

Dec. 29, 1925.

1,567,194

M. G. ROSENTHAL

CONTROL MEANS FOR POWER SEWING MACHINES

Filed Sept. 15, 1920

3 Sheets-Sheet 1

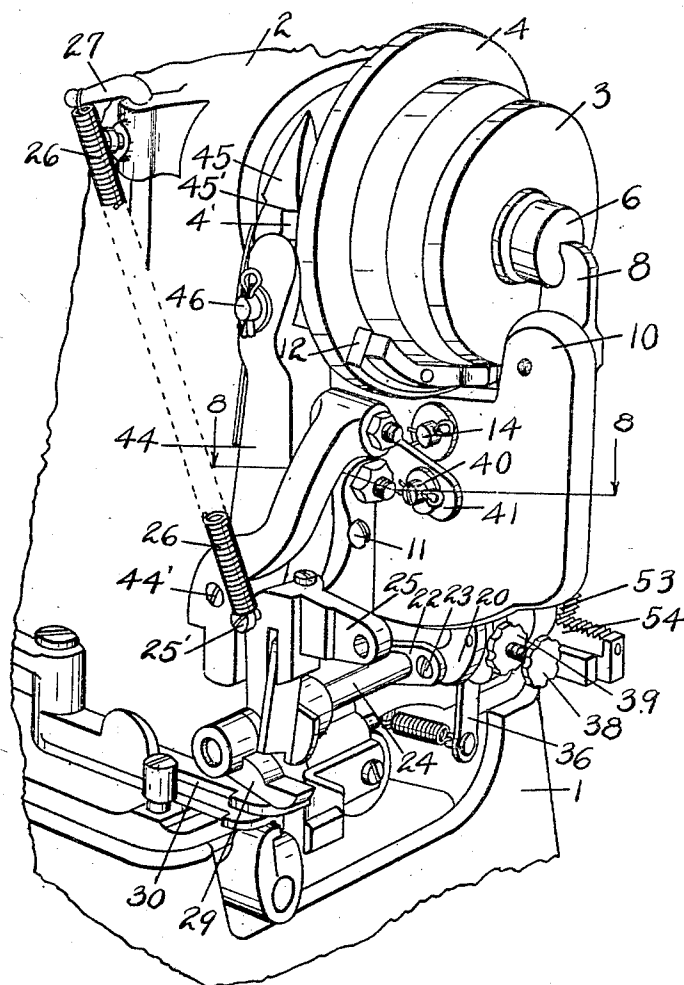


FIG. I.

Witnesses

Frederick Ullrich
Leona Gilman

Inventor

Morris G. Rosenthal

By

Chapman & Earl

Attorneys

Dec. 29, 1925.

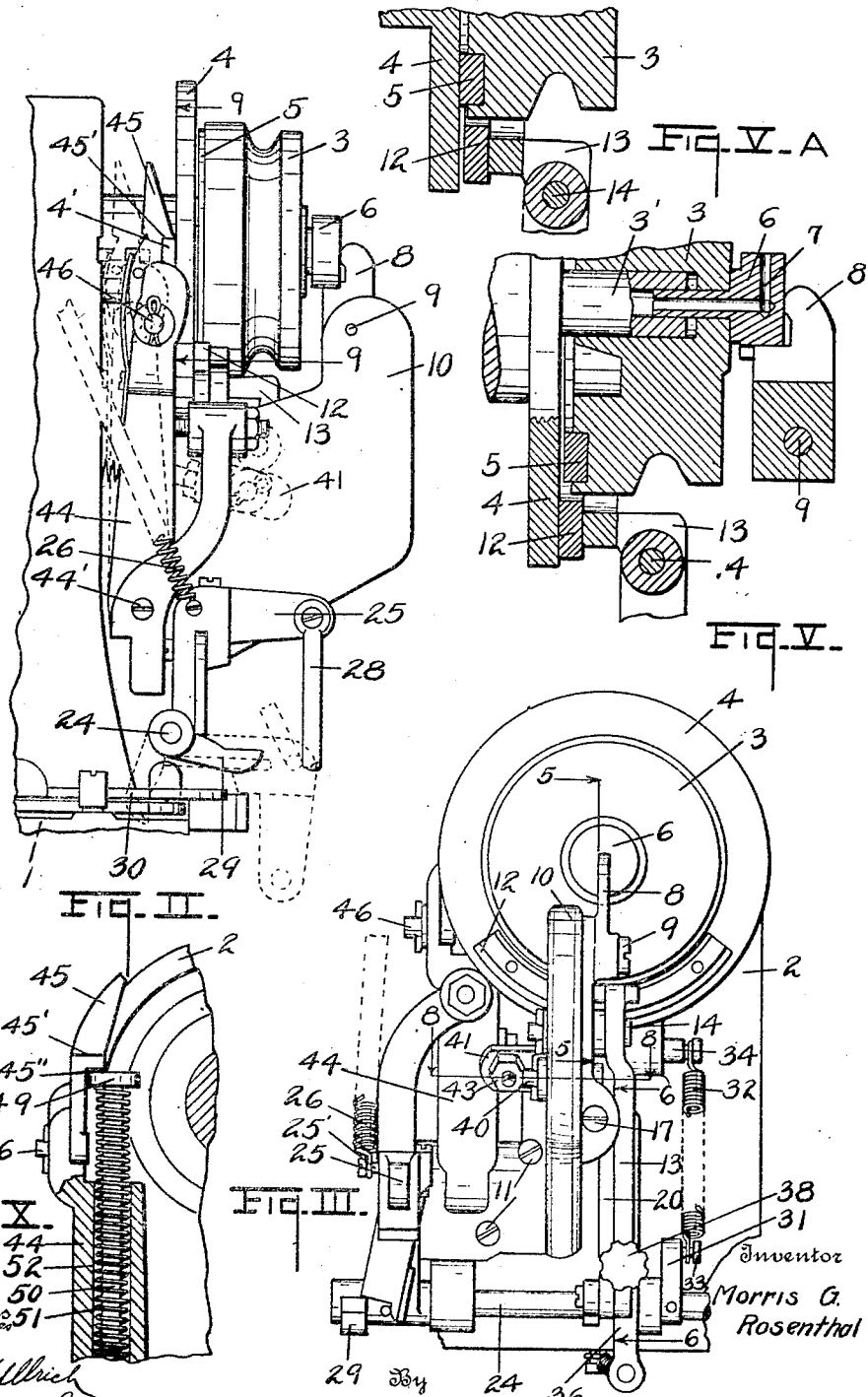
M. G. ROSENTHAL

1,567,194

CONTROL MEANS FOR POWER SEWING MACHINES

Filed Sept. 15, 1920

3 Sheets-Sheet 2



Fried Ulrich
Renn Gilman

Chapman

Inventor
Morris G. Rosenthal

Dec. 29, 1925.

M. G. ROSENTHAL

1,567,194

CONTROL MEANS FOR POWER SEWING MACHINES

Filed Sept. 15, 1920

3 Sheets-Sheet 3

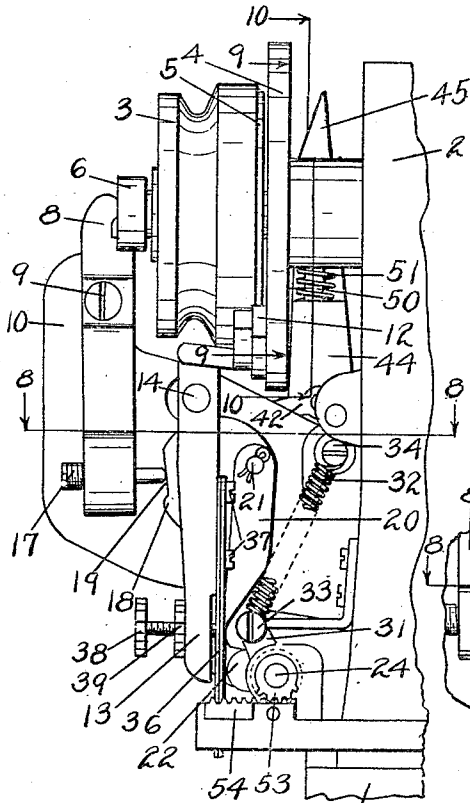


FIG. IV.

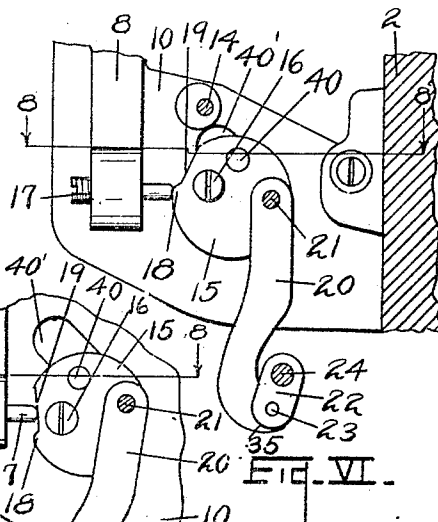


FIG. VI.

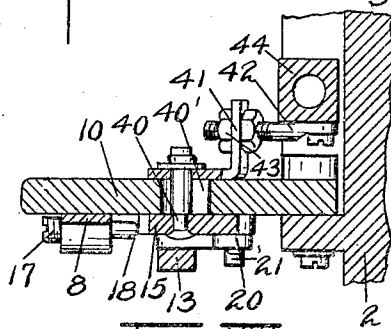


FIG. VII.

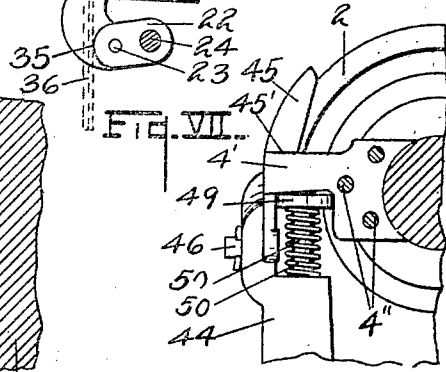


FIG. IX.

Inventor

Morris G. Rosenthal

Witnesses

Fred Ulrich
Rm Gilman

By

Chapman & Deane

Attorneys

UNITED STATES PATENT OFFICE.

MORRIS G. ROSENTHAL, OF CINCINNATI, OHIO, ASSIGNOR TO ROSE PATCH & LABEL COMPANY, OF GRAND RAPIDS, MICHIGAN.

CONTROL MEANS FOR POWER SEWING MACHINES.

Application filed September 15, 1920. Serial No. 410,446.

To all whom it may concern:

Be it known that I, MORRIS G. ROSENTHAL, a citizen of the United States, residing at Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Control Means for Power Sewing Machines, of which the following is a specification.

This invention relates to improvements in control means for power sewing machines.

The object of the invention is in general to provide an effective mechanism for controlling power sewing machines for use in applying patches or in stitching patterns for various purposes.

It is a further object of the invention, first, to improve the clutch means; second, to improve the brake means; and, third, to improve the stop arm or positive stop locating means in such a complete mechanism.

Objects which pertain to details and economies of construction and operation will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is fully illustrated in the accompanying drawing, forming a part of this specification, in which:

Fig. I is a detail perspective view of the rear portion of a power sewing machine to which my invention has been applied, showing the right side of the machine.

Fig. II is a side elevation of the parts appearing in Fig. I, taken from the right hand side of the machine.

Fig. III is a rear elevation of the parts appearing in Figs. I and II.

Fig. IV is an elevation view of the rear part of the machine showing the left hand side.

Fig. V is an enlarged detail sectional view taken on line 5—5 of Fig. III, showing details of the clutch and brake levers and mechanism with the clutch released and the brake applied.

Fig. V^a is an enlarged detail sectional view of parts similar to those appearing in Fig. V, showing the clutch shoe and brake

shoe in the position in which the clutch is applied and the brake released.

Fig. VI is a detail sectional view of the clutch actuating means, taken on line 6—6 of Fig. III, showing the position when the clutch is applied.

Fig. VII is a detail sectional view similar to Fig. VI, showing both the clutch and brake actuating means with the clutch released and the brake applied.

Fig. VIII is an enlarged detail sectional view on line 8—8 of Figs. I, III, IV, VI and VII, showing the connections to actuate the stop arm.

Fig. IX is a detail sectional view taken on line 9—9 of Fig. II, showing the stop lug engaged and retained by the stop arm mechanism.

Fig. X is a sectional view similar to that of Fig. IX, showing parts of the stop arm broken away to indicate clearly the details of construction with the buffer and recoil spring in elevated position to receive the blow of the stop lug.

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

Considering the numbered parts of the drawing, 1 is the base of the sewing machine. 2 is the rear part of the head. 3 is the loose pulley grooved to be driven by a round belt. 4 is a tight pulley. 5 is the friction ring on the loose pulley for clutching the tight pulley. 6 is the starting block journaled into the loose pulley 3 and extending centrally into the journal 3' for the said pulley, and is provided with a suitable oil hole 7. 8 is the lever engaging the starting block 6 for applying the pressure thereto to couple the loose pulley to the tight pulley. The said lever 8 is fulcrumed at 9, which fulcrum is carried by the main stop motion supporting bracket 10. Bracket 10 is secured to the back of the machine by screws 11 11, as seen in Fig. III, or by other suitable means. 12 is the brake shoe carried upon the brake lever 13, which brake lever is fulcrumed on the pivot 14 which is also carried by the main bracket 10 above referred to, the details for operation of which will be hereinafter described.

44 is the stop motion arm pivoted at 44' on the said main bracket 10 and is provided with an upwardly projecting pivoted latch 45, which is pivoted to the said arm at 46 and is provided with a catch 45' for engaging the stop lug 4' on the tight pulley upon the rebound of the same. The said latch is also provided with a catch 45'' for engaging the spring buffer or recoil spring seated in said arm and retaining it in position to be acted upon by the stop lug 4'. The stop lug 4' is retained on the face of the tight pulley by screws 4'' (Fig. IX).

I have thus described these main parts of the device and will now describe the mechanism whereby they are all operated in proper sequence and in proper relation to each other. The clutch actuating means will be first described.

The clutch lever 8 is actuated by the cam 15 (Fig. VI). The cam 15 is carried upon the pivot 16 and operates upon the adjustable contact screw 17 carried by the lower end of the said lever 8. This in Fig. VI is shown as contacting with the high point 18 of the cam 15. This brings the lower end of the lever outwardly and applies pressure to the actuating plug 6 and forces the loose pulley with its friction clutch ring 5 into contact with the tight pulley 4, thereby causing the same to be driven when the loose pulley is driven by its belt or in any other way. When the cam 15 is moved so that the low part 19 thereof comes opposite the pin 17, the clutch is released (see Fig. VII). The cam is operated by the link or pitman 20 which is pivotally connected thereto at 21. The lower end of this link is connected by the pivot 23 to arm 22 carried on the rock shaft 24 (see Fig. VI). Arm 22 is slotted to receive the Pitman 20. In Fig. VII I have shown the cam shifted and the cam and lever in the position in which the clutch is released.

The shaft 24 is actuated by the loosely mounted trip lever 25 which is provided with a return spring 26 which is connected on pin 27 to the head of the machine and by pivot 25' to the said trip lever 25. The trip lever 25 is actuated by the trip connection 28 which extends to a usual pedal or other means for actuation by the operator. The latch finger 29 is carried by the rock shaft 24 and swings into engagement with the usual throw-off means 30, not necessary here to be described because my invention does not pertain to such details.

The arm 31 is secured on the shaft 24 (Fig. IV) and return spring 32 is connected to that arm by pin 33 and to the head of the machine at 34. This returns the main rock shaft 24 to its initial operating position when the machine has been stopped and this shaft released by the action of the throw-off mechanism.

The brake mechanism will now be described. The brake lever 13 is actuated by the cam means 35 on the end of the rock arm 22 carried by the rock shaft 24, as seen in Fig. VI. When the clutch is released, this cam part 35 swings into contact with the blade spring 36 which is secured to the side of the lever 13 by a pair of screws 37, as seen in Fig. IV, where the machine is shown in the stopping position, the brake there having been applied but the tight pulley not yet having contacted with the stop arm. The tension on the brake is adjusted by adjusting the tension on the spring 36 by the set screw 38 which is provided with a lock nut 39 (Fig. IV). The stop arm is actuated by the pin 40 carried by the cam plate 15 (Fig. VI). The details of this connection appear clearly in Fig. VIII, where the wrist pin 40 extends through aperture 40' in the bracket 10 and is connected by the link 41 to the connection 42 to the said arm 44, by suitable lock nut devices 43, whereby the adjustment of the links of the connection is effected.

The stop arm operation will now be detailed. The stop arm 44 is pivoted to the main bracket 10 at 44' and carries at its upper end the latch 45, which I have already described. The stop arm 44 is provided with a buffer and recoil device consisting of a circular head 49 which engages the catch 45'' on the pivoted latch 45. This buffer is provided with a downwardly extending shank 50 surrounded by a compression coil spring 51 which is disposed in a vertical or upright socket 52 in the said arm 44.

From what has been described it will be seen that the stop 4', when the sewing machine is stopped, contacts with the upper side of the head 49 and compresses the spring 51 into the socket 52. This serves as a shock absorber and stops the tight pulley, thereby stopping the machine. The recoil spring 51 carries the stop 4' against the catch 45' on the latch 45, thus definitely stopping the machine in a fixed position each time, which in a machine used for affixing labels holds the needle in elevated position. The movement and recoil is very beneficial in supplying slack thread at the needle.

On the shaft 24 is a pinion 53 connecting to a rack 54 for the operation of safety lock means, which are not here shown in detail as my invention does not pertain to such details (Fig. IV).

I have thus described the various parts of my improved sewing machine control, and will now indicate their operation so that the intimate relation of the various parts and their coaction one with the other will appear.

The machine as illustrated in Figs. I and II is in the correct position for starting.

To start the machine the operator by suitable pedal or otherwise pulls down on the connection 28, thereby pulling down the lever 25 to the position shown by dotted lines in Fig. II and rocking the shaft 24 to a position where the latch finger 29 engages the automatic throw-out mechanism 30. When this is done the rock shaft arm 22 (see Fig. VI) carried by said shaft pulls down the link 20, operating the cam plate 15 which, first, by the pin 40 and its connection, the link 41, etc. (see Fig. VIII) operates the stop arm 44, moving it out of engagement with the stop lug 4' on the front face of the tight pulley (see dotted lines in Fig. II).

When the rock shaft is advanced further, the cam face 35 at the end of the rock shaft arm 22 moves out of engagement with the spring 36 and releases the brake shoe 12 which is carried by the lever 13. The continued movement of the link 20 then brings the high spot 18 of the cam 15 into contact with the set screw 17 in the end of the clutch lever 8, which actuates the clutch lever and applies pressure on the starting plug 6 and forces the friction ring 5 on the face of the loose pulley 3 into contact with the tight pulley 4, as seen in Fig. V^a, thus driving the machine.

When the machine completes its evolution, such as the stitching of a patch, the throw-off mechanism is tripped and the machine is stopped. This is accomplished by the reversal of the steps which I have described, plus the action of the buffer and recoil means. The return spring 32, acting upon the arm 31 on the shaft 24 (see Fig. IV) quickly throws the shaft to the initial position and reversing the action of starting, first throws the high point 18 of the cam 15 out of engagement with the pin 17, thereby releasing the clutch. A slight further continuation of the movement brings the contact cam surface 35 into engagement with the spring 36, applies the brake, and immediately following this action the pin 40 swings the stop arm 44 into position to receive the stop lug 4' which is on the rear face of the tight pulley 4. The stop lug forces the latch 45 to one side and contacts with the head 49 of the buffer, compresses the spring 51 into the socket 52, thereby completing the stopping of the machine.

The spring 51 then recoils, carrying the stop lug 4' into contact with the catch 45' on the latch 45. When the stop lug is not in position the head of the buffer 49 is in engagement with the stop or catch 45'' on the said latch 45, which holds it in position to receive the blow of the stop lug 4', when the machine is coming to a stop.

While I have shown and described the specific form of my invention which I prefer and desire to claim specifically, I also

desire to claim the invention broadly, as pointed out in the appended claims.

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

1. In a control means for power sewing machines, the combination in the drive means of a tight pulley and a loose pulley, a friction clutch between the said tight pulley and loose pulley, a brake means for the said tight pulley, a stop lug on said tight pulley, a stop arm with buffer means for the said tight pulley, an actuating rock shaft with arms for controlling the said buffer stop arm, brake and clutch means, a lever for the said clutch means, a cam plate pivoted to a bracket on the head of said machine, with a high spot to act on the lever for throwing the clutch means into engagement, and a low spot for disengaging the same, link connections from the said cam plate to an arm on the said actuating rock shaft, a wrist pin on the said cam plate, connections therefrom to the said buffer and stop arm to swing the same to and from engaging position, a lever for the said brake, a cam surface on the said rock shaft arm disposed to act upon the said brake lever when the clutch is disengaged, an adjustable spring disposed on said brake lever to contact with the said cam, actuating means for said rock shaft to start said machine, and release means to stop the same, as specified.

2. In a control means for power sewing machines, the combination in the drive means of a tight pulley and a loose pulley, a friction clutch between the said tight pulley and loose pulley, a stop lug on said tight pulley, a stop arm with buffer means for the said tight pulley, an actuating rock shaft for controlling the said buffer stop arm and clutch means, a lever for the said clutch means, a cam plate pivoted to a bracket on the head of said machine, with a high spot to act on the lever for throwing the clutch means into engagement, and a low spot for disengaging the same, an arm on the said actuating rock shaft, a wrist pin on the said cam plate, connections therefrom to the said buffer and stop arm to swing the same to and from engaging position, actuating means for said rock shaft to start said machine, and release means to stop the same, as specified.

3. In a control means for power sewing machines, the combination in the driving means, of a pulley, a clutch means therefor with a clutch lever, a cam with a high spot for acting on said lever to apply the clutch and with a low spot for releasing the same, a stop lug on said pulley, a stop arm, a connection from the said stop arm to said cam for actuating the same in connection with said clutch lever, a rock shaft with a pitman connecting to said cam for releasing and

controlling the said machine and swinging the said stop arm into position, coacting as specified.

4. In a control means for power sewing machines the combination in a drive means, of a tight pulley, clutch means therefor, a brake for the said pulley, a lever for applying the same, a control rock shaft, a cam on the control rock shaft, and adjustable springs on the said lever for coaction with said cam for applying the brake to said pulley, as specified.

5. In a control means for power sewing machines, the combination of a tight pulley and a loose pulley, a clutch means on the loose pulley and a brake means arranged and disposed to act on said tight pulley, a stop lug on the tight pulley, a pivoted stop arm to be swung into engaging relation with the said stop lug when the brake is applied, a yielding latch pivoted on the said arm with a catch for said stop lug, a spring buffer disposed on said stop arm to be acted upon by the said lug and to be compressed thereby, the catch on said latch being disposed to engage the said stop lug on the recoil of said spring, all coacting as specified.

6. In a control means for power sewing machines, the combination with a loose pulley and a tight pulley, of a pivoted stop arm provided with connections to swing the loose pulley into operative engagement with the tight pulley, a stop lug on the tight pulley to coact with the stop arm, a pivoted beveled latch on the said stop arm to permit the passing of said stop lug and notched to engage the same, a spring buffer composed of a head and shank disposed in a socket in said stop arm, and engaging means on the said pivoted latch to hold said buffer in position to be acted upon by the said stop lug, the notch on said pivoted latch being disposed to engage the said stop lug on the recoil of said spring buffer, coacting for the purpose specified.

7. In a control means for power sewing machines, the combination with a loose pulley and a tight pulley, of a pivoted stop arm provided with connections to swing the loose pulley into operative engagement with the tight pulley, a stop lug on the tight pulley to coact with the stop arm, a pivoted beveled latch on the said stop arm to permit the passing of said stop lug and notched to engage the same, and a spring buffer composed of a head and shank disposed in a socket in

said stop arm, the notch on said pivoted latch being disposed to engage the said stop lug on the recoil of said spring buffer, coacting for the purpose specified.

8. In a control means for power sewing machines, the combination with a loose pulley and a tight pulley, of a pivoted stop arm provided with connections to swing the loose pulley into operative engagement with the tight pulley, a stop lug on the tight pulley to coact with the stop arm, a pivoted beveled latch on the said stop arm to permit the passing of said stop lug and notched to engage the same, and a spring buffer on said stop arm to engage said stop lug, the notch on said pivoted latch being disposed to engage the said stop lug on the recoil of said spring buffer, coacting for the purpose specified.

9. In a control means for power sewing machines, the combination with a loose pulley and a tight pulley, of a pivoted stop arm provided with connections to swing the loose pulley into operative engagement with the tight pulley, a stop lug on the tight pulley to coact with the stop arm, a pivoted beveled latch on the said stop arm to permit the passing of said stop lug and notched to engage the same, a spring buffer composed of a head and shank disposed in a socket in said stop arm, the notch on said pivoted latch being disposed to engage the said stop lug on the recoil of said spring buffer, and a brake means to co-operate with said stop arm to lessen the work thereof, coacting for the purpose specified.

10. In a control means for power sewing machines, the combination with a loose pulley and a tight pulley, of a pivoted stop arm provided with connections to swing the loose pulley into operative engagement with the tight pulley, a stop lug on the tight pulley to coact with the stop arm, a pivoted beveled latch on the said stop arm to permit the passing of said stop lug and notched to engage the same, a spring buffer on said stop arm to engage said stop lug, the notch on said pivoted latch being disposed to engage the said stop lug on the recoil of said spring buffer, and a brake means to co-operate with said stop arm to lessen the work thereof, coacting for the purpose specified.

In witness whereof I have hereunto set my hand and seal.

MORRIS G. ROSENTHAL. [L. s.]