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Bailey

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[54] **PACKAGING MACHINE**

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[73] Assignee: **Reynolds Metals Company,** Richmond, Va.

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[52] **U.S. Cl.** **53/201,** 53/219, 53/391

[51] **Int. Cl.** **B65b 11/02,** B65b 67/00

[58] **Field of Search** ..... 53/201, 203, 219, 247, 53/249, 381 R, 390, 391; 141/391

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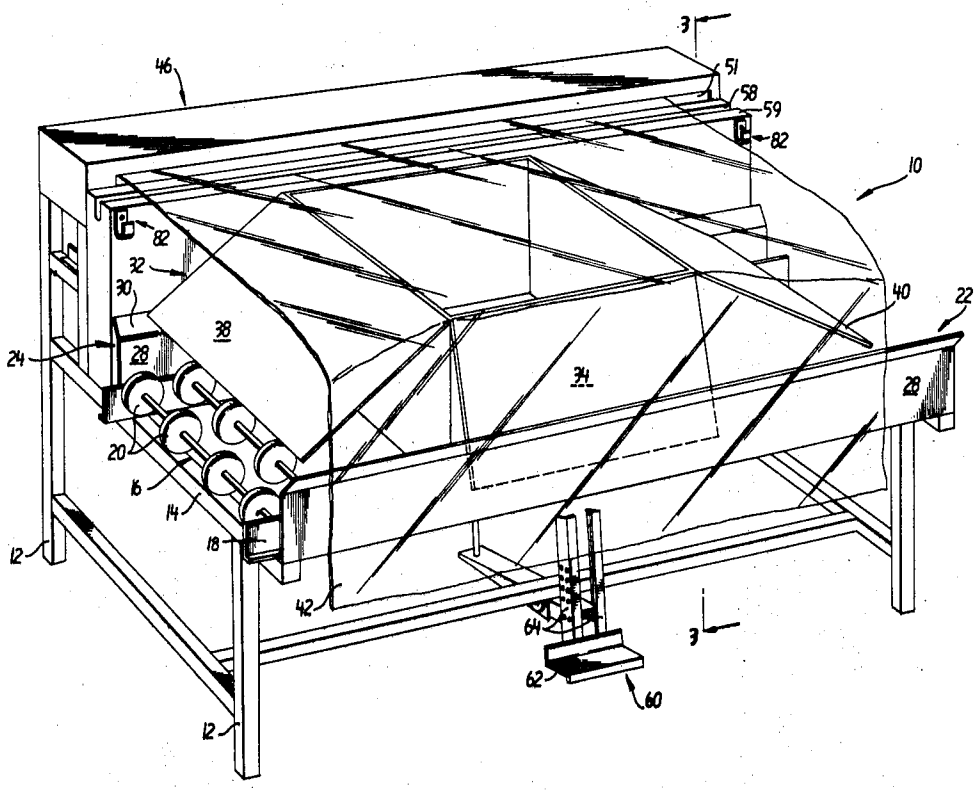
Primary Examiner—Robert L. Spruill

Attorney, Agent, or Firm—Glenn, Palmer, Lyne & Gibbs

[57] **ABSTRACT**

An apparatus for packaging food products or the like which is readily convertible from a machine which packages directly into cartons, to a sheeter-wrapper unit or vice versa. When used as a carton packaging machine, longitudinally extending guide means permit an operator standing in front of a flat bed of the machine to stand immediately adjacent the cartons which are moved along a conveyor over the flat bed. In this position, the operator may grasp the free end of a plastic sheet, withdraw a desired amount from a roll supply and drape it over an open-topped carton. The food product is placed into the carton, drawing the film down into the carton at the same time. The operator then severs the sheet with a hot wire which he actuates with a foot pedal and completes wrapping the food product. The machine is readily converted into a sheeter-wrapper unit by placing a substantially flat work surface above the conveyor but beneath the payout of the plastic sheet. In a preferred form, the flat work surface is provided by a table having two legs to support a front portion thereof and a pair of clip members to support a rear portion thereof.

8 Claims, 5 Drawing Figures



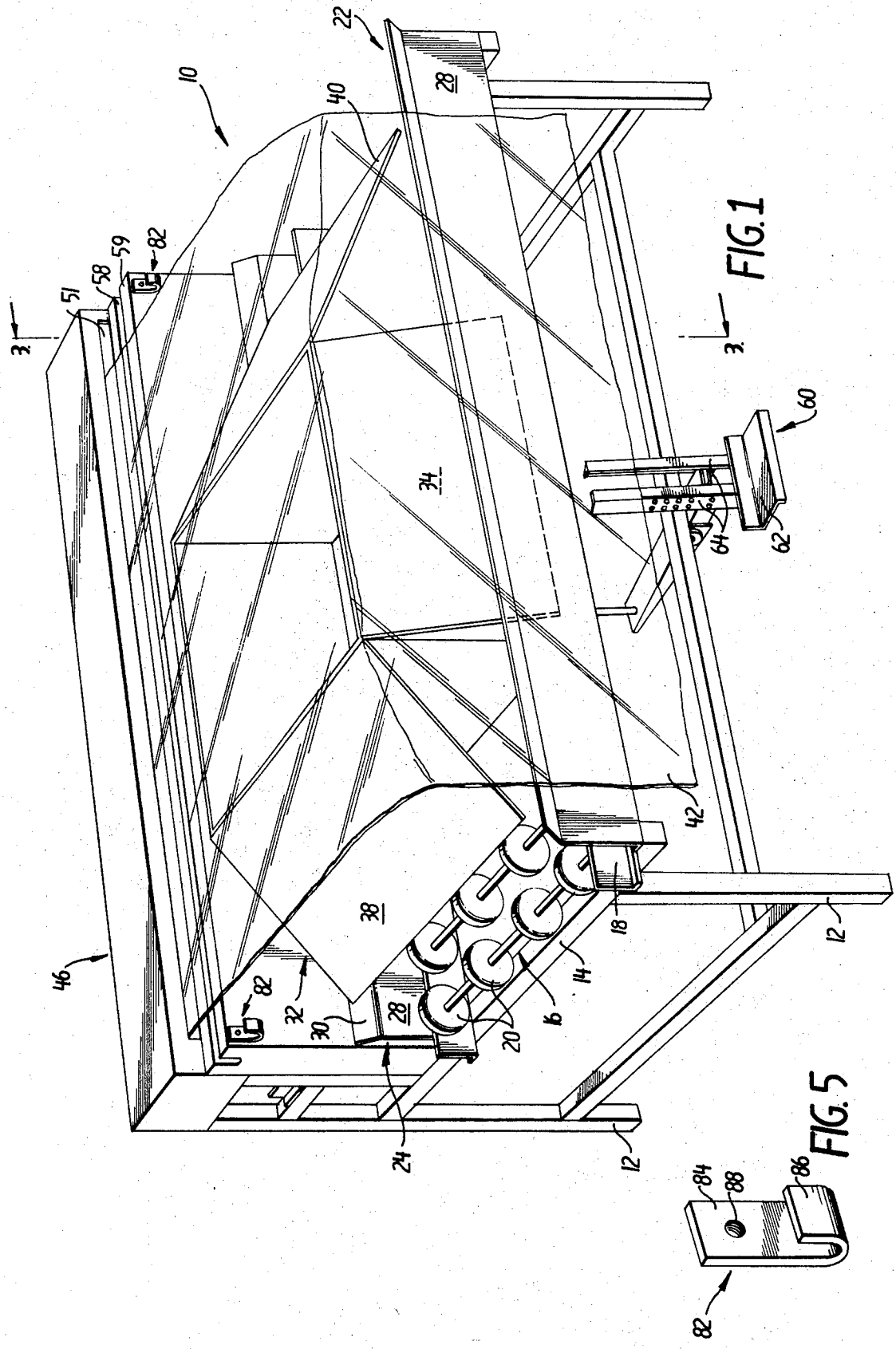

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62
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FIG. 1

84
88
86
82

FIG. 5

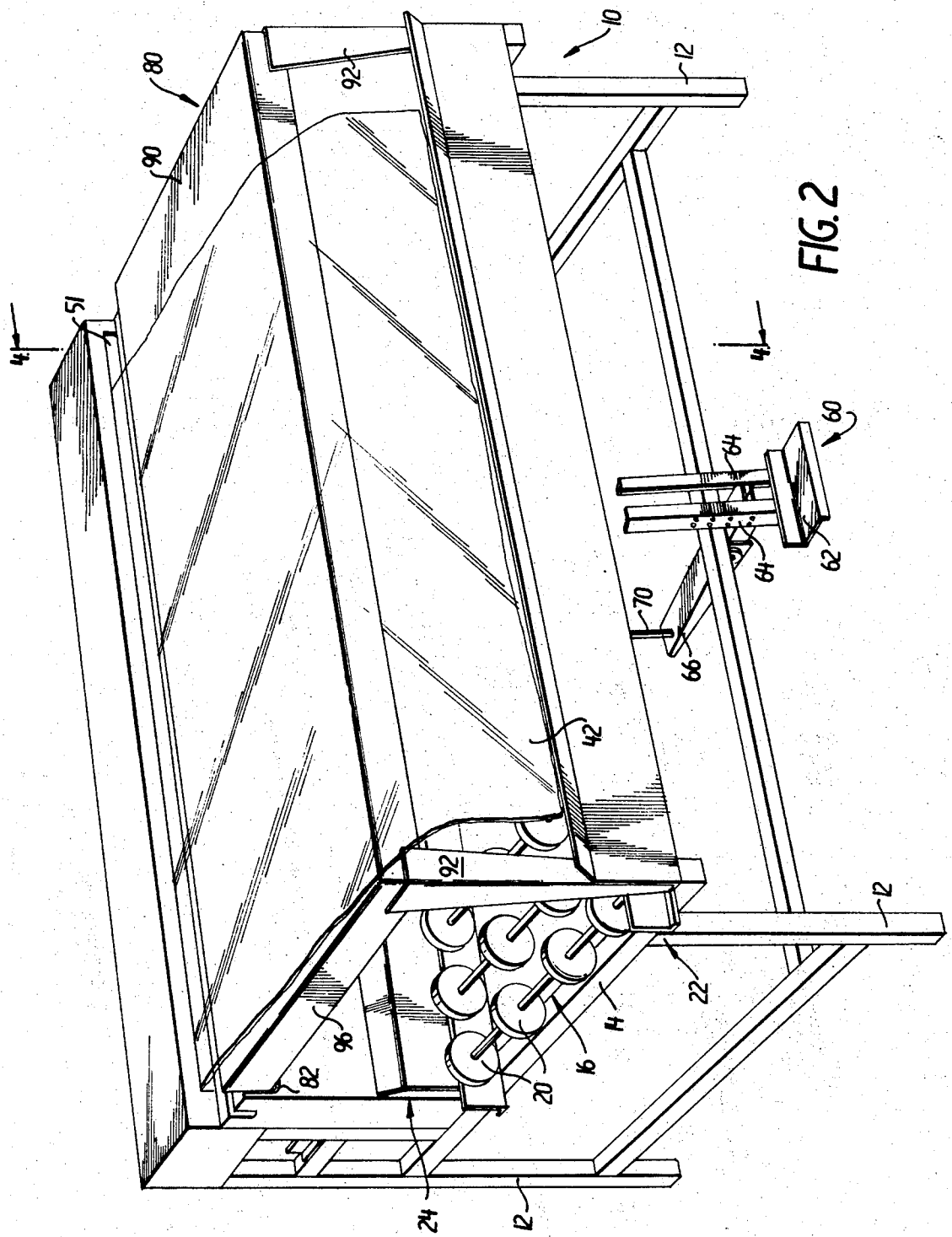


FIG. 2

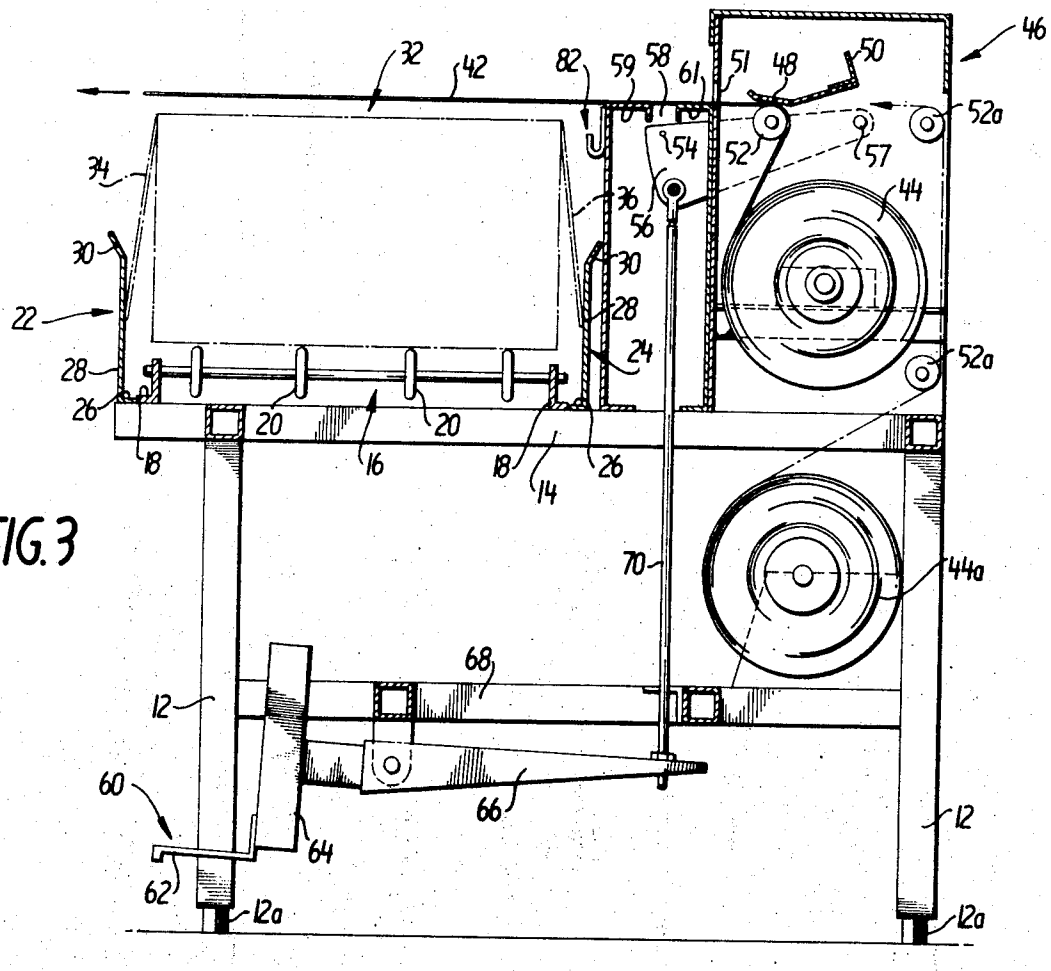
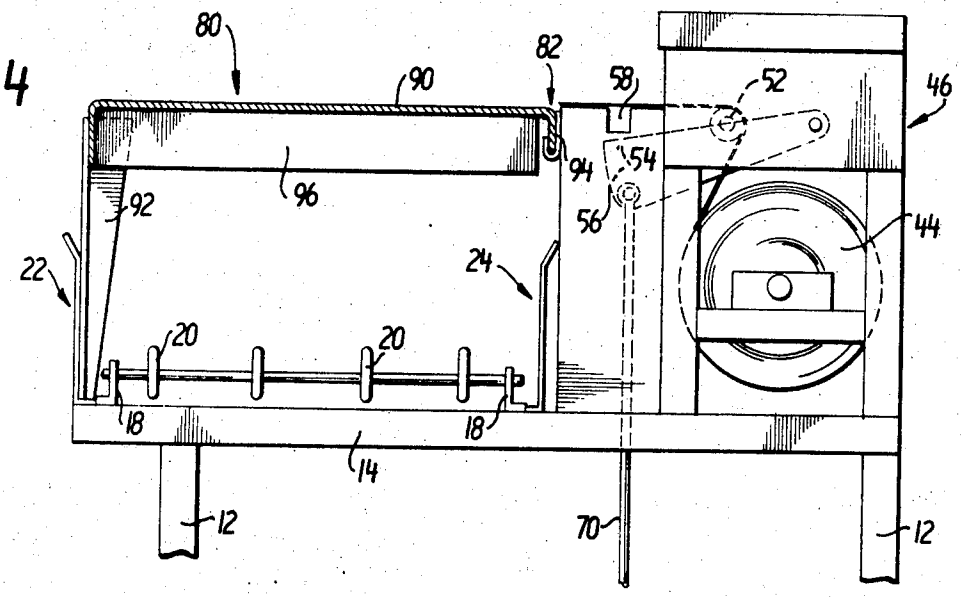

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52a
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52a
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18
16
18
14
26
70
44a
68
12
60
66
64
12
62
12a
12a

FIG. 3

FIG. 4


80
82
90
58
52
46
94
54
96
92
56
44
22
24
20
20
18
18
14
12
70
12

PACKAGING MACHINE

This invention relates to an apparatus for packaging food products and, more particularly, to such a packaging apparatus which may be converted from one form of packer to another.

Heretofore it has been known to package food products such as sub-primal or block-ready cuts of beef into cartons on a semi-automatic basis in meat packing plants or the like. For example, it has been known to pull empty cartons along a roller conveyor to a wrapping station, to stop the carton, to pull a plastic sheet from a roll supply, to pick up sub-primal or block-ready cuts of beef and place them into the carton, to sever the film and complete the wrapping.

One of the difficulties with this type of packaging has been that the conventional large carton flaps interfere with the wrapping operation in preventing the operator from getting sufficiently close to the carton to perform his requisite duties. This not only interferes with the placing of the food product into the carton and with the subsequent wrapping of the food product but also hinders the operator in drawing the plastic film into position and in severing it from its roll supply.

Another difficulty with carton packing machines heretofore used is that no provision has been made for sheet wrapping articles of food whereby the operator would have to move to a separate location to sheet wrap the food. This results in a disruption of the semi-automatic line, requires a duplication of sheet dispensing means, and necessitates a greater work area.

The foregoing difficulties and disadvantages of the prior art are effectively overcome in the practice of the present invention wherein a carton packaging apparatus is provided in which carton flap guide means which engage the front and rear flaps of a carton in order to position them sufficiently close to their respective carton walls to enable the operator to stand substantially immediately adjacent an open-topped carton. In this position, the operator may reach the plastic sheet means with greater ease in order to drape it over the top of the carton, he may deposit the food product into the carton with greater ease, and he may actuate the sheet severing means more readily and be in position to complete the wrapping.

In addition, the apparatus is provided with means for positioning a substantially flat work surface above the conveyor but beneath the payout of the sheet feed means whereby the apparatus may be converted into a sheeter-wrapper unit or vice versa. In a preferred form of the invention, this flat work surface is provided by a table having a front portion thereof supported by a pair of legs resting on a flat bed of the apparatus and a rear portion thereof supported by suitably positioned clip means.

The inherent advantages and improvements of the present invention will become more readily apparent upon considering the following detailed description of the invention and by reference to the drawings in which:

FIG. 1 is a perspective view of one form of the apparatus of the present invention;

FIG. 2 is a perspective view of another form of the apparatus of the present invention;

FIG. 3 is an elevational view taken in vertical cross section along line 3—3 of FIG. 1;

FIG. 4 is a fragmentary elevational view taken in vertical cross section along line 4—4 of FIG. 2; and,

FIG. 5 is a perspective view of a clip member used in the embodiment of FIG. 2.

Referring now to FIG. 1 of the drawings, a packaging machine as indicated generally at **10** having conventional leg supports **12** to define a substantially flat bed at **14.** The elevation of bed **14** and the machine itself may be made adjustable by providing legs **12** with telescoping insert portions **12a** illustrated in FIG. **3.**

A roller conveyor, as indicated generally at **16,** is provided with angle frame supports **18** which rest on flat bed **14** in order to provide freely rotatable rollers **20** on which cartons or the like may be transported manually.

In order to permit an operator who stands in front of the machine to stand substantially immediately adjacent the open-topped carton which is manually fed along roller conveyor **16,** the apparatus is provided with front and rear guide means indicated generally at **22** and **24,** respectively. Each guide means is shown to be provided with base support **26** suitably affixed to the flat bed, a vertically extending portion **28** and an outwardly flaring or extending portion **30** to facilitate inserting the carton flaps therein.

A carton adapted to be packaged by the present machine is indicated generally at **32** and is illustrated in FIGS. **1** and **3** to have a front flap **34** inserted within front guide means **22** so as to be substantially closely adjacent its respective body wall. In a similar manner, a rear flap **36** is also positioned within rear guide means **24.** The side flaps **38** and **40** of the carton **32** are unrestrained because these flaps do not interfere with the packaging operations carried on by the operator standing in front of the machine. The apparatus of this invention is also completely suitable for use with telescoping type cartons wherein no carton flaps exist which preclude the operator from getting sufficiently close to the opening in the carton to perform his tasks.

A plastic sheet film **42** is manually pulled over the open-topped carton **32** by the operator and draped thereover. The film is taken from a roll supply **44** in a suitable roll housing indicated generally at **46** at the rear of the packaging machine. A plurality of plastic fingers affixed to an angle support member maintains tension on the film as it passes over a roller **52** through a slot **51** from the roll housing **46** and prevent backward movement of the film. By adjusting the angular position of the angle support member **50** the tension exerted on the film by plastic fingers **47** may be varied.

Any suitable means may be used to cut the film. However, it is preferred to use a hot wire such as is shown at **54** held on a suitable support lever **56.** The latter pivots about point **57** under actuation of a foot pedal means, indicated generally at **60,** in order to raise the hot wire from its depressed position indicated in FIG. **3** upwardly through the recessed opening **58** in order to contact and sever the film which extends thereacross. A front film guiding surface is provided at **59** and a rear film guiding surface is provided at **61** to hold the film **42** above the hot wire **54** so that the film is out of contact with the hot wire until the hot wire is actuated by foot pedal **60.**

The details of the foot pedal are indicated in FIG. **3** wherein there is illustrated a foot pedal **62,** suitable adjustment brackets to vary the throw of the foot pedal

at 64, a rearwardly extending rod 66 held beneath support brace 68, and a vertically extending rod 70. Other means may be employed to actuate the hot wire 54 and bring it either through an arc of oscillation or to impart a vertical reciprocating motion thereto.

When it is desired to convert the packaging machine into a sheeter-wrapper unit, a table 80 is placed above the roller conveyor 16 as illustrated best in FIG. 2 in order to provide a substantially flat work surface thereabove. Clip means, indicated generally at 82 and best illustrated in isolation in FIG. 5, are used to support table 80. Clip means 82 may be formed from a flat piece of stainless steel, for example, is substantially J-shaped in cross section defining a narrow channel between a long leg 84 and a short leg 86 with screw mounting means 88 being placed in the longer leg 84. The clip means 82 as shown in FIG. 1 may be used in pairs and mounted on a front panel of the roll housing 46.

Table 80 which is also preferably formed from stainless steel for use in packaging food products is illustrated to have a substantially flat surface 90 and a pair of front legs 92. A rear skirt portion 94 extends downwardly from the rear of the flat top surface 90 so as to be received in the narrow channel of the clip means 82. Table 80 is also provided with end skirt portions 96 each of which extends downwardly from the ends of the substantially flat work surface 90 and the clips 82 are placed sufficiently close to the corners of table 80 so as to prevent any substantial longitudinal movement of the table by virtue of engagement of the end skirt portions 96 with the edges of the J-shaped clips.

While the clips 82 are illustrated to be used in pairs it is possible to use a single clip of substantial length whose cross section is substantially that of the J-shaped clips to define a channel means for reception of the downwardly extending skirt 92 of table 80.

As illustrated in FIG. 3, the machine may be provided with a cradle for an extra roll of film 44a with the film being fed over guide rollers 52a through the slot 51 if desired. Alternatively, merely a trough can be provided so as to store a spare roll of film.

The electrical controls for the unit, though not shown, are conveniently maintained in an electrical control box mounted on the side of the roll housing 46. Such an electrical control box is readily removable so that the entire machine may be washed down.

Typical carton sizes which have been run on the machine of the present invention include cartons 26 × 14 × 10 inches deep; 28 × 14 × 10 inches deep; 18 × 12 × 12 inches deep; and 24 × 18 × 10 inches deep. A typical film used in connection with the packaging operations described herein is an 80 gauge C.P.S. film designated REYNOLON PVC film. Such a film is a high cling, soft hand wrapping film. Other films may be employed. In the machine described herein no heat shrinking or heat sealing operations are actually performed.

Various changes and modifications may be made in the apparatus herein described. For example, any wrapping surface may be used in conjunction with or in place of the substantially flat surface provided by table 80. Similarly, a cold knife or serrated knife may be used in substitution for the hot wire 54. Such alternate knife constructions are, however, more expensive. Also with respect to the foot pedal usage disclosed herein, it is possible to use a knee-operated pedal or one which is button controlled or to employ a solenoid actuated control for the hot wire 54.

While presently preferred embodiments of the invention have been illustrated and described, it will be recognized that the invention may be otherwise variously embodied and practiced within the scope of the claims which follow.

What is claimed is:

1. An apparatus for packaging food products or the like which comprises:
   a. a flat bed constituting a base support for said apparatus,
   b. a section of a conveyor overlying said bed and adapted to receive open-topped cartons for packaging food products therein, said cartons having a plurality of closure flaps including oppositely disposed front and rear flaps which extend toward the front and rear of said bed,
   c. guide means extending longitudinally of said bed and adapted to engage said front and rear flaps of said cartons and position said front and rear flaps closely adjacent their respective walls of the cartons as the cartons are being filled and while said cartons are being moved over said bed on said conveyor section,
   d. means for supplying film means from a roll supply thereof over the open-topped portion of said cartons,
   e. means for severing said film means from said roll supply to facilitate wrapping of said food products in said film means,
   f. and a substantially flat work surface and means for positioning said substantially flat work surface above said conveyor but beneath the payout of said film means thereby converting said packaging apparatus into a sheeter-wrapper unit.

2. An apparatus for packaging food products as defined in claim 1 wherein said section of a conveyor is a roller conveyor section which rests on said flat bed and which is readily removable for cleaning of said apparatus.

3. An apparatus for packaging food products as defined in claim 1 wherein said means for severing said film means includes a hot wire controlled by foot pedal means actuated by an operator who is positioned in front of said flat bed.

4. An apparatus for packaging food products as defined in claim 1 wherein said means for positioning said flat work surface includes clip means attached to said apparatus above said flat bed and beneath the payout of said sheet means.

5. An apparatus for packaging food products as defined in claim 4 wherein said substantially flat work surface is provided by a table having a front portion thereof supported by a pair of legs resting on said flat bed and a rear portion thereof supported by said clip means.

6. An apparatus for packaging food products as defined in claim 5 wherein said table is provided with a rear skirt portion which extends downwardly from the rear of said substantially flat work surface and is received in said clip means.

7. An apparatus for packaging food products as defined in claim 6 wherein said clip means consists of a pair of clip members each of which has a pair of unequal legs substantially J-shaped in cross section with the longer leg being attached to said apparatus above

said flat bed and beneath the payout of said film means.

8. An apparatus for packaging food products as defined in claim 7 wherein said table is formed with a pair of end skirt portions each of which extends downwardly from the ends of said substantially flat work surface and said pair of clip members are positioned substantially adjacent the rear corners of said table and whereby engagement with the edges of said pair of clip members serves to limit longitudinal movement of said table.

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