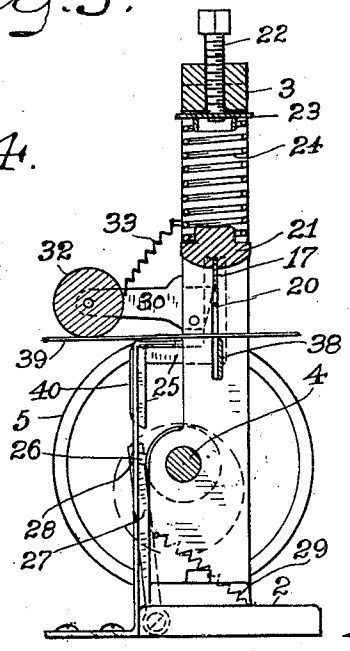


Fig. 5.

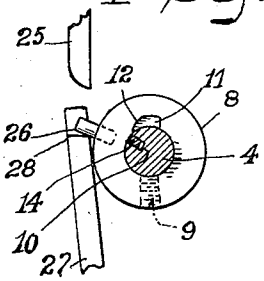


Fig. 4.

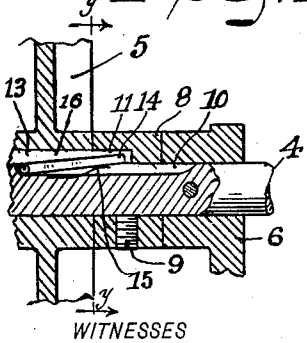
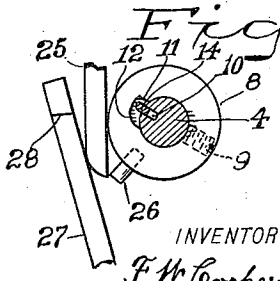


Fig. 6.



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UNITED STATES PATENT OFFICE.

FREDERICK W. COOPER, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-THIRD TO THOMAS E. HOWARD, OF DANBURY, CONNECTICUT.

MEANS FOR AUTOMATICALLY SEVERING HAT SWEAT-BANDS.

No. 861,267. Specification of Letters Patent. Patented July 30, 1907.

Application filed September 6, 1906. Serial No. 333,510.

To all whom it may concern:

Be it known that I, FREDERICK W. COOPER, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Means for Automatically Severing Hat Sweat-Bands; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for automatically severing hat sweat bands, during the stitching to the latter of the reed and reed cover, and consists of certain parts and combinations of parts such as will hereinafter be described and then particularly noted in the claims.

Hat sweat bands are usually fed by hand into a stitching machine with the reed and reed cover properly assembled and guided so that the stitching will be effected through the cover and sweat band and around the reed, and the sweat bands are held together in a gang or series by means of the reed and reed cover which bridges the space between succeeding bands. It therefore becomes necessary to separate the reed and reed cover between succeeding bands, and this has heretofore been accomplished by the operator with a pair of scissors.

An operator has heretofore been able to attend to only one sewing machine by reason of the fact that this cutting above referred to must be effected constantly as each sweat band passes through the sewing machine.

The object of my present invention is to provide means for automatically effecting this cutting operation so that one operator can attend to several sewing machines.

In the accompanying drawing Figure 1 is a front elevation of the sewing machine and my improved automatic cutting device arranged in proper relative position—Fig. 2 a detail elevation of the cutting apparatus—Fig. 3 a section at the line *x*, *x*, of Fig. 2—Fig. 4 a detail broken sectional elevation of the clutch mechanism which I prefer to employ—Fig. 5 a section at the line *y*, *y*, of Fig. 4 showing the normal position of the clutch mechanism—Fig. 6 a similar view showing the position of the parts of the clutch mechanism at the time when the cutter knife has descended to effect the cutting operation—Fig. 7 a detail broken elevation illustrating two sweat bands united by means of the reed and reed cover, and Fig. 8 a detail broken sectional elevation, on an enlarged scale, at the line *z*, *z*, of Fig. 2.

Similar numbers of reference denote like parts in the several figures of the drawing.

1 represents the sewing machine and as this constitutes no part of my invention proper I will not describe it.

My cutting apparatus comprises a base 2 having a frame 3 rising therefrom within the sides of which frame is journaled a shaft 4. Loosely mounted on one end of said shaft is a power pulley 5 and rigidly secured upon said shaft, immediately outside the opposite sides of said frame, are cams 6, 7. Between the cam 6 and the pulley 5 is a sleeve 8 which is secured to said shaft by means of a screw 9 driven through the sleeve against the shaft, so that it will be clear that this sleeve is held on the shaft merely by the friction of the screw 9. The shaft 4 has a channel 10 formed therein at the point where it is surrounded by the pulley and sleeve, and the inside of the sleeve is provided with a recess 11 which has one of its walls inclined as seen at 12 and opens directly upon the shaft 4. Pivoted at 13 in the channel 10 and within the confines of the pulley 5 is a clutch lever 14 which is backed by a flat spring 15, the function of which latter is to normally throw the lever outside the channel. The inside of the pulley 5 has a small recess 16 formed therein, so that when the recesses 11, 16, co-incide with the channel 10 the lever 14 will operate to lock the pulley, sleeve and axle together, whereupon the cams 6, 7, will be revolved for the purpose presently to be explained.

17 is the upper or movable knife which is secured at its opposite ends to carriers 18, 19, that are guided within vertical slots 20 (only one shown) in the sides of the frame 3, and 21 is a hub secured to the back of the knife.

22 is a screw bolt driven through the top of the frame 3, to the bottom of which bolt is secured a plate 23, and between this plate and the hub 21 is confined a powerful spring 24 which is under compression when the knife is in elevated position.

Secured to the carrier 18 is an angle bar 25 which depends immediately above the sleeve 8 and in a vertical plane tangential to the circumference of said sleeve.

26 is a pin which is driven into the outer surface of said sleeve so as to project therefrom, and 27 is a lever pivoted to the base 2 and provided with a seat 28 at its free end.

29 is a coil spring whose ends are secured respectively to the lever 27 and the base 2, the function of said spring being to normally hold this frame against the sleeve 8 with the pin 26 resting within the seat 28, as shown at Figs. 2, 3, and 5.

30, 31, are levers which are pivoted at opposite sides of the frame 3, 32 is a heavy roller which is journaled between and carried by said levers, and 33, 34, are coil springs attached to said levers and the frame, the function of these sprnigs being to prevent the roll from dropping too far when the cutting is being performed, as will be presently explained. The upper inner extremities of the levers 30, 31, are rounded as seen at 35, and the inner faces of these levers from these round-

ed portions are inclined outwardly as seen at 36 in the instance of one of said levers at Figs. 1, 3, and 8. In normal position the inner rounded ends of these levers 30, 31, extend beneath the knife carriers 18, 19, as shown more particularly at Fig. 8, and said levers have shouldered portions 37 which abut against the side walls of the frame 3 to limit the upward movement of said levers and thereby insure the normal engagement of said rounded ends 35 and carriers 18, 19, to preserve the normal elevated position of the upper knife 17.

38 is the lower knife which is secured in permanent position between the sides of the frame 3.

39 is the sweat band which passes from the sewing machine over and against an intermediate rest 40 secured to the frame 3 beneath the roller 32 which latter rests by gravity upon the sweat bands as they pass successively thereunder.

The resistance of the sweat bands as they pass beneath the roller 32 preserve the upward or normal position of said roller, but when the terminal of a sweat band passes beyond said roller the latter will drop into the space which intervenes between successive sweat bands, thereby throwing the rounded ends 35 from beneath the carriers 18, 19, and permitting the spring 24 to throw the upper knife 17 downward so as to sever the reed 41 and reed cover 42 which bridge said space. When said carriers 18, 19, with the upper knife blade 17, descend the angle bar 25 will strike the pin 26, thereby forcing the sleeve 8 around the shaft 4 against the friction of the screw 9 and also forcing the lever 27 outwardly until the clutch lever 14 is projected within the recess 16 in the pulley and the recess 11 in the sleeve, whereupon the shaft 4 will revolve in harmony with said pulley and will cause the cams 6, 7, to impinge against the lower edges of the carriers 18, 19, and thereby elevate said carriers and the upper knife 17 to their normal or elevated position. As the knife 17 is elevated its sides will strike against the inclines 36 of the levers 30, 31, thereby forcing the outward extremities of these levers downward slightly until said carriers have passed beyond the upper rounded ends 35, whereupon said ends will be automatically projected beneath said carriers both by the action of the springs 33, 34, and also by the action of the succeeding sweat band as it passes beneath the roller 32, and the knife will thereby be retained in elevated position until the succeeding cutting operation. It will thus be understood that the effective operation of the cutting mechanism is controlled by the sweat bands themselves and since the pulley 5 revolves very rapidly the downward movement of the upper knife and the restoration of the latter to its upper or normal position are effected very rapidly. As the knife 17 is elevated by the action of the cams 6, 7, the angle bar 25 will likewise be elevated and the sleeve 8 will be revolved until the lever 14 has been depressed within the channel 10 by the inclined surface 12 of the recess 11, and when said sleeve has been thus revolved until the pin 26 is in normal position the lever 27 will be thrown inwardly against said sleeve by the action of its controlling spring so that the parts will be in the position shown at Fig. 5, and the pulley 5 will then revolve idly on the shaft 4.

While I have described in detail the particular form of clutch in connection with the pulley 5 I do not wish to be understood as limiting myself to any special form of clutch since any ordinary well known device of this description will answer the purposes of my invention.

The tension of the spring 24 may be increased or decreased by manipulation of the screw bolt 22 as will be readily understood, thereby altering the velocity at which the upper knife 17 is thrown downwardly.

There are very many details of construction which I have described which may be changed or modified in various ways without departing from the spirit of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A machine for severing hat sweat bands, comprising cutting means, means for engaging the sweat bands for controlling the operation of said cutting means whereby when the said last named means engage in the intervening spaces between said sweat bands said cutting means will be actuated, and means initially operated by said cutting means during the cutting movement for restoring said cutting means to normal position.

2. A machine for severing hat sweat bands embodying cutting means, vertically movable means normally supporting said cutting means and engaging the sweat bands whereby said cutting means will be released to enter into action when said vertically movable means moves downwardly to enter the intervening spaces between said sweat bands, and means receiving impulse from said cutting means at the inception of the cutting movement for restoring said cutting means to normal position.

3. A machine for severing hat sweat bands embodying cutting means, pivoted means normally supporting said cutting means in inoperative position at one end and at their other end engaging the sweat bands whereby said cutting means will be released to enter into action when said pivoted means enters the intervening spaces between said sweat bands, and means operated by the cutting means for restoring the latter to normal position in engagement with said pivoted means.

4. A machine for severing hat sweat bands, comprising vertically movable spring pressed cutting means, means for normally holding said cutting means in inoperative position, said holding means engaging the sweat bands and releasing said cutting means when engaging in the intervening spaces between said sweat bands, means for restoring said cutting means to normal position in engagement with said holding means, and means carried by said cutting means to impart initial impulse to said restoring means upon downward movement of said cutting means to operate said restoring means and thereby raise said cutting means to inoperative position.

5. A machine for severing hat sweat bands, comprising vertically movable spring pressed cutting means, pivoted elements engaging said cutting means at one end and sustaining the same in inoperative position, means carried by the other ends of said elements engaging the sweat bands to permit said elements to release the cutting means when engaging in the intervening spaces between said sweat bands, a normally stationary shaft, means thereon to engage the cutting means to raise the same to normal position, a loose pulley on said shaft, means to lock said pulley to the shaft, and means carried by said cutting means to operate said means to lock said pulley to the shaft.

6. A machine for severing hat sweat bands, comprising cutting means, means for sustaining said cutting means in inoperative position, means for restoring said cutting means to normal position after actuation, and means operated by said cutting means during its cutting movement to impart impulse to and thereby operate said restoring means.

7. A machine for severing hat sweat bands, comprising cutting means which engage the sweat bands and support said cutting means in inoperative position and which release said cutting means when engaging in the intervening spaces between the sweat bands, means for returning said cutting means to normal position to be supported by said supporting means, and means carried by the cutting means

to engage said returning means and impart impulse to the same during the cutting movement and thereby operate the same.

8. A machine for severing hat sweat bands comprising vertically movable spring pressed cutting means, pivoted spring-controlled levers engaging said cutting means at one end and supporting the same in inoperative position, means on the other ends of the levers engaging the sweat bands to sustain said cutting means normally inoperative and releasing said cutting means when engaging in the intervening spaces between said sweat bands, means to restore said cutting means to normal position, and means carried by said cutting means to actuate said restoring means during the cutting movement.

9. A machine for severing hat sweat bands comprising cutting means, means for engaging the sweat bands to control the operation of said cutting means whereby when said cutting means engage in the intervening spaces between said sweat bands said cutting means will be actuated, a shaft, devices thereon to engage said cutting means and restore the same to normal position, means for operating said shaft, and means carried by said cutting means to impart impulse to said shaft operating means during the cutting movement.

10. A machine for severing hat sweat bands, comprising cutting means, means engaging the sweat bands to control the operation of said cutting means, a normally stationary shaft, devices thereon to restore said cutting means to normal position, and means operated by said cutting means during the cutting movement to actuate said shaft.

11. A machine of the type set forth consisting of vertically moving cutting means, pivoted elements having outer portions engaging the sweat bands, and inner portions engaging under the cutting means to support the latter, and automatic means operated by said cutting means during the cutting operation to raise said cutting means past the inner portions of said pivoted elements to be supported thereby.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK W. COOPER.

Witnesses:
F. W. SMITH, Jr.,
M. T. LONGDEN.