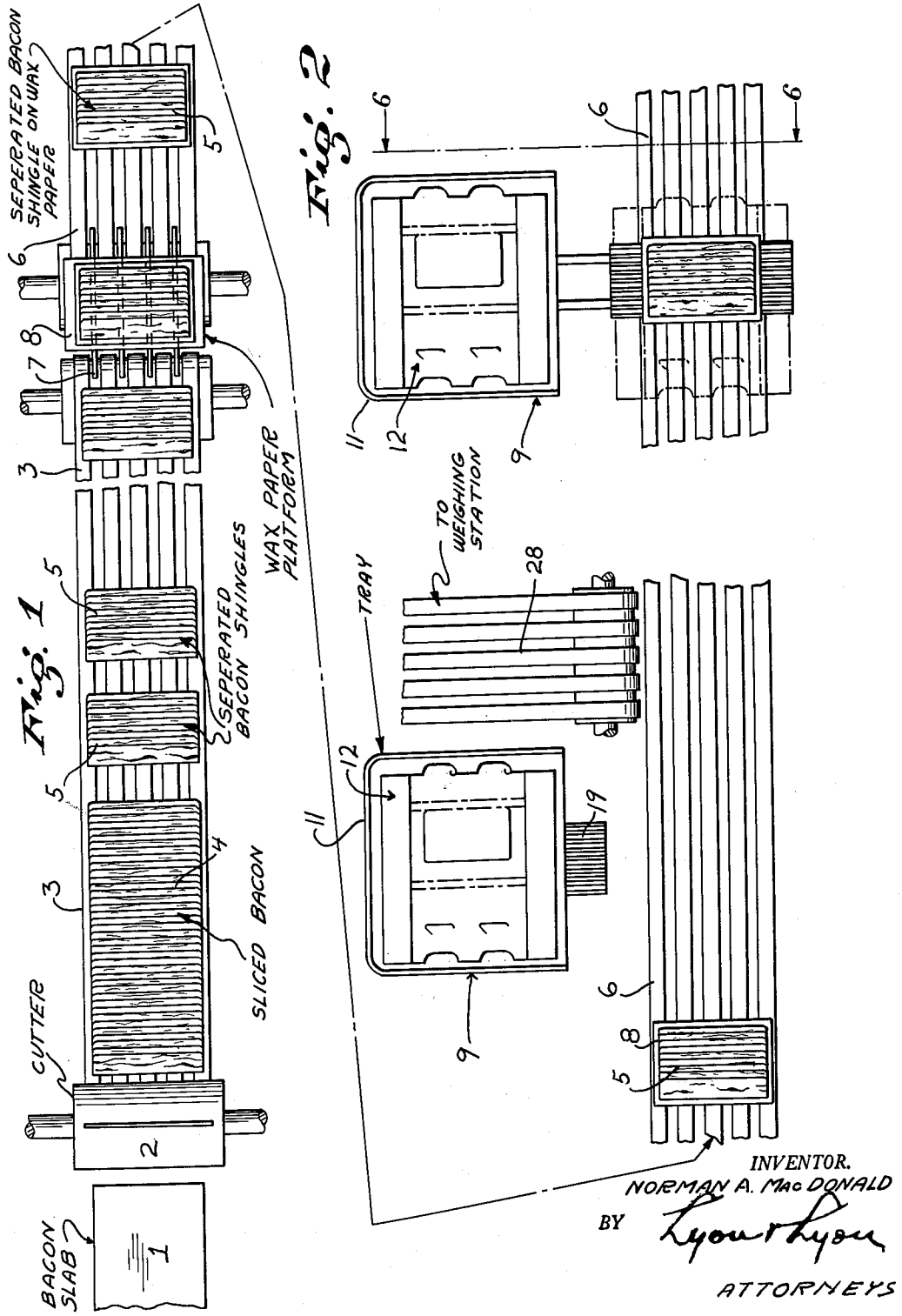
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METHOD OF PACKAGING BACON

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Fig. 3

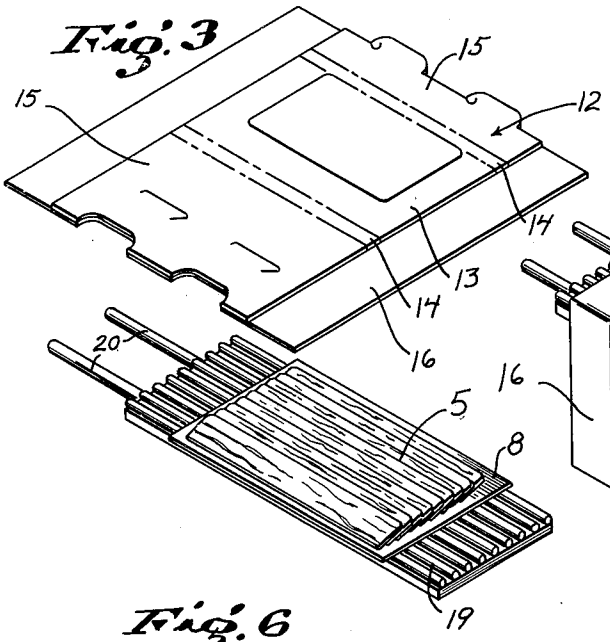


Fig. 4

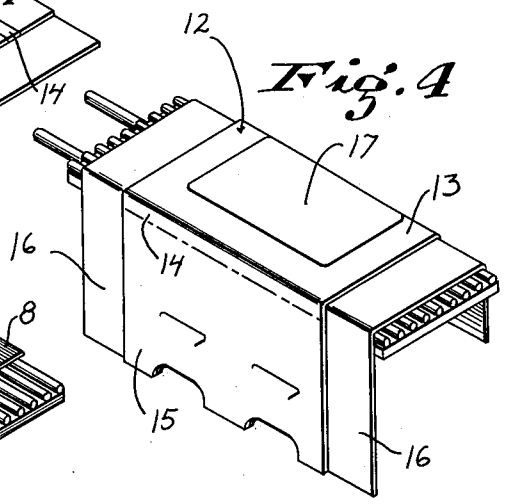


Fig. 6

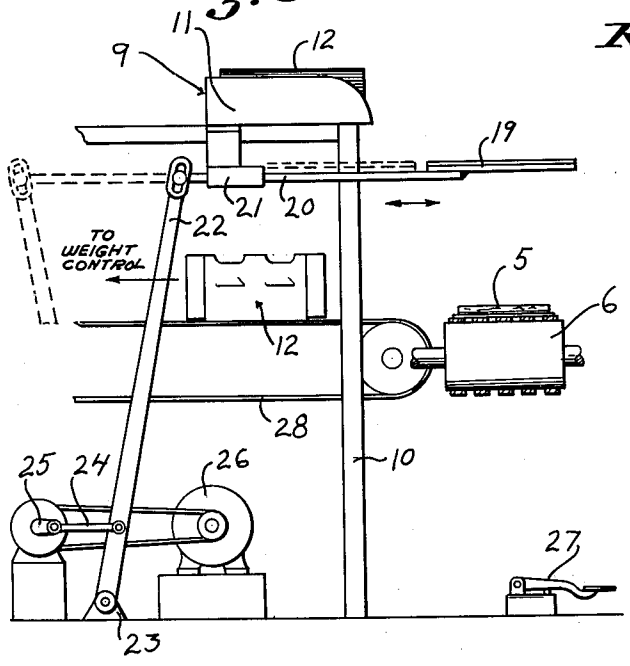
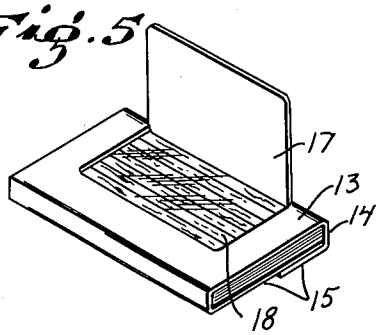


Fig. 5



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METHOD OF PACKAGING BACON

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4 Claims. (Cl. 99—174)

This invention relates to method and apparatus for packaging bacon. Bacon is conventionally sold sliced, the slices of bacon being arranged in shingle form and packed in a carton having a window. The slices are arranged so that the meat along one margin is exposed. It is essential that the slices be uniformly shingled so as to be attractive and have sales appeal.

The sliced shingle of bacon as it issues from the slicing machine is in a uniform shingled condition, so that if this condition were maintained the resulting package would be satisfactory. The continuous shingle of bacon is readily separated by manual aid into shingle units, usually of approximately one pound each, and as separated passed onto an undersheet.

However, in order to package the shingle unit, it has been the custom to invert the shingle unit so as to place the initially top side of the unit face down over the window section of the package member. The shingle units are inverted manually, and demand not only considerable manual dexterity but also close control of the bacon temperature to avoid disturbing the shingle arrangement or breaking the slices. Furthermore, the shingle unit must be positioned "blind," as its relation to the window cannot be inspected until the package is again inverted. As a consequence, the proportion of packages which must be downgraded because of poor appearance has been substantial.

The primary object of this invention is to provide a means and method whereby the shingle unit of bacon is not inverted, but instead the package is placed over the shingle unit so that danger of damage to the shingle unit is reduced; and the operator may observe the position of the window relative to the bacon slices so as to ensure maximum sales appeal.

A further object of this invention is to provide a means and method which facilitates further operations on the package, such as weighing, checking, and completion of the wrapping process.

With the above and other objects in view, as may appear hereinafter, reference is directed to the accompanying drawings in which:

Figure 1 is a diagrammatical view of the apparatus for packing bacon, and also showing the steps involved in the method from the starting point at the cutter or slicer to the station at which the bacon shingle units are placed in packages;

Figure 2 is a fragmentary, diagrammatical view showing the bacon packaging station;

Figure 3 is a perspective view showing the bacon shingle unit, its supporting shelf, and a package thereabove to illustrate the relationship of the bacon shingle unit and the package just prior to applying the package to the bacon shingle unit;

Figure 4 is a similar perspective view showing the package folded about the bacon shingle unit;

Figure 5 is a perspective view of the completed package with the window section open;

Figure 6 is a sectional view taken through 6—6 of Figure 2 showing the bacon packaging station.

Attention is first directed to Figure 1. In the packaging of bacon, a bacon slab 1 is passed through a conventional cutter or slicer 2 and discharges from the slicer onto an initial conveyor 3. The conveyor 3 is preferably a belt conveyor comprising several parallel belts. After the bacon issues from the slicer it is in the form of a single or continuous shingle 4.

An operator separates the initial shingle 4 into shingle units 5. This is accomplished without lifting the shingle units by merely manually slipping the shingle units forwardly on the conveyor 3. The separated bacon shingle units 5 pass from the initial conveyor to a second similar conveyor 6 set at a slightly lower level. Guide rods 7 located between the belts of the conveyors serve to support the bacon shingle units.

Disposed under the guide rod 7 at the receiving end of the second conveyor 6 on a support, not shown, is a stack of wax paper 8, the uppermost sheet of which is contacted by each shingle unit so that as the shingle unit passes onto the second conveyor there is an underlying wax paper sheet. This operation is assisted by an operator who manually pushes each shingle unit onto the stack of wax paper 8, and in a continuous motion pushes each shingle unit with the wax paper thereunder well onto the second conveyor 6. The operations thus far described are conventional and are accomplished without disturbing or lifting the bacon shingle units.

The second conveyor 6 traverses several packaging stations in front of several package stands 9. One of such stations is illustrated in the drawings. The package stand includes vertical posts 10 which support a table 11. The table 11 supports a stack of package members 12. Each package member includes a front panel 13, edge panels 14 at two sides of the front panel, and back panels 15 joined to the edge panels 14. The panels are scored in the conventional manner along their joined edges.

The inner sides of the panels are covered by a sheet of wax paper, the margins of which project beyond the remaining two margins of the front panel and corresponding margins of the edge and back panels to form flexible flaps 16 which, when the package is completed, are folded inwardly over the ends of the bacon shingle. The front panel is provided with a window flap 17, and underlying the window flap is a window member 18 formed of transparent plastic material.

Disposed under the table 11 is a sliding shelf 19 having a pair of guide rods 20 extending under the table and through slide bearings 21. One or both of the guide rods 20 is connected to a lever 22 which extends downwardly and is pivotally supported at its lower end by a floor bracket 23. Near its lower end the lever 22 is connected by a link 24 to a crank arm 25 which is rotated by a motor 26. Suitable gear reduction means is provided between the motor and the crank arm. Disposed under the second conveyor 6, in a convenient position for engagement by an operator, is a foot switch 27.

At one side of each package stand 9 is a third conveyor 28 which extends laterally from the second conveyor 6. As the shingle units 5 pass in front of the package stands 9, operators pick up the bacon shingle units with the wax paper thereunder, and without inverting the bacon shingle unit place the unit on the corresponding shelf 19. The operator retracts the shelf between operations and extends the shelf over the second conveyor to receive the shingle unit which the operator just previously removed from the second conveyor. The width of the shelf 19 is substantially equal to the width of the front panel 13 of the package member.

After placing the bacon shingle unit 5 on the shelf 19, a package member is positioned right-side-up over the shingle unit with the window 18 in registry therewith,

The operator then folds the edge panels 14 downwardly along the sides of the shelf. If desired, the thickness of the shelf at its side edges may be such as to permit the operator to fold the back panels 15 toward each other. However, it is not necessary to perform this operation at the packaging station.

After the package has been placed over the shingle unit 5 and partially folded, the shelf 19 is withdrawn while the operator restrains the package member and shingle unit from retraction with the shelf by one hand and holds the other hand under the shelf so as to receive the shingle unit. With the shingle unit resting on one hand, the operator may place the other hand over the package, then invert both the package and shingle unit and place them on the third conveyor 28, as shown in Figure 6. As so placed, the front panel 13 of the package member rests on the third conveyor with the shingle unit inverted and lying thereon.

The strips of bacon have nominal adhesiveness so that these strips adhere sufficiently to the front panel of the package member and are thus retained precisely in position. The package member also stiffens the shingle unit of bacon so that the slices cannot be broken even though handled by a relatively inexperienced or inadept operator.

The sliding shelf 19 is preferably formed of a series of rods extending longitudinally of the slices of bacon. The wax paper 8 overlying the shingle unit 5 slides readily on the rods comprising the shelf 19. In any case, the coefficient of friction between the wax paper and the rods of the shelf is far less than the coefficient between the slices of bacon and the wax paper, so that the force required to restrain the shingle unit and the package thereon while the shelf 19 is withdrawn is nominal and insufficient to cause any disturbance of the position of the bacon slices.

It will be noted that the bacon slices remain with their more attractive sides upward, and that at the time of placement of the package thereover they may be readily inspected to be sure that the slices have not been disturbed.

While a particular embodiment of this invention has been shown and described, it is not intended to limit the same to the exact details of the construction set forth, and it embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

What is claimed is:

1. A method of packaging shingled bacon slices, characterized by: separating shingled bacon into shingle units and placing said shingle units without inversion on a backing sheet; placing a shingle unit with said backing sheet remaining thereunder on a shelf having substantially the width of said shingle unit; placing the front panel of a package member over said shingle unit; and then folding the sides of said package member over the sides of said shelf.

2. A method of packaging shingled bacon slices, characterized by: separating shingled bacon into shingle units and placing said shingle units without inversion on a backing sheet; placing a shingle unit with said backing sheet remaining thereunder on a shelf having substantially the width of said shingle unit; placing the front panel of a package member over said shingle unit; folding the sides of said package member over the sides of said shelf; withdrawing said shelf while manually restraining said package member and shingle unit, and holding a hand under said shelf to receive the backing sheet thereon; and then inverting said package member, shingle unit, and backing sheet to place said backing sheet uppermost.

3. A method of packaging shingled bacon slices, characterized by: placing a backing sheet having a shingle unit of bacon thereon upon a shelf substantially the width of said shingle unit; placing a package member having a windowed front panel and foldable side and back panels over said shingle unit with said window in registry with said shingle unit; and folding the side and back panels along the sides of said shelf.

4. A method of packaging shingled bacon slices, characterized by: placing a backing sheet having a shingle unit of bacon thereon upon a shelf substantially the width of said shingle unit; placing a package member having a windowed front panel and foldable side and back panels over said shingle unit with said window in registry with said shingle unit; folding the side and back panels along the sides of said shelf; and then inverting said package member to place said front panel under said bacon shingle.

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