Sept. 11, 1962 D. FISCHBEIN 3,053,205

SWITCH CONTROL MECHANISM AND THREAD CUTTER FOR ELECTRIC SEWING MACHINES

Filed Feb. 11, 1959 2 Sheets-Sheet 1

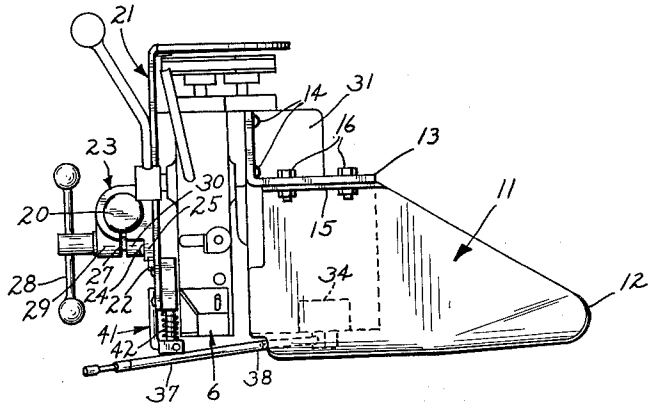


FIG. 1

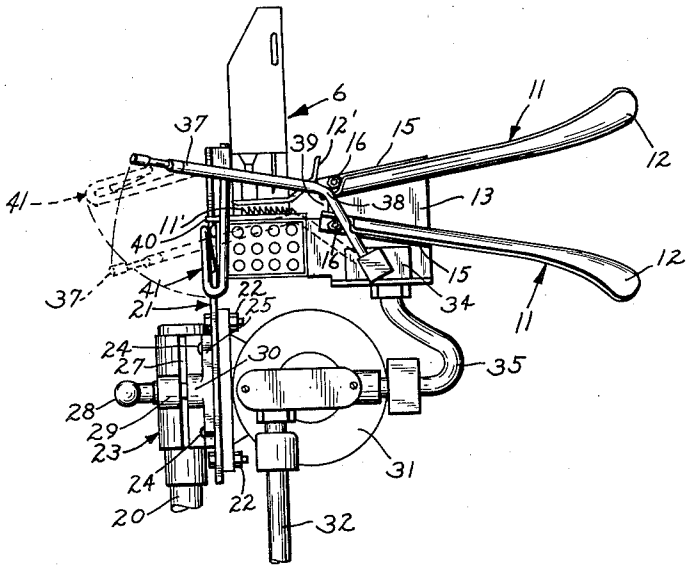


FIG. 2

INVENTOR.
DAVE FISCHBEIN
BY David K. Kilgore
ATTORNEY

Sept. 11, 1962 D. FISCHBEIN 3,053,205

SWITCH CONTROL MECHANISM AND THREAD CUTTER FOR ELECTRIC SEWING MACHINES

Filed Feb. 11, 1959 2 Sheets-Sheet 2

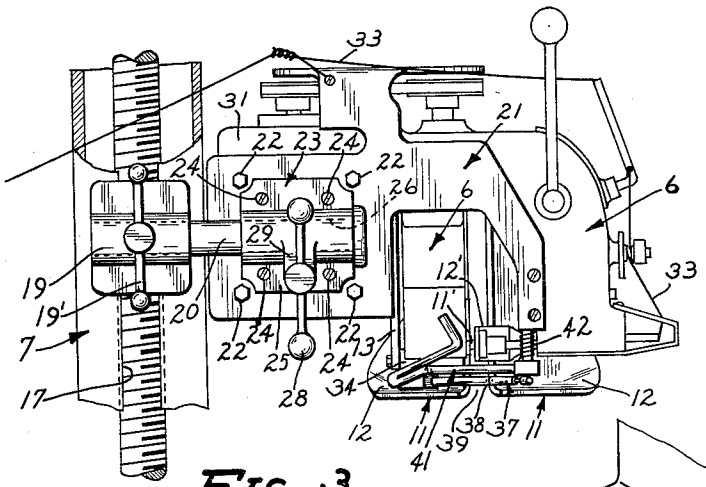


FIG. 3

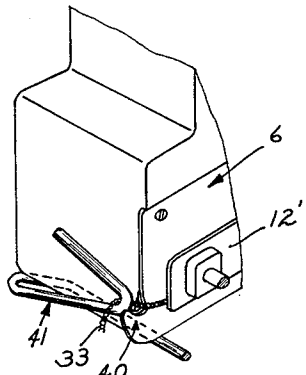


FIG. 4

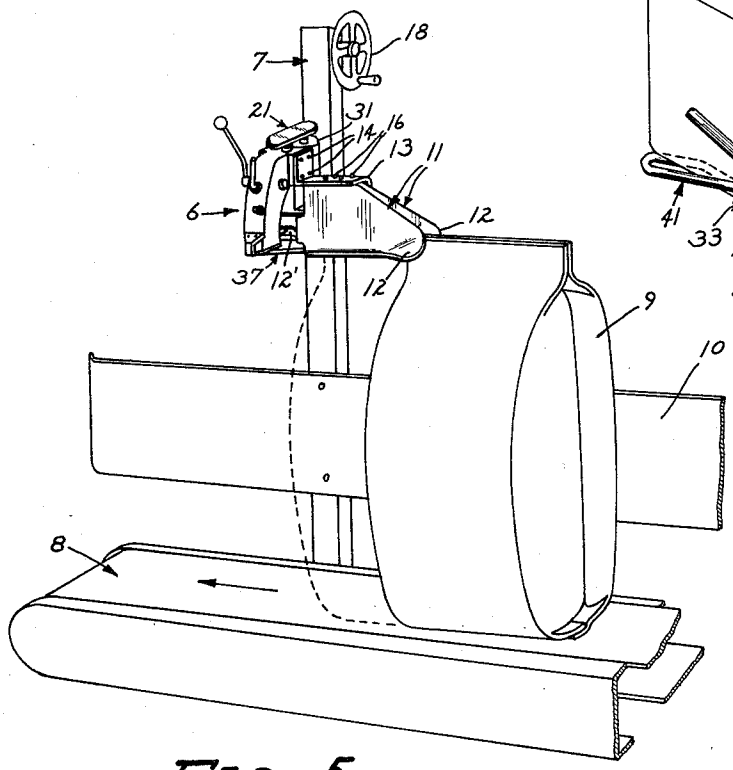


FIG. 5

INVENTOR.
DAVE FISCHBEIN
BY
David K. Kilgore
ATTORNEY

United States Patent Office 3,053,205 Patented Sept. 11, 1962

3,053,205
SWITCH CONTROL MECHANISM AND THREAD CUTTER FOR ELECTRIC SEWING MACHINES

Dave Fischbein, 2720 30th Ave. S., Minneapolis, Minn.

Filed Feb. 11, 1959, Ser. No. 792,501
2 Claims. (Cl. 112—11)

This invention relates broadly to electric sewing machines; more particularly to electric sewing machines in combination with a conveyor system for progressively advancing filled bag containers to be closed by the sewing machines, and specifically to automatic electric control mechanism for starting and stopping the sewing mechanism of an electric sewing machine and cutting the sewing thread.

The principal object of the invention is to provide an electric switch control mechanism for electric sewing machines wherein the power source energizing the electric motor of said sewing machine is automatically interrupted to intermittantly stop and start the sewing mechanism by engagement of the object to be sewed and the several components of the invention.

A further object of the invention is to provide in combination with control means for stopping and starting the sewing mechanism, automatic means to cut the sewing thread at the end of each cycle of sewing operation of a specific object.

A further object of this invention is to provide electric automatic switch control mechanism for electric sewing machines when used in conjunction with a conveyor system whereby the objects to be sewed are supported on the conveyor system and advanced to the sewing mechanism which is energized and stopped by the engagement of said objects on the conveyor system and the invention on the sewing machine.

These and other objects of the invention will become apparent from the following specification and claims, taken in conjunction with the accompanying drawings which form a part of this application.

In considering the instant invention it will be important to note that the applicant is the owner of U.S. Patents 2,484,495 for "Electric Sewing Machine"; and "Movable Thread Cutter for Electric Sewing Machines," 2,941,189, both of which are thought to be pertinent to the instant application and the invention involved herein.

To the above end, generally stated, the invention consists of the following devices and combinations of devices hereinafter described and defined in the claims.

Referring to the drawings:

FIG. 1 is a left hand side elevational view showing the invention mounted on an electric sewing machine together with means for mounting the same on the conveyor system.

FIG. 2 is a bottom plan view of the elements shown in FIG. 1.

FIG. 3 is a rear elevational view of the same.

FIG. 4 is a fragmentary view on an enlarged scale of the movable thread cutter mechanism showing means for guiding the sewing thread into engagement therewith, and

FIG. 5 is essentially a diagrammatic view in perspective showing the electric sewing machine mounted on a conveyor or system, fragmentarily shown, a filled bag being shown mounted on the conveyor and advancing to the sewing mechanism as indicated by a directional arrow and a secondary dotted position thereof.

In this application for U.S. Letters Patent, in the interest of clarity and brevity it is thought that it will only be necessary to specifically identify the several elements of the invention proper, however, it will be necessary to make reference to the following broadly to properly understand the invention.

The electric sewing machine and its component parts taken as an entirety is identified by the numeral **6**; the tubular supporting column of the conveyor system is indicated by the numeral **7**; the movable conveyor platform **8** supports a bag-like receptacle **9** filled with material and positioned on said conveyor platform **8** for advancement to the sewing mechanism of the sewing machine **6**; see FIG. 5. The elongated element **10** shown in FIG.5, is merely an alignment member to facilitate the positioning of the bags on the movable platform **8** for advancement to said sewing mechanism.

Referring now in detail to the invention, the numeral **11** is directed to a pair of transversely spaced guide members shown on the drawings as a pair of plates the outer end portions of which are in outwardly and downwardly diverging relation, see numeral **12**. These guide members **11** are rigidly secured to the frame of the sewing machine **6** by means of a bracket **13**, said bracket **13** being in the form of an angular plate, one leg of which is secured by means of screw threaded studs **14** and the other leg thereof to out-turned flanges **15** formed in the upper and inner end portions of the respective guide plates **11** by means of a pair of nut-equipped bolts **16**. These guide plates **11** are so constructed and positioned so as to guide the open upper end portion of a filled bag or the like **9** into engagement with the sewing mechanism of the sewing machine **6** as the same is advanced thereto by the controlled movement of the platform **8** of the conveyor system. It is to be further understood that these guide plates **11** have the additional function of primarily closing the open end portion of the bag **9** before the same is advanced into direct communication with the feed dog and presser foot of the sewing mechanism **11'** and **12'** respectively.

The tubular supporting column **7** is in the form of a channel having an open vertical passageway **17** extending the full length of one of its side portions to permit vertical movement and adjustment of the sewing machine **6** relative to the conveyor platform **8** as will presently be described.

A hand wheel **18** is mounted for axial rotation on the upper end portion of the supporting column **7**. While not shown on the drawings, the mounting shaft of the hand wheel **15** is suitably geared at its upper end portion to a long jack-screw, the lower end of which is threaded onto a large self-aligning nut, not shown, that in turn is secured to a guide clamp **19** and mounted for movement and vertical adjustment in the vertical passageway **17** in the supporting column **7**. Internal cooperating clamping means, not shown, integral with the guide clamp **19** is actuated by a hand screw **19'** to lock the clamp **19** and its mounted components in proper position on the said suporting column **7**.

It is important to understand in considering this application, that the entire assembly is designed and constructed for use with the applicant's electric bag closer properly and specifically identified as "Electric Sewing Machine" U.S. Patent No. 2,484,495. Having so identified the sewing machine involved herein it will be simpler to understand certain of the mounting components hereinafter identified, and which, as shown and described, are constructed and dimensioned for use with this sewing machine. It will be understood, however, that this limitation is not intended to be imposed upon the appended claims and that the invention herein described is capable of universal adaptation within the scope of its use by the simple expedient of alteration of the mounting elements hereinafter described.

A mounting plate **21** is dimensioned for application to the frame of the sewing machine **6** by means of a plurality of screw threaded studs **22**, and a second bracket

23 is secured centrally on the mounting plate 21 by means of screw threaded studs 24 which extend through the flanged base 25 and into aligned bores in the mounting plate 21. This second bracket 23 is provided with a horizontal disposed bore 26 that extends therethrough to receive the outer end portion of the stub shaft 20 in the first noted clamp 19. This bore 26 is in the form of a longitudinally split sleeve, see numeral 27, FIGS. 1 and 2, and a hand screw 28 has threaded engagement with a threaded bore originating in a heavy boss 29 on the second bracket 23 and extending into a reinforced section 30 of the flanged base portion 25 of the said bracket 23.

It will thus be seen that the sewing machine 6 may be pivotally mounted relative to its supporting means and by means of the components above recited, to sewing the same about the horizontal axis of the shaft 20 for purposes of servicing, rethreading and the like, and conversely frictionally locks the same in sewing position by the simple expedient of tightening the hand screw 28.

Of the remaining components of the electric sewing machine 6 it is only thought to be necessary for the purpose of this application to identify the electric motor 31, the electric cord 32 leading from the power source, the cone of thread, not shown, and the sewing thread 33.

Rigidly secured to the mounting bracket 13, adjacent the lower edge portion of the depending leg thereof is a conventional electric switch box 34 having a short electric connection 35 leading to an electric motor 31.

Pivotally secured to the underside of the switch box 34, and having electric switch connections at its inner end portion which extends into the said switch box, is a long spring loaded switch actuating arm 37. This switch actuating arm 37 is angularly bent, see numeral 38, and normally extends across a passageway 39 between the transversely spaced guide plates 11. It will thus be apparent that the upper and open end portion of a bag or receptacle 9 having been constricted by the action of the guide plates 11, will, as it first engages the switch actuating arm 37, commence to move the same about its pivoted axis to close the switch mechanism in the switch box 34 to energize the sewing mechanism. By virtue of the long, longitudinally extended arm, the switch will remain closed as long as the bag or receptacle 9 is in engagement with the sewing mechanism of the sewing machine 6. Obviously, as long as the passage of the bag or receptacle 9 being moved by the conveyor platform 8 maintains contact of the same with the switch arm 37, the electric switch will remain closed to energize the sewing machine 6.

As the filled, and now closed, bag or receptacle 9 is moved by the conveyor platform 8 beyond the reach of the switch arm 37, the latter will spring back to normal position to open the switch and stop the sewing mechanism, said switch actuating arm 37 being again positioned in the path of the next advancing bag or receptacle 9 on the conveyor platform 8.

The sewing machine 6 is provided with a movable thread cutter 40, which is the subject matter of a pending application for U.S. Letter Patent filed by the applicant and specifically identified elsewhere in this application, see FIG. 4.

To utilize this feature in the present embodiment in combination with a conveyor or system, a spring loaded arm 41 is pivotally mounted on the underside of the outer depending leg of the mounting plate 21. This arm 41 is formed at its outer end portion to provide a hook having a reverse bend which automatically engages the sewing thread at the completion of each sewing cycle on each unit closed thereby and draws said thread into engagement with the movable thread cutter mechanism 40 as will presently become apparent.

The spring loaded thread engaging arm 41 is pivotally

mounted to lie across the path of the moving bag or receptacle on the conveyor platform and is engaged by the leading edge thereof. This arm is moved and held out of its normal position across the passageway 39 by engagement with the said bag or receptacle, its spring 42 being held under tension throughout such engagement. As the bag or receptacle passes beyond the reach of said arm 41 the same is then free to return to normal position. During this return movement the sewing thread or chaining is engaged by the hook of said arm and moved into engagement with the movable thread cutter mechanism 40.

It will be understood that the switch control, and thread cutting elements thus far described, are synchronized with the sewing or chaining cycle required for a specific unit to be closed thereby, so that the thread severing operation will not occur until the usual selvage of the chaining thread trails behind the closed bag or receptacle 9.

While there are herein disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is desired, therefore, that only such limitations be imposed on the appended claims as are stated herein or required by the prior art.

What I claim is:

1. In an electric sewing machine for closing filled receptacles adapted to be energized by an electric switch controlled source of current and having a sewing head, the improvement for intermittently starting and stopping the sewing head, and guide means on the sewing machine to position and close said receptacle for sewing, said improvement comprising in combination, a mounting plate secured to the said sewing machine, a pair of transversely spaced fixed guide plates secured to the mounting plate in outwardly and downwardly diverging relation thereto, said guide plates being in longitudinal alignment with the sewing head to afford a passageway therebetween for the said receptacle while the same is advanced to the sewing head, an electric switch having a spring loaded switch actuating arm pivotally mounted on the mounting plate for pivotal swinging movements in a horizontal plane across the passageway between the guide plates adjacent the inner end portion thereof, said switch being energized by engagement of said actuating arm with the receptacle as the same is advanced to the sewing head said switch remaining energized until said receptacle passes out of reach of the spring loaded switch actuating arm which then returns to its normal position across the said passageway to open the electric switch and stop the sewing head.

2. The structure defined in claim 1 further including secondary means mounted on the mounting plate in the path of the receptacle to engage the trailing thread selvage, and guide the same to a thread cutting mechanism, said secondary means comprising a spring loaded arm having a hook-like outer end portion and being actuated by engagement thereof with the advancing receptacle, said arm being held out of engagement with the sewing thread until said receptacle passes out of reach of said arm to permit the same to return to normal position simultaneously engaging the thread selvage and guiding the same into engagement with the said thread cutting mechanism of the electric sewing machine.

References Cited in the file of this patent

UNITED STATES PATENTS

1,976,755	Thompson	Oct. 16, 1934
2,539,627	Kindseth et al.	Jan. 30, 1951
2,569,396	Bates	Sept. 25, 1951
2,676,556	Lockwood	Apr. 27, 1954
2,932,266	Lutz	Apr. 12, 1960