

June 3, 1969

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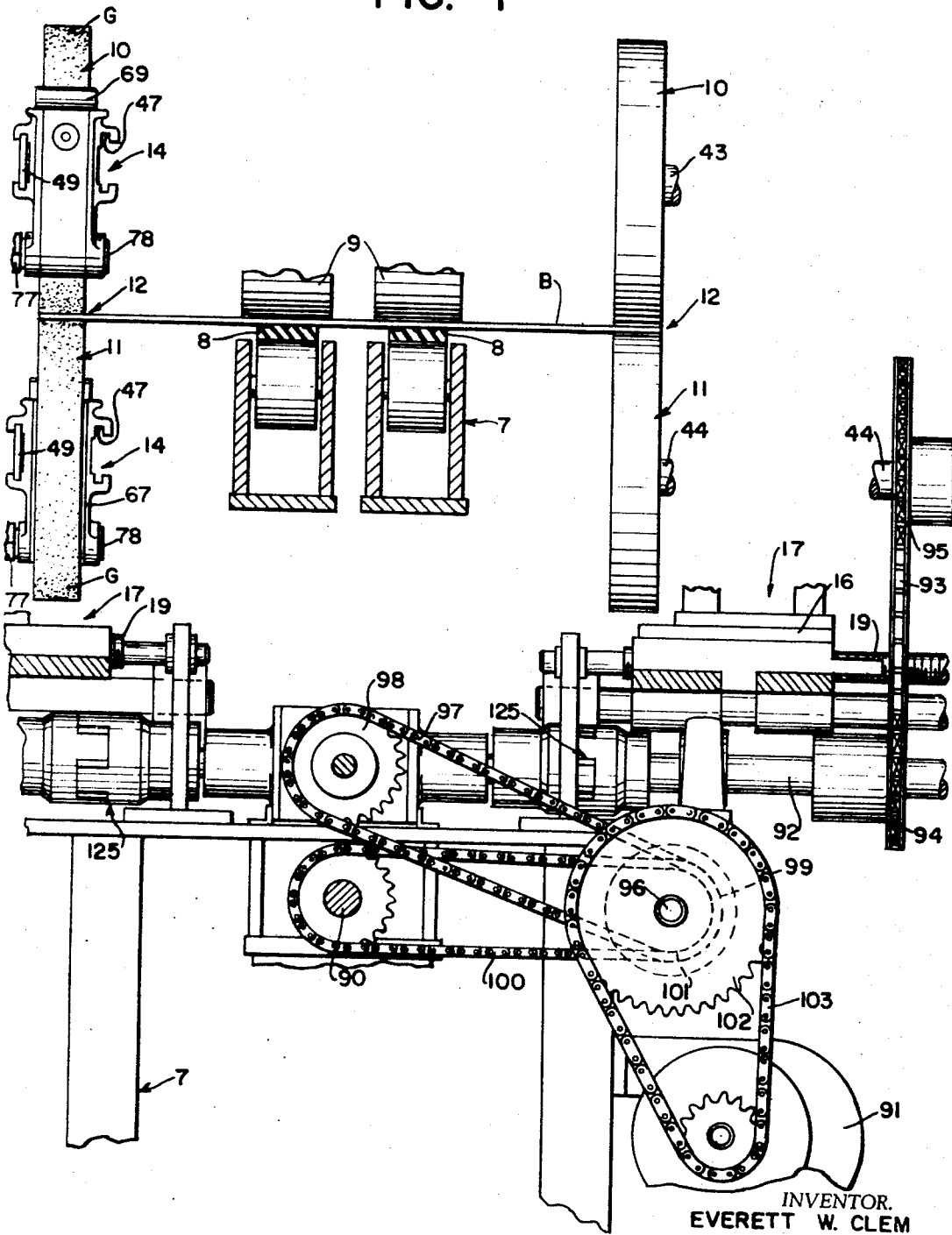
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CARTON BLANK GLUING APPARATUS

Filed July 13, 1967

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FIG. 1



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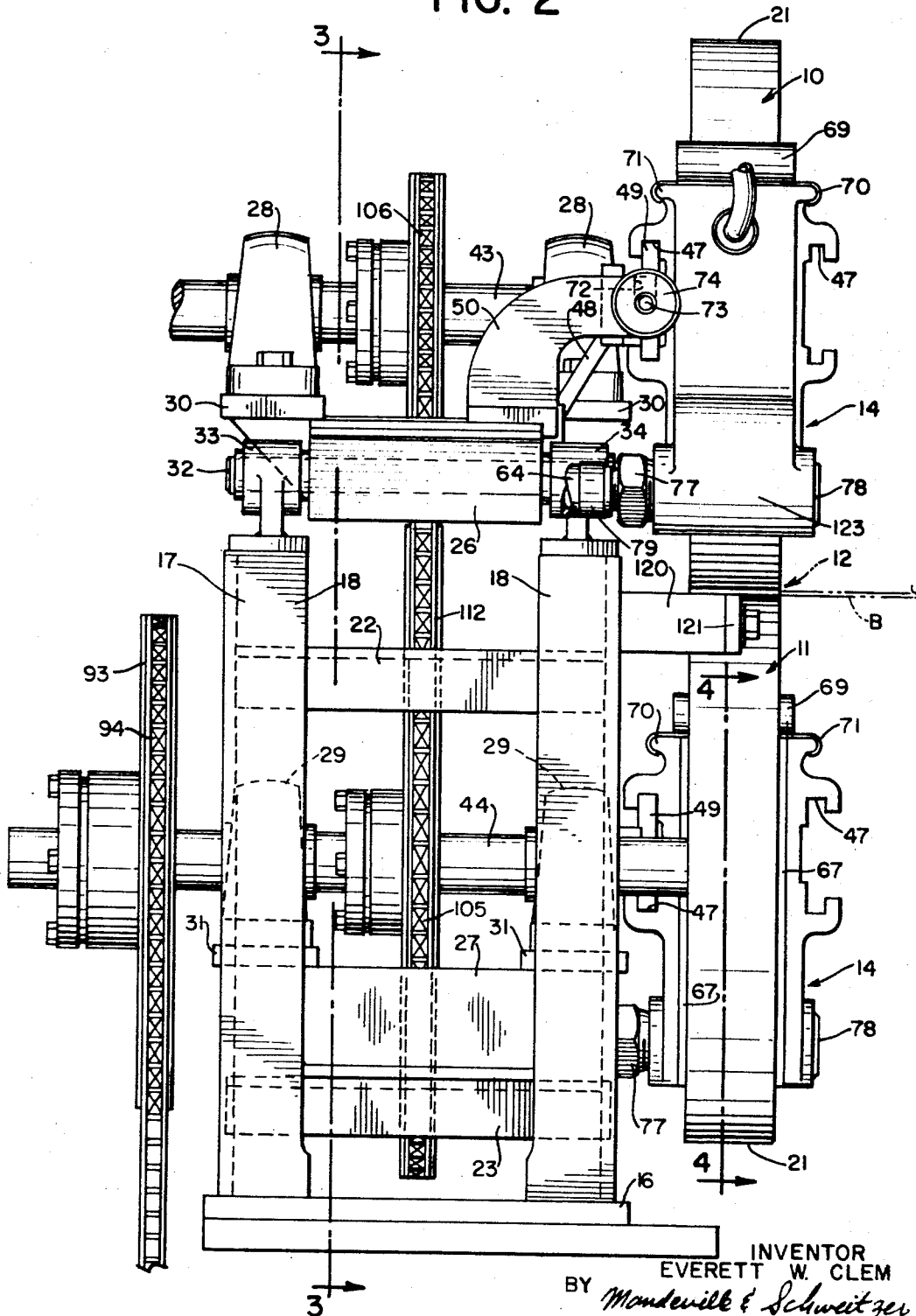
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FIG. 2



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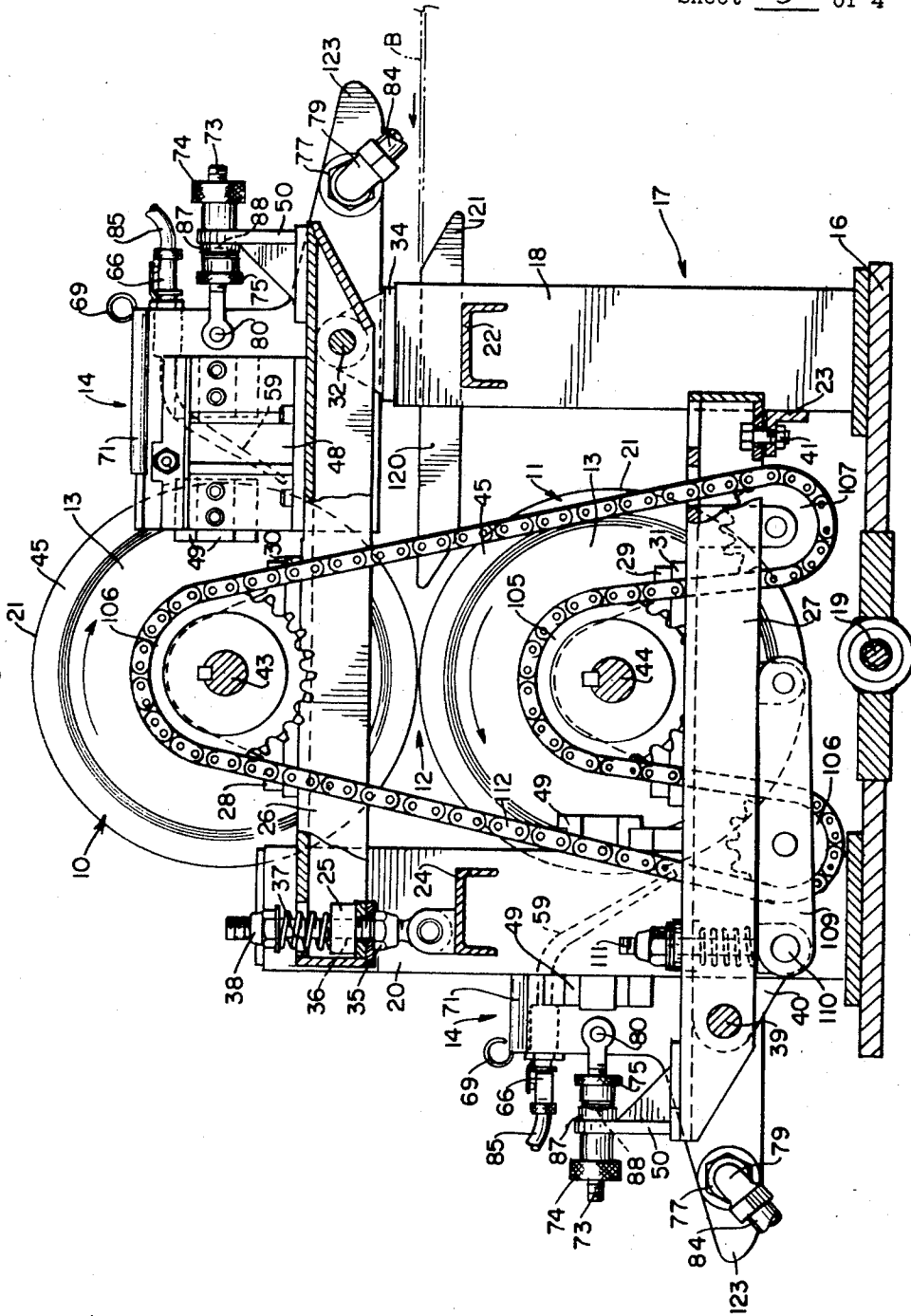
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FIG. 3



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FIG. 4

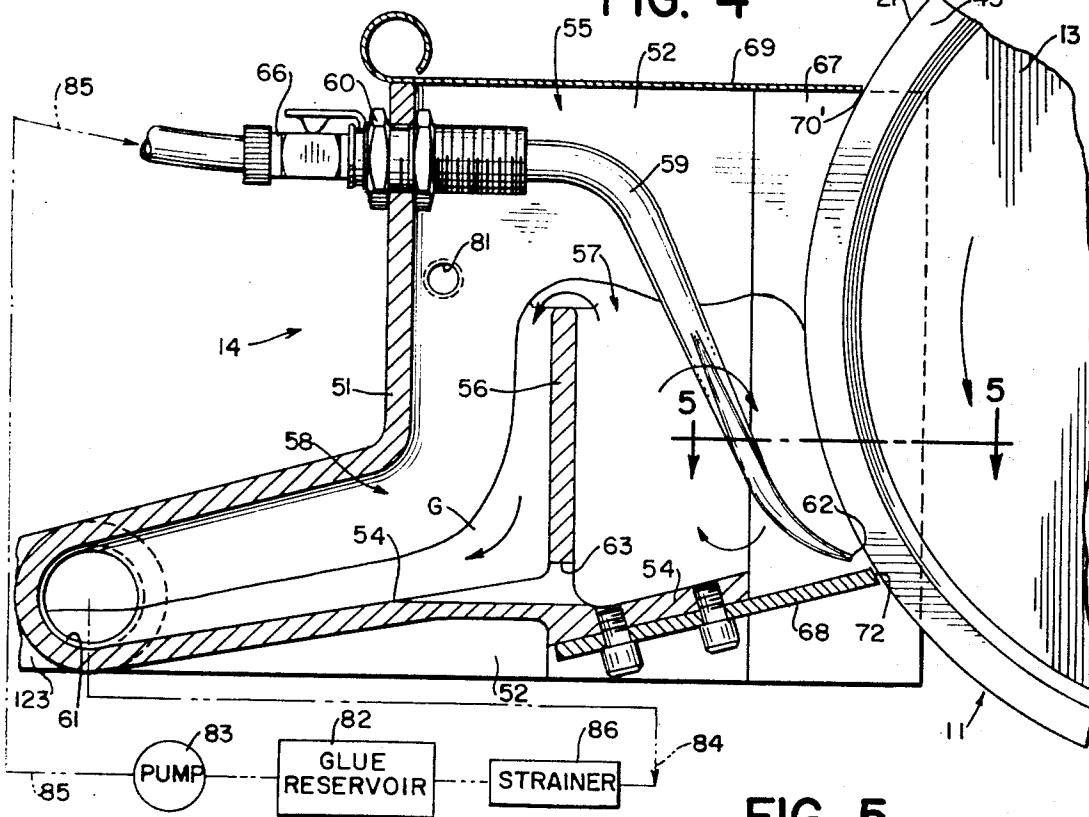


FIG. 5

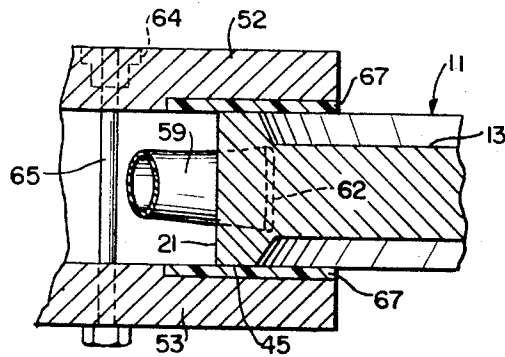


FIG. 6

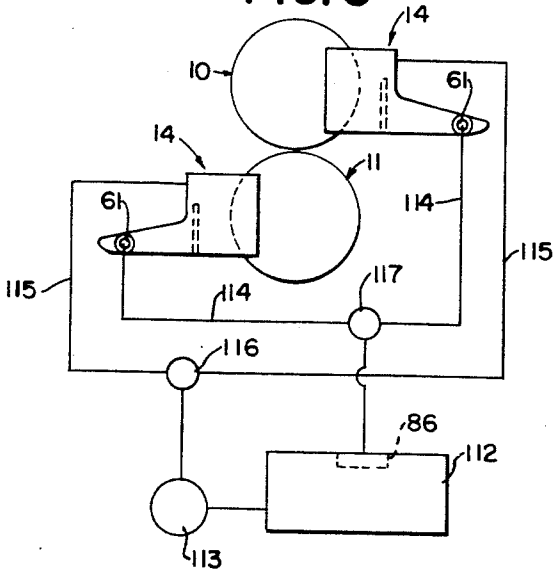
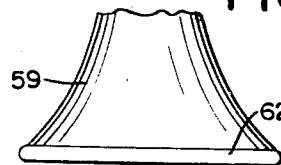


FIG. 7



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CARTON BLANK GLUING APPARATUS

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U.S. Cl. 118—221

20 Claims

ABSTRACT OF THE DISCLOSURE

A gluing apparatus for selectively applying glue to either or both sides of a carton blank is disclosed. The gluing apparatus includes a glue pot having dual chambers; one chamber functioning as a glue trough for dispensing glue to one or both processing wheels that form a nip through which the carton blank passes; the other chamber forming an overflow trough to remove excess glue from the applicator for recirculation.

The present invention relates to glue wheels of the type employed to apply a strip of viscous glue or adhesive to a cardboard or paperboard in the formation of boxes or folded carton tubes therefrom. More particularly, the invention relates to a gluing apparatus having extreme versatility or flexibility, that is, gluing apparatus which may be easily arranged to lay down single or selectively spaced parallel strips of relatively viscous adhesives to upper and/or lower surfaces of a sheet or blank transported therepast.

An important aspect of the present invention is the provision of a universal glue pot mechanism which may be speedily associated with or removed from processing wheels located at either side of as well as above and/or below the plane of carton blank advance is selected locations therealong.

To that end and as a more specific aspect of the present invention, a new and improved glue pot construction is provided which enables an in situ glue trough to be rapidly operatively associated with or disassociated from a blank engaging, driven processing wheel disposed at any selected location in the path of carton blank advance. For maximum mobility and flexibility, the in situ trough is extremely small and easily handleable and, as a further important aspect of the invention, the in situ trough forms an integral element in a recirculating glue system into which it may be instantly connected or from which it may be instantly removed by "quick-connecting" inlet and outlet piping couplings.

As a further important aspect of the invention, the in situ trough is adapted to engage peripheral portions of a processing wheel, which wheel is independently driven, to coat the wheel with glue as it rotates into contact with a blank. Specifically, the glue pot includes a flexible trailing blade defining a boundary of the trough. More specifically, the free edge or lip of the trailing blade is disposed immediately adjacent the wheel, and it acts to meter and to smooth the viscous glue applied to the processing wheel, as will be understood.

As further specific aspects of the invention, the side walls of the glue pot include wear plates which are adjustably, sealingly engageable in an embracing manner of the sides of the processing wheel, and the entire glue pot, itself, is selectively adjustable toward and away

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from the wheel periphery to establish different spacings of the metering lip of the blade from the wheel, thereby establishing lesser and greater metered rates of glue application. Once set in a desired metering position, the glue pot may be removed and reinstalled without further adjustment through the provision of a positive reinstallation stop thereon. Moreover, the association or disassociation of the glue pot with a processing wheel may be made while the latter is rotating.

A most important aspect of the present invention is the provision of a new and improved internal glue pot configuration which will maintain the adhesive therein under a constant head in order to achieve a uniformly thick deposition of adhesive film. The new and improved internal design of the pot includes a specially shaped glue nozzle which discharges below the weir and immediately adjacent the lip of the trailing blade. This arrangement provides gentle agitation of the viscous adhesive, which prohibits coagulation and prevents adhesive "curds" from accumulating at the metering outlet of the glue pot.

These and other aspects of the invention may be more fully understood from the following detailed description of the invention taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a fragmentary, end elevational view of processing wheels, glue pots, and the drive mechanism embodying the principles of the present invention;

FIG. 2 is an enlarged, end elevational view of the apparatus of the invention;

FIG. 3 is a cross-sectional view of the apparatus of FIG. 2 taken along line 3—3 thereof;

FIG. 4 is an enlarged, cross-sectional view of the new and improved glue pot apparatus;

FIG. 5 is a fragmentary cross-sectional view of the apparatus of FIG. 4 taken along line 5—5 thereof;

FIG. 6 is a schematic representation of a glue supply system for the upper and lower glue pots shown in FIG. 1; and

FIG. 7 is a fragmentary perspective view of the new glue nozzle.

The gluing apparatus of the invention may be incorporated with any available carton blank folding apparatus in which at least the portion of the blank which is to be coated with a uniform strip of adhesive glue film is conveyed in a substantially flattened condition along a predetermined path. A typical transport arrangement may include opposed transporting conveyor belts 8 and rollers 9 supported in a folding machine frame 7, as indicated in FIG. 1, and as described in more detail and claimed in the copending application of Everett W. Clem, Ser. No. 224,951, now U.S. Patent No. 3,270,628, for a "Universal Box Folding Machine."

With further reference to FIG. 1, a preferred embodiment of the new gluing apparatus includes two upper and two lower driven processing wheels 10, 11, respectively, of equal peripheral widths and diameters arranged in pairs definitive of nips 12 which are disposed in the longitudinal plane of advance, hereinafter referred to as the "working plane," of a carton blank B or the like to which it is desired to apply a strip or strips of glue coating. The term "glue" as used hereinafter is intended in its broadest sense to include any adhesive or potentially adhesive substance.

In accordance with the principles of the invention, a new and improved universal glue pot 14 may be fitted to any one or more of the processing wheels 10, 11 to

convert the selected wheel into a glue applicator and to form therewith an in situ glue trough. As shown in FIGS. 4 and 5, the faces of the wheels are recessed at central portions 13 thereof to prevent edges from being worn in the faces 45 of the applicator portions. The peripheral portions 21 of the wheels 10, 11 normally are smooth surfaces and thus apply a continuous line of glue film to the carton blanks; however, when desired, as will be understood, they may be provided with intaglio surfaces to apply a discontinuous glue film or a film having a predetermined pattern.

For the purposes of illustration and by way of example only, the upper and lower left-hand wheels 10, 11 have been shown as being converted into glue applicators by the association therewith of glue pots, while the right-hand wheels are shown as being unconverted, it being understood, of course, that only one or as many as all of the wheels may be similarly converted. It should be further understood that the gluing apparatus of the invention is generally symmetrical about a vertical axis as viewed endwise. Accordingly, in the following detailed description, reference to one side of the apparatus pertains equally to the other side.

As a further aspect of the invention, each of the wheels of a pair serves as a "backup" or pressure wheel for the other. Specifically, a "backup" wheel may be defined as one which supports the advancing blank on the opposite side and in the region of glue application. In normal gluing applications, glue is applied by one wheel only at any one time on a given side of the machine. Thus, where both wheels of a pair are fitted with individual glue pots, each may function either as a glue versal glue pots, each may function either as a glue pot) or as a backup element (when glue is absent from its associated glue pot) against which the oppositely disposed glue wheel may bear. Such an arrangement is shown in FIG. 1, where the upper processing wheel 10 serves as a backup element for the lower wheel 11 and vice versa, both wheels also alternatively functioning as glue applicators. In many applications, adhesive is applied only to the inside or only to the outside of a blank, in which applications only one glue pot is required. However, it is believed that the invention is best illustrated and understood by the arrangement shown in the drawings.

As shown in FIGS. 2 and 3, each of the wheel pairs 10, 11 is supported in a frame 17 (only the left-hand frame has been completely illustrated). To accommodate blanks of varying widths, the frame 17 is adjustable transversely of the working plane to a predetermined position by screw jack mechanism 19 which, when selectively rotated, will adjust the relation of the frames and the processing wheel pairs carried thereby. Specifically, each frame includes a base plate weldment 16 upon which pairs of front columns 18 and rear columns 20 are mounted. The front columns are braced by a channel member 22 and an angle 23 extending therebetween, while the rear columns are similarly braced by a channel member 24. Extending longitudinally between the front and rear column pairs and parallel with the path of blank advance are upper and lower box beams 26, 27, respectively.

As shown in FIG. 2, the box beams 26, 27 support pairs of upper and lower pillow blocks 28, 29 through brackets 30, 31, respectively, extending outwardly therefrom. Parallel upper and lower shafts 43, 44, the inner ends of which project over the working plane and mount the upper and lower processing wheels 10, 11, are supported for rotation in the pillow blocks 28, 29.

The upper box beam 26 is pivotally supported at its front end by a rod 32 extending therethrough and into bearing blocks 33, 34 mounted on top of the front columns 18. At its rear end, the upper box beam 26 is resiliently and adjustably supported on a stop nut 35 threaded to a pivotable bolt 36 which is mounted on the channel member 24. Thus the precise elevation of the

upper pillow blocks 28 (and the upper processing wheels) with respect to the working plane may be precisely set by adjustment of the stop nut 35. Advantageously, the rear end of the upper box beam is resiliently urged against the stop nut 35 by a spring-loaded clamping disk 25 rather than by another nut, for example, in order to prevent jamming of the blank in the nips defined by the processing wheel pairs. In this manner, the entire beam 26 may be pivoted upwardly about the axle and against the compression in the spring 37, which may be adjusted by tightening or loosening the compression nut 38.

The lower box beam 27 is mounted in a generally similar manner to that of the upper box beam 26, with the exception that the lower box beam 27 is fixedly rather than non-resiliently mounted. Thus the beam 27 is supported at its rear end by a rod 39 extending there-through, which rod is itself supported in plates 40 extending from the rear columns 20. The front end of the lower beam 27 is secured to the transverse angle 23 extending between the front columns 18 by a bolt 41. As will be appreciated, during the installation the lower frame may be pivoted about the rod 39 to establish its precise position before it is fixed in its established position.

As an important aspect of the invention, a glue strip or film of predetermined uniform thickness may be applied to either or both lateral edges of an advancing blank on the top and/or bottom surfaces thereof, merely by converting selected ones of the pairs of processing wheels 10, 11 to glue applicators by associating a glue pot therewith. To that end, the frame 17 includes keylike elements or rails 49 and reference arms 50 adjacent each wheel in positions in which the wheels rotate downwardly past the rails 49. As will be understood, the rails 49 and arms 50 are adapted to support a glue pot in glue applying association with the wheels 10, 11. Advantageously, the reference arms for both the upper and lower processing wheels are mounted directly to the upper and lower beams 26, 27. The rails for the upper wheels 10 are mounted on the upper beam 26 through brackets 48, while the rails for the lower wheels 11 are mounted directly to the innermost rear columns 20.

As shown best in FIG. 4, the new and improved glue pots 14, which may advantageously be of a cast aluminum housing, each include an end wall 51, side walls 52, 53, and a bottom wall 54 generally definitive of a single internal chamber 55 which is divided by a transverse weir 56 into an open mouthed, in situ trough forming portion 57 and a sloped overflow channel 58. In accordance with the principles of the invention, the weir 56 maintains the adhesive in the in situ trough under a constant head, thereby ensuring uniformity of adhesive application. As shown, the overflow channel 58 at its lowermost point includes a threaded discharge outlet 61 through which glue G may be withdrawn from the glue pot.

The top of the glue pot 14 is closed off by a splash plate 69 formed of appropriate sheet metal and having curved ears 70 which are slidable onto beaded portions 71 of the side walls 52, 53. As an important specific aspect of the invention, the free edge 70 of the splash plate is located adjacent the wheels (approximately .004 inch) and acts as a doctor blade to scrape off any portions of a carton blank which may have become detached therefrom and then adhered to the wheel during the gluing. More specifically, in the formation of a carton blank, a die cut slot portion, for example, may not have been properly stripped from the blank. When such portions engage the tacky glue wheel, it tends to strip them from the blank and carry them around toward the glue pot. As will be understood, the splash plate edges 70 prevent these blank portions from entering the glue pot and interfering with its operation.

The leading edges of the glue pot side walls 52, 53 are lined with wear plate elements 67 which closely and sealingly embrace the rotating processing wheels with which

they are associated, as shown in FIGS. 4 and 5. Precise positioning of the opposed wear plate elements 67 is effected by an adjustable take-up rod 65 threaded into a recessed nut 64. The bottom wall 54 of the glue pot casting terminates short of the processing wheel periphery and in abutment with each of the resilient wear plate elements 67.

In accordance with the invention, the gap between the wheel and the bottom of the glue pot housing is substantially narrowed by a micarta trailing blade 68 which is screwed to the bottom wall 54 of the glue pot so that it is canted in the direction of rotation of the processing wheel at an angle of approximately 15° with the horizontal. As will be understood, the precise spacing of the lip 72 of trailing blade edge and the applicator wheel, e.g., .002 inch to .006 inch gap, determines the rate at which the glue G is metered on to the surface of the applicator wheel and then on to an advancing blank B.

A new and improved glue nozzle 59, which includes a "quick-connect" coupling fixture 60 at its input end, is mounted at upper end wall portions of the glue pot. In accordance with the invention, the nozzle has a flattened and elongated mouth 62 (FIG. 7) which is generally parallel with and discharges immediately adjacent the metering lip 72 of the trailing blade. This arrangement creates a predetermined turbulence adjacent the metering lip 72 and tends to maintain the lip in a clean and uncontaminated condition.

As an important aspect of the invention, the universal glue pot is an element in a closed, glue circulation system (FIG. 4) in which the glue in the in situ trough is maintained at a substantially constant level. In accordance with the inventive principles, the closed circulating glue system includes a relatively large glue reservoir 82, advantageously a fifty gallon drum of glue typically having a viscosity of approximately 1000-1500 c.p.s. and a solids content of approximately 38-56%, a circulating pump 83, and appropriate flexible outlet and inlet conduits 84, 85, respectively, coupling the discharge outlet 61 with the drum 62, and the inlet spout 59 with the drum through the interposed pump 83. In order to remove paper dust, fiber, or curd from the recirculating adhesive, a strainer 86 is interposed in each of the outlet conduits 64. The inlet conduit is provided with a self-sealing quick-connect coupling 66 which is matable with the coupling fixture 60 at the upper end of the spout 59.

The aforementioned discharge outlets 61 in each of the side walls 52, 53 include threaded quick-connect coupling 77 on which ever side of the glue pot housing is most accessible to the machine operator, i.e., the outside wall, in order to facilitate the establishment of the circulating glue system and to enhance the universality of the glue pot. Accordingly, in a given application the inwardly facing, unused outlet of a glue pot will be plugged with a suitable threaded plug 78. More specifically and as shown in FIG. 3, each of the discharge conduits 64 is fitted with a "quick-connect" coupling 79 which is matable with the coupling 77.

In certain applications it may be desirable to switch quickly and virtually instantaneously from "inside" to "outside" gluing (with respect to the carton surfaces) without having to make and break the aforementioned "quick-connect" couplings. To that end, the glue circulating system shown in FIG. 6 may be employed with a two glue pot arrangement, such as shown in FIG. 1, for example. With this system, inlet lines 115 for the upper glue pot and the lower glue pot are linked to a pump 113 through a three-way valve 116. Similarly, return lines 114 for each of the upper and lower glue pots are connected to the glue reservoir 112 through another three-way valve 117. As will be understood, by selectively adjusting both of the three-way valves, the upper and lower pots may be alternatively employed without disconnecting any of the inlet and outlet conduits.

In accordance with the present invention, each glue

pot 14 may be used in association with an upper or lower processing wheel at either side of the working plane. To that end and as shown in FIG. 2, the glue pot 14 is of relatively small overall dimensions in comparison with the diameter of the wheels 10, 11, and it includes integral, identical keyways 47 on each of its side walls 52, 53 which may be supported on any one of the longitudinally extending keylike rails 49 mounted on the frame 17 adjacent the upper and lower processing wheels.

More specifically, each of the glue pots may be mounted in association with a selected processing wheel by sliding the keyway 47 over a rail 49 and lockingly clamping the glue pot to the reference arm 50. To that end, and in order to precisely adjust the horizontally spaced relationship of the trailing blade 68 to the peripheral surface of the processing wheel, each glue pot includes a pivotable, threaded locking bolt 73 carrying a lock nut 74 and an adjustable "Nylock" type stop nut 75 having spherical surfaces 88 formed thereon. A threaded mounting pin 80 for the swinging bolt 73 is fastenable to whichever side wall of the glue pot faces outwardly, tapped holes 81 being provided in each wall for that purpose. As shown, the bolt 73 may be swung into a notch 76 formed on the reference arm 50, and the lock nut 74 may be tightened down to draw the glue pot 14 thereto until the rounded surfaces 88 of the stop nut 75 are firmly seated in a mating seat 87 mounted on the reference arm 50. Tightening of the lock nut 74 will clamp the glue pot to the reference arm in the desired metering position.

As will be understood, by adjustment of the Nylock stop nut toward or away from the processing wheel, the spacing of the trailing blade may be precisely varied. However, once the desired position of stop nut 75 is established, the glue pot may be removed and reinstalled without further adjustment merely by loosening and tightening the lock nut 74. Often warped blanks must be handled by the apparatus of the invention. Accordingly, a carton blank guiding element 120 is supported by the frame 17. The nose 121 of the guide 120 deflects all "down curled" blanks into the nip 12 while its lateral edges 122 provide support for the blanks as they enter the nip (FIG. 3). In a similar manner, guide ribs 123, formed on the glue pots 14, deflect "up curled" blanks into the nip 12.

In normal operation, the processing wheels 10, 11 are driven substantially synchronously with the speed of the transport belts 8. Advantageously, power input for the wheels may be derived from the main drive shaft 90 of the folding machine with which the gluing apparatus is used. Alternatively, when the folding machine is not in operation, the processing wheels may be rotated at a very low speed through an auxiliary or a so-called "Sunday drive" motor 91, to prevent any freezing of the glue wheels in the troughs 57.

The power derived from the main shaft 90 is transmitted to the lower processing wheels 11, through an auxiliary drive shaft 92 disposed in parallel relation with the shafts 44, and directly connected thereto by drive chains 93 passed over sprocket wheels 94, 95 mounted on the shafts 92, 44, respectively. The auxiliary drive shaft 92 derives its input from an intermediate shaft 96 through a drive chain 97 trained about sprocket wheels 98, 99. Jaw couplings 125 may be employed in the power trains to each of the processing wheels so that the ones not being operated may be disengaged to prevent undue wear. Moreover, when desired, the wheels on both sides of the folding machine could be disconnected.

As shown in FIG. 1, there are separate inputs to the intermediate shaft 96, i.e., the input through a drive chain 100 from the main drive shaft 90 of the folding machine 7 to a small sprocket wheel 101 and a "Sunday drive" input from the motor 91 to a large sprocket wheel 102 through a drive chain 103. An appropriate overrunning clutch mechanism (not shown) is included to accom-

moderate the different inputs to the intermediate shaft 96. As should be understood, the input from the main shaft is employed to operate the processing wheels 10, 11 at speeds synchronous with the speed of the folding machine 7 (the speed of the belts 8), while the input from the Sunday drive motor 91 is used to operate the processing wheels at extremely low speeds on occasions when the folding machine is not in operation in order to prevent freezing of the same in the glue pots.

As shown in FIG. 3, the lower processing wheel shaft 44 includes a sprocket wheel 105 which is in common plane with a sprocket wheel 106 mounted on the shaft 43 for the upper processing wheel. A fixed idler sprocket wheel 107 is mounted on the lower beam 27 to one side of the sprocket wheel 105 and an adjustable idler sprocket wheel 108 is mounted for limited, resilient pivotal movement on the other side of the sprocket wheel 105. More specifically, the adjustable sprocket is mounted on a lever 109, one end of which is pivoted about a rod 110 supported beneath the beam 27, the other end of which is supported by a spring-loaded pivotable bolt 111, the tightening of which will adjust the relationship of the adjustable idler sprocket to the transmission idler sprocket, as found necessary, to tension a chain 112 trained thereabout. Thus driving of the upper wheel is effected through the chain 112 which courses over the sprocket wheels 105, 106 and under the idler sprockets 107, 108. As will be understood, this drive arrangement effects a reversal of the direction of the rotation of the lower processing wheel with respect to the upper processing wheel which, as shown, rotate clockwise and counterclockwise, respectively, and accommodates limited deflections of the upper wheels carried by the upper beams 26.

The setup and operation of the new gluing apparatus for any size carton blank are extremely simple. The nips 12 defined by the processing wheels are located transversely of the working plane to a predetermined position through the adjusting jacks 19. The spaced relation of the upper and lower processing wheels may then be precisely adjusted through the stop nuts 35 for the specific caliper of the blanks being glued.

Thereafter, glue pots 14 may be associated with those wheels which are to be converted into glue applicators by sliding them over the rails 49 after having placed the quick-connect coupling 77 and the swinging bolt 73 on the outside wall of the glue pot housing. Locking and precise adjustment of the relationship of the metering blade 68 with the processing wheels is effected through the stop nut 75 and reference arm 50, as described in detail hereinabove.

Completion of the setup is accomplished by incorporating the glue pot into the circulating glue system by snapping the inlet and outlet quick-connect couplings into operative association with the appropriate flexible conduits 85, 84. At this stage, the gluing apparatus is completely set up, and start of the pump 83 and the processing wheel drive will place it in operation. Due to their accessibility, fine adjustment of the glue pot locking mechanism 73 and of the upper beam adjusting mechanism 35, 36 may be easily made after start up, as found necessary or desirable.

As an important aspect of the invention and as should be appreciated, the pivoted resilient mountings of the upper beams which carry the upper processing wheels, accommodate displacements thereof which prevent jamming of a blank or blanks in the nips 12.

As a further important aspect of the invention, cleaning, maintenance, and rearrangement of the glue pots is highly simplified. Thus, when it is desired to remove a glue pot from association with a processing wheel, the internal chamber may be quickly drained of glue through the discharge outlet 61. As shown, the weir 56 includes a small drain 63 which is of a predetermined limited size which does not interfere with glue circulation while the apparatus is in operation and which accommodates drain-

ing of the trough 57 when the glue pot is to be removed for cleaning, rearrangement, etc. Advantageously, and as indicated in FIG. 4, the design of the glue pot is such that glue in trough portions 57 of the closed circulating system is continually mixed by eddying, ensuring uniformity of the applied glue strips.

Thus it will be appreciated that the gluing apparatus of the invention is extremely flexible, any one of its processing wheels, whether above, below, or on either side of the working plane, being readily convertible to a glue applicator upon being associated with a universal glue pot. Moreover, rearrangement and setup of the apparatus to handle any size carton blank may be accomplished with minimum effort and time consumption due to the new and improved construction of the apparatus and arrangement of its elements.

It should be understood that the specific gluing apparatus herein illustrated and described is intended to be representative only, as certain changes may be made therein without departing from the clear teachings of the disclosure. For example, alternate driving arrangements or glue supplying and recirculating systems may be employed when found desirable or necessary. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

What is claimed is:

1. A gluing apparatus comprising

- (a) an annular glue applicator;
- (b) means mounting said applicator for rotation about a fixed axis;
- (c) glue pot housing means generally including end, bottom, and side walls;
- (d) inner surfaces of said side walls defining an open mouth having a width substantially equal to the width of said annular glue applicator;
- (e) first mounting means on each of the outer surfaces of said side walls;
- (f) a blade projecting from the free edge of said bottom wall and into predetermined relation with the periphery of said applicator, thereby forming a glue outlet lip;
- (g) second mounting means cooperating with one of said first mounting means to support said glue pot generally adjacent to said applicator with said mouth embracing peripheral portions thereof in a manner whereby said peripheral portions and said housing combine to define an internal chamber; and
- (h) weir means disposed between said side walls and dividing said internal chamber into trough-forming portions and overflow channel portions.

2. Gluing apparatus in accordance with claim 1, in which

- (a) said first mounting means are identical keyways;
- (b) said second mounting means include generally longitudinally extending rails;
- (c) said glue pot housing means being slidable along said rails into predetermined relationship with said applicators.

3. Gluing apparatus in accordance with claim 2, in which

- (a) reference element means are mounted adjacent said rails;
- (b) said means for adjusting the relationship between said housing and peripheral portions of said applicator includes a locking bolt pivotally secured to said housing;
- (c) said locking bolt being lockingly engageable with said reference element.

4. Gluing apparatus in accordance with claim 3, in which

- (a) said glue pot housing means includes outlet orifice means in each of its side walls;
- (b) plug means are included in one of said outlet orifices;

- (c) means adapted to mount said locking bolt are included in each of said side walls.
5. Gluing apparatus in accordance with claim 4, in which
- (a) an inlet means is included in said wall of said housing;
 - (b) quick-connecting means are included with said inlet means and in one of said outlet orifices.
6. Gluing apparatus in accordance with claim 1, in which
- (a) an annular backup element is mounted in nip forming relation with said glue applicator;
 - (b) one of said backup element and said glue applicator being resiliently mounted for limited displacement with respect to the other.
7. The gluing apparatus of claim 1, further including
- (a) means for adjusting the relationship between said housing and said peripheral portions of said applicator to provide a metering outlet between said trough and said peripheral portions.
8. The gluing apparatus of claim 1, further including
- (a) glue supply means having a discharge opening adjacent said glue outlet lip.
9. A universal glue pot comprising
- (a) a housing having contiguous side walls, an end wall, and a bottom wall definitive of an internal chamber open at one end and at its top;
 - (b) mounting means included on the external surfaces of each of said side walls;
 - (c) adjustable locking means included on the external surfaces of said end wall;
 - (d) flexible blade means in the plane of and forming an extension of said bottom wall;
 - (e) a glue inlet orifice formed in an upper portion of said end wall; and
 - (f) glue outlet orifices formed in lower portions of each of said side walls;
 - (g) a weir extending between said side walls and dividing said internal chamber into trough-forming portions and overflow channel portions; and
 - (h) drain orifice means defined in the lowermost portions of said weir.
10. A glue pot in accordance with claim 9, in which
- (a) quick-connect coupling means are included in said inlet orifice and one of said outlet orifices;
 - (b) a plug means is included in said other outlet orifice.
11. A glue pot in accordance with claim 9, in which
- (a) said mounting means are identical guide elements;
 - (b) said locking means is a bolt;
 - (c) means adapted to mount said bolt are included in each of said side walls.
12. Gluing apparatus, including
- (a) a pair of processing wheels definitive of a processing nip through which a carton blank to be glued is transported by transport means;
 - (b) universal mounting means disposed adjacent to each processing wheel;
 - (c) a universal gluepot including means cooperable with said mounting means to support said glue pot in predetermined operative association with any one of said processing wheels.
13. Gluing apparatus in accordance with claim 12, in which
- (a) each of said processing wheels definitive of said nip has a universal glue pot associated therewith.
14. The gluing apparatus of claim 13, further including
- (a) an external glue reservoir;
 - (b) conduit means interconnecting said external glue reservoir with said glue pots;
 - (c) valving means disposed in said conduit means to selectively direct glue from said external glue reservoir to either one or both of said glue pots;
 - (d) pump means disposed to circulate the glue through the conduit system.
15. Gluing apparatus in accordance with claim 12, in which
- (a) said processing wheels are positively driven at adjustable speeds independently of the blank transport means.
16. Gluing apparatus in accordance with claim 12, in which
- (a) independent supporting means mount each of said processing wheels definitive of said nip;
 - (b) spring means accommodate limited displacement of one of said supporting means with respect to the other.
17. Gluing apparatus comprising
- (a) a frame means including vertically spaced, generally parallel beam members;
 - (b) processing wheels carried by shafts mounted on each of said beam members;
 - (c) said processing wheels being definitive of a processing nip;
 - (d) resilient mounting means accommodating limited displacement of one of said beam members with respect to the other;
 - (e) first sprocket wheels carried by each of said shafts;
 - (f) idler sprocket wheels carried by said frame and generally straddling one of said first sprocket wheels;
 - (g) resilient mounting means associated with one of said idler sprocket wheels to accommodate limited displacements thereof;
 - (h) continuous drive chain means trained about said sprocket wheels in a manner whereby rotation of one of said first sprocket wheels in one direction will effect rotation of the other first sprocket in the opposite direction;
 - (i) glue pot mounting means carried by said frame adjacent each of said processing wheels and on opposite sides of said nip;
 - (j) universal glue pot means mounted on said glue pot mounting means and with at least one of said processing wheels to convert it to a glue applicator.
18. The gluing apparatus of claim 17 in which said drive means comprises
- (a) first sprocket wheels carried by each of said shafts;
 - (b) idler sprocket wheels carried by said frame and generally straddling one of said first sprocket wheels;
 - (c) resilient mounting means associated with one of said idler sprocket wheels to accommodate limited displacements thereof;
 - (d) continuous drive chain means trained about said sprocket wheels in a manner whereby rotation of one of said first sprocket wheels in one direction will effect rotation of the other first sprocket in the opposite direction.
19. A gluing apparatus comprising
- (a) an annular glue applicator;
 - (b) means mounting said applicator for rotation about a fixed axis;
 - (c) glue pot housing means generally including end, bottom, and side walls;
 - (d) inner surfaces of said side walls defining an open mouth having a width substantially equal to the width of said annular glue applicator;
 - (e) a blade projecting from the free edge of said bottom wall and into predetermined relation with the periphery of said applicator;
 - (f) mounting means cooperating with housing means to support said glue pot housing means generally adjacent to said applicator with said mouth embracing peripheral portions thereof in a manner whereby said peripheral portions and said housing combine to define an internal chamber;
 - (g) weir means extending between said side walls and dividing said internal chamber into trough-forming portions and overflow channel portions;
 - (h) means for adjusting the relationship between said

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housing means and said peripheral portions of said applicator to provide a metering outlet between said trough-forming and said peripheral applicator portions; and

(i) glue nozzle means having a discharge portion disposed adjacent said metering outlet.

20. The gluing apparatus of claim 19, in which

(a) said nozzle means includes upper tubular portions supported by said rear wall, and lower flattened, diverging mouth portions.

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118—249, 259, 602

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,447,508 Dated June 3, 1969

Inventor(s) Everett W. Clem

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 36, "catron" should read --carton--.
Column 1, line 36, "is" should read --in--. Column 3, delete line 32, "dividual glue pots, each may function either as a glue". Column 3, after line 33, insert --applicator (when glue is present in its associated glue--. Column 3, line 35, "accociated" should read --associated--. Column 4, line 57, "fromed" should read --formed--. Column 5, line 17, "appliciator" should read --applicator--. Column 5, line 34, "relativley" should read --relatively--. Column 6, line 25, "tighened" should read --tightened--.

SIGNED AND
SEALED
AUG 4 - 1970

(SEAL)

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