

June 17, 1941.

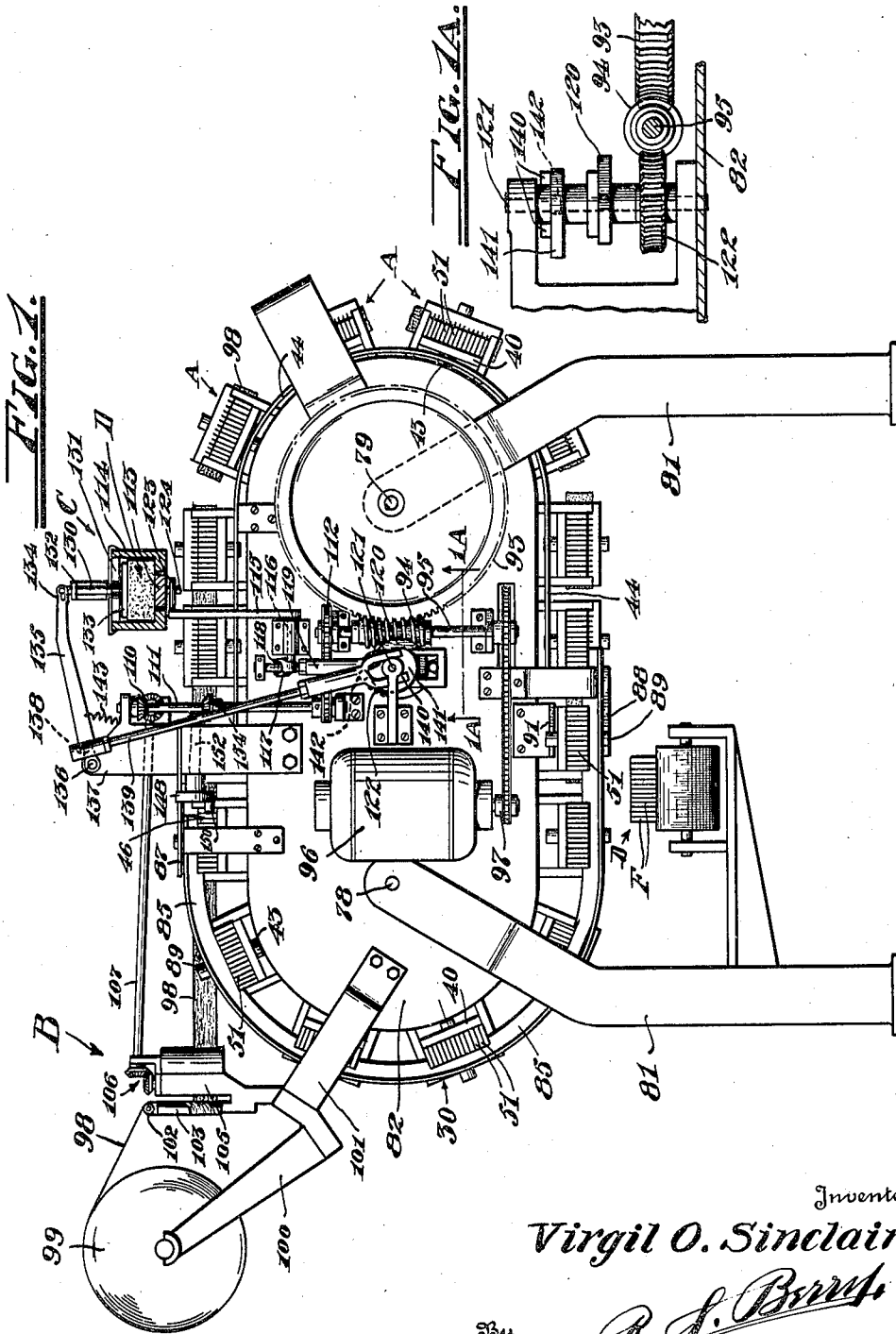
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2,246,016

MACHINE FOR PACKAGING BUTTER, CHEESE, AND SIMILAR COMMODITIES

Filed Nov. 1, 1939

7 Sheets-Sheet 1



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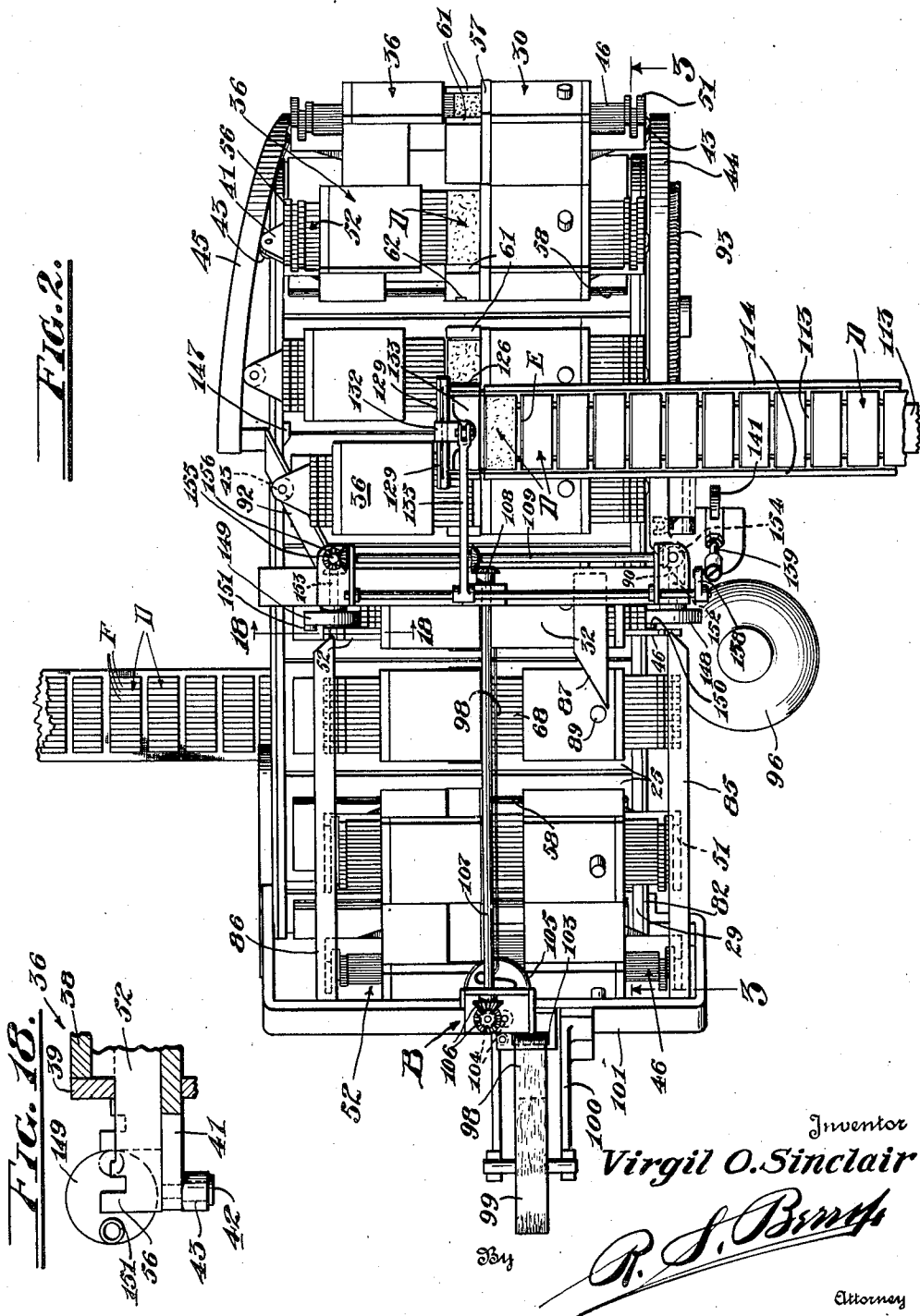
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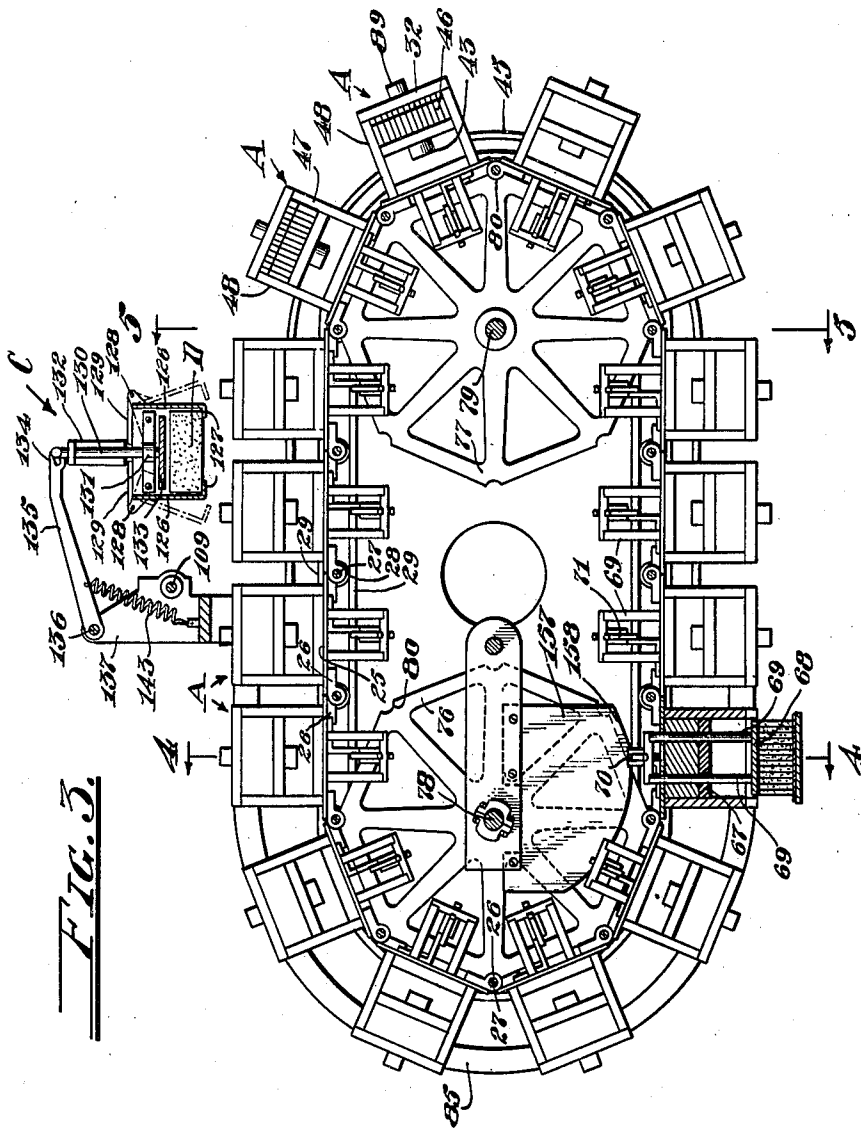


FIG. 3.

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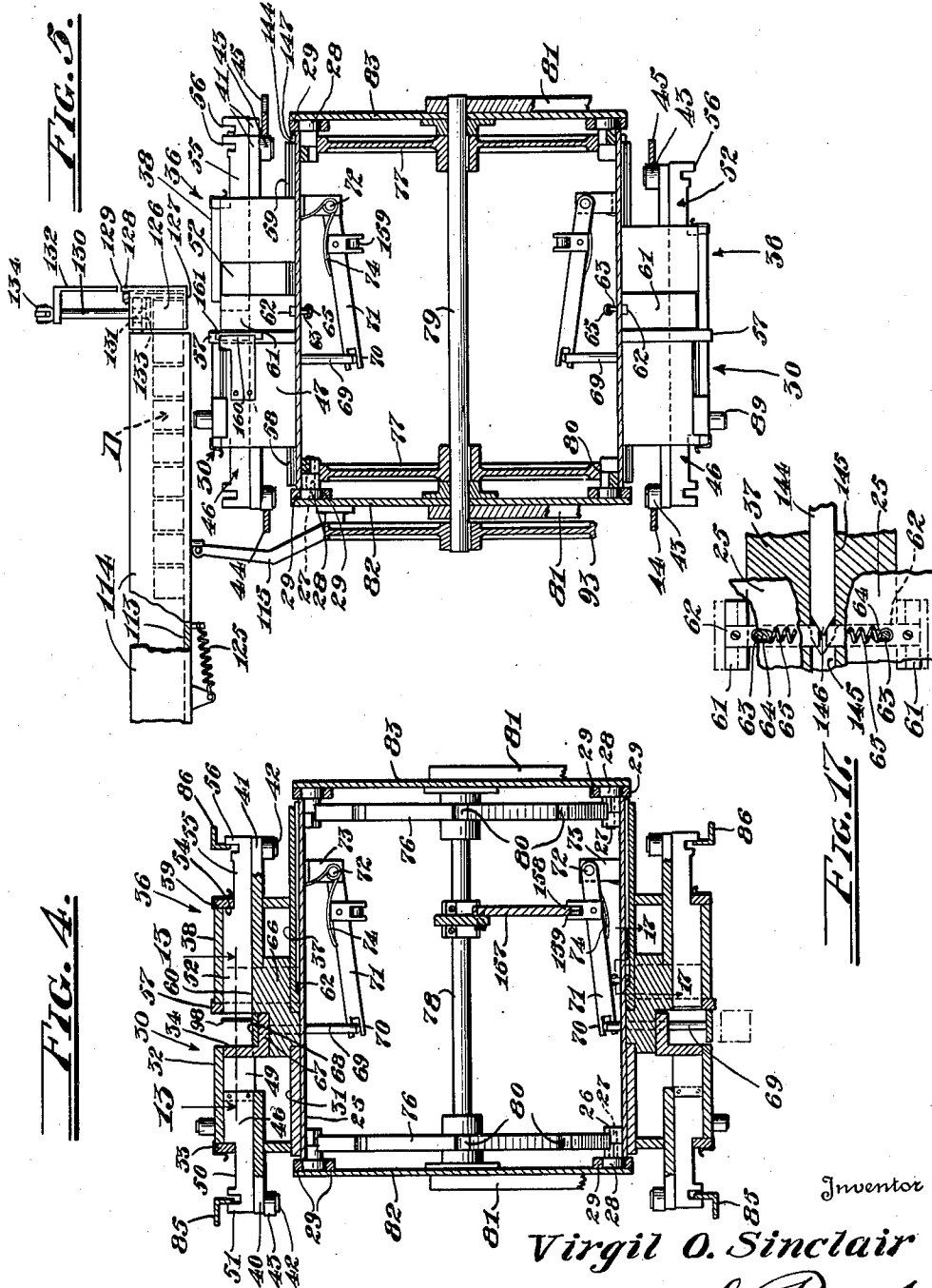


FIG. 4.

FIG. 5.

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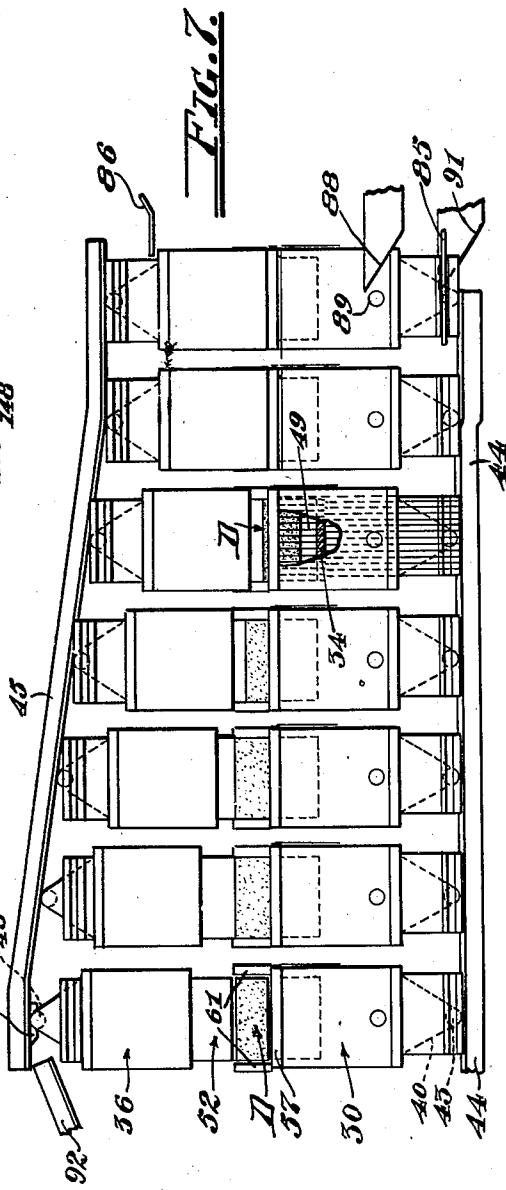
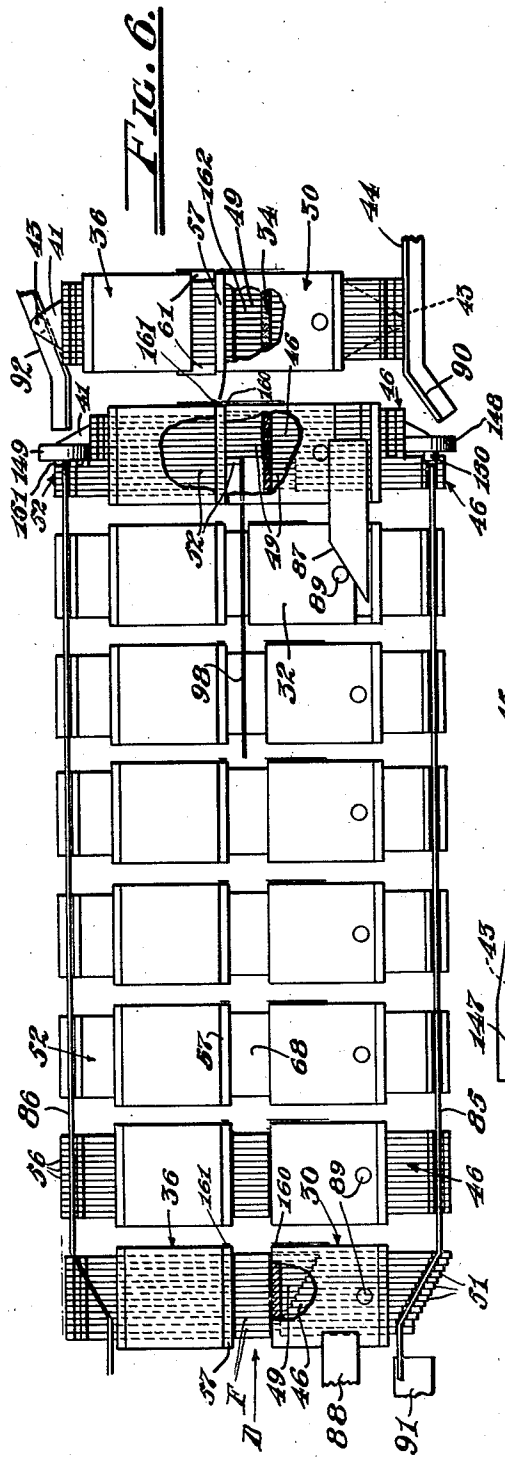
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MACHINE FOR PACKAGING BUTTER, CHEESE, AND SIMILAR COMMODITIES

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MACHINE FOR PACKAGING BUTTER, CHEESE, AND SIMILAR COMMODITIES

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FIG. 8.

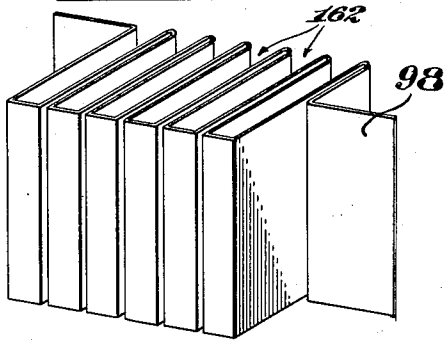


FIG. 9.

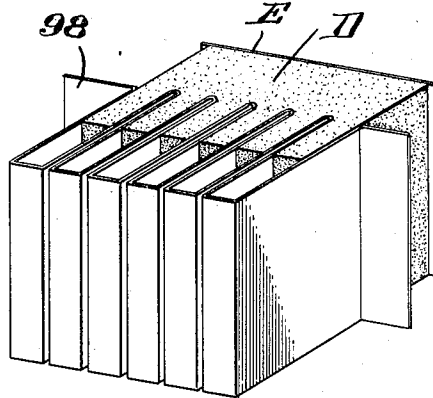


FIG. 10.

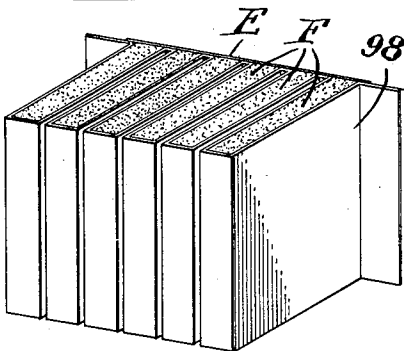


FIG. 11.

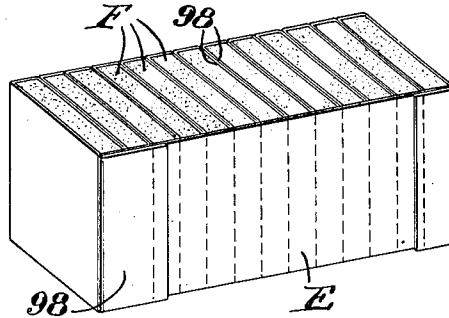
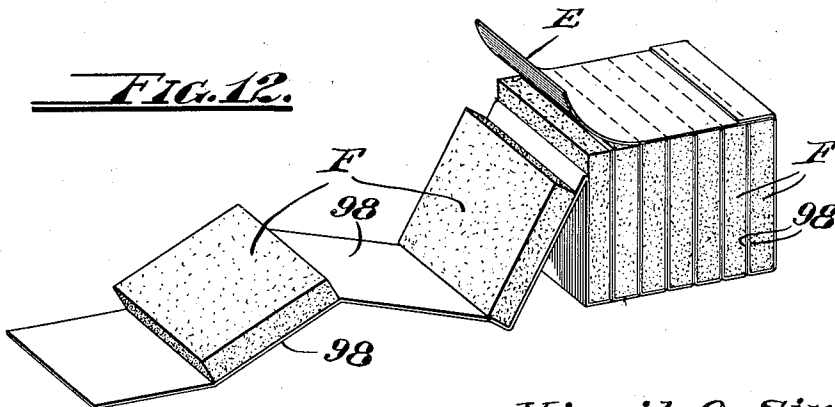


FIG. 12.



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FIG. 13.

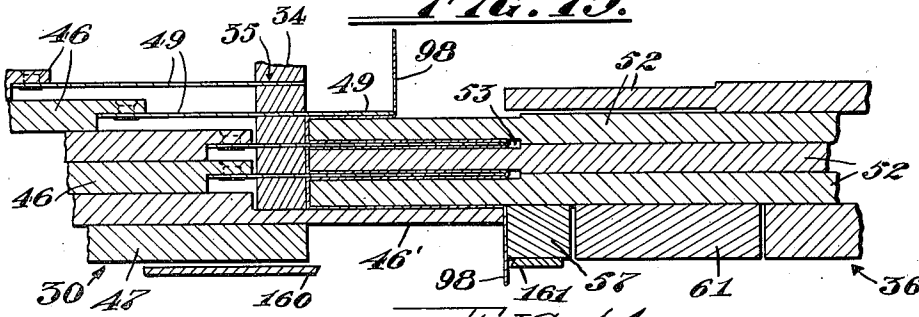


FIG. 14.

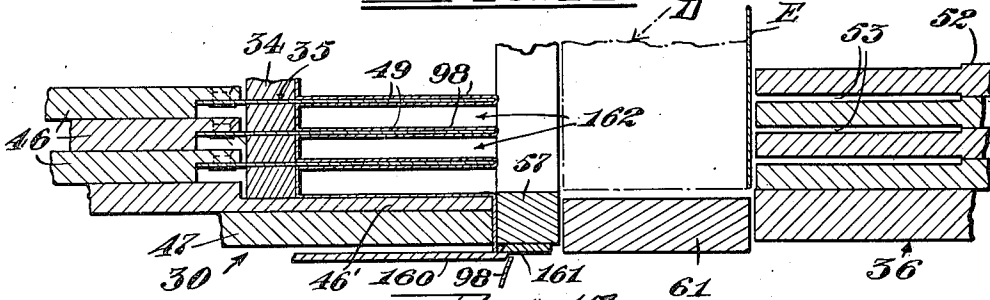


FIG. 15.

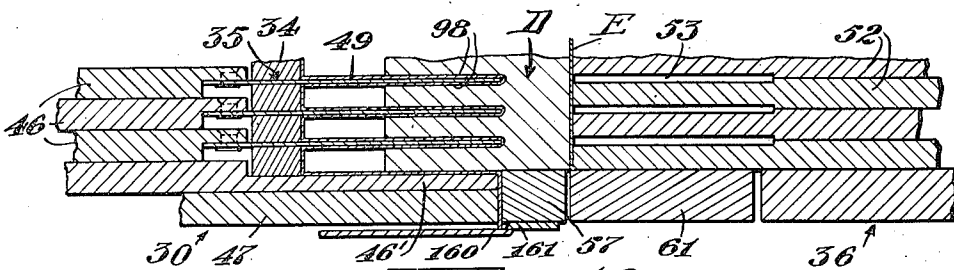
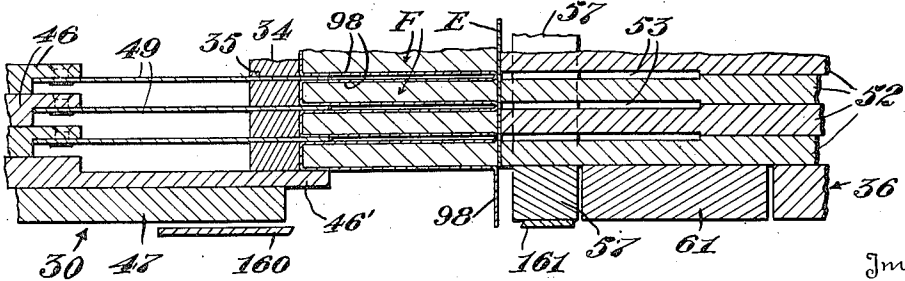


FIG. 16.



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# UNITED STATES PATENT OFFICE

2,246,016

## MACHINE FOR PACKAGING BUTTER, CHEESE, AND SIMILAR COMMODITIES

Virgil O. Sinclair, Los Angeles, Calif.

Application November 1, 1939, Serial No. 302,335

13 Claims. (Cl. 93—2)

This invention relates to a machine for packaging butter, cheese, and similar commodities which are adapted to be initially formed into ribbons or cakes that may be reduced to pats.

An object of the invention is to provide a mechanism that will operate to separate a cake of butter, cheese or the like into a plurality of relatively small rectangular slabs of the character commonly known as pats, and to arrange a series of such pats on a ribbon of paper or similar material with such ribbon folded back and forth upon itself and arranged with a pair of adjacent folds of the ribbon interposed between adjacent of the pats.

Another object is to provide means in a machine of the above character whereby a ribbon of paper or similar sheet material may be folded upon itself into a series of overlying folds with adjacent folds disposed in an arrangement of spaced pairs of folds and with the folds of each of such pairs disposed in or near surface contact with each other, and which machine also embodies means for forming pats of butter or the like and positioning same in the spaces between the adjacent pairs of folds in the ribbon.

Another object is to provide a means in the machine whereby a series of groups of the pats may be assembled on a length of ribbon with adjacent groups spaced apart, together with means for effecting separation of the adjacent groups whereby the machine is rendered capable of effecting an output of a series of packages of the pats during operation thereof on feeding a ribbon together with the material to be packaged thereto.

Another object is to provide a machine which will operate simultaneously on blocks of butter, or like material, and a ribbon of paper or the like, to form a series of packs consisting of a plurality of pats arranged face to face with lengths of the ribbon interposed between adjacent of said pats, and in which a multiple of the pack forming units are conveyed in endless chain arrangement successively to and from mechanisms feeding the blocks of butter and the ribbon into the machine, thus producing a substantially continuously operable pat forming and packaging machine.

Another object is to provide a packaging machine of the type in which a package of pats is produced in which adjacent pats are disposed in compact parallel aligned arrangement with overlapped folds of a flexible ribbon wrapper interposed between contiguous pats in a manner to effect complete separation of the pats and

with the pats positioned on the same side of the ribbon so that the individual pats housed in the package may be separated by unfolding the ribbon.

A particular object of the present invention is to provide an effective means in a machine of the above character for folding the ribbon by a series of successive operations such that the ribbon will be fed progressively back and forth in a forming mechanism to provide a series of parallel overlying folds and in such fashion as to obviate rupturing of the ribbon during the folding thereof.

Another object is to provide an arrangement whereby a portion of the mechanism employed in folding the ribbon will serve as a support for the folded ribbon to hold the latter in a position such as to provide a series of pat receiving spaces, and whereby another portion of the folding mechanism be employed in filling such spaces by advancing a block of the plastic material to be packed simultaneously into a series of the spaces, whereby the block is divided into uniformly dimensioned pats and the latter packed between the folds of the ribbon in a single operation.

Another object is to provide a pat forming and packaging machine embodying opposed groups of reciprocal parallel plate-like elements arranged so that the elements of each group may be advanced into overlapping relation with the elements of the other group, and in which the elements of each group may be advanced separately and successively relative to the elements of the other group so as to effect folding of a flexible ribbon interposed between the series of elements into a series of successive back and forth folds, and also in which a group of the elements may be retracted relative to the other group of elements so as to leave the folded ribbon in a supported position on the latter, and furthermore in which the retracted group of elements may be advanced collectively to act as a plunger to force the plastic material to be packaged between the folds of the ribbon.

Another object is to provide a packaging unit embodying the features above set forth which is adapted to be advanced in its entirety along a defined path of travel whereby a series of such units of any desired number may be assembled in a single machine whereby a machine of considerable capacity of any desired capacity, within practical limits may be produced.

A further object is to provide a mechanism of the above character which is especially appli-



cable for use in the packaging of butter and kindred plastic products and which by reason of its construction and mode of operation will effectively package such materials in small slabs of the character known as individual chips or pats without appreciable waste and in an economical efficient and practical fashion.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention is carried into effect as illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a view in side elevation of a machine embodying the invention with a portion thereof shown in section;

Fig. 1—*a* is an enlarged detail in horizontal section as seen on the line 1—*a*—1—*a* of Fig. 1 in the direction indicated by the arrows;

Fig. 2 is a plan view of the machine with portions thereof broken away;

Fig. 3 is a view in section partly in elevation taken on the line 3—3 of Fig. 2 with parts removed;

Fig. 4 is a view in cross section as seen on the line 4—4 of Fig. 3 in the direction indicated by the arrows;

Fig. 5 is a view in section and elevation taken on the line 5—5 of Fig. 3 as seen in the direction indicated by the arrows;

Figs. 6 and 7 are schematic plan views readable in their order depicting the mode of operation of the machine;

Fig. 8 is a detail in perspective illustrating the wrapper ribbon as initially formed in the machine;

Fig. 9 is a perspective view illustrating the manner of initially feeding a block of butter into the formed wrapper ribbon shown in Fig. 8 and depicting the manner of dividing the block into pats;

Fig. 10 is a perspective view similar to Fig. 9 showing the block of butter as divided into pats and packaged in the wrapper ribbon;

Fig. 11 is a perspective view of the completed package as seen from the side thereof opposite that shown in Fig. 10;

Fig. 12 is a perspective view illustrating the manner of opening the package shown in Fig. 11 in effecting the removal of pats therefrom;

Fig. 13 is a diagram in horizontal section depicting the mode of operation of the mechanism for effecting progressive folding of the wrapper ribbon;

Fig. 14 is a diagram in section of the mechanism shown in Fig. 13 with the parts positioned after effecting formation of a folded wrapper ribbon and in readiness for filling the latter;

Fig. 15 is a diagram in section of the mechanism shown in Fig. 14 showing the mode of filling the wrapper;

Fig. 16 is a diagram in horizontal section of the mechanism shown in Fig. 15 with the parts positioned on completion of the filling operation and preliminary to movement of the parts to effect discharge of the completed package;

Fig. 17 (Sheet 4) is a fragmentary plan view and section taken on the line 17—17 of Fig. 4;

Fig. 18 (Sheet 2) is a detail in section and elevation as seen on the line 18—18 of Fig. 2;

Referring to the drawings more specifically particular reference now being had to Figs. 4 and 5 thereof, 25 designates the base plate of a slicing and packaging unit A which, as here shown, constitutes a link carriage; the plate 25 being fitted with pairs of brackets 26 adjacent each end

thereof carrying stud shafts 27 on which are mounted rollers 28 arranged to travel on a pair of continuous rails 29. Any suitable number of the carriages thus formed are adapted to be linked together in the form of a chain, as indicated in Fig. 3 with the brackets 26 of adjacent plates 25 forming with the stud shafts 27 an articulate connection between adjacent plates and whereby an endless chain of the packaging units may be mounted to transverse the continuous tracks 29.

Mounted on one end portion of each of the plates 25 is a movable box-like housing 30 embodying parallel bottom and top walls 31 and 32, an outer end wall 33 and a fixed inner end wall 34 which latter is formed with a series of vertically extending parallel slots 35 as shown in Figs. 13 to 16 inclusive. A similar box-like housing 36 is movably mounted on the other end portion of the plate 25 which embodies parallel bottom and top walls 37 and 38, and an outer end wall 39. The end walls 33 and 39 of the housing 30 and 36 are fitted with horizontally extending brackets 40 and 41 respectively on which are carried downwardly extending stud shafts 42 fitted with rollers 43 engageable with the rails 44 and 45 as will hereinafter be more fully described. The vertical rollers 28 travelling in the channel track 29 support the plate 25 against vertical movement relative to the track 29, while the horizontal rollers 43 travelling along the track 44 serve to hold the housings 30 and 36 against movement relative to each other for a portion of the travel of the carriages and to effect relative movement of the housings 30 and 36 during another portion of the travel of said carriages.

Mounted in the housing 30 and guided therein is a series of slides 46 in the form of vertically extending rectangular plates the lower margins of which seat on the upper face of the bracket 40 and the upper margins of which abut the top wall 32 of the housing; the adjacent slides abutting face to face in slidable contact with each other and with the end slides slidably abutting opposed side walls 47 and 48 of the housing 30. The slides 46 are mounted for horizontal reciprocal movement between the end walls 33 and 34 of the housing and are fitted at their forward edges with rectangular blades 49 which project into the slots 35 in the inner end wall 34 of the housing 30 and which blades are designed to be disposed with their outer forward margins flush with the outer face of the end wall 34 when the slides 46 are in their fully retracted positions and abutting the end wall 33, and are designed to protrude forward of the end wall 34 corresponding distances when the slides 46 are in their advanced positions contiguous the end wall 34.

Each of the slides 46 is fitted with an extension 50 which projects through an opening in the end wall 33 and overlies the bracket 40, and which extension is formed at its outer end with an upwardly opening yoke 51 adapted to be engaged by a suitable operating mechanism, as will be hereinafter set forth, whereby the slides will be advanced successively independent of each other, and thereafter be retracted collectively at timed intervals while the carriage is being advanced on the rails 29.

Mounted in the housing 36 is a series of slides 52 which embody vertically disposed rectangular plates the lower margins of which seat on the upper face of the bracket 41 on the housing 36, and the upper margins of which abut the top wall 38 thereof. As here shown in Figs. 13 to 16 adja-

cent slides 52 slidably abut each other for a portion of the length of the outer end portions thereof, but are reduced in width for a portion of the length of the inner end portions thereof to provide spaces 53 therebetween. The slides 52 are substantially complementary and are designed to be disposed in a retracted position within the housing 36 with a shoulder 54 intermediate the ends thereof abutting the wall 39 of the housing, while their inner ends terminate at the inner end of the housing on a common vertical plane.

The several slides 52 are off-set relative to the slides 46 and are positioned so that on advancing the slides 52 and 46 relative to each other the blades 49 on the latter will extend into the spaces 53 and overlie the reduced inner end portions of the slides 42 in slightly spaced relation thereto.

The slides 52 are designed to be inwardly advanced successively independent of each other to a forward position with their inner ends nearly abutting the end wall 34 of the housing 30 and are also designed to be retracted collectively and then be advanced and retracted collectively while the slides 46 are maintained in their forwardmost position with the blades 49 protruding through the housing end wall 34. To accomplish this movement of the slides 52, each of the slides is formed with an extension 55 on the outer end thereof which protrudes through an opening in the end wall 39 of the housing 36 and is fitted at its outer end with a yoke 56 adapted to be engaged by an operating mechanism to effect the desired movement of the slides 52 as the carriage advances on the rails as will be hereinafter set forth.

Interposed between the housings 30 and 36 and fixedly carried on the plate 25 is a frame 57 relative to which said housings are movable on guides 58 and 59 mounted on the plate 25, as particularly shown in Fig. 5, and through which frame the outer ends of the slides 52 are adapted to advance.

Mounted on the carriage base plate 25 and projecting through the frame 57 and extending between the latter and the side walls of the housing 30 is a holder 60 for a block of butter or other plastic material to be packaged and which holder is here shown as embodying a pair of parallel side plates 61 between which the plastic block is adapted to be clamped to align it with the side members of the frame 57; the side plates 61 being carried on horizontal slides 62 guided on the bed plate 25, as particularly shown in Fig. 5. The slides 62 are fitted with downwardly extending pins 63 protruding through elongated transversely extending slots 64 in the bed plate 25 which pins are connected to the ends of an expansible coil spring 65 which exerts a pull on the pins 63 to normally maintain the side plates 61 in their innermost position against the edges of the bottom plate 37 of the housing 36.

The holder 60 embodies a block 66 that is fastened to the plate 25 and is fixed relative to the frame 57 and which block has an upper face portion extending on a plane with the upper face of the bracket 41 on which slides 52 in the housing 36 seat, so that the lower margins of said slides may advance over the block 66 in sliding contact therewith and relative to which block 66 the housings 30 and 36 are slidable on the guides 58 and 59.

As shown in Fig. 4 the block 66 is recessed on the upper portion thereof extending between

the frame 57 and the housing 30 to receive a flange 67 on the slotted wall 34 whereby said wall is fixedly carried by the block 66 and the plate 25. Supported on the flange 67 is an ejector plate 68 which extends between the frame 57 and wall 34 and is normally disposed in a position with the upper outer face thereof expending on the plane of the upper face of the block 66 and the lower margins of the blades 49 so that the latter may be extended through the slots 35 in the wall 34 over the plate 68. Stems 69 extend through flange 67, block 66 and plate 25 and connects with a yoke 70 on an arm 71 pivoted at 72 on a bracket 73 carried by the plate 25; a spring 74 bearing on the arm 71 and acting to normally dispose the latter in a position to maintain the ejector plate 68 in its seated position on the flange 67.

As a means for effecting rotation of the endless chain of the slicing and packaging units A, two pairs of octagonal sprocket wheels 76—76 and 77—77 are mounted on revoluble shafts 78 and 79 respectively, which sprocket wheels are formed marginal sockets 80 that are engageable with the brackets 26 of the link connections between adjacent units A, as particularly shown in Figs. 3, 4 and 5. The shafts 78 and 79 are journaled in suitable bearings carried on a machine frame which embodies pairs of standards 81 and also embodies parallel side plates 82 and 83 on the inner faces of which the continuous rails 29 are carried and on which rails the base plates of the units A travel.

Arranged on opposite sides of the machine frame and extending in proximity to the path of travel of the outer ends of the extensions on the slides 46 and 52 as they pass around one end portion of the elliptical path of travel of the units A, are a pair of rails 85 and 86 that are engageable with members of the yokes 51 and 56 to effect outward movement of the slides at certain points in the path of travel of the units and to hold the slides against longitudinal movement throughout a portion of the length of travel of the units.

Means are provided at one side of the machine at the end portion thereof opposite the rails 85 and 86, for effecting inward and outward movement of the top wall 32 of the housings 30. This means includes a pair of inclined tracks 87 and 88. The top wall is designed to be advanced toward the frame 57 independent of the housing side walls and is fitted with a roller 89 positioned for engagement with the tracks 87 and 88.

As a means for moving the housings 30 inwardly the rail 44 is provided with an inclined portion 90 that is engageable with the rollers 43 on the brackets 40 of the housings. An inclined rail 91 paralleling the rail 88 engages the rollers 43 on the brackets 40 to effect outward moving of the housings 30.

An inclined rail 92 is arranged adjacent the leading end of the rail 45 as shown in Fig. 2, which rail acts to engage the inner sides of the rollers 43 to effect outward movement of the housings 36 from their innermost to their outermost positions in a short length of travel of the units immediately before effecting delivery of butter blocks to the butter holders 60.

The shaft 79 is fitted with a toothed wheel 93 which meshes with a worm wheel 94 on a vertical shaft 95 here shown in Fig. 1 as adapted to be driven continuously from a motor 96 through a sprocket chain 97 in a conventional fashion.

The machine is equipped with a ribbon feeding

mechanism B for effecting delivery of a strip 98 of paper or the like from a roll 99 thereof revolvably supported on a carrier 100 supported on a bracket 101 carried on the side plates 82 and 83 of the machine frame. This ribbon feed embodies a pair of direction rollers 102 and 103 around which the ribbon 98 is passed on leaving the roll 99 in a fashion to change the ribbon from a horizontal to a vertical position and also includes conventional feed rollers 104 in a housing 105 on the bracket 101 and which feed rollers are driven through gears 106 from a shaft 107 driven by gears 108 from a horizontal counter-shaft 109 that in turn is driven by gears 110, shown in Fig. 1, from a vertical shaft 111 geared to the worm shaft 95 through a sprocket chain 112. The ribbon feed is thus driven coincident with driving of the chain of units A.

The machine is also equipped with a block feeding mechanism C whereby blocks D of butter or similar commodity are delivered to the holders 60 of the units A as they move successively to a block receiving position. This mechanism includes a reciprocal conveyor 113 fitted with angular guide rails 114 whereby the blocks D are fed over the top of the machine from a side thereof to a suitable ejecting mechanism; the conveyor 113 comprising a strip of wood supported between horizontal webs of the guide rails 114 and mechanism whereby the strip may be reciprocated with a stroke slightly exceeding the width of the blocks to be advanced thereby.

The conveyor operating mechanism is here shown as comprising an oscillatory arm 115 carried on a rock-shaft 116, shown in Fig. 1, which shaft is fitted with a laterally extending yoke 117 engaged by pins 118 on a vertically reciprocal shaft 119 that is actuated by a cam 120 on a shaft 121 fitted with a worm wheel 122 meshing with the worm 94 as shown in Fig. 1—A. The upper end of the arm 115 is fitted with a finger 123 that is engageable with a pin 124 projecting downwardly from the under-side of the conveyor strip 113 as shown in Figs. 1 and 5. A pull spring 125 connects with the conveyor strip 113 and is arranged to exert an outward pull thereon and to effect retraction of the conveyor strip 113 and of the arm 115 on the latter having been moved forward to advance the conveyor strip.

The forward end of the conveyor strip terminates contiguous a block ejector which embodies a pair of spaced depending oscillatory plate tongs 126 (shown in Fig. 3) that align with the angle guide rails 114 and substantially conform thereto; the tongs having inturned lower end flanges 127 for engaging the under-side of a block D to temporarily support the latter. The tongs 126 are pivoted at 128 to swing outwardly and inwardly relative to the ends of the block D and have inturned upper ends 129 that terminate proximate the opposite sides of a vertically reciprocal plunger rod 130 carried in a guide 131 supported on the adjacent ends of the guide rails 114. Fitted on the rod 130 is a down-turned finger 132 arranged to strike the terminal portions of the inturned ends 129 of the tongs 126 and to effect downward movement thereof with a resultant spread of the tongs and consequent release of a block D on downward movement of the rod. A plunger 133 is mounted on the lower end of the rod 130 for striking the upper face of a block D to insure discharge thereof from between the tongs on

spreading of the latter. The upper end of the plunger rod 130 is slidably engaged by a yoke 134 on the outer end of a vertically oscillatory arm 135 fixed on a rock shaft 136 journalled on standards 137 erected on the machine frame.

A crank 138 on the shaft 136, (shown in Fig. 1) pivotally connects with the upper end of a reciprocal rod 139 that is fitted at its lower end with a guide yoke 140 extending astride the hub of a cam 141 fixed on the shaft 121 and which cam engages a pin 142 on the base of the yoke 140 and acts on rotation of shaft 121 to effect upward longitudinal movement of the rod 139 and resultant upward movement of the arm 135 in opposition to a spring 143 connecting with the arm and arranged to exert a down pull thereon such as to effect downward movement of the arm 135 and of the plunger 133 on the pin 142 clearing a high point on the cam 127 to effect downward discharge of a block D onto the holder 60 between the side plates 61 of the latter.

Means are provided for effecting operation of the side plates 61 to spread the latter relative to each other in opposition to the spring 65, which means is shown in Fig. 17 (Sheet 4) as embodying a slide bar 144 guided for longitudinally reciprocal movement in a channel 145 formed in the plate 37; the bar 144 extending at right angles to the slides 62 and having a tapered end 146 extending between the contiguous ends of the slides which have beveled margins that seat on the inclined faces of the end 146 of the bar under the urge of the spring 65. The outer end of the slide bar 144 projects beyond the outer end of the plate 37 and is normally positioned by the action of the spring 65 and beveled ends of the slides 62 on the tapered end 146 of the slide bar to traverse a cam lug 147 (shown in Fig. 2) carried on the inner face of one of the rails 29 on the side panel 83 of the machine frame so as to cause the slide bar 144 to advance and effect spreading of the plates 61 at the point of delivery of a block D therebetween. The cam lug 147 is of such length as to disengage the slide bar 144 when the block D has been positioned on the holder block 60 so as to allow the spring 65 to then immediately clamp the plates 61 against the ends of the butter block and thereby center the latter and align it with the sides of opening of the frame 57.

Means are provided for effecting alternate inward movement of the wrapper forming slides 46 and 52 of each unit A in effecting folding of the ribbon 98 into the desired form for reception of pats to be formed from the block D, which means embodies a pair of revoluble disks 148 and 149 arranged adjacent the ends of the upper portions of the rails 85 and 86, as shown in Fig. 2; the disks 148—149 extending crosswise of the rail ends in parallel relation to the slides 46 and 52 and being fitted with laterally projecting rollers 150 and 151 respectively arranged to successively strike the outer ends of the extensions of the slides 46 and 52 on successive revolutions of the disks and thereby impel the alternate slides 46—52 inwardly. The action of this disk and roller arrangement is depicted in Fig. 18 on Sheet 2.

The disks 148 and 149 are fixed on shafts 152 and 153 that are driven from the counter-shafts 111 and 109 respectively, the shaft 152 being driven from shaft 111 by gears 154 and the shaft 153 being geared to a vertical shaft 155

driven by gears 156 from the shaft 109, as indicated in Fig. 2.

Means are provided for ejecting the packaged pats from the underside of the machine including the ejector plate 68, stems 69, yoke 70, and arm 71, which means embodies a depending cam track 157, shown in Figs. 3 and 4, having an inclined margin 158 arranged to be traversed by a roller 159 carried on the arm 71; the cam track acting to effect depression of the arm 71 as the latter is advanced with its associated unit A to effect downward movement of the plate 68 and a formed package of pats as shown in Figs. 3 and 4.

Means are provided for severing the ribbon 98 at a point between contiguous units A after feeding a block D thereto and before such units are caused to spread relative to each other as they advance downward around their arcuate path of travel at one end of the machine. This means embodies a pair of blades 160 and 161 mounted respectively on the side wall 47 of the housing 30 and a side member of the frame 57 and in such arrangement that as the housing 30 is advanced to bring the inner end of the side wall 47 against the ribbon 98 to pinch the latter against the frame 57, the cutting edge of blade 160 will advance over the cutting edge of the blade 161 and thereby sever the ribbon 98 that is then interposed between the blades as shown in Fig. 14.

The various operative parts of the machine are disposed in such physical relation to each other and are operated in such timed relation to each other as to effect the consecutive operations of folding the ribbon 98 in each advancing unit A into a series of parallel pockets, then sever the ribbon between adjacent units, then feed a block D into the holder in front of open ends of the pockets in the folded section of ribbon, then advance the block into the pocket and thereby effect division thereof into a series of pats that are pressed into the pre-formed pockets, then effect discharge of the finished package, and in the course of travel of the units effect restoration of the operating parts associated with each unit in readiness for another sequence of operations.

In the operation of the invention the endless chain of the units A is driven continuously by rotation of the shaft 79 and the wheel 77 thereon and through the medium of a worm drive comprising the wheel 93, worm gear 94, and the shaft 95 driven from the motor 96 through the chain and sprocket drive 97; the units A being thus advanced successively through the wrapper forming, lock receiving, patty forming and packing stations, and past the package ejecting station, as depicted diagrammatically in Figs. 6 and 7. During this course of travel the pair of housings 30 and 36 of each unit, the slides therein, and the cover portions of the housings 30, have certain timed movements imparted thereto through the medium of the several cam tracks associated therewith. At a starting position of an advancing unit A, which for the purpose of explanation is assumed to be at a point in the travel of the housing as it advances upwardly and forwardly over the wheel 76, the housings 30 and 36, the cover of the housing 30 and the groups of slides in each housing are retracted, and at this stage the paper ribbon 98 is extended between the housings 30 and 36 as indicated in Fig. 6. As the unit advances from this starting position the roller 89 on the cover 32 rides up the

incline 87 so as to effect movement of the cover 32 which is suitably guided for sliding movement on the walls of the housing 30; the cover 32 being thus advanced during a short length of travel of the unit to position the cover 32 over the space between the housing through which the ribbon 98 extends. The ribbon is then positioned edgewise between the housings 30 and 36 adjacent the side of the frame 57 presented toward the blade 49 as shown in Fig. 4. The slides 46 and 52 will then be acted on alternately by the pins 150 and 151 on the revolving disks 148 and 149 to successively advance the slides during the passage of a unit A past the revolving disks. During this operation the forwardmost slide 46 carrying an end plate, indicated at 46' in Fig. 13, is advanced against the ribbon 98 so as to clamp the end of the ribbon stationarily against the frame 57. The forward slide 52 is then advanced against the ribbon so as to advance a portion of the ribbon as drawn from the reel 99 across the inner face of the blade 49 until the advancing slide 52 is brought to rest with its inner end abutting the ribbon against the wall 34. The succeeding slide 46 is then advanced to cause the blade 49 thereon to feed the ribbon along the inner face of the then advanced slide 52 until the advancing plate 49 reaches its forwardmost position. The succeeding slide 52 then advances to feed the ribbon over the inner face of the then advanced blade 49 until it reaches its forwardmost position and whereupon the succeeding blades 49 and slides 52 are alternately advanced as indicated in Fig. 13 until the groups of slides are disposed in their forwardmost position. The slides 52 are then retracted substantially collectively to their rearwardmost position as shown in Fig. 14, by the outward movement of the housing 35 by the action of the roller 43 traversing the incline 92, thereby leaving the ribbon folded around the blades 49 and whereby the ribbon which has a width corresponding to the height of the blades 49 is folded to form pat receiving spaces 162 as shown in Fig. 8 that open to the space between the housings.

A block D of butter or similar plastic material is then positioned in the holder 59 in front of the then retracted slides 52 and in alignment with the inner margin of the frame 57 as shown in Fig. 14. The side of a block D presented to the assembly of slides 52 is faced with a sheet of thin flexible material E such as paper. The slides 52 are then advanced collectively against the paper faced side of the block D and are then further advanced to act as a plunger against the block D and force the latter forwardly through the frame 57 so as to cause the ribbon covered edges of the blades 49 to sever the block D vertically into a series of pats F which are advanced under the urge of the forwardly moving assembly of slides 52 into the pat receiving spaces 162 as indicated in Figs. 9 and 15. The block D is formed of a width corresponding to or approximating the length of the spaces 162 so that when the advancing ends of the pats abut the inner ends of the spaces the outer ends of the pats will be positioned substantially flush with the outer folds of the ribbon. On this being accomplished the slides 46 are retracted to withdraw the blades 49 from between the folds of the ribbon, as shown in Fig. 16, so that on retracting the assembly of slides 52 the completed package may be removed from the unit. The completed package will then appear substantially as shown

in Fig. 11, and will comprise a series of pats F interposed between folds of the ribbon on one side thereof.

The manner of feeding the block D to the holder between the slides and of effecting the relative movement of the slides to form the pats by pressing the block into the pat receiving pockets of the ribbon and for moving the housings 30 and 36 relative to each other, severing the ribbon, and ejecting the completed package has hereinbefore been set forth, and accordingly no repetition is required here.

While I have shown and described a specific embodiment of the invention it manifestly is subject to considerable modification and various changes in the construction of the parts and their arrangement may be resorted to without departing from the spirit of the invention and accordingly I do not limit myself to the specific construction herein disclosed and the invention embraces such constructions and arrangements as come within the appended claims.

I claim:

1. In a packaging machine, opposed groups of parallel slides, ribbon folding and supporting blades carried on the slides, the ribbon folding and supporting blades carried on the slides of one of the groups arranged in parallel relation to each other and arranged relative to the slides of the other group for positioning in overlapped relation and in close proximity thereto on advancing the slides of each group to the limit of their forward movement toward each other, and means for advancing and retracting said slides.

2. In a packaging machine, opposed groups of parallel slides, ribbon folding and supporting blades carried on the slides of one of the groups, arranged in parallel relation to each other and positioned relative to the slides of the other group for positioning in overlapped relation and in close proximity thereto on advancing the slides of each group to the limit of their forward movement toward each other, means for alternately advancing the slides of each group independently of each other whereby the individual slides of one group will be successively advanced in alternate relation to the successive advance of the individual slides of the other group.

3. In a packaging mechanism, a carriage, a pair of housings spaced apart on said carriage, a series of slides mounted in one of said housings, ribbon folding and supporting blades carried by said slides arranged in vertical parallel relation to each other and presented toward the other of said housings, a series of slides mounted in said last named housing disposed in parallel relation to each other in off-set relation to the blades on the other series of slides, each of said series of slides being mounted for movement toward and away from the slides in the other series and being adapted to be positioned with said blades overlying the forward end portions of the slides in the other series, and means for alternately advancing the slides of each series in successive sequence throughout each group of slides to effect folding of a ribbon into a series of folds around said blades.

4. In a packaging mechanism, a carriage, means for advancing said carriage, a pair of housings spaced apart on said carriage, a series of slides mounted on one of said housings, ribbon folding and supporting blades carried by said slides arranged in vertical parallel relation to each other and presented toward the other of

said housings, a series of slides mounted in said last named housing disposed in parallel relation to each other and off-set relative to the blades on the other series of slides, each of said series of slides being mounted for movement toward and away from the slides in the other series and being adapted to be positioned with said blades overlying the forward end portions of the slides in the other series, means for alternately advancing the slides of each series in successive sequence throughout each group of slides to effect folding of a ribbon into a series of folds around said plates, means for retracting the slides overlapped by said plates to a position in spaced relation to the outer ends of the latter, means for advancing said slides collectively to force a block of plastic material to be packaged into spaces formed between the ribbon covered blades, and means for retracting said blades from between the folds of ribbon imposed thereon.

5. The structure called for in claim 4, together with means for feeding a block of plastic material to be packed between the folded ribbon in the plates and the retracted group of slides.

6. The structure called for in claim 4, together with means for feeding a block of plastic material to be packed between the folded ribbon on the plates and the retracted group of slides, and means for ejecting the completed package from the advancing carriage.

7. In a packaging machine, means for folding a ribbon of flexible material into a series of open-ended pat receiving folds including reciprocable blades, means for successively moving said blades into position to form and lie between folds of the ribbon, means for forcing a plastic material to be packaged into the spaces between the folds occupied by said blades, and means for retracting said blades from between the folds of the ribbon.

8. In a packaging machine, means for progressively working a ribbon of flexible sheet material back and forth into a series of parallel folds with alternate spaces between the folds spaced apart to form open spaces for the reception of pats of material to be packaged, said means including reciprocable blades arranged to successively support the folded lengths of ribbon, means for advancing a block of plastic material to be packaged into the pat receiving spaces of said ribbon while the blades lie in said folds, and means for retracting said blades out of engagement with said ribbon.

9. In a packaging machine, a series of spaced parallel ribbon forming and supporting reciprocable blades, means for advancing said blades successively to a forwardmost position, a slide movable to an advanced position to overlie each of said blades, means for advancing said slides successively in alternate relation to the advance of said blades whereby a ribbon of flexible sheet material interposed between the ends of said blades and slides will be caused to advance progressively inwardly and outwardly over the contiguous faces of adjacent blades to form the ribbon into a series of folds with the blades projecting into said folds from one side of the ribbon and the slides projecting into the folds on the opposite side of the ribbon, means for withdrawing the slides from between the folds of the ribbon, and means for pressing slabs of the plastic material to be packaged into the spaces in the folds of the ribbon previously occupied by said slides and while the blades remain in said folds,

and means for withdrawing the blades out of engagement with the folds of the ribbon.

10. In a packaging machine, a group of parallel and reciprocable blades, means for successively extending said blades into ribbon folding position, means for folding a ribbon of flexible material progressively over opposed faces of said extended blades and around the outer ends thereof, means for forcing a block of plastic material to be packaged into the spaces between the ribbon covered blades, and means for retracting said blades out of engagement with said ribbon.

11. In a packaging machine, a series of carriages arranged in an endless chain, means for driving said chain of carriages, a packaging unit on each of said carriages embodying a pair of housings, means for delivering a ribbon for successive positioning between said housings as said carriages advance, opposed reciprocable members carried by said housings for successively folding said ribbon into a series of back and forth folds with certain of said reciprocable members supporting alternate folds in spaced relation to each other, means for delivering a block of butter or the like in front of the spaced folds of said ribbon, means for forcing the butter block between said spaced folds thereby severing the blocks into a series of pats, means for severing the ribbon

between adjacent carriages, and means for ejecting the packaged pats from the carriage.

12. In a packaging machine, means for progressively working a length of ribbon of flexible sheet material back and forth into a series of parallel folds including a series of complementary spaced parallel reciprocable blades, means for extending said blades, means for positioning overlying lengths of the ribbon astride each of said extended blades one at a time and forming open spaces between the adjacent folds carried by said blades, and means for positioning pats of butter or the like in said open spaces.

13. In a packaging machine, means for progressively working a length of ribbon of flexible sheet material back and forth into a series of parallel folds including a series of complementary spaced parallel reciprocable blades, means for extending said blades, means for positioning overlying lengths of the ribbon astride each of said extended blades one at a time and forming open spaces between the adjacent folds carried by said blades, means for disposing a block of butter or the like in front of said open spaces, means for advancing said block toward said open spaces, and means for severing said block into pats as it advances.

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