July 29, 1941. E. T. SWAN ET AL 2,250,611

PACKAGE GLUING MACHINE

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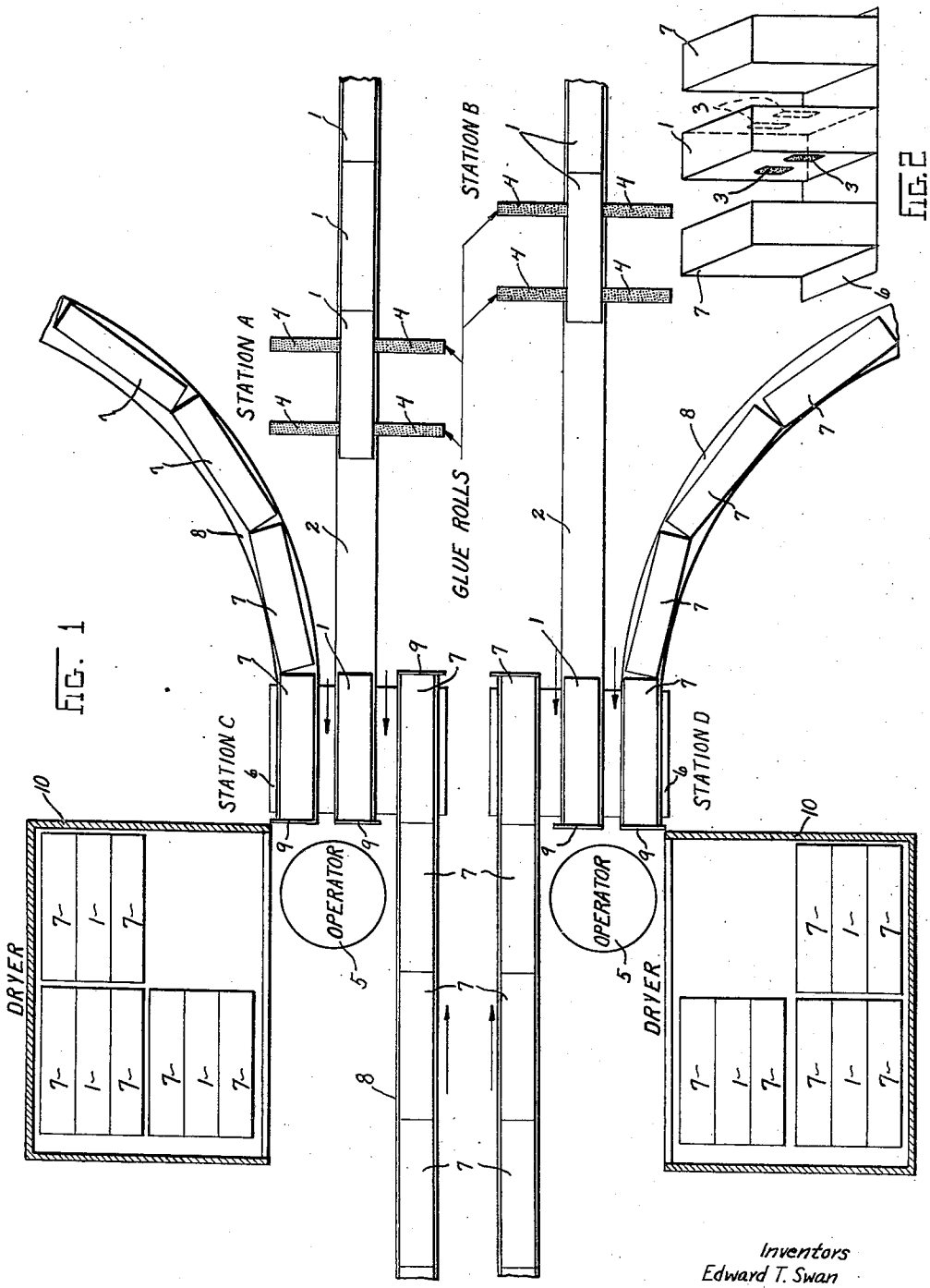


FIG. 1

FIG. 2

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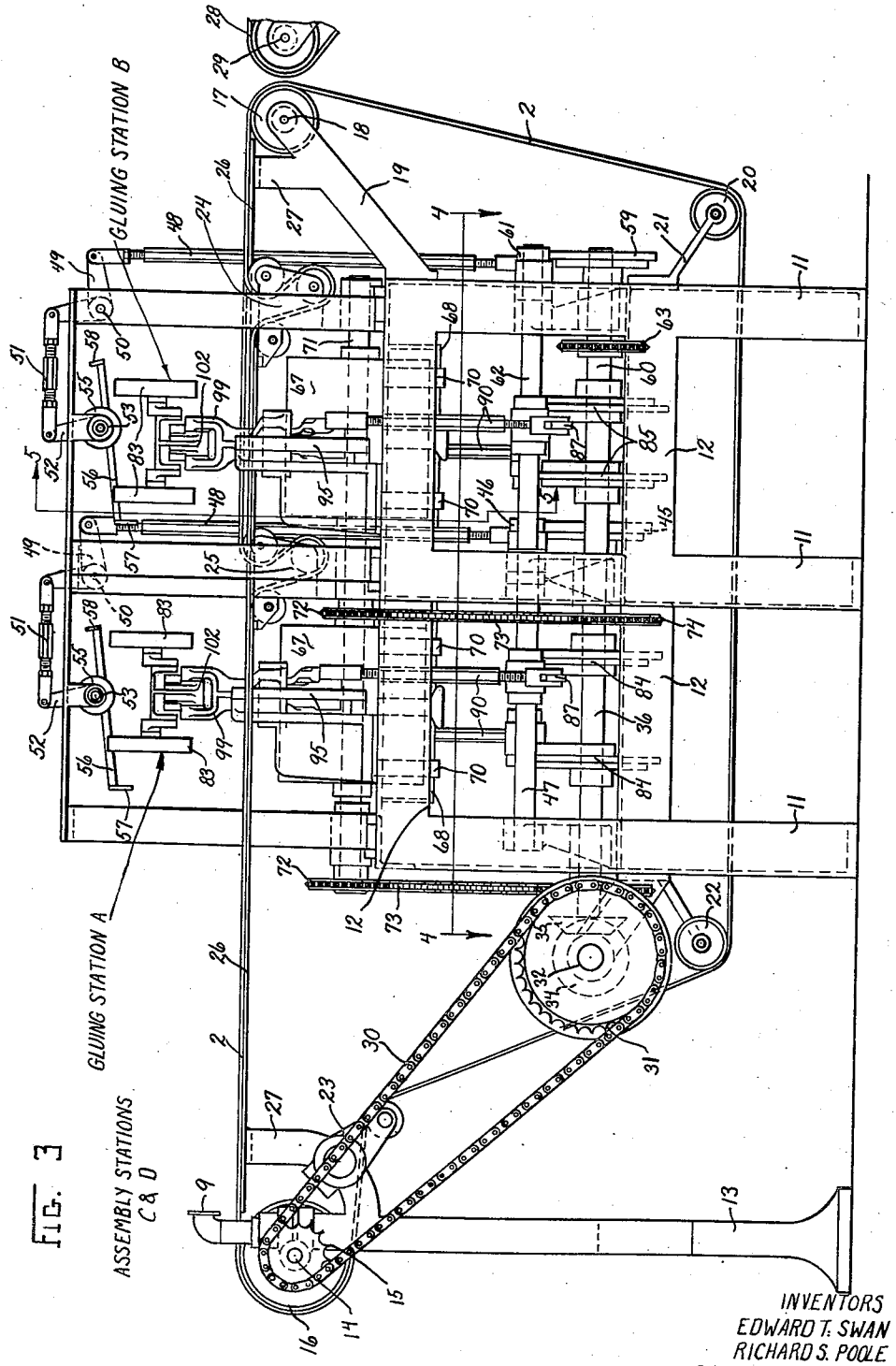


FIG. 3

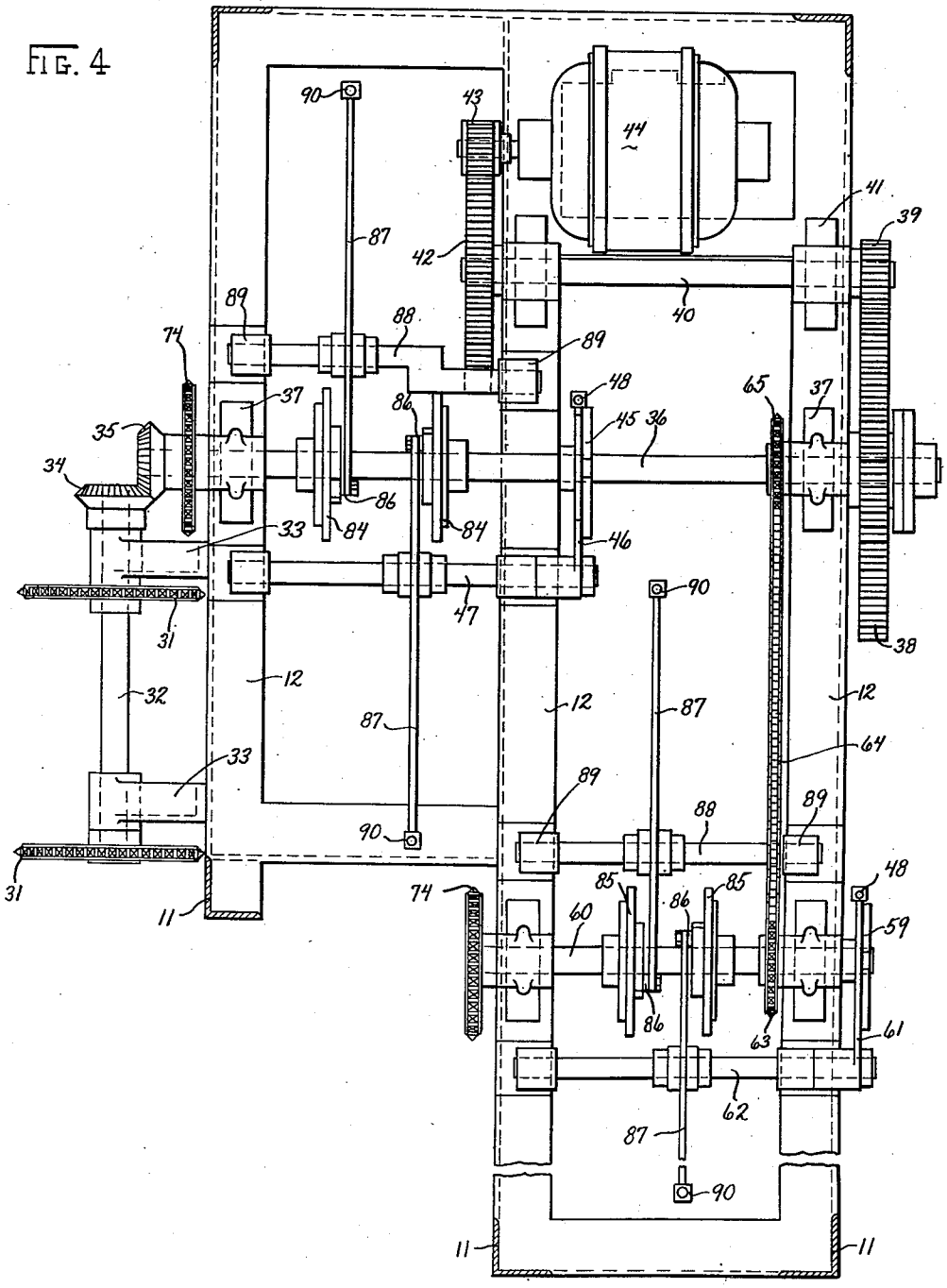
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PACKAGE GLUING MACHINE

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FIG. 4



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PACKAGE GLUING MACHINE

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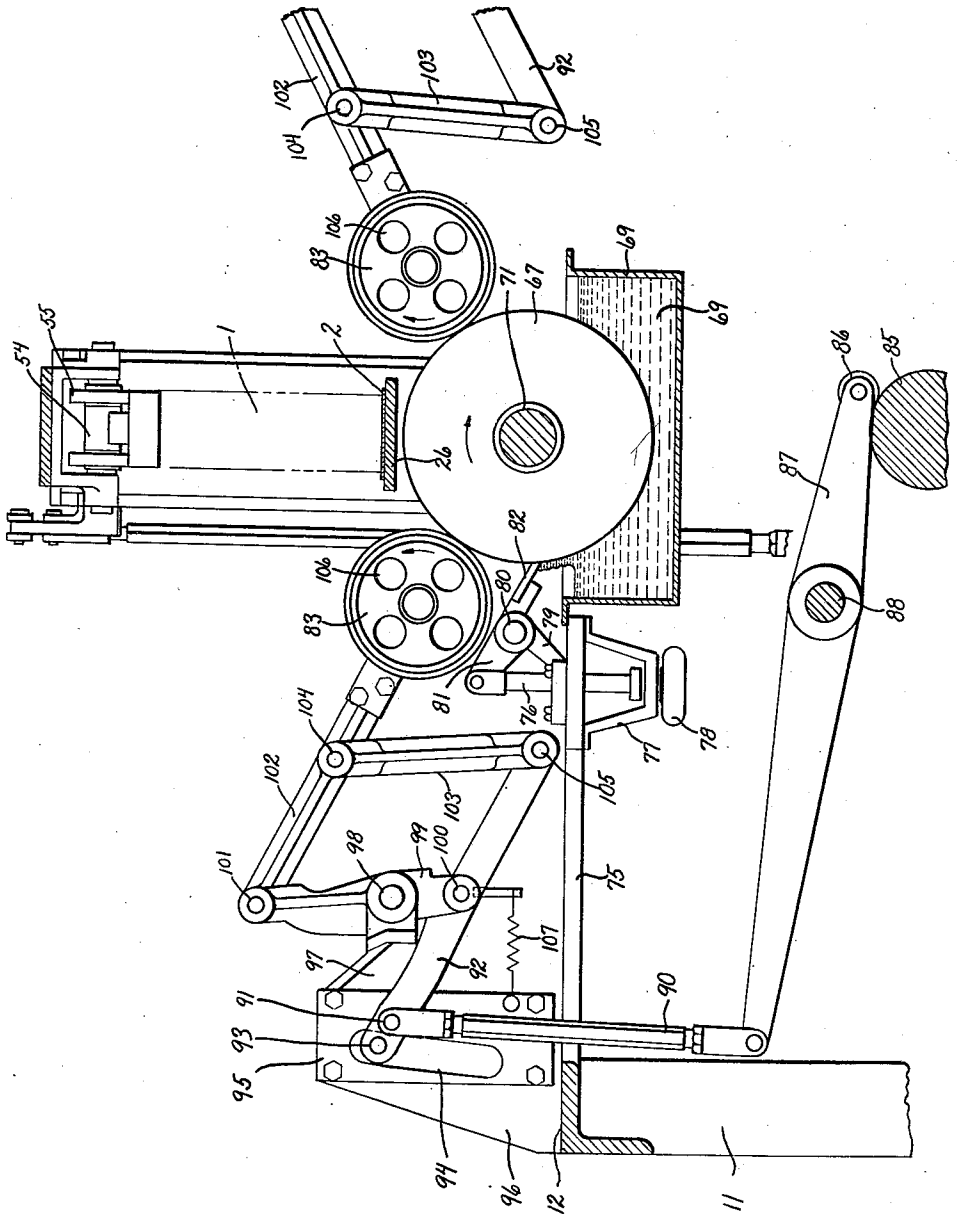


FIG. 5

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PACKAGE GLUING MACHINE

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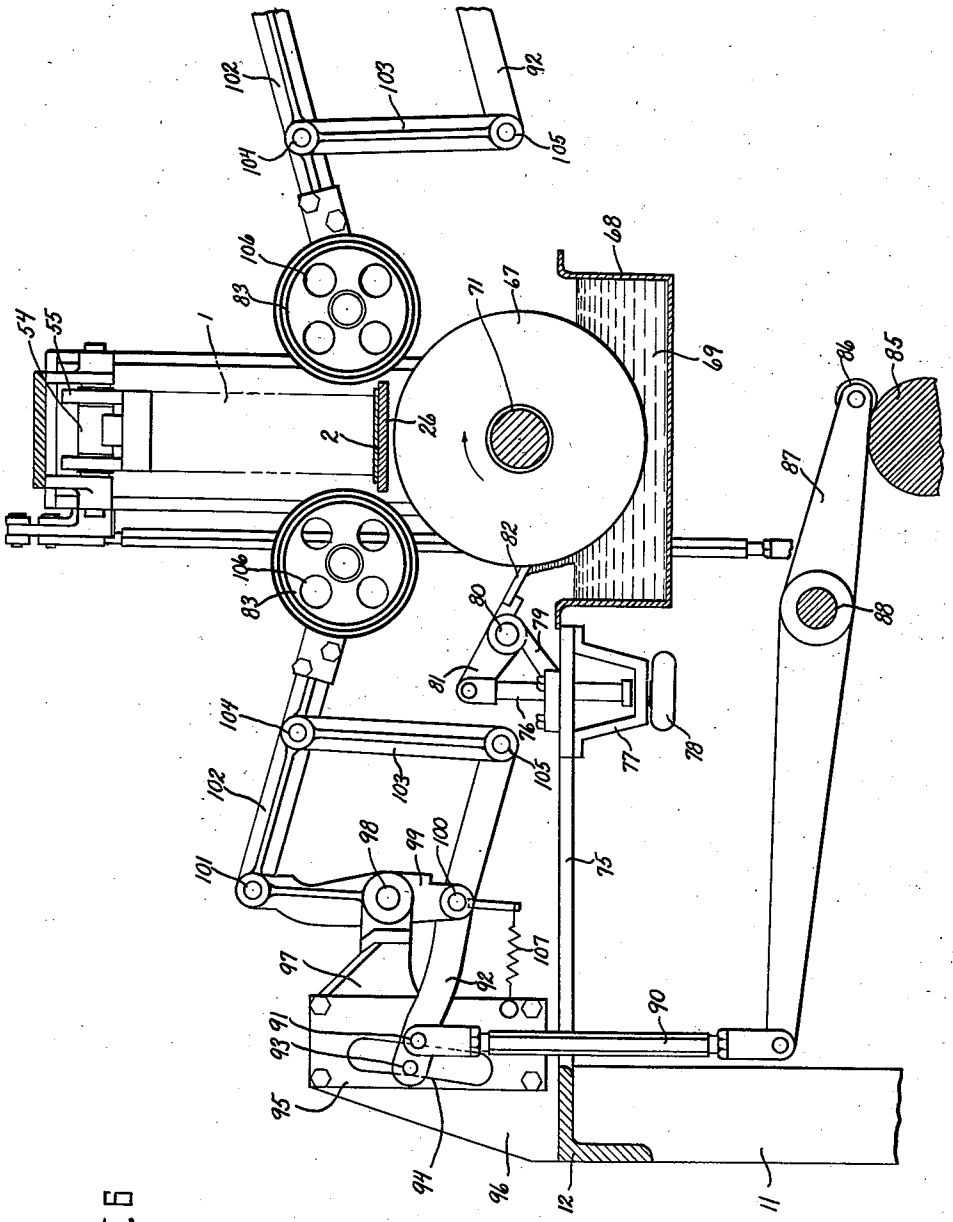


FIG. 6

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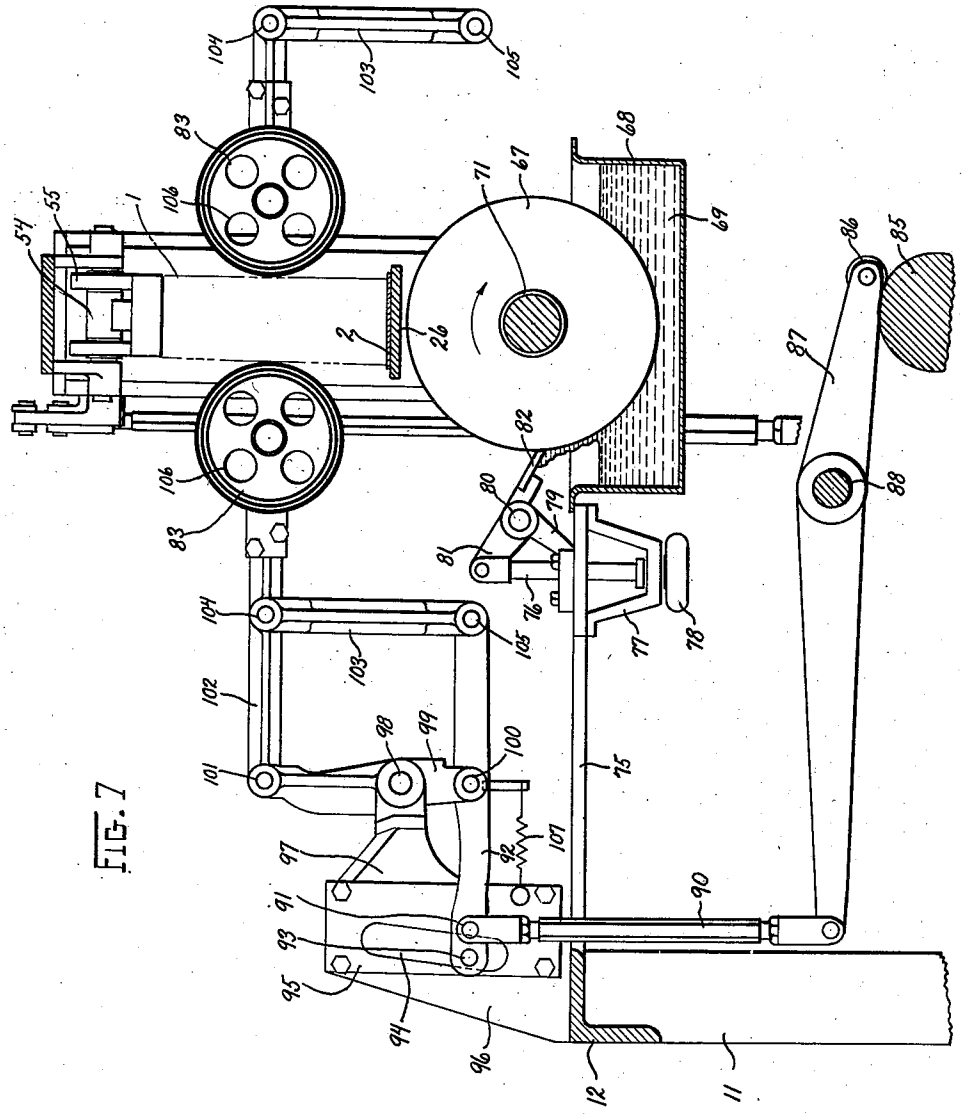


FIG. 7

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FIG. 8

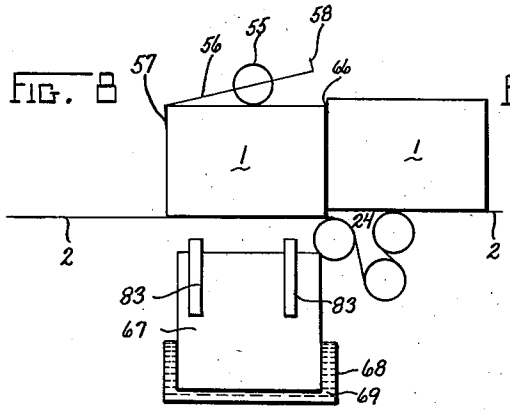


FIG. 9

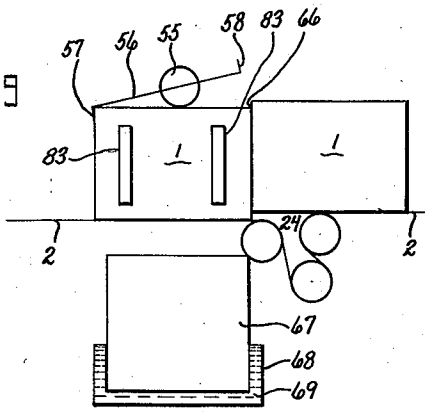


FIG. 10

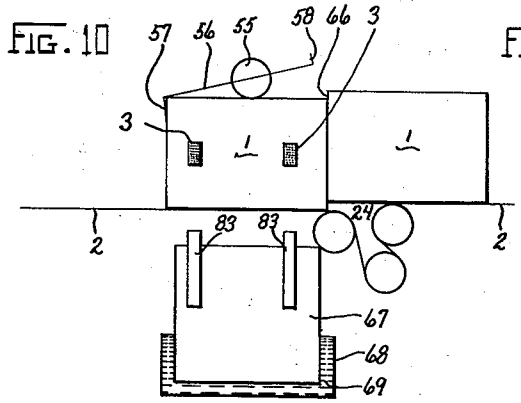


FIG. 11

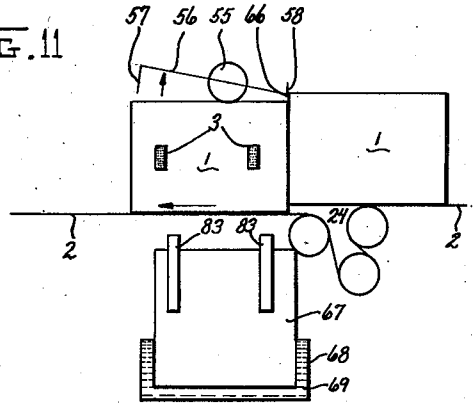


FIG. 12

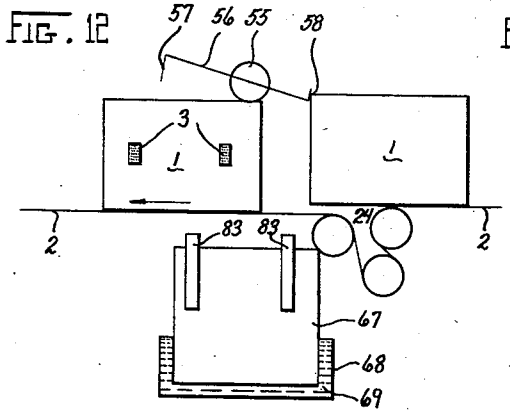
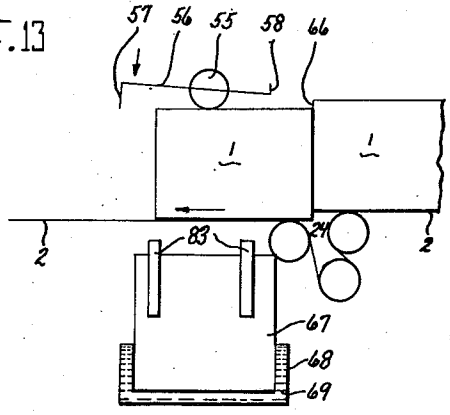


FIG. 13



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UNITED STATES PATENT OFFICE

2,250,611

PACKAGE GLUING MACHINE

Edward T. Swan and Richard S. Poole, Battle Creek, Mich., assignors to Kellogg Company, Battle Creek, Mich., a corporation of Delaware

Application February 21, 1940, Serial No. 320,156

5 Claims. (Cl. 91—50)

This invention relates to packaging apparatus, and more particularly to a machine for applying daubs or spots of glue to the outside of a carton by which other cartons are caused to adhere to the glued carton.

In the modern merchandisement of cartons containing fluent material, such as food stuffs, cereals and the like, it is customary for the retailer to offer some advantage in price when the customer purchases more than one carton. The manufacturer, in recognizing this custom, has combined two, three or more cartons at the factory as a composite package so as to save the time of the retailer in assembling and tying the cartons together. In this connection, it had been proposed temporarily to unite the cartons together by adhesive tape, or gummed paper wrapped around the composite package. Sometimes string was employed for this purpose, but in any case the results were not altogether satisfactory because the binding material, whether tape or string, tended to make the composite package unsightly and on occasion the cartons became loosened from one another so that the composite package did not present a symmetrical appearance. In addition to these factors there was always present the matter of the expense entailed in supplying and applying the binding material.

The primary object of the present invention is to provide an improved method and means for temporarily uniting a number of cartons containing food stuffs or other fluent material together, and particularly a method and means for performing this function in such a way as to leave the composite package in an attractive condition, but still prevent any undesired separation between the individual cartons.

Another object is to provide an improved machine for applying adhesive to one or more cartons of a group in such a way that the remaining cartons of that group can be caused firmly to adhere to the adhesive-bearing carton, and when joined together in this manner the adhesive will be hidden from view.

A still further object is to provide a machine of the type set forth which will apply the adhesive quickly and yet effectively, so that the cost of forming a composite package out of any number of individual cartons will be reduced to the minimum.

The final object is to provide such a machine which is adapted to apply the adhesive to any size of carton, and in such a way that the component cartons of the composite package may be of different sizes and yet be effectively joined together until separated by the ultimate consumer.

The above objects are attained, in brief, by automatically conveying any number of lines of cartons to as many gluing stations, at which there is mechanism comprising a glue carrier or transfer roll which obtains a charge of glue from a master roll and automatically applies the charge of glue, in the form of one or more daubs, to one or both sides of each carton as it is presented to the glue carrier. After passing the gluing station the carton bearing the glue spots is sandwiched in between two other cartons, one on each side to form a three-carton package, in which the cartons rigidly adhere to one another.

The invention will be better understood when the following specification is perused in connection with the accompanying drawings.

In the drawings:

Figure 1 is a layout of a pair of gluing stations marked A and B, which supply glued cartons to a pair of assembly stations marked C and D, at which the composite package is formed.

Figure 2 is a perspective view of a composite package comprising three cartons, and in which the intermediate carton has a pair of glue spots on each side thereof, to which the outside cartons adhere.

Figure 3 is a side elevational view of the improved gluing machine for use with two lines of carton travel.

Figure 4 is a horizontal cross sectional view taken along the line 4—4 in Figure 3, and looking in the direction of the arrows.

Figure 5 is a cross sectional view taken along the line 5—5 in Figure 3, and showing the upper portion of the machine, particularly the operation of the glue carrier in receiving the glue from the master roll and applying the glue to the carton.

Figure 5 shows the glue carrier actually in contact with the master roll.

Figures 6 and 7 are views similar to Figure 5, except that they show the successive positions assumed by the glue carrier in moving upwardly from the master roll to the carton. Figure 7 actually shows the carrier in contact with the carton.

Figures 8 to 13, inclusive diagrammatically illustrate the successive positions of the stop hook lever which periodically stops each carton at the gluing station.

General operation and purpose of the improved gluing machine

Referring more particularly to Figure 1, it will be noted that there is a plurality of gluing stations, typically illustrated as two stations A and B, through which two lines of cartons travel on their way to the assembly stations C and D. The cartons are designated by the reference character 1 and are caused to travel between the stations A, C and B, D by means of conveying belts 2 which will be described more particularly in

connection with the improved gluing machine. These belts terminate to the right of Figure 1 at a machine which precedes the gluing machine in the process line to which the cartons have been subjected, and in the case of a cereal factory this preceding machine is usually a so-called "top sealer." The purpose of the top sealer is simply to glue the upper flaps of the carton after the carton has been filled with cereal or other food stuffs, and weighed.

Thus the carton is presented by the conveying belt 2 to one of the gluing stations A, B, at which station two or more spots of glue 3 are applied to the opposite sides of the carton by the glue-conveying wheels 4. After the glue has been applied, each carton is conveyed by the belt 2 to one of the stations C, D where an operator, indicated at 5, is normally stationed. In front of the operator there is a metal platform 6 onto which is deposited a pair of cartons 7, one on each side of the glued carton 1, by means of the traveling belts or other conveyors 8.

The timing of the belts 2 and 8 is such that the carton 7 arrives at the platform 6 simultaneously with the glued carton 1, and in order to assure this simultaneity of arrival, abutments 9 are provided which will stop all three cartons momentarily at the assembly position. The operator 5 then simply compresses the three cartons 1, 7 together in any convenient manner, causing the cartons 7 to adhere to the intermediate carton 1 to form a composite package. The three-unit package is then lifted off of the platform 6 by the operator, while still pressing the cartons together, and deposited in a dryer 10 which is maintained at a temperature sufficiently high to cause the glue to harden in a relatively short time. At the expiration of this time the composite package is removed from the dryer and is then ready to be shipped to the retailer.

Details of the gluing machine—conveyor belts

The present invention relates more particularly to the machine employed at the gluing stations A, B and is shown in its entirety in Figures 3 and 4, to which reference should now be made. The frame of the machine is composed of a number of angle iron uprights 11, secured together by transverse angle iron members 12, the latter being positioned at different levels to provide a support for the operating mechanism of the machine. In addition to the main framework 11, 12, there is also provided a pair of stanchions or upright bars 13, removed from the main frame of the machine and having for their purpose to carry a shaft 14 on which is mounted a sprocket 15 and a pair of pulleys 16 which carry the pair of conveying belts 2. It has been pointed out in connection with Figure 1 that these belts are spaced from one another and pass through the respective gluing stations A and B. At their opposite ends the belts 2 are caused to pass over a pulley 17, journalled at 18 on an upstanding arm 19 which is secured to the right-hand upright member 11 (Figure 3). From the pulley 17 each belt 2 passes over a pulley 20 which is supported from the framework by the arm 21, and from there the belts pass over the pulley 22 and around a belt-tightening mechanism 23 of any suitable and well known design, back to the pulley 16.

As can be seen more clearly in Figure 3, the left-hand portion of each belt 2 is at a lower level than the right-hand portion, this difference in level of one portion of the belts being brought about by a system of pulleys, generally designated 24, and the other by a system of pulleys designated 25, these pulleys being so positioned as to permit the belt to the right of each system to be at a higher level than that portion of the belt to the left of each system. It will be further noted that this change in level of the belts appears just before the gluing stations A, B, and the purpose for this change in level will be pointed out hereinafter. It is apparent that the machine shown in Figure 3 is of a duplex character in that it embraces the two gluing stations A, B, within the same framework and employs mechanism in common for operating the elements at the two stations.

In order to prevent the conveyor belts 2 from sagging, as it will be recalled these belts carry the cartons 1 filled with fluent material, there is provided a number of lengths of plate 26, as many lengths as there are different levels of the belts, and which are supported from the frame 11, 12 in any suitable and convenient manner. The end supports of the plates 26 are clearly shown in Figure 3, these ends resting on arms 27 which extend out from the arm 19 and the uprights 13, respectively. The left-hand arm 27 (Figure 3) may also serve as a journal for the belt-tightening mechanism 23.

In line with the belts 2, at the right-hand end (Figure 3), there is a pair of conveyor belts 28, journalled at 29 and extending to the right in order to convey cartons from the preceding machine of the process line, which normally would be a top sealer, onto the conveyor belts 2 which carry these cartons through the gluing and assembly stations. As these cartons move from the belts 28 onto the belts 2, one line of cartons, on reaching the pulley arrangement 24, will drop from the upper length of the belt 2 to the lower length, where it will proceed at this level through the gluing station B, at which spots of glue are applied to the cartons in the manner described heretofore, and will continue to travel with the belt at the same level until it reaches the stop 9 at the assembly position 5. The cartons on the other line of belts, after leaving the belt 28, will proceed along the upper length of the belt 2 until each carton reaches the pulley arrangement 25 just prior to the gluing station A, and then will drop to the lower length of the belt 2 and proceed along this level of belt until it too reaches the stop 9 at the assembly station. The purpose of causing each belt to pass through its respective level-changing pulley mechanism 24, 25 just prior to each of the gluing stations B, A, will be explained in connection with the carton-stopping mechanism shown in Figures 8 to 13.

The rotative effort for each of the pulleys 16 is derived from a sprocket 15, about which passes a chain 30 (Figure 3) and is power-driven by a sprocket 31. As seen in Figure 4, there are two sprockets 31 carried on a shaft 32, and each of these sprockets is connected through a chain 30 to corresponding sprockets 15 carried on the shaft 14. The shaft 14 is preferably of a split type so that each pulley 16 can be driven by its respective sprocket 15 independently of one another. Consequently, the chain 30 may be removed from one of the sprockets 31 and its corresponding sprocket 15 to stop that pulley 16 connected with the particular sprocket. Thus any one of the belts 2 may be stopped by simply removing the driving chain 30 which operates that particular belt. The shaft 32 is journalled

on the framework 12 in any suitable manner, as indicated by the outstanding arms 33.

The shaft 32 carries a bevel gear 34 which meshes with a bevel gear 35 carried on a cam shaft 36. The latter is journalled on the frame 12 at the bearings 37. On the opposite side of the framework from the gear 35 the shaft carries a gear 38, which meshes with a pinion 39 supported on a shaft 40 which is journalled at 41. The shaft 40 carries at its opposite end a gear 42 which engages a driving gear 43 of an electric motor 44. Thus the motor 44 drives each of the belts 2 through the train of gears explained above, and the arrangement is such that either one of the belts may be stopped by simply removing its driving chain 30 from the proper sprockets 31, 15. Since the belts 2 are always moving in a continuous manner (unless stopped as described), some provision must be made for stopping the cartons at the gluing stations A, B for a moment during the gluing operation. This mechanism is shown diagrammatically in Figures 8 to 13, and in detail in Figures 3 and 4.

Carton-stop mechanism

Referring more particularly to Figures 3 and 4, the shaft 36 is provided with a cam 45 against which is spring-pressed a roller (not shown) carried on the end of a bellcrank lever 46 which is pivoted on the shaft 47. The end of the lever 46 is pivotally secured to a connecting rod 48, and the latter in turn is pivotally secured to the end of a bellcrank lever 49 pivoted at 50 to one of the frame uprights 11. The opposite end of the lever 49 is secured, through a connecting rod 51, to a crank 52, the latter being pivoted on a shaft 53. This shaft carries a hub 54 and a pair of spacer members 55, to which is rigidly secured a bar 56. One end of the bar 56 (the left-hand end as shown in Figure 3) is provided with a depending hook projection 57, and the opposite end carries an upstanding stop member 58. It is apparent that as the shaft 36 rotates the rotation of the cam 45 will cause the connecting rod 48 to reciprocate in a vertical direction, moving the bellcrank lever 49 about its pivot 50 and causing the bar 56 to swing through a vertical arc. There is a bar 56 provided at each of the stations A, B, and the bar at the station B is actuated through a cam 59 which is mounted on a shaft 60. As in the case of the mechanism at the other station, the cam 59 swings a bellcrank lever 61, which is mounted on a shaft 62 to cause reciprocatory movement of its corresponding connecting rod 48. The shaft 60 derives its rotative effort from a sprocket 63 over which passes a chain 64 from a sprocket 65 on the main cam shaft 36.

As stated hereinbefore, the function of the bar 56 at each of the stations A, B is to stop each carton in the respective line of cartons a sufficient length of time at the respective gluing stations to permit the cartons to be daubed or spotted with glue. As can be seen in Figures 8 to 13, as the bar 56 moves on its shaft 53 the front depending hook projection 57 reaches downwardly and projects over the front upper edge of the carton which is immediately beneath that particular bar. At the proper time in the sequence of operation, that is to say during the gluing step, as will be described hereinafter, the bar 56 is swung upwardly to remove the hook projection 57 from the carton and at the same time to cause the stop member 58 to be moved downwardly in contact with the upper front edge of the succeeding carton. A study of Figures 8 to 13 will show that there is a jog 66 appearing at the abutting surfaces of the two cartons 1, due to the difference in level of the belts 2 caused by the pulley arrangements 24, 25, and this jog is of sufficient depth to accommodate the stop member 58 as it moves downwardly. A complete description of the sequence of operation of the bar 56 in stopping the cartons only at their proper time will be given after the gluing mechanism has been described.

Gluing mechanism

As shown more particularly in Figures 5, 6 and 7, the gluing mechanism comprises essentially a so-called master roll or drum 67, which is adapted to rotate in a trough 68 containing a suitable adhesive material 69. There is a trough 68 positioned at each station A, B, and these troughs may be mounted in any suitable manner on the frame of the machine, for example, by means of straps 70 (Figure 3) which are riveted to one of the transverse members 12 of the frame. The drums 67 are mounted on a pair of shafts 71, one of the shafts extending between the right-hand pair of uprights 11 (Figure 3) and the other shaft extending between the left-hand pair of uprights 11. These shafts are journalled in the frame in any suitable manner. The shafts 71 are extended to carry sprockets 72 which are driven by chains 73 from the sprockets 74 (Figure 4). One of the sprockets 74 is mounted on the shaft 36 and the other sprocket 74 is mounted on the shaft 60.

It is apparent that as the drum 67 rotates in the adhesive material 69 it will gather up adhesive on its surface, as shown in Figure 5, and it is necessary to scrape off the excess adhesive. To do this there is provided at each station an inwardly projecting arm 75, which has an opening to receive a vertically positioned rod 76, the latter being mounted at its lower end in a bracket 77. The rod 76 is provided with screw threads at its lower end which receive a hand-operated wheel 78. Thus by rotating the wheel 78 the rod 76 can be caused to reciprocate in a vertical direction with respect to the arm 75.

Extending diagonally from the arm 75 is a truss member 79 which carries at its upper end a pivot 80, about which a lever 81 is adapted to rotate. One end of this lever is pivotally secured to the upper end of the rod 76 and the other end of the lever carries a scraping tool 82. Consequently as the rod 76 is moved upwardly or downwardly, depending on the direction of rotation of the wheel 78, the scraper 82 is moved outwardly or inwardly against the drum 67 so as to control the amount of adhesive left on the surface of the drum after it passes the tool 82. For transferring the adhesive material from the drum 67 to the cartons 1, we provide a pair of so-called carrier or transfer wheels 83 which are connected in such a manner, through cam-operated mechanism, as to cause the wheel 83 firmly to contact with the drum in one of its positions until the surface of the wheel becomes coated with adhesive obtained from the drum, and then the wheel is moved upwardly until it contacts with the surface of the carton. The mechanism for effecting this movement of the wheel 83 is illustrated in detail in Figures 5 to 7.

Starting first with the cam which actuates the wheel 83, it will be noted that the shaft 36 carries a pair of cams 84 which actuate one pair of wheels 83 at the station B, and shaft 60 carries

a similar pair of cams 85 which actuate the other pair of wheels 83 at station A. As seen in Figures 5 to 7, a roller 86 is pressed against the surface of the cam 84 or 85, and this roller is carried on the end of a lever 87 which is pivoted on a shaft 88. As seen more clearly in Figure 4, the shafts 88 extend only over approximately half of the width of the machine but over different half widths, and are journalled in any suitable manner, as indicated at 89, to some of the transverse members 12 of the frame.

The end of the lever 87 opposite the roller 86 is pivotally secured to a connecting rod 90 which extends approximately vertically upward, and is pivotally secured as at 91 to a diagonally extending arm 92. The arm 92 extends beyond the pivot 91 and terminates in a roller 93, which is adapted to slide within a groove 94 formed in a plate 95. This plate is held in an upright position by means of a flange member 96 extending from one of the frame members. In addition to supporting the plate 95, the flange member 96 carries a horizontally extending projection 97 which serves as a pivot at 98 for an arm 99. The lower end of the arm 99 is pivotally secured at 100 to the arm 92 at a position approximately midway of its length, and the upper end of the arm 92 is pivoted at 101 to an arm 102. An arm 103 is pivotally mounted at 104 on the arm 102, approximately midway of the length of the last-mentioned arm. The lower end of the arm 103 is pivotally mounted at 105 to an extension of the arm 92. The lengths of the arms 92, 99, 102 and 103 are such that these arms constitute a parallelogram. An extension of the arm 102 carries the carrier or transfer wheel 83. The latter is preferably mounted on ball bearings, and as shown in Figures 5 to 7, is made of very light construction. Indeed, large holes 106 are drilled through the web to reduce the metal content as much as possible.

Assuming that the different parts of the mechanism have the same relative positions as shown in Figure 5, it is apparent that as the drum 67 is rotated clockwise, the left-hand wheel 83, which is in contact with the drum, will rotate counter-clockwise and will have deposited thereon by this contacting relation a layer of adhesive, which remains on the surface of the drum 67 after the drum has passed under the scraper 82. The periphery of the cam 84 is so designed that as the cam rotates the connecting rod 90 will be drawn downwardly. The groove 94 is of such configuration that as the connecting rod swings the arm 92 about its pivot 100 the arm 92 will also be given a longitudinal movement, depending on the shape of the groove 94. This groove first extends to the left to about one-third of its length, and then slightly to the right for another third, and then back slightly to the left for the remaining portion of the groove. Consequently, as the arm 92 is moved downwardly the arm is also given a movement to the left and afterward a slight movement to the right, and again to the left. The net result of this composite movement of the arm 92 is to cause the parallelogram of arms to swing the carrier wheel 83 from its contact position with the drum 67 to a final position in which the wheel contacts the side surface of the carton 1. The parallelogram of arms, in effect, constitutes a pantograph which serves to multiply the composite motion of the arm 92 into considerably larger motions of the arm 102 which carries the wheel 83. Consequently, deviations of configuration of the cam 84 and the groove 94 need not be large to produce a relatively large movement of the wheel 83. It is apparent that the groove 94 can be designed to provide a travel of the wheel 83 such as to cause the wheel to miss any obstruction which might normally be in its path, such for example, the edge of the plate 26 on which conveyor belts 2 travel.

When the wheel 83 contacts the surface of the carton 1 the glue carried by the wheel and obtained from the drum 67 is immediately deposited on the carton to form the daubs or spots 3 referred to hereinbefore. It is preferred to provide more than one wheel 83 at the end of the arm 102, and as illustrated, there are two such wheels which produce two spots of glue, symmetrically positioned with respect to the side area of each carton. It is apparent that the wheel 83 should contact the drum 67 for a sufficient length of time to permit the transfer of sufficient glue to the surface of the wheel. The same thing is true when the wheel 83 contacts the carton to re-transfer the glue from the wheel to the carton. The time during which contact is to be maintained and the pressure at the time of contact with both the drum and the carton can be accurately predetermined by the shape of the groove 94. It has been found desirable to introduce flexibility of contact between the wheel 83 and the drum and between the wheel and the carton by cutting the groove 94 slightly wider than is necessary, and providing a spring 107 between the arm 99 and the plate 95 to thereby cause the roller 93 to tend to follow at all times the outer edge of the groove 94.

It will be understood that there are two wheels 83 carried by the arm 102 and actuated by the connecting rod 90 on one side of the carton 1, and there is a similar operating mechanism on the other side of the carton so that each carton is provided with two pairs of glue spots on opposite sides thereof. It has been pointed out that at each station A, B there are provided two pairs of the double-acting carrier wheels 83, and one pair is actuated by the pair of cams 84 on the shaft 36 and the other pair is actuated by the cams 85 on the shaft 60 (Figure 4).

Combined sequence of operation of carton-stop members and gluing mechanism

It is necessary that each carton remain stationary at either station A or B during the time that the carrier wheel 83 is in contact with the carton and is therefore applying the adhesive; otherwise, the adhesive spot would be excessively wide and not determined solely by the width of the wheel 83.

Referring now to Figures 8 to 13, it will be noted that the left-hand end of the bar 56 has been swung to its lower position, causing the hook projection 57 to project over the front upper edge of the first carton 1. At the same time the carrier wheels 83 are in contact with the drum 67 in order to receive adhesive. Figure 9 shows the wheels 83 as having moved through their arcuate paths and are now in contact with the opposite sides of the carton, while the projection 57 still hooks over the front edge of the carton. Figure 10 shows the instantaneous position of the wheels 83 after they have left the carton 1, leaving two daubs of glue 3 on each side of the carton. It will be noted that up to this time the projection 57 still restrains the carton 1 from moving with the traveling conveyors 2. Figure 11 shows the same position of the wheels 83 as Figure 10, but now the left-

hand end of the bar 56 has been raised to release the carton 1, but at the same time the right-hand end of the bar of a stop member 58 has descended to prevent the second carton from moving along with the first.

Figure 12 shows how the two cartons are still farther separated by the action of the bar 56, while Figure 13 indicates the bar 56 as moving down at its left-hand end, ready to stop the next carton and at the same time releasing the upper front edge of the second carton from the stop member 58. Consequently, the bar 56 performs the purpose of holding the first carton 1 of the line momentarily in a stationary position at either the stations A, B until the daubs of glue have been applied and the carrier wheels 83 have been retracted into a position at which they contact the master roll or drum 67.

It has been found that by providing two stations A, B, simultaneously operated from a single motor 44 but employing individual cams and associated mechanism, there is no detraction of supervision, flexibility of operation or adjustability of the parts and yet the space taken up by the composite machine is highly conserved. It has been pointed out that either station A or B can be operated separately, if desired, by simply removing the chain belt from either of the sprockets 31 (Figure 4). Considerable advantage in providing more than one station per machine is obtained in that, if desired, the timing of the glued cartons as they reach the assembly station C may be so regulated that a single operator can handle the entire output of the machine. In such case he would assemble the two cartons on opposite sides of the glued carton which has come from station A, for example; after placing the composite package in the nearer dryer he would then assemble the composite package, using the glued carton that came through station B so that by passing from one side of the machine to the other, the operator could package all of the glued cartons as they come through both stations A and B in an alternate manner. However, Figure 1 has exemplified the invention as employing two operators.

While we have illustrated a machine for forming a composite package out of three cartons, in which the intermediate carton has daubs of glue on opposite sides thereof, it will be understood that the improved machine may be readily modified to provide a composite package which includes less than three cartons or more than three cartons. In the case of a two-carton package, only one side of the carton would be daubed with glue and consequently only one set of wheels 83 would be employed. In the case of a five-carton package the second and fourth cartons would have applied thereto, on opposite sides, one or more daubs of glue so that when all five cartons are assembled and pressed together the glued cartons will serve to cause all of the cartons to adhere to one another to make a five-carton package. Many other arrangements will occur to those merely skilled in the art, depending on the number of cartons which are to be secured together in order to form a composite package. Obviously, instead of providing a double-unit gluing machine the gluing stations of the machine may be increased by simply providing additional cams on the shafts 36 and 60, together with the necessary accessory mechanism.

It will be understood that we desire to comprehend within this invention such modifications as come within the scope of the claims and the invention.

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

1. A machine for applying glue to a carton comprising means for conveying a line of cartons to and from a gluing station, a roll at said station immersed in a body of glue, a glue carrier for transferring glue from said roll to said carton, means for stopping a carton at the gluing station, and means for moving said carrier from a position in contact with said roll to a position in contact with said carton during the time that the carton is stopped at the gluing station, said stopping means comprising a pivoted lever having a downwardly extending projection at one end for hooking over the upper edge of the carton at the gluing station and having an upwardly extending member which presses against the succeeding carton.

2. A machine for applying glue to a carton comprising means for conveying a line of cartons to and from a gluing station, a roll at said station immersed in a body of glue, a glue carrier for transferring glue from said roll to said carton, means for stopping a carton at the gluing station, means for moving said carrier from a position in contact wtih said roll to a position in contact with said carton during the time that the carton is stopped at the gluing station, said stopping means comprising a pivoted lever having a downwardly extending projection at one end for hooking over the upper edge of the carton at the gluing station and having an upwardly extending member which presses against the succeeding carton, and means for operating said pivoted lever in such a way that the upwardly extending member prevents the movement of said succeeding carton into the gluing station until the downwardly extending projection has been removed to permit the preceding carton to leave the gluing station.

3. A machine for applying glue to cartons comprising means for conveying a line of cartons to and from the machine on a conveyor belt, means at a gluing station on said machine for gluing the cartons, said belt being arranged to change its level from a high level to a low level immediately before each carton reaches the gluing station so as to leave a jog between the rear upper edge of the carton at the gluing station and the front upper edge of the succeeding carton, a pivoted lever at the gluing station, said lever having a depending hook projection at one end and an upstanding stop member at the other end, said hook projection being adapted to hook over the upper edge of the carton at the gluing station when the lever is swung in one direction on its pivot, said stop member being adapted to contact the upper front edge of the succeeding carton at said jog when the lever is swung in the opposite direction, and means for rotating said lever on its pivot to stop a carton at the gluing station and for rotating the lever in the opposite direction for preventing the succeeding carton from entering the gluing station until the immediately preceding carton has left the gluing station.

4. A machine for applying glue to cartons comprising means for conveying a line of cartons to and from the machine on a conveyor belt, means at a gluing station on said machine for

gluing the cartons, said belt being arranged to change its level from a high level to a low level immediately before each carton reaches the gluing station so as to leave a jog between the rear upper edge of the carton at the gluing station and the front upper edge of the succeeding carton, a pivoted lever at the gluing station, said lever having a depending hook projection at one end and an upstanding stop member at the other end, said hook projection being adapted to hook over the upper edge of the carton at the gluing station when the lever is swung in one direction on its pivot, said stop member being adapted to contact the upper front edge of the succeeding carton at said jog when the lever is swung in the opposite direction, and means for rotating said lever on its pivot to stop a carton at the gluing station and for rotating the lever in the opposite direction for preventing the succeeding carton from entering the gluing station until the immediately preceding carton has left the gluing station, said gluing means at the gluing station comprising a swinging carrier wheel which may be used between a body of glue and the surface of the carton to apply on said surface at least one daub of glue.

5. A machine for applying glue to cartons comprising means for conveying a line of cartons to and from the machine on a conveyor belt, means at a gluing station on said machine for gluing the cartons, said belt being arranged to change its level from a high level to a low level immediately before each carton reaches the gluing station so as to leave a jog between the rear upper edge of the carton at the gluing station and the front upper edge of the succeeding carton, a pivoted lever at the gluing station, said lever having a depending hook projection at one end and an upstanding stop member at the other end, said hook projection being adapted to hook over the upper edge of the carton at the gluing station when the lever is swung in one direction on its pivot, said stop member being adapted to contact the upper front edge of the succeeding carton at said jog when the lever is swung in the opposite direction, means for rotating said lever on its pivot to stop a carton at the gluing station and for rotating the lever in the opposite direction for preventing the succeeding carton from entering the gluing station until the immediately preceding carton has left the gluing station, said gluing means comprising a roll immersed in a body of glue, a glue carrier for transferring glue from said roll to the carton at the gluing station, and means for moving said carrier from a position in contact with said roll to a position in contact with said carton during the time that the hook projection of said pivoted lever is hooked over the upper edge of the carton at the gluing station.

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