The principal object of my invention is the provision of mechanism by means of which a tight, sift-proof, closure which, if desired may be made liquid-tight, may be produced on seal-end type paperboard cartons. More specifically, it is an object of the invention to provide mechanism whereby the type of closure set forth in my co-pending application, Ser. No. 598,063, filed June 7, 1945, now Patent No. 2,524,032, October 3, 1950, and entitled Sealing Method and Means for Cartons, may be effected.

A general object of my invention is the attainment mechanically, and simply and cheaply, of tight closures in seal-end cartons.

These and other objects of the invention which will be set forth hereinafter will or may be apparent to one skilled in the art upon reading these specifications I accomplish in that mechanism of which I shall now describe an exemplary embodiment. Reference is made to the drawings forming a part hereof and in which:

Figure 1 is a front elevational view of a cage for holding a carton to be sealed.

Figure 2 is a side elevation thereof.

Figure 3 is a top plan view.

Figures 4 and 5 are elevational views with parts in section (the section being taken along the lines 4-4 of Figure 1) showing means for operating the blade, and the blade itself in two positions.

Figure 6 is a partial sectional view taken along the line 6-6 of Figure 8.

Figure 7 is a diagrammatic plan view of one type of machine upon which my cages may be used, showing a sequence of operations, and various instrumentalities coacting with the cages and acting upon the cartons.

Figures 8 to 14 inclusive are fragmentary perspectives showing the various stages in forming a tight closure at the carton end.

Figure 15 is a similar view showing a mode of applying adhesive by means which can be employed on the machine.

Figure 16 is a semi-diagrammatic plan view of an apparatus including means for applying thermoplastic adhesive and sealing cartons by means thereof.

Figure 17 is an elevational view with parts in section showing a type of pressure apparatus which I may employ.

Figure 18 is a partial elevation with parts in section showing another type of pressure apparatus.

Figure 19 is a partial perspective view showing the condition of the carton after an initial application of adhesive.

Figure 20 is a partial elevation of a means for applying adhesive.

Figure 21 is a sectional view taken along the line 21, 21 of Figure 20.

Figure 22 is a partial sectional view taken along the line 22, 27 of Figure 20.

Figure 23 is an elevational view of an adjustable cam member.

In my copending application referred to above, I have taught a mode of forming a carton closure in a seal-end carton involving bending one or more of the flaps outwardly and passing across the end of the carton a thin, blade-like member, over which certain of the flaps are folded and adhesively secured together. The use of the interior blade, together with an external pressure element, enables the flaps so folded and secured to be forced into complete surface conformity. Furthermore, the flaps so folded and secured from a platform against which the remaining flap or flaps may be folded and adhesively secured after the blade has been withdrawn, the platform serving to sustain the pressure employed to force all flaps into surface conformity.

Prior to that invention, it was usual to make the first closure of a seal-end carton over an interior mandrel thrust into the carton from the other end. Between such a mandrel and an external pressure means, the flaps can be caused to conform and to be adhesively secured throughout their respective areas, providing a fairly tight closure. But this procedure, including the use of the mandrel, is not available for making the last or final closure of the carton after it has been filled.

In making the final closure, where no mandrel could be used, the flaps could not be forced into surface conformity, and poor closures were the result.

My mode of operation is applicable with equal effect to both closures of the carton. If mandrel type equipment is available it may be used, if desired, for making the first closure, whereupon the cartons may be filled, and closed on the machine hereinafter described. Superior results are, however, obtained by making both closures on my machine.

As set forth also in my copending case, the cartons may be manufactured in such a way that the flaps are pre-coated with a thermoplastic adhesive. Where this is done it is not necessary to apply adhesive to the cartons on my
machine, and where the pre-applied thermoplastic covers not only the inner surfaces of the flaps, but the adjacent score lines as well, it is readily possible to secure liquid-tight closures. Nevertheless, it is possible as hereinafter set forth to apply the required adhesive on my machine.

In the preferred practice of my invention I provide a cage holding the carton being operated upon, with which cage is combined the blade hereafter referred to and means for moving and positionin it. The cage may be used in various types of machines. Herein I have shown and described it as moving in a path in a machine having many of the features of the machines set forth in the Bergstein and Van Guelpen patent, 2,277,269, the Bergstein patent, 2,300,666 and the copending application of Bergstein and Van Guelpen, Ser. No. 540,704 filed July 13, 1942 and entitled, Packaging Method and Means, now abandoned.

As the cage moves along, means on the machine bed are provided for perform folding, pressing and other manipulations upon the cartons themselves. Means may also be provided on the machine bed to operate the cage elements to grip or release the cartons, or the cages may be constructed as described in the said copending Bergstein and Van Guelpen application, in such manner that the insertion of the carton into the cage causes the elements to move to gripping position.

In Figure 7, a series of cages, which will hereinafter be described in detail, are arranged in spaced relationship and connected by chain elements indicated at 1. The chain elements form an endless chain running over sprockets 2 and 3 near the ends of the machine, and the application of power to one or both of these sprockets will cause the chains and hence the sprockets to move in an orbit or path in the machine. Each cage has a base 5 sliding on trackways in the machine. These trackways are not shown in Figure 7, but are indicated at 7 and 8 in Figures 1, 2, and 3.

Arms 9 and 10 having a means for engaging the side walls of erected cartons are movably mounted as a part of the cage. Various mechanical constructions may be employed for mounting the arms and for moving them, together with the engagement means 11 and 12, to carton engaging and carton releasing positions. In the particular exemplary embodiment I have shown the arms 9 and 10 pivoted on brackets 13 attached to the base 5. To operate the arms I have shown link members 14 and 15 pivoted respectively to brackets 16 and 17 on the arms, both links being pivoted to a bracket-like member 18 on the end of an operating lever 19 which in turn is pivoted at pivot point 19a intermediate its ends to brackets 20 and 21a on the base 5. The outer end of the lever 19 is provided with a cam-following roller 22a. Springs 23 and 24 connect the outer pivot points of the links 14 and 15 to fixed points on the machine as hereinafter described.

Carbons in the several figures are indicated generally by the numeral 46. The position determining means 27 serves to fix the height of the cartons in the cage. Figure 8 shows the initial condition of the upper end of the carton when it is inserted in the cage and engaged by the means 11 and 12 which engage body walls of the base 5, tending to throw the arms inwardly into the carton engaging position. It will be evident that the arms may be operated through the lever 19 by means of one or more cams 25 on the machine frame engaging the cam-follower 22a.

At the rear of the cage mechanism I provide a standard 26, which has a means 27 for determining the vertical position of the carton. If the cage is to be used for sealing the first end of a carton, this gauge or position determining means may be in the form of a clip as most clearly is illustrated in Figures 1 and 5. If the cage is to be used for forming the second closure or both closures of a carton, the position determining means may be in the form of simple horizontal members which lies lower in the case as structures may rest. If desired the standard 25 may also be provided with means 28 and 29 furnishing an additional back rest for the carton body.

The upper end of the standard 26 has a rearward extension 30 provided with ways 31 upon which a carriage 32 is slideably mounted for movement toward and away from the carton body in a transverse direction. The carriage 32 has a recess 33 in which the rounded upper end of a bell crank lever 34 is mounted. The lever is pivoted to the standard 26 as most clearly indicated in Figure 2 at 35. The shorter arm of the bell crank 34 carries a cam-following roller 36. It will be evident that cam-means on the machine frame may be employed to move the bell crank 34 and hence the carriage 32 toward and away from the carton body.

To the carriage 1 pivot a member 37 which bears a thin blade 38. The member 37 and the blade rock from a position in which the blade is horizontal as shown in Figure 5 to an upper position in which the blade is vertical as shown in Figures 2 and 4. To operate the blade 1 I provide it with an angular arm 39 which engages an abutment or stud 40 mounted upon the extension 30 of the standard. This is illustrated in Figure 2. Spring 41 preferably at the pivot of the member 37 (see Figures 1 and 3) may be employed to urge the member 37 and blade 38 to the upward position and to keep the arm 39 in contact with the stud 40.

To render unnecessary the use of continuous cam means on the machine bed for the bell crank 34, I provide means for releasably fixing the carriage 32 in its two extreme positions. These means are detailed in Figure 6 and comprise recesses 42 and 43 formed in the ways 31. A plunger 44 actuated by a spring 45 in a perforation in the carriage 32 engages in these recesses for the purpose described.

Referring now to Figures 7 to 15 it will be noted that at one end of my machine the cam means 25 operates to depress the extending end of the lever 19 and thereby open up the arms 9 and 10 of my cage. The cam 25 thus provides a loading and unloading station for the cage, at which a sealed carton may be removed from a cage and an unsealed carton inserted therein. The cages will be moving in the machine in the directions indicated by the arrows, as they are propelled by the chain sections 1 along the guides 7 and 8 herein above described. When a cage passes the end of the cam 25 the lever 19 will be released and the arms 9 and 10 will close inwardly upon the carton which has been inserted into the cage, and will grasp it firmly by means of the members 11 and 12 which engage body walls of the base 5, tending to throw the arms inwardly into the carton engaging position.

As the cage and carton travel to the left in Figure 7, a stationary sweep or folding rod 41 engages the flap 48 of the carton and bends it outwardly. When this is accomplished a short cam member 43 mounted upon the machine en-
gages the cam follower 36 on the bell crank 34 and causes it to move the carriage 32 inwardly. The carriage 32 moves the member 37 and blade 38 through the arm 39 and stud 40, swinging the member and blade downwardly until they overlie the flap 48 in part at least, with the blade extending across the open end of the carton substantially in the plane of the score lines, by means of which the carton flap 38 is articulated to the carton body wall. Needless to say the dimensions of the cage, the standard, and the position determining means 27 are such that the blade will be brought into the correct position with respect to the carton. This is illustrated in Figures 5, 10 and 11.

The blade 38 and member 37 will retain the carton flap 48 in the out-folded condition, and during a continuation of the motion of the cage, a rocking, power-actuated finger 50 folds inwardly the carton flap 51 in the direction of motion of the carton. A stationary sweep or folder 52 operates to fold inwardly the opposite carton flap 53 against the direction of motion of the carton. The flaps 51 and 53, as now folded, overlie the blade 38 and are supported by the blade. This is illustrated in Figure 10.

The blade 38 will be made of a material stiff enough to sustain the pressure exerted by members using surface coating of the flaps hereinafter described. The thickness may be varied for different sizes of cartons with this in view. The dimensions of the blade will likewise be varied for different sizes of cartons. In practice the blades are so dimensioned that the front and side edges lie slightly inwardly of the score lines of the carton, say 1/16 to 1/8 of an inch, when the blade is in the position shown in Fig. 5. Moreover, I prefer to chamfer or taper these edges downwardly a very thin edge as illustrated diagrammatically in Figs. 1 to 5 inclusive. The combination of these features enables the folding elements of my machine to fold the flaps on their score lines, even though the blade is of sufficient thickness to withstand relatively heavy pressure. The flaps may bow slightly over the tapered portions along the edges of the blade, but this does not interfere with the exertion of adequate pressure for sealing. I believe this to be due to the natural humping of the board at the score lines in an upward direction when the flaps are bent over.

If some or all of the carton flaps have been precoated with thermoplastic adhesive, a heated means, illustrated at 54 as an electrical heater, may be employed to re-activate the adhesive, especially on the flap 55. This flap is next folded over onto the flaps 51 and 53 by a stationary sweep 56 in Figure 7. The folded flap 55 is held in folded position by an overhead pressure member 57 during a continuation of the travel of the carton. During this folding and securing operation, the flaps 51, 53 and 55 are supported from beneath by the blade 38. It will be noted in Figure 4 that the standard 26 may be provided with a stop means 58 over which the flap 48 is folded, and which, through that flap, supports the blade 38 at the desired level. Other means for fixing the position of the blade 58 may be provided if desired. The action of the mechanism is such that it withdraws the flap 51, 53 and 55 upon the carriage while this flap is supported from beneath by a guide member 63. The application of the adhesive is made by means of a roller 64 receiving a film of adhesive from a transfer roller 65 turning in contact with a coating roller which dips into a pan of adhesive (not shown). The roller 64 may be moved either manually or by motor drive if desired to be widened so as to apply adhesive to parts or all of the flaps 51 and 53; and it may also be grooved in such fashion as to apply a heavier coating of adhesive along the score line of flap 55. (See also Figure 19 hereinafter de-
Where it is not required to reactivete a thermoplastic adhesive by heat, the heating means 54 and 61 may be eliminated. In some types of cage machines the cages are caused to rotate about a vertical axis through increments of 90° in order that flaps may be folded by members all of which are stationary. The principles of the invention may be applied to such machines, as well as to machines in which the travel of the cartons, instead of being con-
tinuous is in a step by step manner.

Figures 16 to 23 inclusive illustrate an em-

The roller is mounted on a shaft 78 journaled in the side walls of the pot. Electrical heating means 79 may be provided for the roller with conductors extending through a bore in the shaft and at its left hand end connected with contact rings 89 and 91. Brushes 82 and 83, mounted upon a bracket 84 supply current to the heaters.

One of the features of my apparatus is the pro-

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The roller is employed to apply adhesive to the carton flaps, a supporting roll 89 is used to hold a flap in contact with the applicator roller. In order to prevent fouling of the supporting roller 89 it is desired that it be brought upwardly only when a carton flap is passing beneath the applicator roller. To this end I mount the supporting roller 93 on an arm 90 which is pivoted as at 91 to the pot 75 or to some other suitable means. The arm 90 has an extension 92 which is urged by a spring 94 in a clock-wise direction about the pivot 91 so as to bring the roller 89 upwardly. The pro-
motions of the arm are determined by cam means, conveniently made in two parts, 94 and 95, which are adjustably relative to each other by means of screws 96 engaging in selected ones of a plurality of holes 97 in the cam part 94. The cam part 94 is affixed to a sleeve 98 rotatably mounted upon the shaft 78. The cam part 95 is rotatable on the sleeve, and the structure just described enables me to lengthen or shorten the effective cam surface for boxes of different sizes. I have shown the cam as driven by a chain 99 engaging a sprocket 100 fixed to the sleeve 98. The chain 99 runs over a sprocket 101 which is on a shaft coupled with the main drive of the machine. Thus, while the applicator roller 77 rotates con-

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as to carry the abutment 108 out of the way. A spring 111 tends to return shaft 109 to the first mentioned position. Thus the supporting roller 89 will be caused to rise only as a carton flap passes beneath the applicator roller 77.

The construction of the pot 75 may be varied. It may provide it with partition members 112 and 113 provided with packing means 114 and engaging the surface of the roller 77 and the walls of the pot 75. The adhesive may be confined between these partition members, which may be made adjustable to control the width of the film formed on the surface of the applicator roller.

As shown in Figure 19 the roller may be so configured as to coat the flap 55 with adhesive, forming a heavy bead 115 adjacent the score line of that flap and the edges of flaps 51 and 55. While the application of heavier beads of adhesive adjacent the score lines in sealing carton closures is not new, being set forth in Patent 1,974,256 to Samuel Bergstein, in my process and in the use of my apparatus a very much more positive seal or liquid-tight condition is obtained through the coaction of this expedient and commercially feasible means to hold and press the closure flaps together in complete surface conformity, and for both closures of the carton.

In the machine of Figure 16 after the adhesive has been applied the flap 55 is folded over by the sweep 116.

In my machine I now provide means for individually exerting pressure upon the ends of the carton. These means comprise an overhead trackway 111 with upturned ends, which is resistively supported by rods 118 slidably mounted in the arms of a bracket or spider 119 affixed to the bracket 38. Springs 120 urge the track to its lowermost position.

On the shaft 117 I mount a disk or spider 121 so as to rotate with the shaft. Rods 122 bearing individual pressure elements 123 are vertically slidable on the disk. The rods at their upper ends are provided with rollers 124, and are urged upwardly by springs 125. The rods and pressure elements are so spaced about the disk 121 that there will be a pressure element for each carton passing around the orbit of the machine. Thus, as a carton moves into position adjacent the sprocket 2, a pressure element 123 will swing into position above it and will move along with the carton. After it has entered the track 117 and the pressure element will be strongly but resistively pressed against the end of the carton, insuring conformity of the flaps and sufficient pressure to form a good adhesive bond. The pressure elements rise beyond the end of track 117, and as the cages enter the straight flight of the conveyor, the pressure elements will move out of the way. A cam member 126 will then operate to withdraw the blade 56 as above explained. A similar series of pressure members is employed for the closure and sealing of the final flap 48; and I have indicated additional warming means at 126 and 127, and an adhesive applicator at 128, the details of which may be the same as those hereinabove described for the applicator 74. The flap 48 will be turned inwardly sweep 129 and pressure will be applied to it by pressure means similar to those described at the left-hand end of the machine.

In Figure 16 I have shown a trackway 130 and a supporting spider 131. Cooling of a thermoplastic adhesive may be accomplished at one or both ends of the machine by cool air blown through a conduit 132, having a shield 133 to direct the air against the cartons.

Modified pressure means may be employed. In Figure 18 I have shown the disk 121 supporting abutment plates 134 to which pneumatic pressure means 135 are attached and extending across the open end of a carton substantially at the score line by which said flaps are articulated to the body walls of said carton, means for infolding and adhesively securing a plurality of said flaps over said blade, means for pressing said folded and secured flaps against said blade, and means for withdrawing said blade.

The structure claimed in claim 1 wherein the means for engaging said carton comprises a pair of travelling machines, and wherein said folding means are members on the machine body with respect to which said cage travels, and wherein said machine body carries means for opening and closing said cage.

3. In a mechanism for sealing seal-end cartons having body walls and closure flaps, means for engaging erected cartons and for moving said cartons through a path of travel, a blade, means for causing said blade to travel with said cartons, means for outfolding at least one carton flap, means for moving said blade to a position overlying an outfolded flap and extending across the open end of a carton substantially at the score line by which said flaps are articulated to the body walls of said carton, means for infolding and adhesively securing a plurality of said flaps over said blade, means for pressing said folded and secured flaps against said blade, and means for withdrawing said blade, means for pressing said folded flaps comprising means travelling with said cartons during a portion at least of their path of travel.

4. The structure claimed in claim 3 including heating means mounted on said machine body for reactivating a thermoplastic adhesive previously applied to said carton flaps.

5. The structure claimed in claim 3 including means mounted on the machine body for applying adhesive to folded flaps of said cartons.

6. A cage for engaging and sealing cartons comprising a body, movable means on said body for engaging the erected body of a seal-end carton having body walls and articulated closure flaps at a desired height, and means mounted on said cage and movable with respect to the engaged carton body therein, said means comprising a blade, means for bringing said blade into a position overlying one at least of said carton flaps in outturned condition and extending across the open carton body at the level of the score line by which said flaps are articulated to said body walls, whereby other flaps may be turned there-
over and adhesively secured, and means for withdrawing said blade.

5. In a cage mechanism, a base, a standard mounted on said base, a pair of coating arms mounted on said base and moveable toward each other from a carton receiving position to a carton holding position, said coating arms having means for engaging and holding a seal-end carton in squared-up condition and at a desired height, a rearward extension on said standard, a carriage slideable on said extension, a supporting plate movably mounted on said carriage moveable to a position extending across an open end of a carton held by said coating arms substantially at the score line articulating closure flaps to body walls thereof and to a position in which said plate uncovers said carton.

8. In a cage mechanism, a base, a standard mounted on said base, a pair of coating arms mounted on said base and moveable toward each other from a carton receiving position to a carton holding position, said coating arms having means for engaging and holding a seal-end carton in squared-up condition and at a desired height, a rearward extension on said standard, a carriage slideable on said extension, a supporting plate movably mounted on said carriage moveable to a position extending across an open end of a carton held by said coating arms substantially at the score line articulating closure flaps to body walls thereof and to a position in which said plate uncovers said carton, and means in connection with said carriage and extension for fixing said carriage releasably in said several positions.

9. In a cage mechanism, a base, a standard mounted on said base, a pair of coating arms mounted on said base and moveable toward each other from a carton receiving position to a carton holding position, said coating arms having means for engaging and holding a seal-end carton in squared-up condition and at a desired height, a rearward extension on said standard, a carriage slideable on said extension, a supporting plate movably mounted on said carriage moveable to a position extending across an open end of a carton held by said moveable arms substantially at the score line articulating closure flaps to body walls thereof and to a position in which said plate uncovers said carton, and means in connection with said carriage and extension for fixing said carriage releasably in said several positions, said cage having extending operating means and, each means positioned to activate said operating means during motion of said cage for effecting the movements of said arms.

10. In a machine of the character described, a machine body, a plurality of cages, means for moving said cages in an orbit on said machine body, each cage comprising a base, a standard, pivoted arms for releasely engaging an erected seal-end carton and externally operable means for moving said arms, a blade, mounting means whereby said blade may be brought to a position extending across the open end of a carton substantially at the score line articulating closure flaps to body walls thereof and to a position at which said blade uncovers said carton, and externally operable means for moving the blade, and means mounted with respect to the machine body and operating in sequence with respect to the movements of said cages for closing said arms whereby to engage an erected carton in a cage, for folding outwardly a flap on said carton, for bringing said blade into a position overlying the outfolded flap and extending across the open end of said carton, means for applying adhesive to said flap in a plurality of carton flaps and adhesively securing them together over said blade, for pressing the folded and secured flaps against said blade, for withdrawing said blade, for folding in the outfolded flap and pressing it against the previously folded and secured flaps, and for opening said arms whereby to release said carton.

11. The machine claimed in claim 10 including heating means for reactivating previously applied adhesive on said flaps.

12. The machine claimed in claim 10 including means for applying adhesive to said flaps.

13. In a machine for closing and sealing cartons having flaps, means for supporting and moving erected cartons, means for outfolding at least one of the carton flaps, a supporting blade, means for passing said supporting blade across an end of said carton, means for applying adhesive to at least one of the carton flaps, means for interfoiling a plurality of the carton flaps over said supporting blade and means traveling with said carton for exerting pressure on said interfolded flaps as supported by said blade, the pressure comprising pressure elements individual to the said cartons and means for actuating said pressure elements during a portion of the travel of said cartons.

14. In a device for sealing the ends of cartons of the seal-end variety having body walls and closure flaps, a machine body, means on said machine body for engaging a carton in squared-up open condition and for moving it in a path of travel, a blade, means for causing said blade to travel with said carton, mounting means whereby said blade may be brought to a position extending across the open end of the carton and to a position at which said blade uncovers said carton, means arranged sequentially along the path of travel of said carton for folding outwardly a flap of said carton, for bringing said blade into position overlying the outfolded flap and extending across the open end of said carton, for folding in a pair of opposite flaps over said blade, for applying adhesive between the meeting surfaces of said infolded pair of flaps and yet another flap of said end closure, for folding said last named flap against said first infolded flaps, and for pressing said folded flaps together against said blade.

15. In a device for sealing the ends of cartons of the seal-end variety having body walls and closure flaps, a machine body, means on said machine body for engaging a carton in squared-up open condition and for moving it in a path of travel, a blade, means for causing said blade to travel with said carton, mounting means whereby said blade may be brought to a position extending across the open end of the carton and to a position at which said blade uncovers said carton, means arranged sequentially along the path of travel of said carton for folding outwardly a flap of said carton, for bringing said blade into position overlying the outfolded flap and extending across the open end of said carton, for folding in a pair of opposite flaps over said blade, for applying adhesive between the meeting surfaces of said infolded pair of flaps and yet another flap of said end closure, for folding said last named flap against said first infolded flaps, and for pressing said folded flaps together against said blade, for coating the outfolded flap with adhesive, for folding in the said out-
folded flap and pressing it against the previously folded flaps.

16. In a device for sealing the ends of cartons of the seal-end variety having body walls and closure flaps, a machine body, means on said machine body for engaging and holding a carton in an erected and open condition and for moving said carton in a path of travel, a blade, means for moving said blade with said carton including means for moving said blade toward and away from said carton whereby said blade may be brought to a position extending across an open end of the carton and to a position in which said blade uncovers said carton, means arranged sequentially along the path of travel of said carton for folding outwardly at least one closure flap, for bringing said blade to the position in which it overlies the outfolded flap and extends across the open end of the carton, for providing an activated coating of adhesive on at least one other of said closure flaps, for infolding said last mentioned flap together with yet another flap against the top surface of said blade, for pressing the folded flaps together while resting on said blade as a support, and for withdrawing said blade.

17. The structure claimed in claim 16 wherein said blade is provided with reduced edges and wherein said blade is so dimensioned as to lie inwardly slightly from the score lines of the flaps to be folded when said blade is passed across the end of the erected carton, whereby said flaps may be folded on their score lines and still rest on said blade as a support.

18. The structure claimed in claim 16 wherein the means for providing an activated coating of adhesive on one of the closure flaps comprises means for reactivating a thermoplastic adhesive previously applied to said flap.

19. The structure claimed in claim 16 wherein said means for providing an activated coating of adhesive on at least one of said closure flaps comprises an adhesive applicator positioned ahead of said inmoving means and in the path of travel of cartons engaged by said carton holding means.

20. In a device for sealing the ends of cartons of the seal-end variety having body walls and closure flaps, a machine body, means on said machine body for engaging and holding a carton in erected and open condition and for moving said carton in a path of travel, a blade, means for moving said blade with said carton including means for moving said blade toward and away from said carton whereby said blade may be brought to a position extending across an open end of the carton and to a position in which said blade uncovers said carton, means arranged sequentially along the path of travel of said carton for folding outwardly at least one closure flap, for bringing said blade to the position in which it overlies the outfolded flap and extends across the open end of the carton, for providing an activated coating of adhesive on at least one other of said closure flaps, for infolding said last mentioned flap together with yet another flap against the top surface of said blade, for pressing the folded flaps together while resting on said blade as a support, for withdrawing said blade, for infolding and adhesively securing the remaining closure flaps and for pressing said last mentioned flaps against said flaps first infolded.

21. In a machine of the class described, spaced rotating shafts, sprockets mounted on said shafts, conveying means comprising a chain passing over said sprockets, cage means moved by said conveying means for holding erected cartons to be closed and sealed, means along the path of travel of said conveying means for interlocking flaps of the cartons carried by said cages, pressure means rotating with at least one of said shafts and in timed relation to the movement of said cages, said pressure means providing individual pressure elements to press interfolded flaps on the cartons during the travel of said pressure elements with said cages, and means for activating said individual pressure elements.

LEONARD BACK.

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