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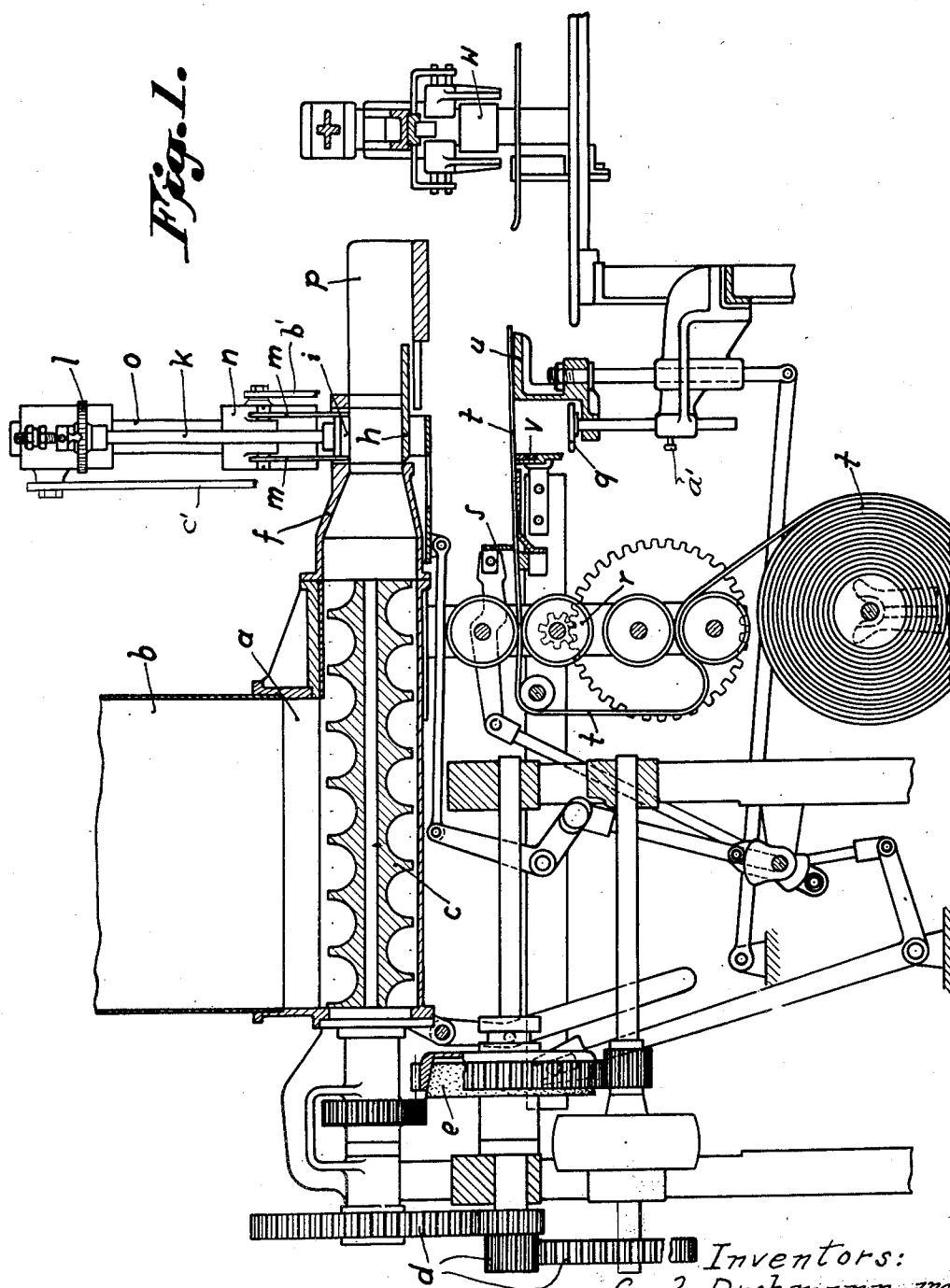
C. DROHMANN ET AL

2,019,002

MACHINE FOR PACKING NUTRIENT FATS

Filed Feb. 21, 1934

3 Sheets-Sheet 1



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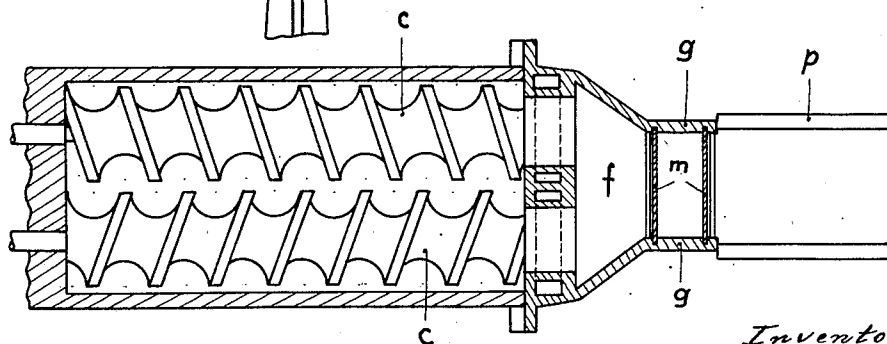
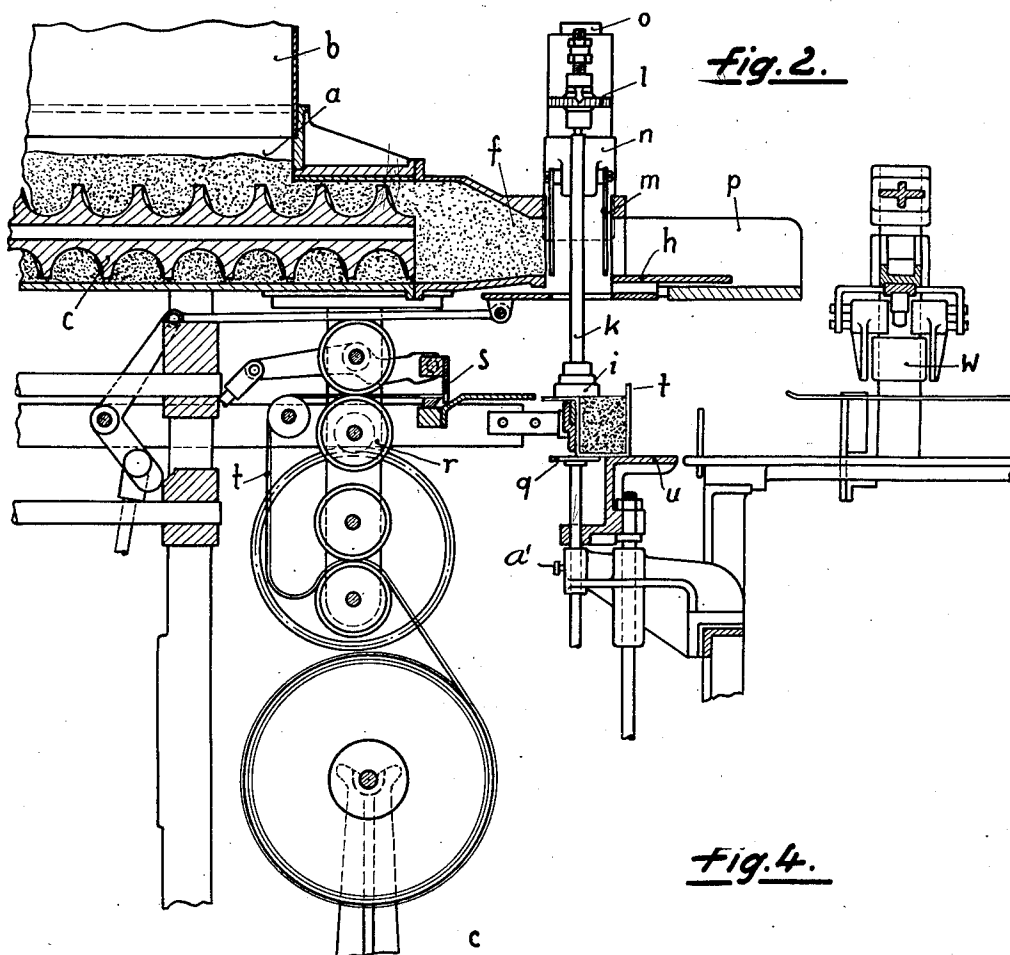
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MACHINE FOR PACKING NUTRIENT FATS

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3 Sheets-Sheet 2



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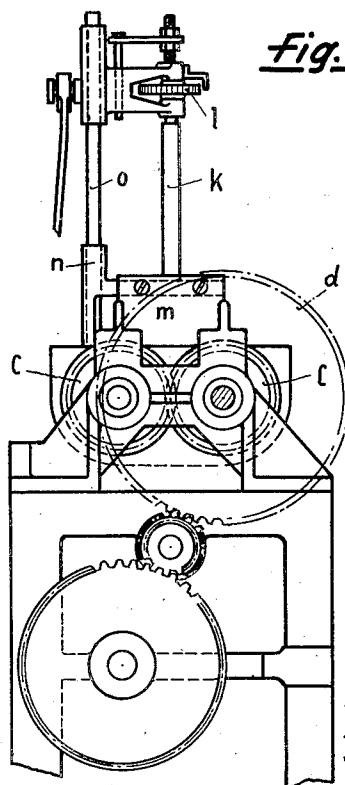
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MACHINE FOR PACKING NUTRIENT FATS

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,019,002

MACHINE FOR PACKING NUTRIENT FATS

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4 Claims. (Cl. 31-14)

This invention relates to machines for packing nutrient fats and like plastic materials, and particularly to a machine adapted to shape, measure and wrap up lard in solid blocks.

5 Machines for cold packing butter and similar substances are known wherein the butter is pressed into the form of a bar which is cut into blocks by means of a tensioned wire. This method, however, cannot be applied to packing lard, 10 which is excessively sticky and will adhere to knives, guides and other parts.

15 An object of the present invention is to effect a clean and satisfactory measuring and packing of lard and other plastic substances in blocks of determined size.

20 The machine according to the present invention comprises means for extruding a compacted bar of the plastic into a measuring space having two fixed side walls and two other side walls formed by knives arranged at a fixed distance 25 apart. The measuring space has its top wall formed by an adjustable and displaceable stamp, and its bottom wall is provided by a slide which can be moved to open and close said space. The stamp is adjustable as to its height from the bottom wall of the measuring space, whereby the thickness of the block can be varied. The stem of the stamp is preferably provided with an adjusting screw and scale which can be adjusted 30 according to the specific volume of the fat worked, so that the weight of the block cut off by the knives remains constant. After the bottom slide has been automatically moved aside, the shaped block thus produced is ejected by the descending stamp onto a sheet of wrapping paper, and then falls therewith into a channel-like space. A stripper forming one side of the space removes 35 from the bottom of the ejecting stamp any fat adhering thereto and adds it to the block of lard to be packed to maintain absolute equality in the weight of the blocks. Simultaneously, the shaped block is passed by the stripper to a wrapping device where it is caught and the paper folded in a folder, whereupon the finished package is thrown out or guided to a labelling machine. 40

By way of example, the invention is illustrated in the accompanying drawings, in which:

50 Figure 1 is a general diagrammatic elevation of the machine partly in section,

Fig. 2 is a similar view, omitting parts of the drive connections, and showing some of the devices of the machine in different working positions from those shown in Fig. 1, 55

Fig. 3 is a partial end view showing the drive connections of the extrusion device, and

Fig. 4 is a partial horizontal section through the extrusion device and the measuring chamber.

Referring to the drawings, a supply box *a* having an inlet opening disposed below a hopper *b* contains one or more press screws *c* which are intermittently driven through a train of gears *d* and a friction clutch *e*, by power applied to a pulley *d*₁. The press screws *c* engage the fat introduced into the hopper *b* and force it through a nozzle *f* with an orifice of such shape as will extrude a bar of uniform cross-section corresponding to that of the blocks to be packed. In the nozzle *f* coils, jackets, or other suitable means are preferably provided for heating or cooling the lard when traversed by a hot or cold medium. The measuring space at the end of the nozzle *f* comprises two fixed side walls *g* and a bottom wall provided by a slide *h* positively reciprocated by link connections and an eccentric *h*₁ on a countershaft *h*₂ driven by means not shown from the aforesaid power. The upper wall of the measuring space is formed by a pressing or ejecting stamp *i* which is adjustable so as to vary its distance from the slide *h*. The exact position of the stamp *i* can be read on an adjusting screw *l* provided with a scale and secured to the stem *k* of the stamp *i*. This ejecting stamp *i* is also positively moved up and down by the main power through connections including a rod *c'* shown in Fig. 1. The vertical knives *m* are provided at opposite sides of the stamp *i*, which knives are firmly guided in the fixed side walls *g* of the measuring space and can be moved up and down, said knives forming the other side walls of the measuring space in their lower position in which they sever a block from the extruded bar of length corresponding to the distance between said knives. The knives *m* are secured to a member *n* slidable vertically on a column *o* of the machine frame and which member also is reciprocated from the main power by any suitable means such as a rod *b'* fixed at one end thereto as shown in Fig. 1. The measuring space connects with a short channel *p* for collecting waste fat during separation of the block. Under the dosing space a plate *q* is arranged onto which the separated piece falls from the ejecting stamp *i*. The plate is in a fixed position by means of an adjusting screw *a'*. 50

A device *r* is provided which serves for supplying a strip of wrapping paper, and a knife *s* is provided which cuts off pieces *t* of proper length from the roll *t*₁ and pushes each piece over the 55

plate *q*, into the path of the block falling from the stamp *i*. At one side of the plate *q* a ledge *u* is arranged to protect the block and to insure sharp edges in the packet, this ledge being vertically reciprocable to enable it to be lowered to the level of the plate to clear the path of the block in its further travel now to be described. The ledge *u* is driven from the shaft *h*₂ in any convenient manner. A stripper *v* at the opposite side of the plate *q* scrapes off any lard adhering to the bottom of the stamp *i* and adds it to the block on the plate *q*, or if the severed block has adhered to the stamp in its downward travel instead of dropping therefrom, the stripper will remove the block from the stamp cleanly without leaving any measured lard adhering to the stamp. The stripper in its advance to the right (Fig. 1) guides the block to the folding device *w* in which the strip of paper surrounding the block on three sides is placed around the last side also and then closed. The stripper *v* is reciprocated by any suitable means not shown.

The device operates as follows:

Lard having as nearly uniform specific volume as possible is introduced into the hopper *b* and is caught by the feed or press screws *c*. The hopper *b* is high so that a large amount of lard can be put in at the same time and the weight thereof exerts such a pressure on the underlying fat particles that air spaces capable of influencing the weight of the finished package cannot develop. The screws *c* turn intermittently and press a compacted bar of the fat from the nozzle *f* into the measuring space. During this process the bottom slide *h* is closed and the ejecting stamp *i* is in an upper position which corresponds to the specific volume of the fat concerned and into which it has been set by the set screw *l*. When the pressed bar slightly projects beyond the dosing space, the screws *c* are stopped, whereupon the two knives *m* are positively moved down into the measuring space to enclose therein a severed block of lard of size determined by the volume of said space. In the meantime the paper supply device *r* has carried the strip of paper over the stripper *v* and the ledge *u*, and a suitable length has been cut off by the knife *s*. Then the slide *h* moves to the right to open the bottom of the measuring space, and the ejecting stamp *i* descends and the block is pressed, or drops, it is immaterial which, onto the paper *t*, the plate *q*, and between the ledge *u* and the stripper *v*. In this way the paper strip is placed around three sides of the piece. The ledge *u* then moves down, and the stripper *v*, with the interposition of the wrapping paper, strips the block cleanly off from the stamp *i*, or cleans the bottom of the same, and pushes the block onto feed means of the folder *w*, where the piece is caught and completely surrounded with the wrapping paper in known manner. Then the ejecting stamp *i*, the knives *m*, and the ledge *u* return to their normal positions, the bottom slide *h* closes and the process can be repeated. The device may connect with a labelling machine or with a device for packing the wrapped blocks in boxes or similar containers.

What is claimed is:

1. A machine for forming lard and substances of like consistency into blocks of determined size, comprising a nozzle, means for intermittently extruding a homogeneous bar of the substance of uniform cross-section through said nozzle, a chamber receiving the bar and having parallel sides defining two opposite walls of a measuring space, a pair of knives arranged at a definite distance apart and forming opposite side walls of the measuring space transverse to the first mentioned walls, means in the said parallel sides of the chamber for guiding the knives in fixed parallel planes transversely to the bar, a slide movable to close and open the bottom of the measuring space, means for reciprocating the knives while the bar is stationary to sever blocks therefrom, a device for ejecting the severed block from the measuring space when the slide is moved to its open position.

2. A machine for forming lard and substances of like consistency into blocks of determined size, comprising a nozzle, means for intermittently extruding a homogeneous bar of the substance of uniform cross-section through said nozzle, a chamber receiving the bar and having parallel sides defining two opposite walls of a measuring space, a pair of knives arranged at a definite distance apart and forming opposite side walls of the measuring space transverse to the first mentioned walls, means in the said parallel sides of the measuring chamber for guiding the knives in fixed parallel planes transversely to the bar, a slide movable to close and open the bottom of the measuring space, means for reciprocating the knives while the bar is stationary to sever blocks therefrom, a movable device for ejecting the severed block from the measuring space, said device prior to its ejecting movement forming the top wall of said space, and means for adjusting the distance of said device from the slide when the latter is in closed position and the ejecting device is forming a wall of the measuring space.

3. A machine for forming lard and substances of like consistency into blocks of determined size, comprising a nozzle, means for intermittently extruding a homogeneous bar of the substance of uniform cross-section through said nozzle, a chamber receiving the bar and having parallel sides defining two opposite walls of a measuring space, a pair of knives arranged at a definite distance apart and forming opposite side walls of the measuring space transverse to the first mentioned walls, means in the said parallel sides of the chamber for guiding the knives in fixed parallel planes transversely to the bar, a slide movable to close and open the bottom of the measuring space, means for reciprocating the knives while the bar is stationary to sever blocks therefrom, a device for ejecting the severed block from the measuring space when the slide is moved to its open position, a plate receiving the severed block fed by the ejecting device, and means adjacent said plate for cleanly removing all the measured lard from said device and including it in the block.

4. A machine for forming lard and substances of like consistency into blocks of determined size, comprising a nozzle, means for intermittently extruding a homogeneous bar of the substance of uniform cross-section through said nozzle, a chamber receiving the bar and having parallel sides defining two opposite walls of a measuring space, a pair of knives arranged at a definite distance apart and forming opposite side walls of the measuring space transverse to the first mentioned walls, means in the said parallel sides of the chamber for guiding the knives in fixed parallel planes transversely to the bar, a slide movable to close and open the bottom of the measuring space, means for reciprocating the knives while the bar is stationary to sever blocks therefrom, a device for ejecting the severed block from the measuring space when the slide is moved to its open position, a plate receiving the severed block fed by the ejecting device, and means adjacent said plate for cleanly removing all the measured lard from said device and including it in the block.

5. A machine for forming lard and substances of like consistency into blocks of determined size, comprising a nozzle, means for intermittently extruding a homogeneous bar of the substance of uniform cross-section through said nozzle, a chamber receiving the bar and having parallel sides defining two opposite walls of a measuring space, a pair of knives arranged at a definite distance apart and forming opposite side walls of the measuring space transverse to the first mentioned walls, means in the said parallel sides of the chamber for guiding the knives in fixed parallel planes transversely to the bar, a slide movable to close and open the bottom of the measuring space, means for reciprocating the knives while the bar is stationary to sever blocks therefrom, a movable device for ejecting the severed block from the measuring space when the slide is moved to its open position, a plate receiving the severed block fed by the ejecting device, and means adjacent said plate for cleanly removing all the measured lard from said device and including it in the block.

severed block from the measuring space, said device prior to its ejecting movement forming the top wall of said space, means for adjusting the distance of said device from the slide when the latter is in closed position and the ejecting device is forming a wall of the dosing space, a plate

receiving the severed block fed by the ejecting device, and means adjacent said plate for cleanly removing all the measured lard from said device and including it in the block.

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