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Johnson

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[54] **CARTON DATING APPARATUS**

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[73] Assignee: **Cedar Sales Company,** Cincinnati, Ohio

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[21] Appl. No.: **405,909**

[52] **U.S. Cl.** ..... **53/131,** 93/36 R, 101/11

[51] **Int. Cl.** **B65b 61/02**

[58] **Field of Search** ..... 93/44.1 GT, 44.1 R, 36 R; 53/131, 39, 373, 375, 285; 101/11, 27, 9, 32, 44; 219/216; 81/9.1

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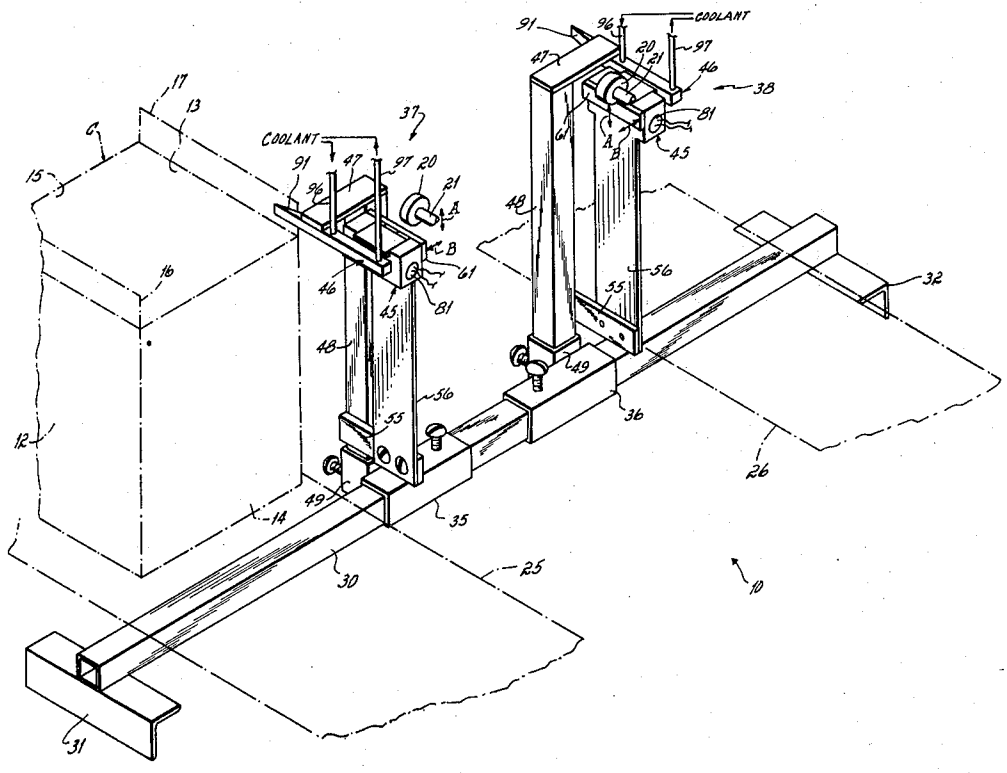
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Primary Examiner—Roy Lake
Assistant Examiner—James F. Coan
Attorney, Agent, or Firm—Wood, Herron & Evans

[57] **ABSTRACT**

Carton dating apparatus, for use in a carton filling and sealing apparatus, includes an anvil and a heated dater block having dies with raised numerals aligned with and spaced from the anvil. The anvil and dater block require no drive mechanism or carton handling devices of their own but rather are movable with respect to each other to brand a date into a carton panel in response to movement of an otherwise unassociated carton treating element, of the filling and sealing apparatus, spaced from the dater. The dater block is mounted on a leaf spring and a cam mounted on the carton treating element engages the dater block to move it against the anvil, when the treating element moves, and thereby brand date indicia into the carton panel between the anvil and dater block.

41 Claims, 4 Drawing Figures



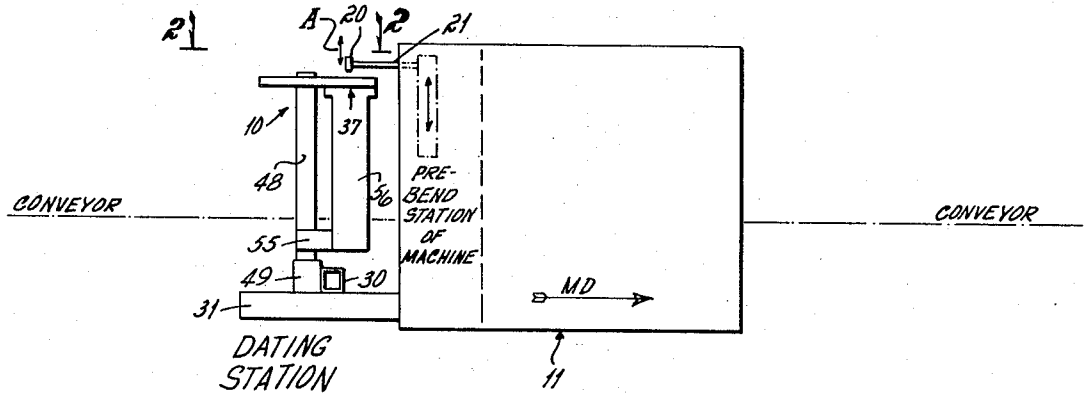


Fig. 1

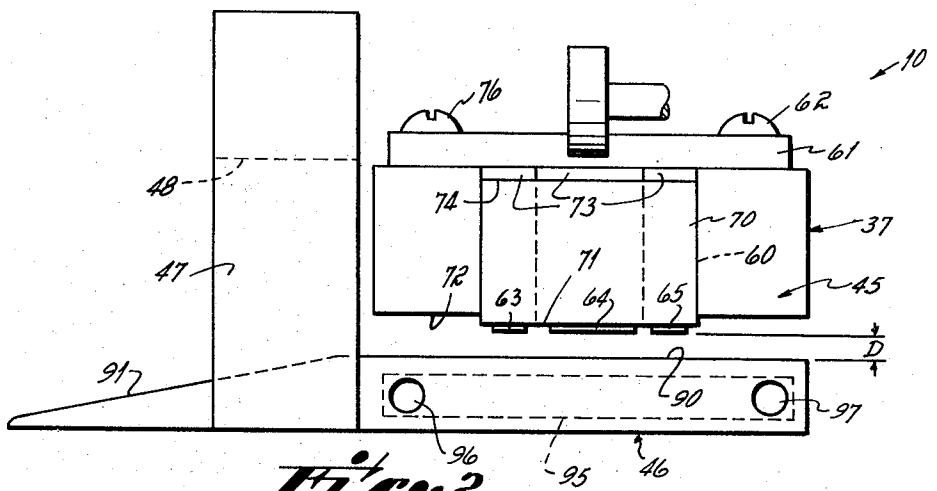


Fig. 2

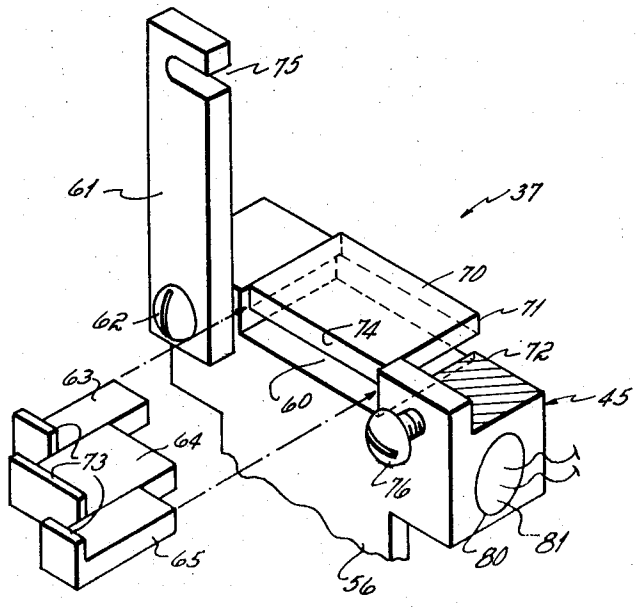


Fig. 4

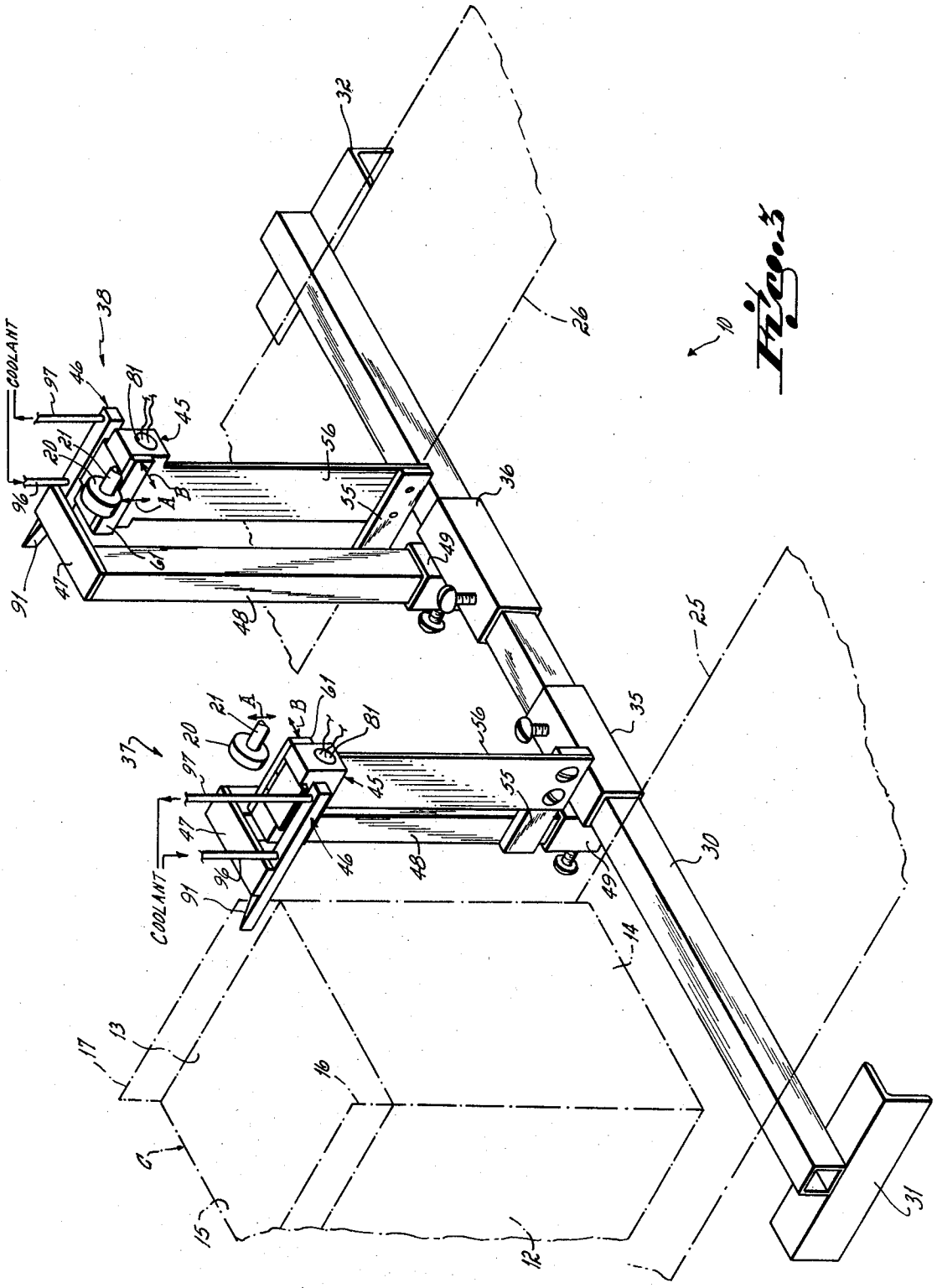

10
32
26
38
COOLANT
97
46
81
45
20
21
A
B
96
56
55
36
61
49
91
47
48
25
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35
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COOLANT
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Fig. 3

CARTON DATING APPARATUS

This invention relates to container marking apparatus and more particularly to apparatus for applying dates, by branding, to cartons containing perishable goods such as milk. Reference is herewith made to the U.S. Patent Application of John A. Johnson, Serial No. 422,886, filed December 7, 1973, and entitled "Container Brander Apparatus."

In the milk packing industry, it is becoming increasingly mandatory in many localities to apply visible data indicia to milk containers in order to indicate the date on which the milk was purchased and thereby aid the consumer in choosing fresh milk and the retailer in eliminating old and perhaps soured milk from his shelves. Since milk is normally packaged by a large number of independent dairies, it is common for each dairy to apply the packaging date to the milk cartons at the time the milk is packaged by the dairy.

With respect to the currently typically polyethylene coated paperboard milk cartons, the actual carton dating has been accomplished in primarily three different modes: inking, stamping or embossing, and branding. Where the inking technique, whether wet or dry, is used, the dater must always be provided with a supply of ink fluid, inked tapes or the like and thus requires fairly frequent attention during operation. The stamping or embossing technique requires no such consumable supply but the stamped or embossed date is not highly visible and does not meet the visibility regulations of some areas. Unlike these, the branding mode requires no ink or ink tape supply and is highly visible as contrasted with the embossing technique due to the partial burning of other polyethylene and of the paperboard. The branding mode would thus seem to be at least technically preferred and is in the preferred dating mode contemplated by the present invention, although the invention could be adapted for use within the other modes as well.

There are currently a number of different types of carton filling and sealing apparatus commercially available for packaging milk in such cartons; some include a dating capability and others, as originally manufactured, do not. Where the filling and sealing apparatus of a particular dairy does not have the dating capability, it is necessary for a dairy to purchase auxiliary machinery to perform a desired dating function.

Whether a dairy's filling and sealing apparatus incorporates a dater, or whether a dairy utilizes an auxiliary dater in association with a separately made filler and sealer, there are a number of problems which exist with either type of dating unit. Whether inking, embossing, or branding, current daters generally include engagement of the carton by a reciprocating member which applies the date to the carton. These daters thus normally require a plurality of moving parts and a driving mechanism for providing the required movement toward and away from cartons to be dated. In many cases, these mechanisms are timed with various movements of the associated filling and sealing apparatus and some form of timing mechanism is required. Even further, some daters must have their own carton handling apparatus for properly indexing the cartons to and away from the dating station

Thus, in both cases, the present commercial daters are normally complex units having a multiplicity of moving parts required to make them operate in a specified timed relationship with the filler and sealer with which they are associated. They are, therefore, expensive in themselves or add substantially to the cost of filling and sealing apparatus with which they are provided. Additionally, the units require supervision and maintenance, and downtime for repair results in concurrent downtime for the associated filler and sealer.

When a particular locality adopts a milk carton dating regulation, affected dairies having filling and sealing apparatus with no dating capability face the problem of purchasing daters to conform to the regulations. In addition, it is desirable, from a practical marketing standpoint, for the manufacturer of new filling and sealing apparatus to provide a dating capability to such apparatus as will be sold in areas having dating regulations. In both instances, it is highly desirable to keep initial cost down and to eliminate or reduce other cost factors such as maintenance.

It has thus been a primary objective of the invention to provide improved dating apparatus for applying dates to milk containers.

A further objective of the invention has been to provide improved apparatus for branding dates into polyethylene coated paperboard milk cartons.

A further objective of the invention has been to provide an economical dater made from a minimum number of moving parts and which can be very easily adapted and applied to existing carton filling and sealing apparatus.

A further objective of the invention has been to provide an economically manufactured carton dater having a minimum number of parts so as to reduce both initial capital cost and maintenance time and cost.

A further objective of the invention has been to provide an improved dater which can easily be adapted for use with existing carton filling and sealing apparatus and which requires no independent driving mechanism of its own.

A related and more specific yet highly important objective of the invention has been to provide a carton dater for use with existing carton filling and sealing apparatus, the dater having a minimum number of moving parts with no independent driving mechanism of its own but rather deriving its operating movements from the motion of other moving elements at spaced stations within the filling and sealing apparatus.

A further objective of the invention has been to provide a carton dater particularly adapted for use with milk carton filling and sealing apparatus of the type manufactured by the Cherry-Burrell Corporation under its model numbers Q-80 and H-75. A related objective of the invention has been to provide a carton dater, for the Cherry-Burrell filling and sealing apparatus, wherein the dater derives its operational motion from the normal reciprocation of the carton top breaker of the apparatus.

A further objective of the invention has been to provide a carton dater for milk carton filling and sealing apparatus, the dater being disposed to apply a branded date to a carton panel prior to filling and sealing the carton.

In a preferred embodiment, the present invention includes a carton dater with two dater units for dating cartons in two respective carton lines of a carton filling and sealing apparatus. Each dater unit has a spaced apart anvil and a dater block containing date stamping dies. The anvil and the block are mounted for relative movement toward and away from each other and the blocks are heated so that a date can be branded into a carton panel conveyed therebetween. The dater has no

independent driving mechanism but rather derives the relative movement between each block and the anvil from a normally reciprocating, and otherwise unassociated, element of the filling and sealing apparatus with which the dater unit is utilized.

Specifically, the filling and sealing apparatus includes a pre-bending or top breaker station downstream of the carton dater. The top breaker of this station serves to pre-bend the top portion of downstream cartons in one stage of the carton end closure forming procedure and normally reciprocates vertically toward and away from the tops of the cartons conveyed to a position beneath the breaker. A cam element is attached to a portion of the reciprocating top breaker apparatus and is disposed to engage the movable dater block of the dating unit when the top breaker moves downwardly. This forces the dater block against the anvil and the dater thereby applies the date to a carton panel between the dater block and the anvil.

As conveyed toward the dater, the cartons are in a tubular form having a rectangular shape, opposite sides of each carton having panels which extend above forward and rearward sides of the carton so that at least one of the panels is receivable between a respective dater block and associated anvil. The dater and top breaker are located at adjacent positions and are spaced apart so that when cartons are in position with respect to the top breaker, other upstream cartons are positioned at the dater. When the top breaker of the filling and sealing apparatus is lowered to engage cartons at the pre-bend station, respective cam surfaces attached to an element of the top breaker engage the movable dater blocks and urge them toward their associated anvil so as to apply a date to the upstanding carton panel therebetween. When the top breaker apparatus is raised, the cam surfaces disengage from the dater blocks and the cartons are released from the dating station and are thereafter conveyed downstream toward the pre-bending station for pre-bending while another set of cartons is simultaneously conveyed to the dater.

The preferred embodimemt of the dater invention is very easily adapted to carton filling and sealing apparatus manufactured by the Cherry-Burrell Corporation under its model numbers Q-80 and H-75. To this end, the dater includes an elongated mounting member attached at its ends to portions of the Cherry-Burrell apparatus. Slidable collars are mounted on the elongated member and serve to mount the movable dater blocks and the anvils. Each anvil is attached via an elongated post to a slidable collar and each dater block is mounted in alignment with a corresponding anvil or an upper end of a leaf spring, the lower end of which is attached via a bracket to the lower end of the post mounting the anvil.

The elongated mounting member is positioned beneath the double conveyor of the Cherry-Burrell apparatus and the anvils amd dater blocks extend above the conveyors to an area in proximity to the top portion of cartons which are conveyed past the dater. The daters are adjusted along the elongated members so that the normal space between the anvil and dater block is an aligned position with respect to an upstanding carton panel. In addition, the anvil includes a tapered guide surface which serves to guide the upstanding carton panel between the anvil and the dater block.

The invention thus provides an economical dater having a mininum number of parts and deriving its operational motion from a normal movement of otherwise unassociated elements of the filling and sealing apparatus with which the dater is used. Although described in a preferred embodiment in association with a particular filling and sealing apparatus, it is easily adapted to existing or newly manufactured apparatus of different types and requires minimal maintenance.

These and other advantages and objectives will become readily apparent from the following detailed description of a preferred embodiment of the invention and from the drawings in which:

FIG. **1** is a schematic view showing the combination of a preferred embodiment of the invention with an existing carton filling and sealing apparatus;

FIG. **2** is a top view of a preferred embodiment of the invention taken along lines **2—2** of FIG. **1**;

FIG. **3** is a perspective view of a preferred embodiment of the invention showing the invention in relationship to the carton conveyors of a filling and sealing apparatus and to cartons conveyed thereon; and

FIG. **4** is a perspective view of a dater block according to the preferred embodiment of the invention.

Now referring specifically to the drawings, FIG. **1** provides a diagrammatic view showing a preferred embodiment of the invention which provides a dater and a dating station in a milk carton filling and sealing apparatus. The dater of the preferred embodiment is shown generally at **10** while the existing filling and sealing apparatus with which the dater is used is shown generally at **11.**

The dater unit at the dating station generally includes an anvil and a heated dater block movable toward each other to engage a carton panel therebetween and brand a date into the panel. The apparatus indicated at **11** can be any form of milk carton packaging machinery to which the invention can be readily adapted and its specific details form no part of the present invention except as will be described.

In the preferred embodiment described below, however, the apparatus **11** is specifically identified as a Cherry-Burrell packaging apparatus manufactured by the Cherry-Burrell Corporation under its model numbers Q-80 and H-75, these models being respectively adapted to fill and seal quart cartons and half-gallon cartons respectively. This apparatus is normally operable to form, fill, and seal the cartons by first folding and sealing the carton bottom structure, thereafter prebending the carton top, filling the carton, and then sealing its top portion to finally form a gable top end closure. The particular cartons referred to are typically made from a polyethylene coated paperboard of the type now typically in use for milk packaging, however, any suitable container material may be utilized. For purposes of description, the machine direction, or direction of movement of cartons through the dating station and the pre-bend station, is indicated by the arrow marked MD in FIG. **1.**

When the bottoms of the cartons have been sealed, the cartons (as shown in phantom at C in FIG. **3**) are in a tubular form of rectangular shape having a closed bottom end, opposing sides indicated at **12** and **13** in FIG. **3,** a forward side **14** and a rearward side **15.** The opposing sides **12** and **13** each extend above the tops of the forward and rearward sides **14** and **15** so as to provide carton top panels **16** and **17** respectively.

In a filled and sealed form, the top of the carton C as shown in FIG. **3** will have a gable type top end closure

(such as is now in common use on a wide commercial basis) terminating in a top flange or rib composed of a plurality of parallel panels **16** and **17.** It is this rib which bears the date that indicates when the milk in the carton was packaged.

In a normal operation, the apparatus **11** is adapted to form this top end closure by a plurality of steps including pre-bending the top portion of the carton along score lines already formed in the carton walls. A "top breaker" is utilized at a pre-bend station to perform this preliminary bending. For purposes of description, the top breaker of the existing apparatus **11** will at times be hereinafter referred to as a closure forming means, the top breaker providing a preliminary treatment step to the carton top and, therefore, included in the complete closure forming or carton treating process. The closure forming steps also include thereafter finally bending the top portion of the carton and sealing the panels **16** and **17** together to form a composite rib by heating the polyethylene thereon and compressing the panels together while the polyethylene cools. This forms a sanitary leak-proof seal and gable top end closure.

In the specific Cherry-Burrell apparatus with which the preferred embodiment is utilized, the bottom structures of the cartons are formed and sealed and the cartons are thereafter conveyed on two conveyors and in two lines to a pre-bend station where a top breaker mounted for reciprocable motion is moved downwardly onto the tops of the cartons to pre-bend them. The cartons are thereafter filled and then sealed as has been explained.

The top breaker apparatus is generally mounted for vertical movement toward and away from the top portions of cartons which are conveyed beneath the breaker. The preferred embodiment of the present invention contemplates the utilization of this normal reciprocal motion to drive a movable element of the preferred dater embodiment in order to apply a date to a carton. To facilitate this operational relationship, the dater is advantageously placed upstream of and adjacent the top breaker (at the pre-bend station of the apparatus **11**), and cams or rollers **20** are attached via supporting shafts **21** to an element of the reciprocating top breaker apparatus for vertical movement in the direction of Arrow A shown in FIGS. **1** and **3.** It is through these cams or rollers that the preferred embodiment of the invention derives its operational movement from the normal reciprocal motion of elements forming carton treating apparatus or closure forming means spaced from the dating station.

The overall details of the preferred embodiment of the invention are perhaps best seen in FIG. **3** which depicts, in phantom lines, double conveyors **25** and **26** of the apparatus **11** and a carton C (which has already been described) on the conveyor **25.** Other cartons on conveyors **25** and **26** have not been shown. While only flat surfaces representing the conveyors are shown in FIG. **3** for clarity, it will be appreciated that the conveyors may comprise chains having protruding lugs for engaging and pushing cartons along a skid plate.

The dater **10** can be made of stainless steel and includes an elongated mounting member **30** adapted to be attached at its ends to frame members (not shown) of the apparatus **11** via brackets **31** and **32.** When so mounted, the elongated member **30** extends beneath and transverse to the conveyors **25** and **26.** Slidably mounted on the member **30** are mounting collars **35** and **36,** each of which adjustably mounts a respective dating unit **37** and **38** to the elongated member **30.** Dating units **37** and **38** are similar and dating unit **38** will not be permitting described; however, like or similar parts wil be designated by similar numbers. It will, of course, be appreciated that the relationship between the parts of the dater unnit **38** with respect to the conveyor **26** and cartons (not shown) conveyed thereon will be similar to the relationship between the dater unit **37,** conveyor **25,** and carton C. Only one carton C is shown in FIG. **3**; however, it is to be appreciated that conveyors **25** and **26** each convey a plurality of cartons, sapced at predetermined intervals with respect to each other, throughout the apparatus **11** including the dater **10** and the pre-band station.

Each dater unit includes a dater block **45** and an anvil **46** which are mounted for relative movement with respect to each other. Specifically, the anvils are mounted via brackets **47** to elongated posts **48** slidably mounted in collars **49.** The collars **49** are in turn attached to the collars **35** and **36** respectively. The anvils are thus elevated above the conveyors and, as shown with respect to the conveyor **25,** are positioned approximate the top portion fo cartons C conveyed on the conveyors. The height of the anvils may be adjusted via the slidable mounts provided by the collars **49** and the set screws shown therein.

Another bracket **55** is rigidly attached to elongated posts **48** and a leaf spring **56** is attached at a bottom end to the brackets **55.** The dater blocks **45** are attached to an upper end of the leaf spring **56** so that the dater blocks are movable in generally reciprocable directions, noted by the arrows B, toward and away from anvils **46.** It should be noted that the relationship could be reversed and the anvils could be mounted on a spring so as to be movable with respect to the dater blocks.

In a preferred embodiment, dater blocks **45** and the anvils **46** are mounted via their respective mounting elements so that they are operationally aligned with respect to each other. Specifically, each dater block is milled to provide a slot **60** (covered by a plate **70**) which extends transversely therethrough. A pivoted gate **61** is pivoted about the screw **62** to alternately cover or uncover the rear of slot **60.** Date stamping dies comprising printing slugs having raised indicia, such as high relief numerals, (not shown), indicating the numbers of respective days, months or years are adapted to fit within slot **60.** For purposes of further description, the dies or slugs may be generally referred to as indicia applying means as they may take any suitable form depending on their intended use. A day slug is indicated at **63**; a month slug at **64**; and a year slug at **65.** Each of these slugs has a predetermined length so that the raised numerals of the slug will extend forwardly and beyond the dater block **45** as shown in FIG. **2.**

The plate **70** covering the top of the slot **60** is welded into place so that an end portion **71** extends outwardly beyond a forward face **72** of the dater block **45.** The relationship of the extension of the portion **71** of the plate **70** beyond the face **72** and the length of the slugs **63-65** is selected so that the raised numerals on the slugs extend only a set distance beyond the portion **71** of the plate **70.** Extending portion **71** provides an additional feature as will be explained.

Each of the slugs has an upstanding lug **73** which engages a rear portion **74** of the plate **70** and restricts any motion of the slugs with respect to the dater block in a forward direction toward the anvil **46.** With the gate **61** in its closed position so that its slot **75** cooperates with the screw **76,** the slugs are securely held in the dater block **45.** In the instance where the slugs are provided with a downwardly extending lug (in relation to the raised numeral or letter orientation), the dater block is milled at the rearward end of the slot so that the lugs reside in this milled portion and engage the dater block, rather than the plate, to restrict forward movement of the slugs.

The dater block **45** is provided with a through bore **80** which has an internal diameter sufficient to accommodate an elongated cylindrical heater **81.** Any suitable heater can be utilized; however, the 350 watt, 120 volt cartridge heater made by the Fast Heat Manufacturing Company and identified by that company's catalogue number H5-24 has been found suitable. The heater is appropriately connected through an electrical circuit to electrical control means such as a power-stat (not shown) which is operable to control the heater's temperature. A power-stat such as the one sold by the Superior Electrical Companay as its Type 21 has been found to be suitable.

The power-stat is connected to a source of electrical energy through the same circuitry used to energize the other heaters utilized in the apparatus **11** for the heat sealing of the carton bottom and top structures. The heaters **81** are thus energized whenever the apparatus **11** is operated and serve to heat the complete dater block and the dies or slugs **63-65** so that the raised numerals on the slugs are also elevated in temperature. When the raised numerals are thus pressed against the top panel of the carton, they are not only emboss but also burn the polyethylene and the paperboard and thereby apply dates by branding the carton with the particular date selected. The darkness of the brand on the carton panel can be adjusted by regulating the heat output of the heater **81** by the power-stat and it has been found that the brand darkness can be adjusted ro provide a highly visible and indelible marking on the carton panel.

When the heater is energized and the dater block is heated, the projection **71** of plate **70** is also elevated in temperature and, since it engages the slugs **63-65,** serves to conduct heat thereto forwardly of the dater block. This serves to better maintain heat in the slugs and reduces overall heater output requirements as can be appreciated.

The anvil **46** includes an anvil surface **90,** which is aligned with the dater block **45,** and a guide surface **91** extending from the anvil surface **90** and tapering away from the anvil surface in a direction away from the dater block **45** as shown in FIG. **2.** In the preferred embodiment, the distance between the projecting numerals of the slugs **63-65** and the anvil surface **90** is indicated in FIG. **2** and D and is approximately ⅛ of an inch. The guide surface **91** is provided on the anvil in order to facilitate movement of the carton panel **17** into position between the dater block and the anvil. In FIG. **3,** a forward portion of panel **17** of the carton C has just engaged the guide surface **91** which serves to aid in alignment of the carton with respect to the dater unit **37.** A preliminary adjustment of the dater unit with respect to the path traversed by the carton panels to be branded can be preliminary and accurately set by means of the slidable collar **35** and its associated set screw shown in FIG. **3.** Of course, the position of the dater unit **38** is also adjusted with respect to conveyor **26** via slidable collar **36.**

The anvil **46** is provided with a passageway **95** which has an inlet **96** and an outlet **97.** The inlet **96** is connected to a coolant means or supply such as a source of circulating water and the coolant is circulated through the anvil via the passage **95** to maintain the anvil at a relatively low temperature with respect to the operating temperature of the dater block **45.** The anvil thus provides relatively cool surfaces against which the carton panel **17** is urged and the polyethylene on the anvil side of the carton **17** is not disturbed or heated to such an extent as would detract from the effectiveness of the final seal between the panels **16** and **17** which are heated and pressed together to form the top rib.

When the dater unit provided for by the invention is assembled to the apparatus **11,** it is located adjacent the pre-bend station of the apparatus and particularly adjacent the top breaker so that each of the dating blocks is located at least partially in the path of the rollers or cams **20.** In addition, the dater **10** is spaced from the pre-bend station a distance equal to the carton spacing (or multiple thereof) on the conveyors **25** and **26** so that when cartons are precisely located beneath the top breaker at the pre-bend station, panels of upstream cartons are located between the respective anvils and dater blocks of the dater units **37** and **38.** Thus, when the top breaker of the apparatus **11** is moved downwardly to pre-bend the tops of cartons therebeneath, the cams or rollers **20** are also moved downwardly and engage a back portion of the gates **61** of the dater blocks to urge the dater blocks respectively toward their associated anvils. As the dater blocks move toward their associated anvils, the heated raised numerals of the slugs **63–65** are impressed into an outer surface of the carton panel **17** and thereby brand the selected date into the panel.

When the top breaker in the apparatus **11** thereafter moves upwardly, the cam surface of the cams or rollers **20** move away from the dater blocks and the dater blocks, being mounted on the leaf springs **56,** move away from the cartons. The dated cartons are then conveyed toward a position beneath the top breaker apparatus and new, undated cartons are conveyed into position between the dater blocks and the anvils for dating.

It can thus be appreciated that the invention provides very simple and economical apparatus for the dating of cartons in existing milk carton filling and sealing apparatus. The operational movements of the dater are derived from the normal motion of elements associated with a carbon treating station of the existing apparatus so that the dater provided by the invention does not require an individual driving mechanism. As a result of the spacing of the dater unit with respect to the station from which motion of the dater unit is derived, no elaborate timing mechanism is required for the dater. Very little maintenance is required in order to keep the dater of the present invention in operation as it has a minimum number of moving parts. Maintenance problems and cost are thus significantly reduced as compared to those units which require their own driving or timing mechanisms. In addition, the date slugs bearing the raised indicating numerals are very easily changeable

and the day-to-day changeover from one date to the next is quickly accomplished.

The dater of the preferred embodiment has an additional advantageous feature in that when mounted as described, it brands dates on the top ribs of cartons before the cartons are filled and sealed. The dater is mounted on the machine ahead or upstream of the top breaker and thereby away from normal moisture areas, within the apparatus, which might cause electrical shorting problems.

An even further advantage of the dater disclosed herein is that it can be readily adapted to existing filling and sealing apparatus, such as the Cherry-Burrell model discussed above, in less than a day's time. Still further, it can be adapted for use with other filling and sealing apparatus. For example, the dater has been readily adapted for use with carton filling and sealing apparatus made by the Excello Corporation and marketed under its model No. RP. This apparatus also includes a reciprocating top breaker which is adapted and utilized to drive the dater in a manner similar to that set out in the above description with respect to the preferred embodiment.

While a preferred embodiment of the invention has been described, it will be appreciated that other modifications will become readily apparent to those of ordinary skill in the art without departing from the scope of the invention and the applicant intends to be bound only by the appended claims.

I claim:

1. In carton filling and sealing apparatus of the type having reciprocating closure forming means for forming an end closure on cartons successively conveyed thereto, said end closure including a rib formed from a plurality of panels disposed in adjacent parallel planes, dating apparatus for applying indicia to at least one of said panels comprising:

anvil means,

dater block means having indicia applying means aligned with and normally spaced from said anvil means,

said anvil means and said dater block means being mounted for relative movement toward and away from each other,

said filling and sealing apparatus having means for moving at least one of said panels between said anvil means and said dater block means, and

means connected to said closure forming means for moving one of said anvil means and said dater block means toward and away from the other in response to movement of said closure forming means toward and away from successive cartons, so as to apply a date to one of said panels when said panel is between said anvil means and said dater block means.

2. Apparatus as in claim **1** wherein said closure forming means comprises top breaker apparatus for prebending carton tops preparatory to filling said cartons and to sealing said tops, and wherein said means for moving one of said dater block means and said anvil means includes a cam surface mounted on said top breaker apparatus so as to engage one of said anvil means and said dater block means when said top breaker apparatus is moved toward a carton.

3. Apparatus as in claim **2** wherein said carton filling and sealing apparatus includes a carton conveyor for conveying cartons to said dating apparatus and thereafter to said top breaker apparatus, said anvil means and said dater block means being spaced upstream from said top breaker apparatus a predetermined distance so that a date is applied to one carton while a previously stamped carton is treated by the top breaker apparatus downstream of said one carton.

4. Apparatus as in claim **2** wherein said dater block means is mounted on a leaf spring so as to be movable toward and away from said anvil means.

5. Apparatus as in claim **4** wherein said cam surface is disposed to engage said dater block means to move it toward said anvil means.

6. Apparatus as in claim **1** wherein said dater block means is provided with a heater means for heating said indicia applying means so that said panel is branded by said indicia applying means.

7. Apparatus as in claim **6** wherein said heater means is an electric heater and further including electrical control means for regulating the heat output of said heater so that the darkness of said brand can be adjusted.

8. Apparatus as in claim **6** wherein said anvil has at least one passageway, and an inlet and outlet thereto, said inlet being connected to a source of coolant to provide cooling for said anvil.

9. Apparatus as in claim **1** wherein said dating apparatus further includes an elongated mounting member connected at respective ends to a portion of said carton filling and sealing apparatus, said anvil means and said dater block means being mounted on said mounting member.

10. Apparatus as in claim **9** wherein said filling and sealing apparatus includes a carton conveyor, said elongated mounting member being disposed beneath said conveyor and said anvil means and said dater block means being mounted on said elongated mounting means but elevated above said conveyor so as to be in proximity to a top portion of cartons conveyed by said conveyor.

11. Apparatus as in claim **10** wherein said anvil means and said dater block means are slidably mounted on said elongated mounting means so as to be laterally adjustable with respect to said conveyor and said conveyed cartons.

12. Apparatus as in claim **11** wherein said filling and sealing apparatus includes two carton conveyors for conveying two lines of cartons therethrough, said dating apparatus including an anvil means and a corresponding dater block means for each conveyor, each anvil means and dater block means combination being slidable on said elongated mounting member for adjustment with respect to a respective conveyor and cartons conveyed thereby.

13. Apparatus as in claim **12** wherein said filling and sealing apparatus includes a top breaker apparatus downstream of said dating apparatus, said top breaker apparatus reciprocating toward and away from cartons downstream of said dating apparatus, and said dating apparatus further including cam means mounted on said top breaker apparatus for engaging respective dater block means and moving them toward corresponding anvil means to apply indicia to carton panels when said top breaker apparatus moves toward downstream cartons.

14. Apparatus as in claim **2** wherein said filling and sealing apparatus comprises conveying means for conveying two lines of cartons, said dating apparatus fur-

ther including an anvil means and dater block means for each line of cartons.

15. In apparatus for filling and sealing tubular milk cartons having end closures terminating in a rib which includes a plurality of panels disposed in adjacent parallel planes, said apparatus being of the type having a carton conveyor and a reciprocating top breaker means for engaging and prebending carton tops preparatory to filling said cartons and to sealing said tops to form said end closure, dating means for applying indicia to at least one of said panels prior to said pre-bending, said dating means including:

anvil means,

dater block means having indicia applying means aligned with and normally spaced from said anvil means, and means for heating said indicia applying means,

said dater block means and said anvil means being mounted for relative movement toward and away from each other,

said carton conveyor being operable to successively convey said cartons to said dating means such that one of said panels is disposed between said anvil means and said dater block means, and

means attached to said top breaker means for engaging and for moving one of said anvil means and said dater block means toward and away from the other to apply indicia to said one panel in response to movement of said top breaker means toward a downstream carton.

16. Carton dating apparatus for use in a carton filling apparatus, said dating apparatus comprising:

an elongated mounting member,

dating means comprising an anvil element and a dater block element, each mounted on said elongated mounting member,

said dater block element adapted to mount changeable indicia applying means therein,

said anvil element and said dater block element being operationally aligned and normally spaced from each other,

a leaf-spring mounted on said elongated mounting member,

one of said anvil element or said dater block element being movably mounted on said leaf spring so that said one element is movable relatively toward the other to press a carton portion therebetween,

said leaf-spring normally biasing said one movably mounted element to a position spaced from the other element, said spring means being yieldable to allow said one element to be moved toward the other element, and

means for cooperating with a movable element of the carton filling apparatus for moving said one movable element toward the other.

17. Apparatus as in claim 16 wherein said dater block element is mounted on said leaf spring for relative movement toward and away from said anvil element.

18. Apparatus as in claim 16 wherein said anvil element and said dater block element are slidably mounted on said elongated mounting member.

19. Apparatus as in claim 16 including heater means in said dater block element for heating said indicia applying means when mounted in said dater block.

20. Apparatus as in claim 19 wherein said heater means is an electrical heater and further including electrical control means for regulating the heat output of said heater so that the darkness of brands applied to cartons can be adjusted.

21. Apparatus as in claim 19 including coolant passages in said anvil element and coolant inlet and outlet means.

22. Apparatus as in claim 16 including means for adjusting the anvil element and the dater block element in a direction transverse to the elongated mounting member.

23. Apparatus as in claim 16 wherein said anvil element includes an anvil surface for cooperating with said indicia stamping apparatus and further includes a tapered guide surface extending from said anvil surface in a direction away from said dater block element for aiding alignment of carton panels between said anvil element and said dater block element for dating.

24. Apparatus as in claim 16 including a transverse passage in said dater block element for receiving indicia applying means therein and a gate means movable into a position at one end of said passage to capture and hold said indicia applying means in said passage.

25. Apparatus as in claim 16 comprising two sets of dating means, each having an anvil and a corresponding dater block.

26. Apparatus as in claim 16 adapted for use in a carton filling machine of the type having a top breaker apparatus for pre-bending a top portion of a carton when moved toward a carton downstream of a dating means, said carton dating apparatus including a cam means connectable to said top breaker, said cam means in use engaging said dater block element to move it toward said anvil element when said top breaker is moved toward said downstream carton.

27. Apparatus as in claim 25 wherein each of said anvils and said dater blocks are adjustably mounted on said elongated mounting member.

28. Apparatus as in claim 16 further including

a collar means slidably mounted on said elongated mounting member,

an anvil support column,

means adjustably mounting said anvil support column on said collar means transverse to said elongated mounting member, said anvil being connected to said support column,

means connecting one end of said leaf spring to said anvil support column, and

said dater block being mounted on another end of said leaf spring, operationally aligned and spaced from said anvil, said dater block and said anvil being adjustable as a unit in a direction along said elongated mounting member, and in a direction transverse thereto.

29. In a carton filling and sealing apparatus of the type including means for conveying a line of cartons therethrough and further including a reciprocating member, carton dating apparatus for applying dates to carton panels, said dating apparatus comprising:

anvil means,

dater block means including indicia applying means,

a leaf spring attached to said filling and sealing apparatus in proximity to said line,

one of said anvil means or said dater block means being attached to said leaf spring at a point spaced from said spring's attachment to said apparatus,

said anvil means and said dater block means being aligned and normally spaced apart with respect to

each other and disposed so that carton panels can be conveyed therebetween, and

means attached to said reciprocating member on said filling and sealing apparatus for engaging said one of said anvil means or dater block means attached to said leaf spring and for moving one of said anvil means or dater block means toward the other in order to engage and to apply indicia to a carton panel between said anvil means and said dater block means.

30. Carton dating apparatus as in claim **29** wherein said reciprocating member of said carton filling and sealing apparatus comprises a portion of a carton top breaker means.

31. Carton dating apparatus as in claim **30** including heating means in said dater block means for heating said indicia applying means so that a date is branded into said carton panel.

32. Carton dating apparatus for use in a carton filling and sealing apparatus of the type including reciprocating means for treating successive cartons at a station spaced away from said carton dating means, said carton dating apparatus comprising:

an anvil,

a dater block including indicia applying means, said anvil and dater block being disposed on opposite sides of at least a portion of a carton, and

means connectable to said reciprocating means for moving said anvil and said dater block relatively toward and away from each other to apply said indicia to a carton in response to reciprocal movement of said reciprocating means.

33. Carton dating apparatus as in claim **32** including heater means for heating said indicia applying means.

34. Carton dating apparatus as in claim **32** wherein said dater block is mounted on a leaf spring for movement toward and away from said anvil, said means for moving said anvil and said dater block together comprising a cam means mountable on said reciprocating means to engage said dater block and move said dater block toward said anvil.

35. Carton dating means as in claim **34** wherein said reciprocating means comprises a top breaker disposed at a station spaced from said carton dating means.

36. Carton dating apparatus as in claim **32** wherein said filling and sealing apparatus has a conveyor for moving cartons to and away from said dating apparatus and said reciprocating means, said dating apparatus disposed in use to date cartons upstream of said reciprocating means.

37. In carton filling and sealing apparatus of the type having reciprocating closure forming means for forming an end closure on cartons successively conveyed thereto, said end closure including a rib formed from a plurality of panels disposed in adjacent parallel planes, dating apparatus for applying indicia to at least one of said panels comprising:

anvil means,

dater block means having indicia applying means aligned with and normally spaced from said anvil means,

said anvil means and said dater block means being mounted for relative movement toward and away from each other,

said filling and sealing apparatus having means for moving at least one of said panels between said anvil means and said dater block means, and

means cooperating with said closure forming means for moving one of said anvil means and said dater block means toward and away from the other in response to movement of said closure forming means toward and away from successive cartons, so as to apply a date to one of said panels when said panel is between said anvil means and said dater block means.

38. Apparatus as in claim **37** wherein said reciprocating closure forming means defines a closure forming station and said anvil means and said dater block means define a dating station spaced from said closure forming station.

39. In carton filling and sealing apparatus of the type having movable carton treating means for engaging and treating cartons successively conveyed thereto, said cartons having top end closures, each including a rib formed from a plurality of panels disposed in adjacent parallel planes, dating apparatus for applying indicia to at least one of said panels comprising:

anvil means,

dater block means having indicia applying means aligned with and normally spaced from said anvil means,

said anvil means and said dater block means being mounted so that one is movable relatively toward and away from the other,

said filling and sealing apparatus having means for moving at least one of said panels between said anvil means and said dater block means, and

means cooperating with said carton treating means for moving one of said anvil means and said dater block means toward and away from the other in response to movement of said carton treating means, so as to apply a date to one of said panels when said panel is between said anvil means and said dater block means.

40. Apparatus as in claim **39** wherein said movable carton treating means defines a carton treating station and wherein said anvil means and said dater block means define a carton dating station spaced from said carton treating station.

41. Apparatus as in claim **40** wherein said carton treating means are operative to at least partially form end closures on said cartons.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 3,872,646

DATED : March 25, 1975

INVENTOR(S) : John A. Johnson

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

Col. 1, line 10, "packing" should be --packaging--.
Col. 1, line 13, "purchased" should be --packaged--.
Col. 1, line 20, "typically" should be --typical--.
Col. 1, line 34, "other" should be --the--
Col. 1, line 36, delete "in".
Col. 1, line 64, insert a period after the word "station".
Col. 3, line 2, insert --dater-- between "each" & "block".
Col. 3, line 52, "or" should be --on--.
Col. 3, line 58, "amd" should be --and--.
Col. 6, line 5, "permitting" should be --particularly--.
Col. 6, line 6, "wil" should be --will--.
Col. 6, line 9, "unnit" should be --unit--.
Col. 6, line 14, "sapced" should be --spaced--.
Col. 6, line 16, "pre-band" should be --pre-bend--.
Col. 6, line 26, "fo" should be --of--.
Col. 7, line 25, "companay" should be --company--.
Col. 7, line 43, "ro" should be --to--.
Col. 8, line 1, "preliminary" should be --preliminarily--.
Col. 8, line 56, "carbon" should be --carton--.

Signed and Sealed this

ninth Day of *September 1975*

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks