Oct. 12, 1937. N. KRAFT 2,095,260

PACKAGE WRAPPING AND MECHANISM THEREFOR

Filed Dec. 26, 1935 3 Sheets-Sheet 1

Fig. 1

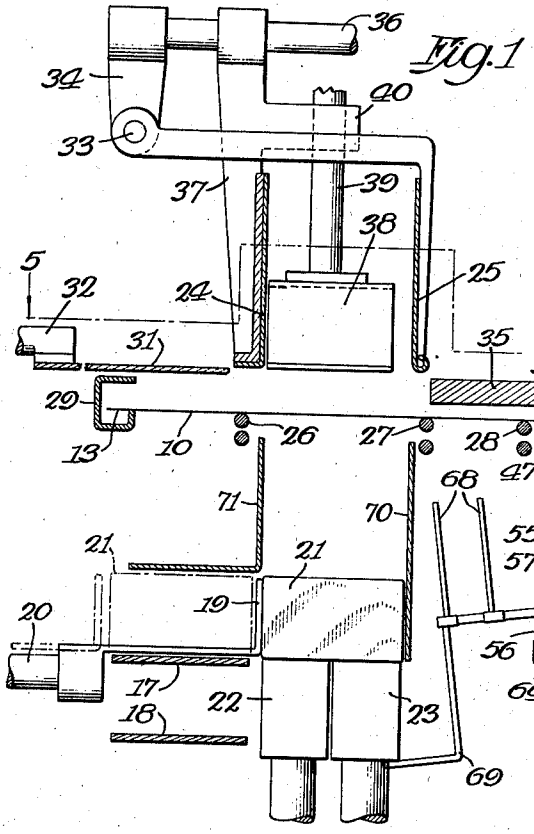


Fig. 2

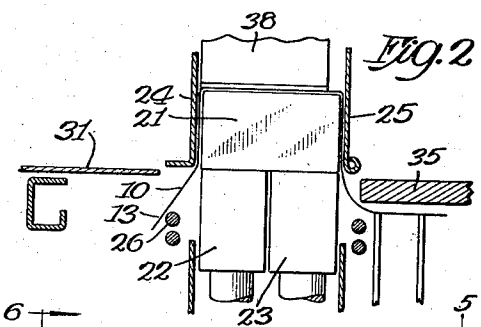


Fig. 3

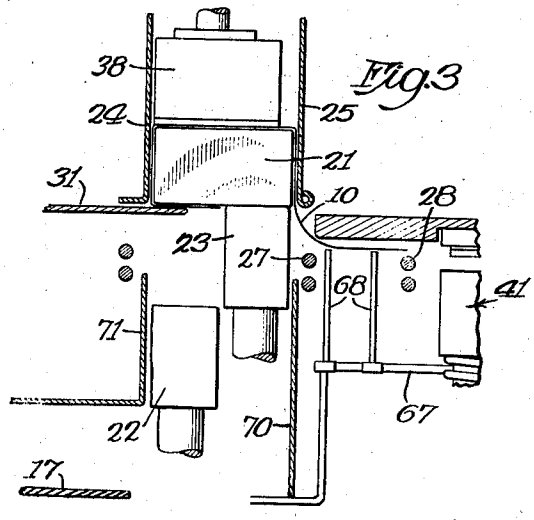
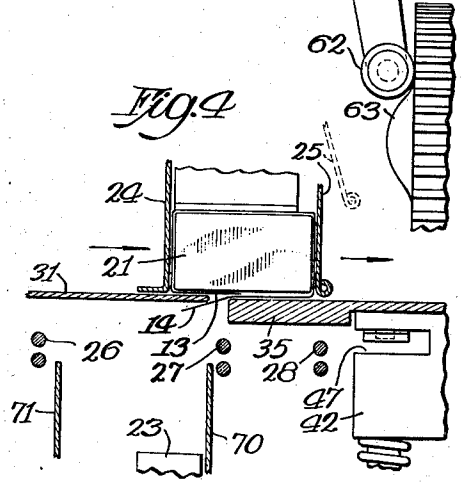


Fig. 4



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PACKAGE WRAPPING AND MECHANISM THEREFOR

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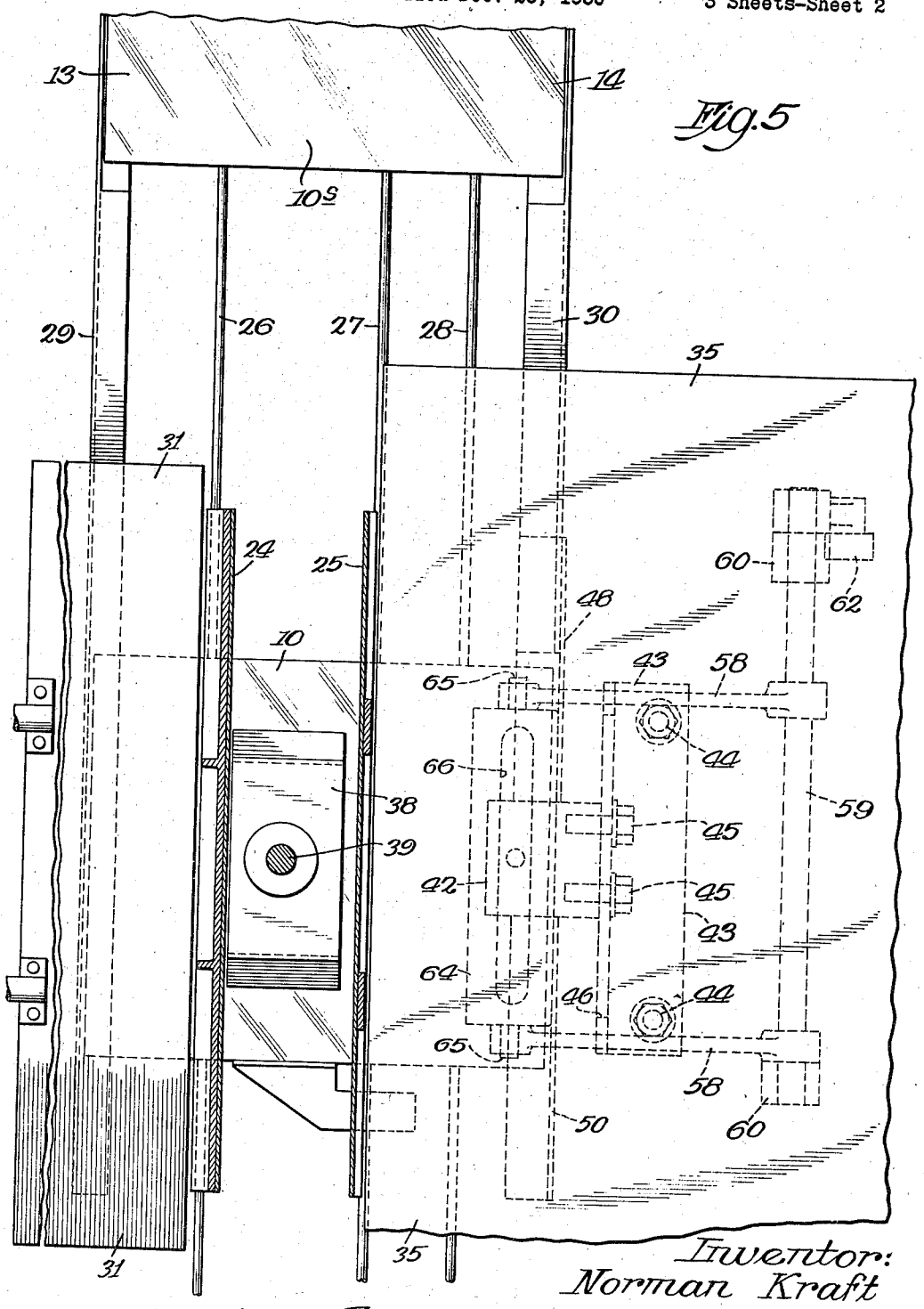


Fig. 5

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PACKAGE WRAPPING AND MECHANISM THEREFOR

Filed Dec. 26, 1935 3 Sheets-Sheet 3

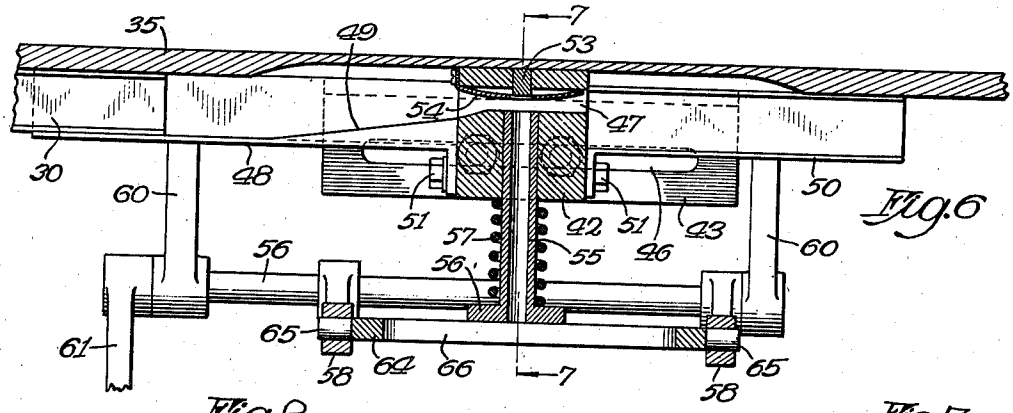


Fig. 6

Fig. 8

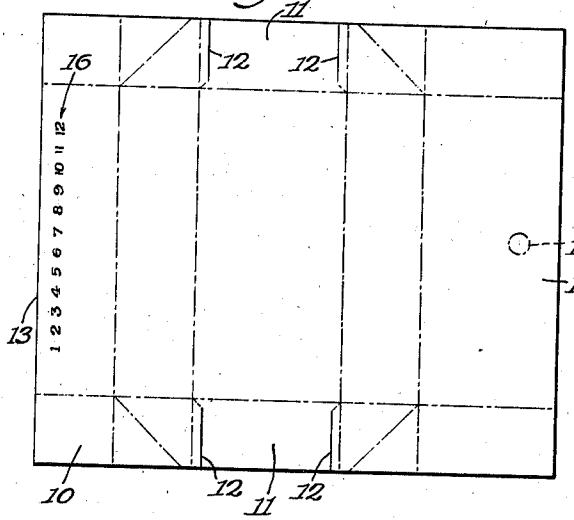
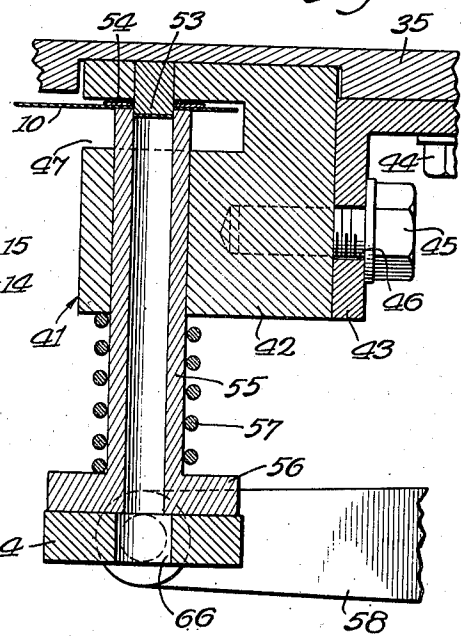


Fig. 7



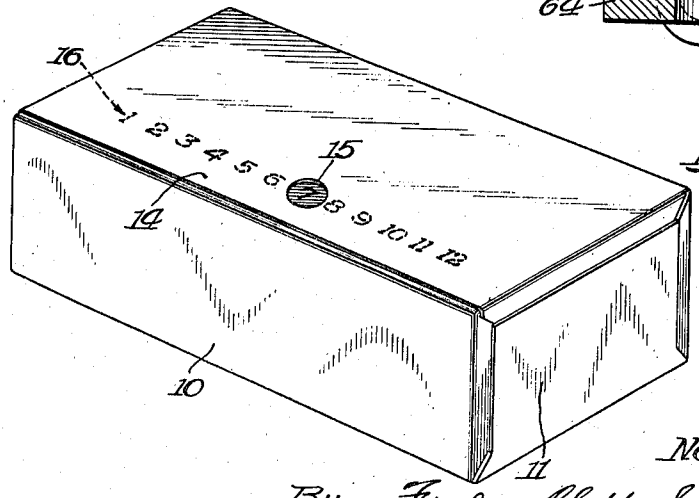


Fig. 9

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UNITED STATES PATENT OFFICE

2,095,260

PACKAGE WRAPPING AND MECHANISM THEREFOR

Norman Kraft, Wilmette, Ill., assignor to Kraft-Phenix Cheese Corporation, Chicago, Ill., a corporation of Delaware

Application December 26, 1935, Serial No. 56,190

13 Claims. (Cl. 93—2)

This invention relates to improvements in package wrapping and machines for effecting package wrapping and has particular reference to an arrangement whereby packages may be identified as an incident to their wrapping, with respect to the date of production of the wrapped material, the date of sale or shipment thereof or some other selected data or other fact such as formula, etc., pertaining to the goods.

The main objects of the invention are to provide a package wrapping which will embody identification means such as above indicated automatically as an incident to the application of a wrapper to the package; to provide such identification means which may be varied through a predetermined range of identifying data; to provide mechanism constituting, in effect, a portion of the wrapper applying mechanism for treating the wrapper to indicate the desired data; to provide such means which is adjustable to facilitate changing of the identifying data to be indicated; and in general, it is the object of the invention to provide simple, durable, efficient and otherwise generally improved package identifying means and mechanism for applying the same.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawings (3 sheets) wherein there is disclosed a package and package wrapping mechanism embodying a preferred form of the invention.

In the drawings—

Fig. 1 is a fragmentary sectional view through a portion of a more or less conventional package wrapping machine.

Figs. 2, 3, and 4 are fragmentary sections corresponding to portions of Fig. 1, to show changed positions of certain parts.

Figs. 5 and 6 are sections on the lines 5—5 and 6—6 respectively, of Fig. 1.

Fig. 7 is a section on the line 7—7 of Fig. 6, but on an enlarged scale. Fig. 7 also corresponds to a portion of Fig. 1, but shows the parts in a changed position.

Fig. 8 is a plan of a wrapper such as is applied to packages by the machine disclosed, and

Fig. 9 is a perspective showing a completed package bearing identification provided according to the present invention.

Referring now to the drawings and more particularly to Figs. 8 and 9, the package herein shown is illustrated as being of generally rectangular shape and comprising an inner container of cardboard or the like and an outer wrapper 10 of suitably lithographed or otherwise decorated paper. The wrapper 10 as shown in Fig. 8, is rectangular, nearly square in shape, and the lines on which it is folded around the package are indicated by dotted lines. End covering flaps designated 11, 11 are provided by slitting the wrapper as indicated at 12, 12. The form of the wrapper and the exact method in which it is folded about the package is not material to this invention excepting to the extent that opposite marginal portions 13 and 14 of the wrapper are brought into relatively overlapping relation on one face of the package.

In this instance the margin 14 is shown as overlapping on the outside of the marginal portion 13. Said outer marginal portion 14 is provided with a punched hole 15 which serves to expose one numeral of a row or series thereof indicated at 16. All of the numerals except the one which registers with the hole 15 are concealed by the overlying marginal portion 14. In Fig. 9, the number 7 is shown as being exposed through the opening 15 and, by way of example, the number 7 may indicate that the package contents were produced in the seventh month of the current calendar year. Of course, the exposed numeral may refer to a formula number, to a lot number or any other data which it is desired to record, and of course the numbers may be replaced by letters or other symbols.

The opening 15 may be located to register with and expose any of the other numerals and, if desired, two or more openings may be provided if required for any particular identification purposes.

Referring now to Figs. 1 to 5 inclusive, a more or less conventional mechanism for applying the wrapper or label 10 will be described.

Unwrapped but folded cardboard boxes containing the goods are fed into the mechanism on the upper reach of a conveyor belt 17, the lower reach of which is indicated at 18. A reciprocating plunger 19 carried by a shaft 20 serves to move the unwrapped packages designated 21 sidewise onto the upper ends of elevating plunger sections 22 and 23.

The elevating plungers 22 and 23 are next moved upwardly to carry the package 21 into engagement with the wrapper 10 and between the side folders 24 and 25, as shown in Fig. 2.

The wrappers 10 are successively delivered into the position illustrated in Fig. 1, above the path of movement of the package 21 by means of a series of conveyor belts designated 26, 27 and 28, which are carried by suitable pulleys not herein shown. Of course, one pulley for each

belt is driven so as to impart the proper drive of the belts for carrying the labels or wrappers 10 into said operative position. One side margin 13 of the wrapper is supported and guided by means of a channel-shaped guide element 29. The opposite margin 14 of the wrapper is similarly guided by channel-shaped guide members designated 30. In Fig. 5 a supply stack of wrappers 10 is indicated at 10^s, suitable means well-known to those skilled in the art being provided for feeding the wrappers one by one from such stack to the conveyor belts 26, 27 and 28.

As an incident to the elevation of the package 21 to the position illustrated in Fig. 2, a portion of the wrapper 10 is folded downwardly over one side of the package by the folder 24 and another portion of the wrapper is folded downwardly over the opposite side of the package by the folder 25.

The next step in the operation of applying the wrapper consists in advancing a folder plate 31 which is carried by one or more rods such as represented at 32, the same being connected with suitable mechanism whereby such rod or rods and the folder plate 31 are reciprocated. The folding plate 31 serves, upon its forward movement, to fold the margin portion 13 of the wrapper under the package, the plunger or elevator section 22 being lowered in properly synchronized relation with the advance movement of the folder 31. This relationship is indicated in Fig. 3.

Suitable mechanism, not herein shown, then serves to swing the side folder 25 upwardly, the same being pivoted as indicated at 33 on a bracket part 34 which constitutes a stationary portion of the framework of the mechanism. When the folder 25 is elevated to the position illustrated in Fig. 4, the folder 24 is moved forwardly by suitable mechanism to thereby feed the package 21 sidewise over the supporting or table plate 35. As indicated in Fig. 1, the folder 24 is slidably mounted on a rod or rods such as indicated at 36 which are carried by the frame bracket 34. Associated with the folder 24 and its supporting bracket 37 is a weighted plunger 38, the same being suitably vertically slidably mounted by means of a stem 39 in a leg 40 of the bracket 37. The weighted plunger 38 serves to clamp the wrapper on the top of the package and to prevent movement of the wrapper relative to the packing during folding operations.

When the package 21 is moved sidewise as indicated in Fig. 4, the marginal portion 14 of the wrapper is incidentally folded under the package and under the marginal portion 13 of the wrapper. In this manner the marginal portion 14 of the wrapper is caused to overlap the outside marginal portion 13 of the wrapper.

Suitable mechanism not forming part of this invention and therefore not herein illustrated, serves to effect folding of the projecting end portions of the wrapper over the ends of the package to complete the wrapping to form the package as illustrated in Fig. 9.

The wrappers 10 in the supply stack 10^s thereof are initially provided with the row 16 of identifying marking. In the stack the marking appears on the bottom face of each sheet and is therefore not visible on the top of the stack as shown in Fig. 5. Because identifying data are subject to change on the basis of time periods or for other reasons, it is not practical to initially punch the wrappers with holes such as 15. Also the punching of the wrappers before supplying them to the wrapping mechanism would involve an extra costly handling of the wrappers. A further objection to initially punching the wrappers is that the frayed edges of the wrapper incident to the punching thereof would tend to interfere with the proper feeding thereof from the supply stack to the feeding belts, since such frayed edges tend to cause attachment of the wrappers one to another.

In order to expeditiously provide the punching necessary to disclose the selected data, and to facilitate changing of the location of the punching, the following mechanism is provided:—

A punching unit designated 41 is provided. This unit is associated with the lower side of the table plate 35 and includes a head or block 42 which is adjustably supported and connected to the table plate 35 through the agency of an angle iron bracket 43, the latter being bolted to the bottom of the table by means of bolts such as indicated at 44. The block 42 is adjustably secured to the angle iron bracket 43 through the agency of a pair of cap screws 45 which pass through an elongated slot 46 provided in the vertical flange of the bracket 43. The cap screws 45 threadedly engage suitably tapped holes in the block 42 so that the latter may be tightly clamped in relatively fixed position on the bracket 43. Also, by loosening the cap screws 45, the block may be adjusted lengthwise of the bracket to any selected position.

The block 42 is provided with a channel 47 which is, in effect, a restricted continuation of the guide member 30. The channel 47 is connected to the guide 30 by means of a guide bracket 48 which is provided with an inclined portion 49 serving to provide a smooth surface for guiding the marginal portion 14 of the wrapper upwardly through the channel 47. A similar guiding bracket 50 extends from the rear end of the punch block 42 for supporting the portion of the wrapper which projects beyond the said punch block. The guide brackets 48 and 50 are each secured to the punch block 42 by suitable means such as bolts indicated at 51. The forwardly extending guide member 49 is arranged to telescope over the outside of the guide bracket 30 so that adjustment of the punching unit longitudinally of the bracket 43 may be accomplished without interference between the guides 30 and 49.

The leg or arm 52 of the punch block 42, formed by the channel 47, carries a depending punch member 53 and a stripper spring 54. The punch element 53 and stripper 54 are anchored to the punch block in any suitable manner so as to retain their operative positions as illustrated.

A tubular die member 55 is axially slidably mounted in the punch block 42 so as to be in axial alignment and cooperative relationship with the punch 53. The adjacent end of the punch 53 and tubular die 55 are of such relative size and so sharpened that when the tubular die is caused to telescope over the punch 53, any interposed wrapper portion will be punched with a clean hole, the punched out portion being fed downwardly through the passageway in the tubular die member. Upon downward movement of the tubular die, the stripper spring 54 serves to strip the punched wrapper from the punch to thereby free the marginal portion 14 of the wrapper so that the wrapper may be folded around the package in the manner already explained.

The tubular die member 55 is provided with a laterally extending flange 56 on its lower end and a spring 57 interposed between said flange and the bottom face of the punch block 42 serves to

resiliently urge said tubular die downwardly from the punch member 53.

For raising the die member into punching relationship to the punch 53, there is provided a pair of rock arms 58, the same being carried by a rock shaft 59 which is journaled in suitable brackets 60 depending from the table plate 35. The arms 58 are adapted to be rocked in properly synchronized relation to the folding movements of the mechanism already described by means of a cam arm 61 which carries an anti-friction roller 62 at its free end for engaging a rotary cam 63. The cam 63 may be formed on the side of a gear or otherwise provided in connection with any suitable driving shaft of the wrapping machine. It is, of course, important that the cam 63 be driven so that it will be operative to actuate the rock arms 58 and the punching mechanism in properly timed relation to the aforesaid folding portions of the machine.

The free ends of the rock arms 58 carry a flattened bar 64, said bar being provided at its ends with short shaft portions 65, which are journalled in the ends of the arms 58. By reason of this mounting of the bar 64, it may maintain full face to face engagement with the flanged end 56 of the die member throughout the various positions assumed by the bar in its oscillating movement incident to the rocking of the arms 58. The flattened bar 64 is provided with an elongated slot 66 which at all times registers with the passageway in the tubular die member regardless of the position of adjustment of the punching unit. It will be observed that although the punching unit 41 is adjustable longitudinally of the bracket 43, the operating mechanism consisting of the rock arms 58 and the flattened bar 64 is relatively fixedly mounted. The latter are nevertheless capable of actuating the punching mechanism regardless of the position of adjustment of the latter.

By adjusting the punching unit 41 longitudinally of the bracket 43, it will be seen that the location of the hole 15 in the marginal portion of the wrapper may be selectively located to disclose the desired number or marking in the row 16 of numbers or symbols. The operation of adjusting the punching mechanism is exceptionally simple in that it requires only the loosening of the fastening screws 45 and shifting of the punching unit to the desired position, thereupon the fastening screws 45 are again tightened to hold the parts in adjusted position. Inasmuch as the wrappers 10 for a given package are of a predetermined definite size and the row 16 of symbols is located with reasonable accuracy the same on all of the wrappers, adjustment of the punching unit may be facilitated by provision of a suitable scale, if desired. Such a scale might be indicated on the angle iron bracket 43 and have reference to a mark on the punch block 42 visible through the slot 46, or other special, more or less visible indicating means may be provided.

The wrapping mechanism is conventionally equipped with means for applying adhesive to the inside face of the extreme marginal portion 14 so that when the latter is folded to its final position on the package, it will be adhesively secured to the underlying marginal portion 13. Such adhesive is applied to the bottom side of the wrapper during its advance movement on the conveyors 26, 27 and 28. To prevent the adhesively coated marginal portion of the wrapper from dragging across the conveyor belts 27 and 28 during the folding operation, there is provided an arm 67 which may be pivotally mounted at one end on any conveniently accessible portion of the machine. The free end of the arm is equipped with a series of upstanding pins or prongs designated 68 which are, as shown in Fig. 3, adapted to lift the marginal portion 14 of the wrapper upwardly of the conveyor belts 27 and 28 during the folding operation, to thereby prevent contacting of the adhesive containing portion of the wrapper with the said conveyor belts. The arm 67 is preferably urged to move upwardly by suitable spring means not shown and its upward movement is controlled by means of a depending bracket 69 having a portion adapted to be engaged by the lower face of the elevating plunger 23. When the plunger 23 moves upwardly, the arm 67 is permitted to swing upwardly until the bracket 69 engages the lowermost edge of a package guide plate 70. When the prongs 68 are in their uppermost position as indicated in Fig. 3, the wrapper is sufficiently elevated from the conveyor belts to serve the purpose indicated. Another package guide element complementary to the guide element 70 is indicated at 71.

The described punching mechanism constitutes a relatively simple mechanism which may easily be incorporated in certain conventional types of package wrappers such as represented by the foregoing explanation.

Changes in the described construction may be made without departing from the spirit of the invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible consistent with the state of the art.

I claim:

1. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package.

2. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism being adjustable to alter the location of the openings formed thereby so as to permit registration of the openings with selected marking.

2. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism comprising a punching unit having a cooperating punch and die, means for mounting said unit for adjustment relative to a normal predetermined position of the wrapper during its passage through the machine, and relatively fixed means operative to actuate said punching unit throughout the range of adjustment of the latter.

4. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism comprising a punching unit having a cooperating punch and die, means for mounting said unit for adjustment relative to a normal predetermined position of the wrapper during its passage through the machine, and relatively fixed means, free of mechanical connection with said punching unit but operatively associated therewith so as to be adapted to actuate

said unit through the range of adjustment of the latter.

5. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism comprising a punching unit having a cooperating punch and die, means for mounting said unit for adjustment relative to a normal predetermined position of the wrapper during its passage through the machine, and means for actuating said punching unit comprising a rock arm, an elongated bar connected to said rock arm so as to be oscillated thereby as an incident to the rocking of said arm, said bar being operative as an incident to its oscillation to actuate said punching unit and being of such length as to have operative relation with the latter throughout the range of adjustment thereof.

6. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism comprising a punching unit having a cooperating punch and die, means for mounting said unit for adjustment relative to a normal predetermined position of the wrapper during its passage through the machine, and means for actuating said punching unit comprising a pair of rock arms, an elongated flat bar extending between and journalled at its ends in the free ends of said rock arms, said flat bar being adapted to operatively engage a portion of said punching unit so as to actuate the latter as an incident to movement of the bar when said rock arms are rocked, and said bar being of such length as to be adapted to engage said punching mechanism throughout the range of adjustment thereof, and means for effecting rocking of said rock arms.

7. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on another portion thereof when applied to the package, said punching mechanism including a punching unit having a reciprocable member, means for actuating said reciprocable member comprising a pair of rock arms, an elongated flattened bar journalled at its ends in the free ends of said rock arms and adapted to engage said reciprocable member, the latter having a flanged portion adapted to engage said flattened bar and the latter being adapted to maintain face to face contact with said flanged portion incident to the pivotal mounting of said flattened member, means for resiliently maintaining said reciprocable member and said flattened bar in operative engagement, and cam means for effecting rocking of said rock arms.

8. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on other portions of the wrappers when applied to the package, said punching mechanism comprising a punching unit having a reciprocating tubular die member provided with a flanged end, means for actuating said tubular die member comprising an elongated flattened bar having a longitudinally extending slot through its wide face, said bar being adapted to engage the flanged end of said reciprocable die member with said slot in register with the passageway through said die member for permitting punchings to pass through the die member and said flattened bar, and means for actuating said bar to thereby actuate said die member.

9. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on other portions of the wrappers when applied to the package, said punching mechanism comprising a punching unit having a reciprocating tubular die member provided with a flanged end, means for actuating said tubular die member comprising an elongated flattened bar having a longitudinally extending slot through its wide face, said bar being adapted to engage the flanged end of said reciprocable die member with said slot in register with the passageway through said die member for permitting punchings to pass through the die member and said flattened bar, means for actuating said bar to thereby actuate said die member, said elongated bar being fixedly mounted for said actuating movement, and said punching unit being adjustable longitudinally of said bar so as to permit changing of the location of the wrapper punching while maintaining operative engagement with said actuating bar.

10. In a machine for applying a wrapper to a package, punching mechanism for punching openings in predetermined locations in the wrappers for disclosing marking on other portions of the wrappers when applied to the package, said punching mechanism comprising a punching unit having a reciprocating tubular die member provided with a flanged end, means for actuating said tubular die member comprising an elongated flattened bar having a longitudinally extending slot through its wide face, said bar being adapted to engage the flanged end of said reciprocable die member with said slot in register with the passageway through said die member and said flattened bar, means for actuating said bar to thereby actuate said die member, said elongated bar being fixedly mounted for said actuating movement, said punching unit being adjustable longitudinally of said bar so as to permit changing of the location of the wrapper punching while maintaining operative engagement with said actuating bar, and means for resiliently maintaining said bar and said die member in operative engagement.

11. In a machine for applying a wrapper to a package, punching mechanism for punching openings in a predetermined location in the wrapper for disclosing marking on another portion of the wrapper when applied to the package, said punching mechanism comprising a punching unit including a reciprocable tubular die member and being adjustably mounted to permit changing of the location of the punching to be effected thereby so as to permit registration of such punching with selected marking, and means for actuating said tubular die member throughout the range of its adjustment comprising a pair of rock arms, an elongated flattened bar extending between and journalled at its ends in the free ends of said rock arms, said flattened bar being provided with an elongated slot extending through its flattened face and said slot being adapted to register with the passageway through said tubular die member to thereby permit punchings to pass through said die member, the latter being provided with a laterally flanged end adapted to engage the flattened face of said bar on opposite sides of said slot, means for resiliently maintaining said flanged die member end

in engagement with said flattened bar, and means for effecting rocking of said rock arms to thereby effect oscillation of said bar to actuate said die member, the pivoted mounting of said flattened member serving to permit the latter to retain normal engagement with said flanged die member end in all positions of movement of the bar and die member.

12. The method of marking a package which is to be enclosed in a wrapper having overlapping portions, which comprises providing the wrapper blank with a series of indicia on the part of the wrapper which is to underlie the overlying part, forming in the overlying part a window positioned so as to expose selected indicia when the package is enclosed in said wrapper in the normal manner and then wrapping the package in the normal manner with the windowed part overlying the indicia-bearing part so that the selected indicia may be viewed through said window while obscuring the indicia not so selected.

13. The method of marking a package which is to be enclosed in a wrapper having overlapping portions, which comprises providing the wrapper blank with a series of indicia on the part of the wrapper which is to underlie the overlying part, and then performing as parts of a continuous operation the steps of forming in the overlying part a window selectively positioned so as to register with the desired indicia when the package is enclosed in said wrapper in the normal manner and wrapping the package in the normal manner with the apertured part overlying the indicia-bearing part so that the desired indicia may be viewed through said aperture while obscuring the indicia not so selected.

NORMAN KRAFT.