May 22, 1962 I. B. COHEN ETAL 3,035,540

DEVICE FOR FORMING NON-ADHESIVE BACON SLICES

Filed April 19, 1960 3 Sheets-Sheet 1

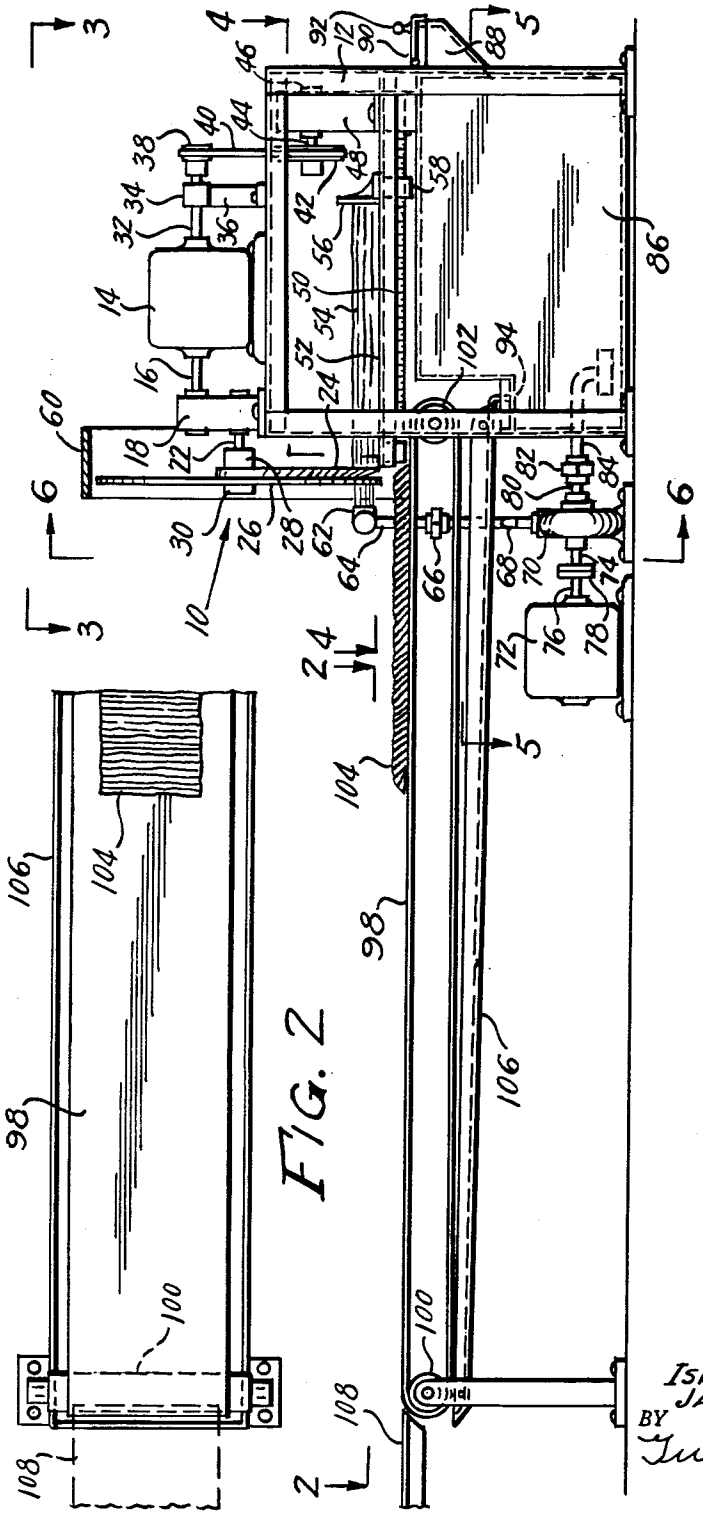


FIG. 1

FIG. 2

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FIG. 3

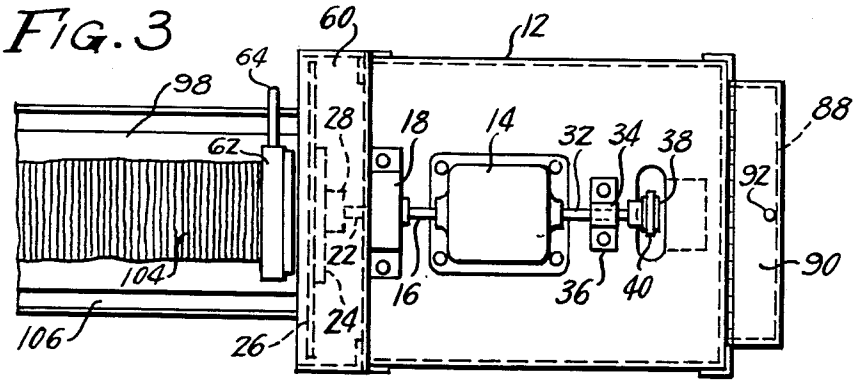


FIG. 4

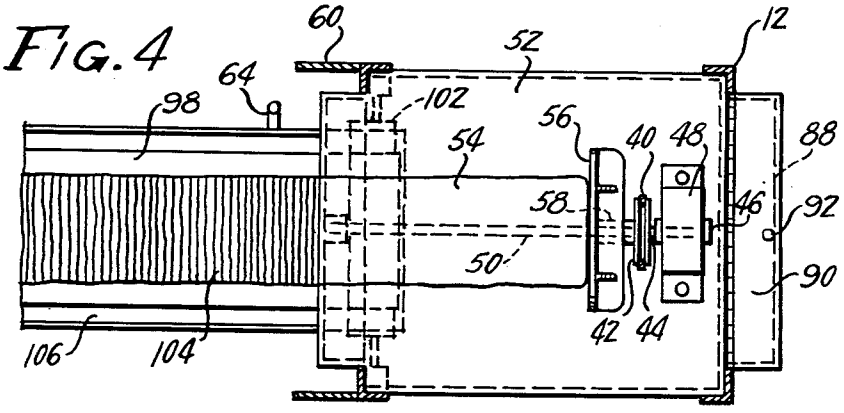
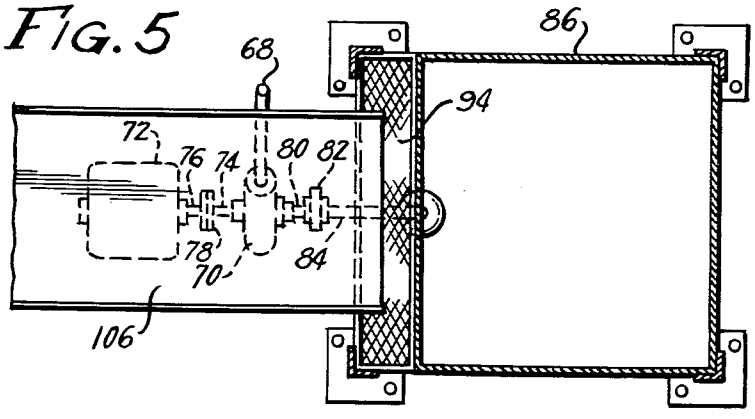


FIG. 5



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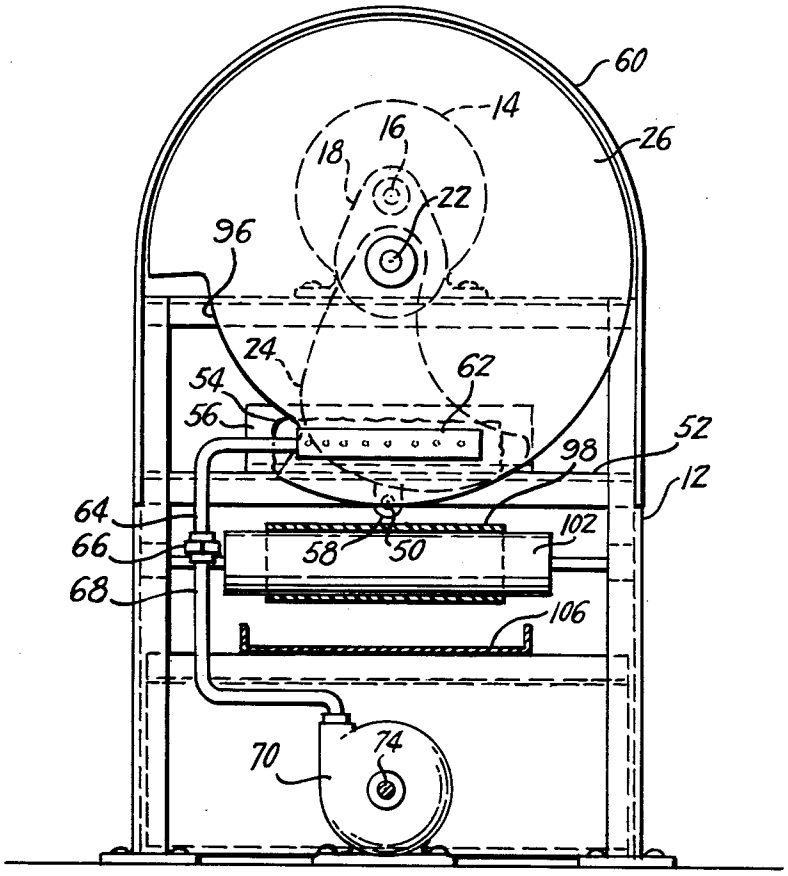


FIG. 6

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DEVICE FOR FORMING NON-ADHESIVE BACON SLICES

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9 Claims. (Cl. 118—15)

This invention relates to a device for treating bacon slices or the like, and it particularly relates to a device for forming non-adhesive bacon slices.

Bacon is today generally sold in the form of pre-sliced, pre-packaged units which are made up by the manufacturer or distributor and supplied in such form to the retailer. By the time the bacon reaches the consumer, the slices have usually become so adhered to each other that it is most difficult to separate them from each other without breaking them up. This is particularly so when the slices have been subjected to refrigeration.

In order to overcome the above difficulty, it has been found that when certain edible oils are applied to the bacon, such oils being capable of remaining fluid at relatively low temperatures, the tendency of the bacon slices to adhere together is largely overcome.

Various methods of applying the oil to the bacon were then proposed. Among such methods was the application of the oil to the slicing knife which was then supposed to transfer the oil to the bacon. This, however, proved to be inefficient and highly wasteful of oil.

Another proposal, such as shown in U.S. Patent 2,803,214, was to spray the oil directly on the bacon by means of a valve-controlled spray nozzle, the valve being operated in synchronism with the rotating knife to apply the spray while the knife was in the non-slicing position. However, this required unduly complex and expensive gearing or the like and the valve, furthermore, often could be subject to clogging, especially when there were impurities in the oil.

It is one object of the present invention to overcome the aforesaid difficulties by providing an oil applying device which is relatively simple in construction but which is highly effective in applying the oil to the bacon slices so as to make them substantially non-adhesive.

Another object of the present invention is to provide an oil applying device of the aforesaid type which can be easily operated by anyone without requiring any great amount of skill.

Other objects of the present invention are to provide an oil applying device, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

FIG. 1 is a side elevational view of a machine embodying the present invention.

FIG. 2 is a fragmentary top plan view taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary top plan view taken on line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 1.

FIG. 5 is a sectional view taken on line 5—5 of FIG. 1.

FIG. 6 is a sectional view taken on line 6—6 of FIG. 1.

Referring in greater detail to the drawings wherein similar reference characters refer to similar parts, there is shown a machine, generally designated **10**, comprising a framework **12** on which is mounted an electric motor **14**. The shaft **16** of motor **14** is connected through a conventional transmission means **18**, which may be a gear

train or a pulley and belt, of a suitable ratio to a shaft **22**. Coaxially mounted on shaft **22** are a rotatable slicing knife **24** and a rotatable guard disc **26**. The knife **24** and disc **26** are retained on the shaft **22** by means of collars or locking nuts **28** and **30**.

Extending from the motor **14** in an opposite direction from shaft **16** is a shaft **32**. The shaft **32** extends through a bearing **34** on the upper end of a standard **36** and is provided with a pulley **38**. The pulley **38** is connected by an endless drive belt **40** to a pulley **42** mounted on a shaft **44**. The shaft **44** journaled in bearings **46**, is drivingly connected through a conventional transmission box means **48** such as a gear reduction train, one end of a threaded rod **50** which is positioned under a table or rail assembly **52**.

The table **52** is adapted to slidably support a slab of bacon or the like indicated at **54**. Slidable on the table **52** is a pusher plate **56** which is adapted to push the slab **54** constantly against the knife **24** and disc **26**. The pusher plate **56** is urged against the slab **54** by means of a nut **58** in threaded engagement with rod **50**. As rod **50** rotates by means of its connection with motor **14** it threadedly tends to move nut **58** and therefore plate **56** toward the knife **24** and disc **26**. This is in timed relationship with the rotation of the knife **24** and disc **26** because of the actuation of all these elements by the same motor **14**.

The knife **24** and disc **26** are arranged within a housing or shroud **60**, this housing **60** not only serving as a protective guard for the knife **24** and disc **26** but also as a protective shield for an oil spray adapted to issue from a nozzle **62** positioned in front of the housing **60** and in line with the slab **54**.

The nozzle **62** is connected by a conduit **64** through a coupling **66** to a conduit **68** leading to a pump **70**. The pump **70** is operated by an electric motor **72** to which it is connected by shafts **74** and **76** engageable through friction clutch means **78**. The pump **70** is fed with oil through a conduit **80** connected by coupling **82** to a conduit **84** leading into a supply tank **86**.

A filling extension **88** for supplying oil to the tank **86** is provided at the upper rear portion of the tank **86** and this extension **88** has an open upper end removably covered by a cap **90** having a knob **92**. At the front end of the tank **86** is provided a stepped portion, the lower end of which is defined by a filter screen **94** positioned over an opening in the tank.

The spray from nozzle **62** is directed against the disc **26** which rotates in front of the knife **24**. However, just preceding the knife, the disc **26** is provided with a peripheral recess **96** (see FIG. 6) on its periphery. As this peripheral recess **96** comes into alignment with the nozzle **62**, it provides an opening permitting passage of the spray onto the end of the slab **54** just before that end is severed by the knife **24** to form a slice. The severed slice then falls down onto a conveyor belt **98** operated in any conventional manner around a pair of rollers **100** and **102**. The slices are indicated on the conveyor **98** by the designation **104**.

The excess oil from the spray which impinges against the face of the disc **26** falls either onto the slices **104** on the conveyor **98** or onto an inclined drain trough **106** under the conveyor **98**. This trough **106** inclines down toward the filter screen **94** covering the corresponding opening into the tank **86**. The return oil flowing back to the tank through the filter screen **94** is re-used in cyclic operation. However, when the amount of oil in the tank falls below a desired level, it is replenished through the filling opening in extension **88**.

After the oiled slices **104** fall onto the conveyor **98** they are conveyed to a packaging station generally indicated at **108**.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A device for decreasing the normal adhesiveness of slices cut from a pre-formed slab comprising a framework, a knife supported for rotation on said framework, a guard disc mounted for rotation on said framework coaxially with said knife and simultaneously rotatable therewith, drive means for rotating said knife and disc, a slab support on said framework for supporting a slab behind the knife and adjacent the peripheral path of rotation of said knife, means on said framework urging said slab against the knife, a peripheral recess in said disc immediately preceding the knife in the direction of rotation of the knife and disc, said peripheral recess being positioned to move into alignment with said slab support during rotation of said disc, a spray nozzle on said framework in alignment with said slab support, said disc being interposed between said nozzle and said knife, a source of sprayable fluid, means connecting said source to said nozzle, and means to receive slices cut from said slab by said knife.

2. The device of claim 1 and said means for rotating said knife and disc being an electric motor mounted on said framework and having a motor shaft drivingly connected to both said knife and said disc.

3. The device of claim 2 and said motor having a second shaft drivingly connected to a threaded rod, said rod being in operative threaded engagement with a threaded collar depending from a pusher plate adapted to slide on said slab support behind the slab, said pusher plate constituting said means for urging said slab against the knife.

4. The device of claim 1 and said means to receive slices cut from said slab comprising a conveyor.

5. The device of claim 1 and a drain trough below said knife and disc to receive excess fluid from said spray nozzle, said trough being connected to said source for return of said excess fluid to said source for recirculation.

6. A device for decreasing the normal adhesiveness of slices cut from a pre-formed slab comprising in combination a support for said slab, a rotatable knife having a path of rotation adjacent said support, a rotatable disc mounted coaxially with said knife and rotable simultaneously therewith, an opening in said disc in advance of said knife in the direction of rotation of said knife and disc, said disc being interposed between said nozzle and said knife, a spray nozzle in alignment with said support and in opposed relationship to that face of said disc which is remote from said knife, said nozzle being in a position to become aligned with said opening in said disc during rotation of said disc, a tank in fluid connection with said nozzle, drain means for receiving excess fluid sprayed from said nozzle, and means for recycling said excess fluid back to said tank.

7. The device of claim 6, said means for recycling said excess fluid including a filter means to filter said fluid prior to entrance back into the tank.

8. The device of claim 6, said means for recycling said excess fluid including a motor-actuated pump between said tank and said nozzle.

9. The device of claim 6, said support for said slab being provided with a pusher means urging said slab against said knife.

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