Aug. 5, 1958 A. R. SCARRONE 2,845,885

SEWING MACHINE FOR BURLAP BAGS

Filed Jan. 25, 1957 2 Sheets-Sheet 1

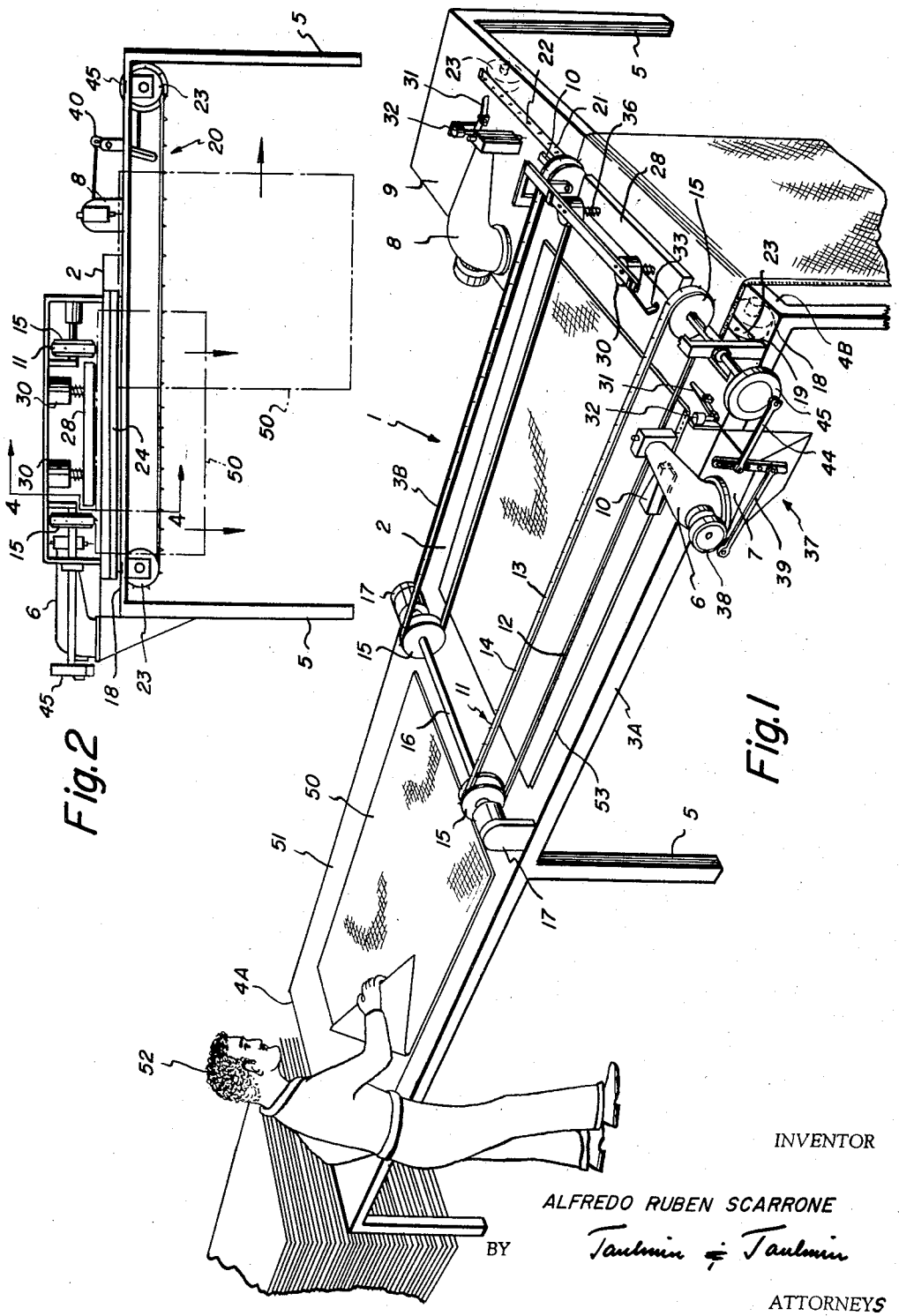


Fig. 2

Fig. 1

INVENTOR

ALFREDO RUBEN SCARRONE

BY Taulmin & Taulmin

ATTORNEYS

Aug. 5, 1958 A. R. SCARRONE 2,845,885

SEWING MACHINE FOR BURLAP BAGS

Filed Jan. 25, 1957 2 Sheets-Sheet 2

Fig.3

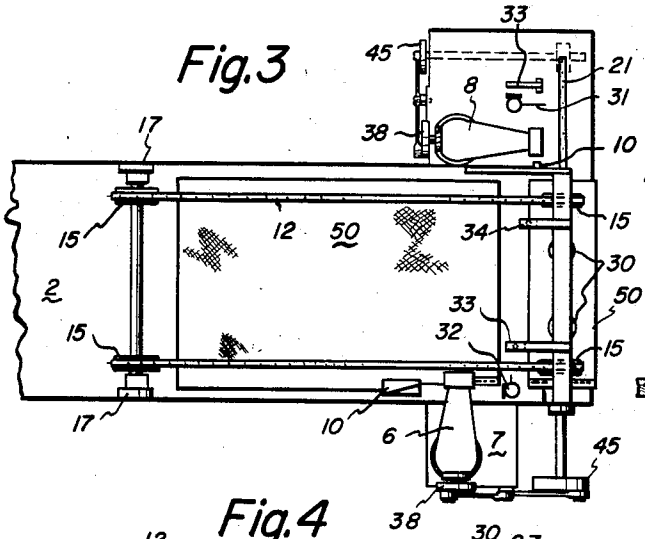


Fig.7

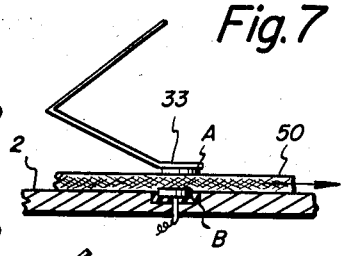


Fig.8

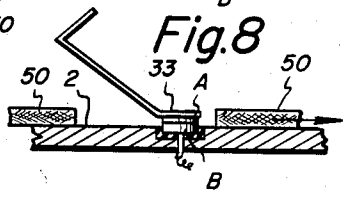


Fig.4

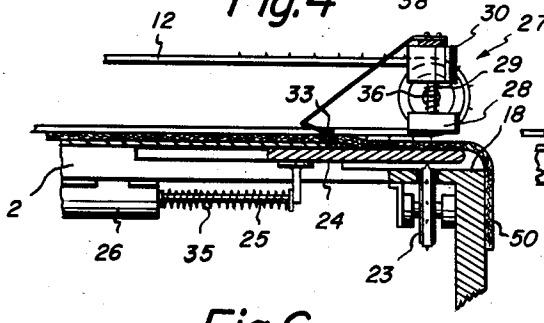


Fig.5

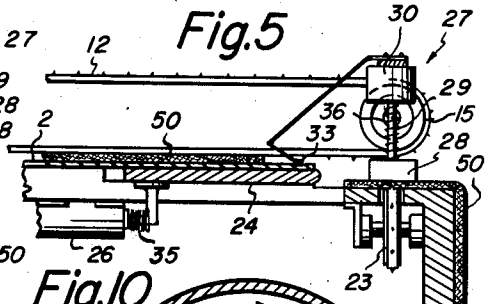


Fig.10

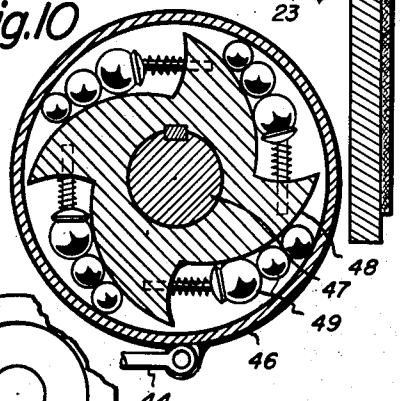


Fig.6

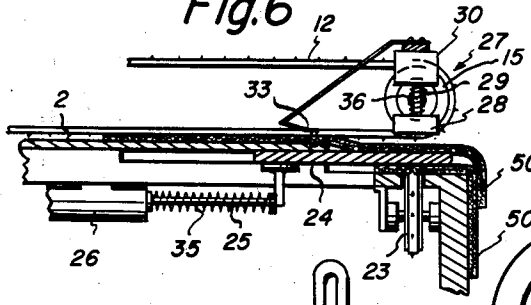
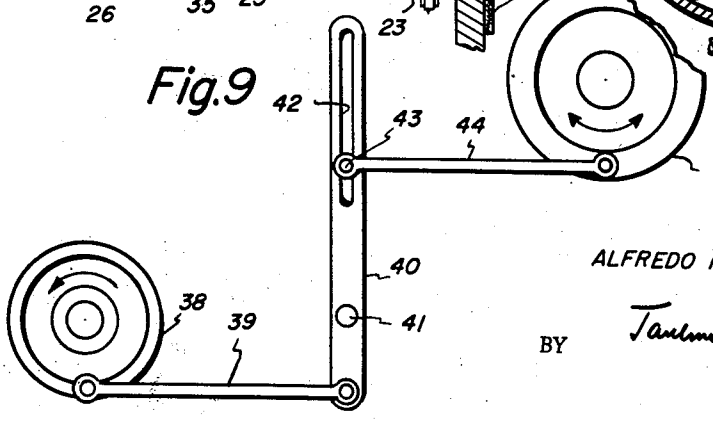


Fig.9



INVENTOR

ALFREDO RUBEN SCARRONE

BY Taulmin & Taulmin

ATTORNEYS

United States Patent Office

2,845,885

Patented Aug. 5, 1958

2,845,885

SEWING MACHINE FOR BURLAP BAGS

Alfredo Ruben Scarrone, Montevideo, Uruguay

Application January 25, 1957, Serial No. 636,404

5 Claims. (Cl. 112—10)

The present invention relates to an apparatus for sewing burlap bags, and more particularly to an apparatus for successively sewing the bottom and lateral edges of a burlap bag with the sewing operations on the lateral edge of one bag and the bottom edge of a second bag occurring simultaneously.

It is the principal object of this invention to provide a novel and improved apparatus for sewing burlap bags.

It is another object of this invention to provide an apparatus which performs virtually all of the operations and movements required in making a burlap bag.

It is a further object of this invention to provide a burlap bag sewing apparatus which simultaneously sews the lateral and bottom edges of two bags.

It is an additional object of this invention to provide a labor-saving burlap bag sewing machine which eliminates the need for specialized personnel.

It is still another object of this invention to provide a burlap bag sewing apparatus wherein the movements and operation of the burlap bag are initiated in response to the passage of the burlap bag through the apparatus.

Other objects and advantages of this invention will become apparent upon reference to the accompanying description when taken in conjunction with the following drawings wherein:

Figure 1 is an overall perspective view of the burlap bag sewing apparatus;

Figure 2 is an elevational view of the sewing apparatus of Figure 1 viewed from the discharge end of the worktable;

Figure 3 is a top plan view of the sewing end of the apparatus of Figure 1;

Figure 4 is a sectional view taken along the lines 4—4 of Figure 2 and showing the sewing end of the bag sewing apparatus including the details of the moveable panel being in its covering position;

Figure 5 is a sectional view, also taken along the lines 4—4 of Figure 2, similar to that of Figure 3, but showing the panel in the withdrawn position and the disengaging mechanism in its disengaging position;

Figure 6 is a similar sectional view taken along the lines 4—4 of Figure 2 and showing the moveable panel between the longitudinally moving burlap bag and the laterally moving burlap bag;

Figure 7 is a side elevational view in enlarged scale of the contacts which are actuated by the moving burlap bag to operate various functions of the apparatus;

Figure 8 is a view similar to that of Figure 7 but showing the contacts in the energized position;

Figure 9 is a side elevational view of the synchronizing mechanism which coordinates the movement of the conveyor belts with the movement of the needles of the sewing machine; and

Figure 10 is a view in enlarged scale of the escapement mechanism shown in Figure 9.

Proceeding now to the drawings and more particularly to Figure 1, while like reference symbols indicate the same parts throughout the various views, 1 indicates

generally the burlap bag sewing apparatus of this invention which comprises a worktable 2 having longitudinal edges 3 and lateral edges 4 mounted upon a supporting frame 5.

A sewing machine 6 is mounted upon a platform 7 positioned along the longitudinal edge 3A of the worktable. The sewing machine is of a conventional heavy-duty type suitable for sewing burlap and heavy materials and comprises a reciprocating needle which carries a thread to pierce the fabric. This sewing machine 6 is so positioned that it sews a seam along one side of the burlap bag. This seam may be termed "the lateral seam."

A second similar sewing machine 8 is also mounted upon a plaform 9 which is affixed adjacent the longitudinal edge 3B and adjacent the discharge end of the worktable which corresponds to the lateral table edge 4B. The sewing machine 8, however, is at right angles to the sewing machine 6 so that it is in position to sew the bottom seam of a burlap bag, which seam is at substantially right angles to the first-mentioned lateral seam.

In order to provide a more substantial seam along the bottom and lateral edges, folding devices 10 are provided before each of the sewing machines 6 and 8. These machines fold over the adjacent edges of the burlap fabric so as to form a hem which is subsequently stitched.

A first conveyor 11 carries the burlap bag along the worktable through the sewing machine 6. The conveyor 11 comprises an endless belt 12 which has a plurality of pins 13 protruding from the outer surface thereof. These pins are regularly spaced over the entire length of the belt except for the space 14, the purpose of which is to insure the proper spacing of the burlap bag on the worktable in a manner to be described later. The endless belt 12 is mounted upon pulleys 15 which are fixed upon shafts 16 supported in frames 17 extending upwardly from the worktable 2.

The discharge end of the worktable 4B is depressed as shown at 18 and more clearly illustrated in Figures 4, 5, and 6. The depressed portion has a slot 19 which extends transversely of the table across the width thereof.

A second conveyor 20 is mounted beneath the depressed portion 18 and comprises an endless belt 21 having a plurality of pins 22 protruding outwardly therefrom. The pins 22 project upwardly through the slot 19 so as to be engaged with the burlap bags which travel over this portion of the worktable. The belt 21 is mounted upon pulleys 23 which are journaled beneath the worktable.

As may be seen in Figure 4, the transverse slot 19 is covered between sewing operations by a moveable panel 24 which is connected by an arm 25 to a solenoid 26. Energization of the solenoid 26 will withdraw the panel from the depressed portion to uncover both the depressed portion 18 and the slot 19. The panel 24 is slightly above the depressed portion so as to come between the burlap bags as shown in Figure 5. Mounted above the depressed portion 18 of the worktable is a disengaging device 27 which comprises a vertical moveable panel 28 attached by arms 29 to solenoids 30. Energization of the solenoid 30 will move the panel 28 downwardly to bear against the burlap bag to disengage the same from the pins on the first conveyor 11.

There is a thread-cutting device 31 mounted on the worktable just beyond each of the sewing machines 6 and 8. Said cutting device is operated by a solenoid 32 which when energized will depress the thread cutter to cause the blade thereon to sever the thread connecting the seam to the burlap bag and the sewing machine.

The thread-cutter solenoids 32 are each connected to contacts 33 as may be seen in Figure 3, which are so

placed above the worktable 2 as to enable the burlap bag to travel therebetween in the manner as shown in Figure 9. The contact elements 33A and 33B are separated by the burlap bag as it passes therebetween as shown in Figure 9. After the bag passes therethrough the contacts are no longer separated and engage each other to complete a circuit to energize the thread cutter solenoids 32.

Referring to Figure 3, there is shown a second set of contacts 34 which are spaced immediately beyond the thread cutter contacts 33. These contacts 34 are for the purpose of changing the direction of the burlap bag. The contacts 34 are operated similarly to the contacts 33 by the passage of the burlap bag therethrough. When the contacts 34 engage each other, a circuit is completed which results in the energization of the solenoids 26 and 30 to simultaneously move the panel to uncover the transverse slot 19 and to move the disengaging panel 27 downwardly to disengage the burlap bag from the first conveyor 11. The continued motion of the disengaging panel positions the burlap bag upon the pins of the second conveyor before the burlap bag falls off of the edge of the table. The position of the burlap bag at this time is shown in Figure 5.

The solenoids 26 and 30 are energized until the succeeding burlap bag is moved along the worktable to separate the contacts 34. The panel will return under action of a spring 35 to cover the slot 19 and the disengaging panel will move under action of a spring 36 to its raised position.

Prior to the return movement of the panel, the longitudinally moving burlap bag is held above the pins on the second conveyor 20 by the panel interposed between the two burlap bags and also by the gripping action of the pins on the longitudinal conveyors 11. The use of a pair of spaced conveyors 11 holds the burlap bag flat during the sewing of the lateral seam. Also, separation of the angularly moving bags by the panel prevents folding and wrinkling of the bag by the transverse movement of the burlap bag on the lateral conveyor 20.

As may be seen in Figure 1, a synchronizing mechanism 37 is used to assure that the conveyor belt moves only when the sewing machine needles are above the fabric. Thus, there is no movement of the burlap bag at the time when the needle is piercing the fabric and carrying the thread therethrough. The synchronizing mechanism 37 comprises an eccentric 38 which is coordinated with the movements of the sewing machine needle and is driven by the same source of power which drives the sewing machine. The eccentric 38 has an arm 39 pivotally connected thereto which arm is also pivotally connected at its other end to a modifier lever 40 which is pivoted at 41. The lever 40 has a longitudinal slot 42 therein through which is inserted a pin 43 which may be positioned along the length of the slot. The pin 43 has one end of an arm 44 pivotally mounted thereon. The other end of the arm 44 is connected to one side of an escapement mechanism generally indicated at 45. The other side of the escapement mechanism is connected to one of the shafts of the conveyor mechanism.

The length of the individual stitches in the seams may be adjusted by varying the length of the stroke of the arm 44. This is done by positioning the pin 43 along the modified slot 42.

A portion of the escapement mechanism 45 is shown in greater detail in Figure 10. It can be readily seen that the arm 44 continuously moves an outer ring 46 a fraction of a revolution and back with each movement of the needle which is transmitted through the eccentric arm and modifier.

The conveyor shaft 47 is spline connected to the jaws 48 which in turn are drivingly connected by a jamming action of graduated balls 49 to the driving ring. Thus, rotation of the ring in one direction drivingly connects the jaws, shaft, and ring to rotate the shaft a fraction of a revolution and the return movement in the opposite direction of the ring will loosen the jaws so that there is no movement whatsoever of the conveyor shaft by the ring and jaws. As a result, the reciprocating movement of the sewing machine needle is transmitted to the conveyor shaft in the form of intermittent rotations of the conveyor shaft to result in an interrupted movement of the conveyor.

With the above description in mind, the operation of the apparatus will next be described:

Preferably, the sheets of burlap 50 which are to be assembled in burlap bags are mounted upon a table 51 as shown in Figure 1. An operator, as indicated at 52 folds over once each burlap sheet so that the lateral open edges, as indicated at 53, are on the side of the worktable upon which is mounted the sewing machine 6. The operator then manually pushes the folded burlap sheet so that it is engaged by the conveyors 11.

The folded sheets are properly spaced as they pass along the worktable by the gap 14 in the pins of the belt. The folded sheet is then moved beneath the sewing machine 6 where a lateral seam is sewn. Upon completion of this lateral seam, the bag passes through the contacts 33 which, in turn, energizes the thread cutter to cut the thread connecting the burlap bag and the sewing machine.

Immediately thereafter, the burlap bag is disengaged from the conveyor 11 and is transferred to the transversely extending conveyor 20 by the downward movement of the panel 24. The burlap bag is then conveyed in a direction transverse to the worktable, where the bottom seam is sewn by the machine 8. Immediately upon the completion of this seam, the end of the burlap bag actuates the contacts to operate the thread cutter which severs the thread connecting the bag to the sewing machine. The conveyor continues to move the completed burlap bag outwardly of the worktable where it may be removed from the conveyor by a workman and placed upon a pile. If desired, a suitable automatic transfer mechanism may be utilized for this purpose.

The operator 52 at the beginning of the burlap bag-making operation, may be dispensed with and a similar mechanism may be substituted therefor. However, as pointed out, this operator requires no skill or special training since he merely takes the burlap sheets from one pile, folds them, and places them upon the machine.

Thus, it can be seen that the subject invention discloses a burlap bag-making apparatus which simultaneously sews a lateral seam on one bag and the bottom seam on a second bag. The burlap bag-making operation is a continuous process. This machine is extremely simple to manufacture and easy to operate and the benefits to be derived therefrom with respect to the speeding up of the manufacture of burlap bags and the attention required during the operation thereof results in greatly increasing the capacity of burlap bags manufacture.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions, and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

What is claimed is:

1. In an apparatus for successively sewing the lateral and bottom seams of burlap bags, a worktable, a first sewing machine for sewing the lateral edge of said burlap bag, conveyor means for conveying the burlap bag through said first sewing machine, a second sewing machine for sewing the bottom edge of the said burlap bag, second conveyor means at one end of the table and below the surface thereof for conveying the burlap bags to said second sewing machine, said second conveyor means comprising a series of pins which prick said burlap bag

to secure the same on said second conveyor means for movement of a bag, a panel normally covering the pins on said second conveyor means, means for disengaging said burlap bag from said first conveyor means, and means for moving said panel while moving the disengaging means to enable said disengaged burlap bag to be pierced by said second conveyor means pins whereby the burlap bag is then moved laterally through said second sewing machine for sewing the bottom seam of the burlap bag.

2. In an apparatus for successively sewing the lateral and bottom seams of burlap bags, as claimed in claim 1, with means for moving said panel concurrently with said disengaging means to enable said burlap bag to be pierced by said second conveyor means pins whereby the said burlap bag is moved laterally through said second sewing machine for sewing the said bottom edge thereof.

3. An apparatus for successively sewing the lateral and bottom seams of burlap bags and comprising a worktable, a first sewing machine on the longitudinal edge of said table for sewing the lateral edge of a burlap bag, a first conveyor means for moving said burlap bag through said first sewing machine, said first conveyor means comprising an endless belt having a plurality of series of pins therein with each series of pins being equal in length to the length of the burlap bag being sewn so that the spaces between the series of pins will space the bags as they are moved along the worktable, a second sewing machine adjacent the other lateral edge of said worktable and at right angles to said first sewing machine for sewing the bottom edge of a burlap bag, a second conveyor at one end of said table and below said surface thereof for moving a burlap bag through said second sewing machine, means for intermittently moving said conveyor means with said conveyor movement occurring when the sewing needles are above the fabric of the burlap bag, said second conveyor comprising a plurality of spaced pins which prick said burlap bag to secure the same to said conveyor for movement thereby, a panel normally covering said second conveyor means pins, means for disengaging said burlap bag from said first conveyor, and means for moving said panel concurrently with said disengaging means to enable said burlap bag to be pierced by said second conveyor means pins whereby said burlap bag is moved latterally through said second sewing machine for sewing of the bottom seam thereof.

4. In an apparatus for successively sewing the seams of sacks which are at right angles to each other a first sewing machine for sewing one edge of said sack, first conveyor means for moving a sack through said first sewing machine, second conveyor means at right angles to said first conveyor means under the discharge end of said first conveyor means, a second sewing machine for sewing another seam of said sack as the sack is conveyed by said second conveyor, a panel normally covering said second conveyor means, means for disengaging said sack from said first conveyor means at the discharge end thereof, and means for moving said panel to uncover said second conveyor means concurrently with said disengaging means so that said sack is conveyed by said second conveyor means through said second sewing machine for sewing said other seam.

5. In an apparatus for successively sewing seams of sacks which are at right angles to each other the combination of a work table, a first sewing machine at the longitudinal edge of said work table for sewing one edge of said sack, first conveyor means for moving said sack along said work table through said first sewing machine, there being means on said first conveyor means for spacing successive sacks thereon, a second sewing machine adjacent the other longitudinal edge of said work table and at right angles to said first sewing machine for sewing another edge of said sack, a second conveyor means at one end of said work table and below the surface thereof for moving a sack through said second sewing machine, said second conveyor means being at right angles to said first conveyor means and under the discharge end of said first conveyor means, means for folding over the edges of said sack prior to the admission of said edges to both of said sewing machines, means responsive to the passage of the sack beyond a predetermined point for each of the sewing machines for cutting the thread between the sack and the sewing machines, means for intermittently moving the said conveyor means so that movement of the conveyor occurs when the sewing machine needles are raised above the fabric of the sack, a panel normally covering said second conveyor means, means for disengaging said sack from said first conveyor means at the discharge end thereof, and means for moving said panel to uncover said second conveyor means concurrently with said disengaging means so that said sack is positioned upon said second conveyor means for movement through said second sewing machine.

References Cited in the file of this patent

UNITED STATES PATENTS

1,187,057	Foster	June 13, 1916
1,950,913	Birch et al.	Mar. 13, 1934
2,325,643	Weis	Aug. 3, 1943
2,667,132	Golden	Jan. 26, 1954
2,670,700	Kindseth	Mar. 2, 1954