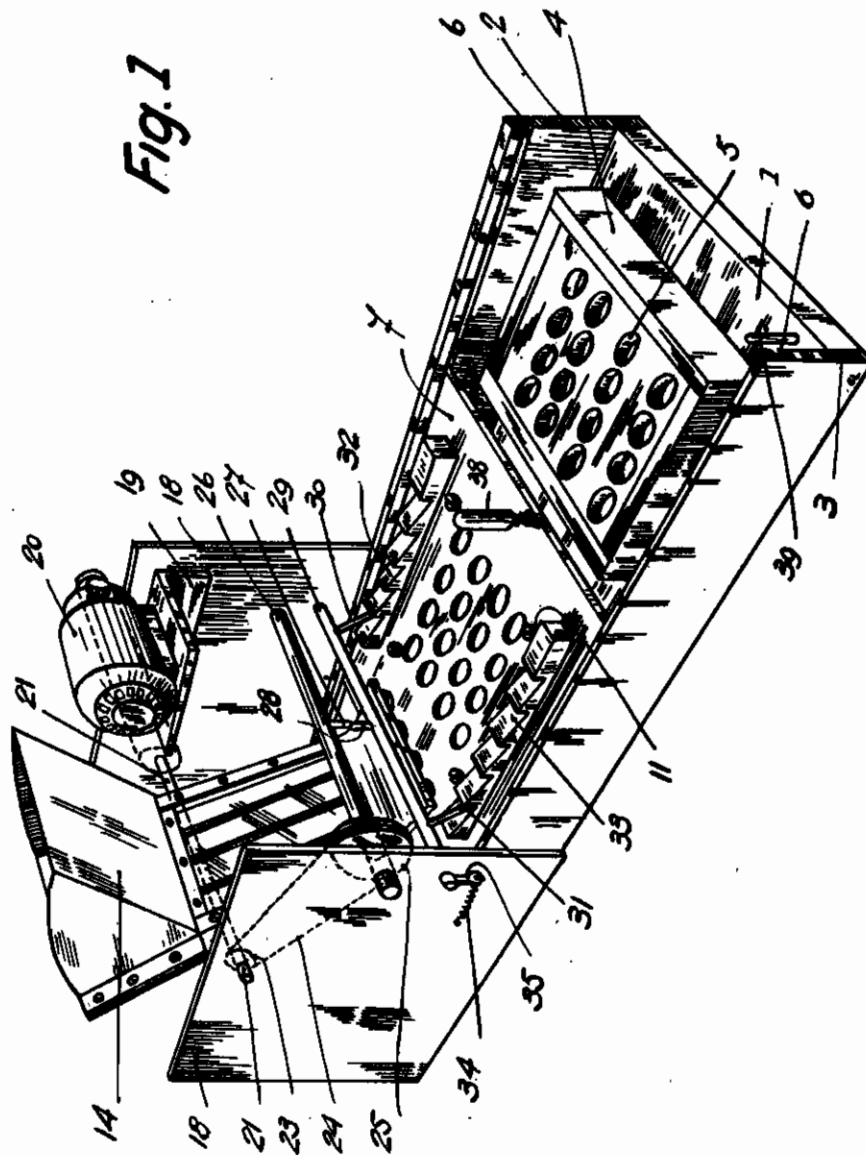


PUBLISHED  
MAY 25, 1943.  
BY A. P. C.

C. A. NICOLLE  
PACKING MACHINE  
Filed April 17, 1939

Serial No.  
268,442  
9 Sheets-Sheet 1



INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

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Serial No.  
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9 Sheets—Sheet 2

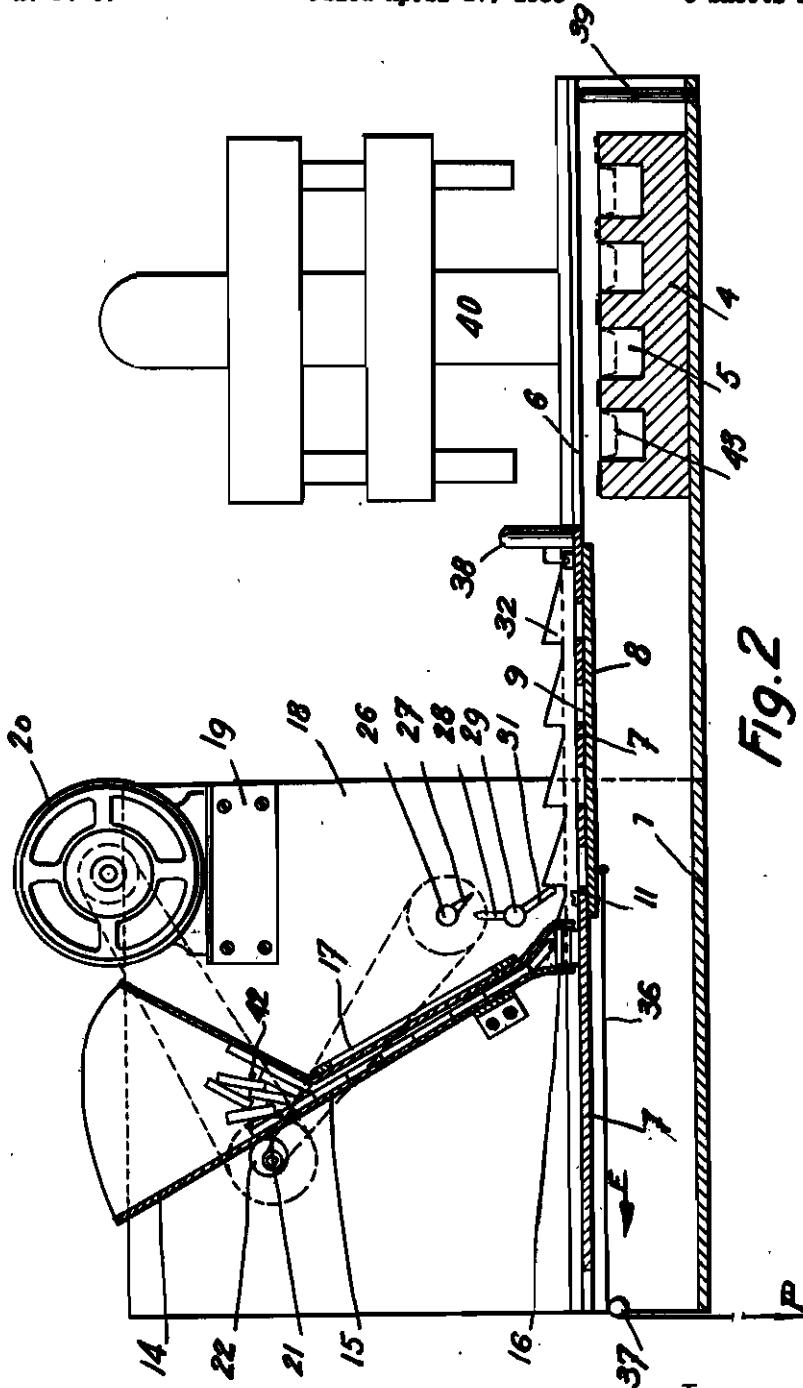


FIG. 2

INVENTOR  
C. Francis A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYs

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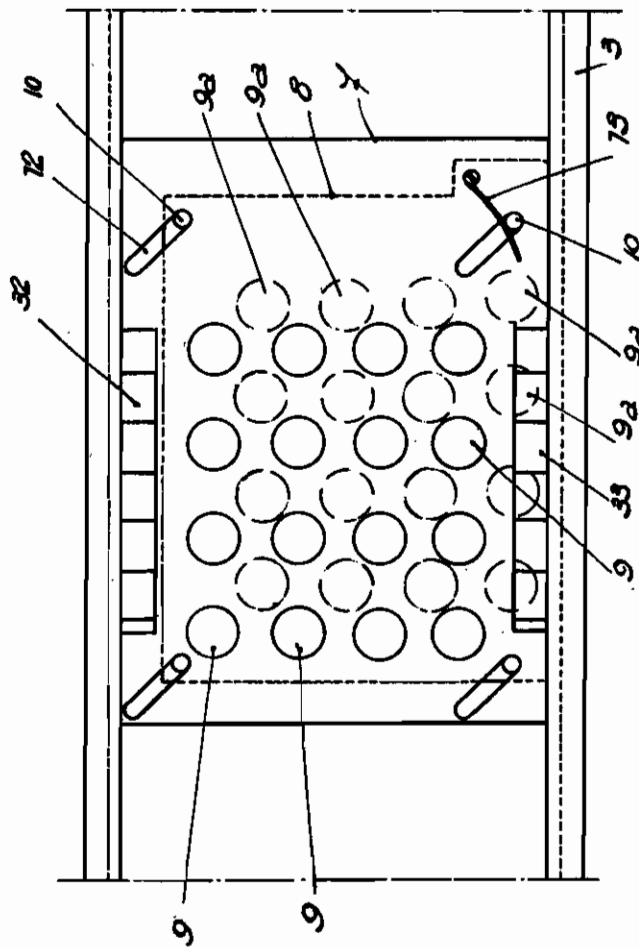


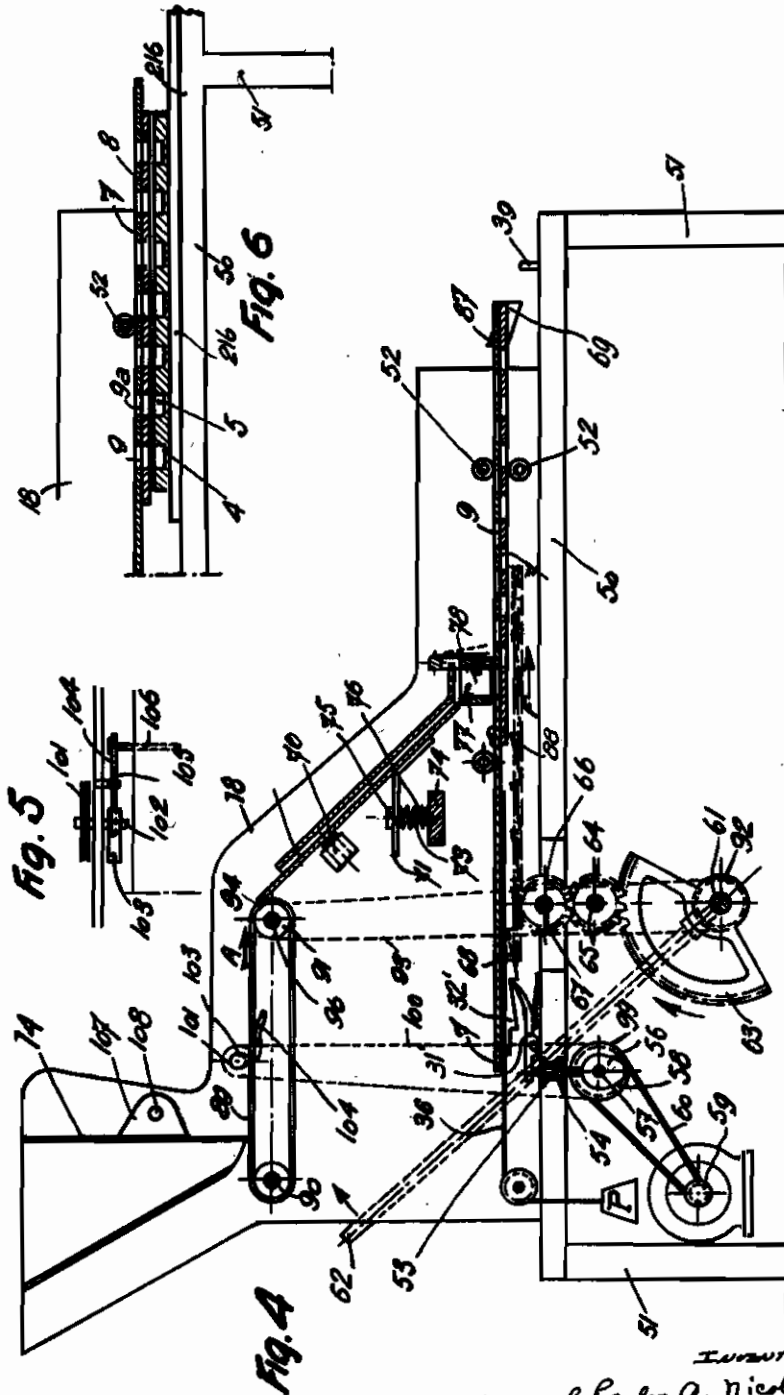
Fig. 3

Inventor  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTORNEYS

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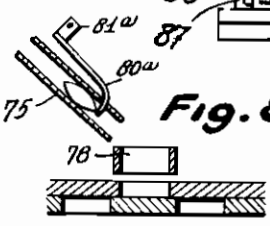
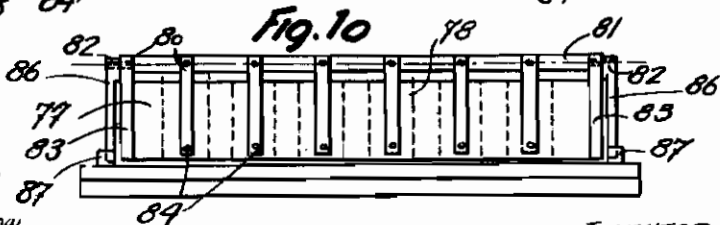
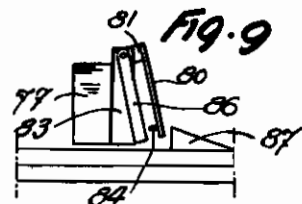
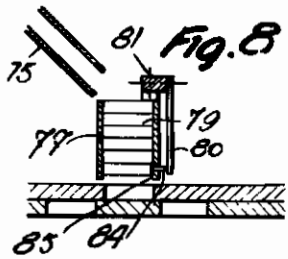
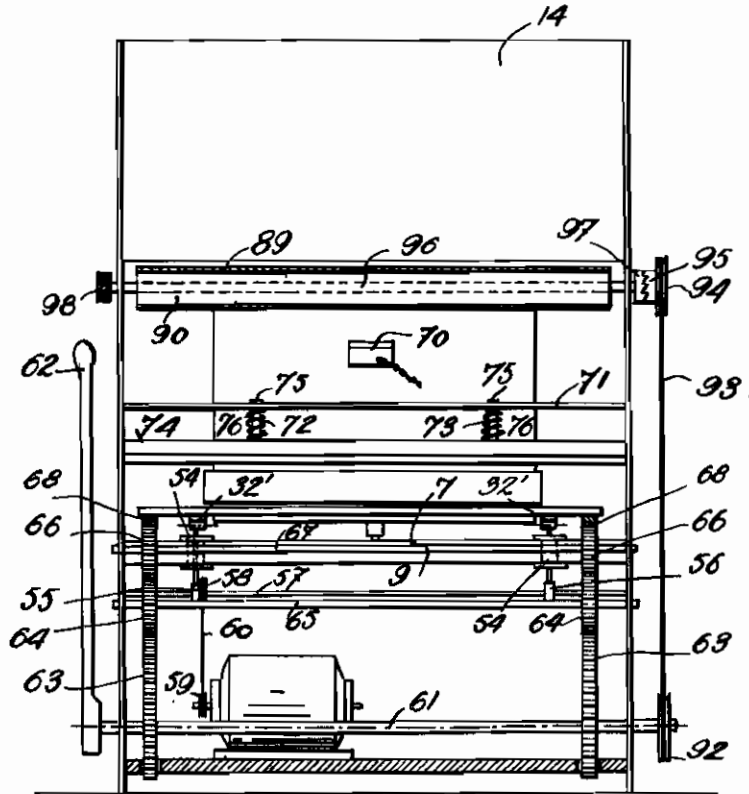
INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

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Fig. 7

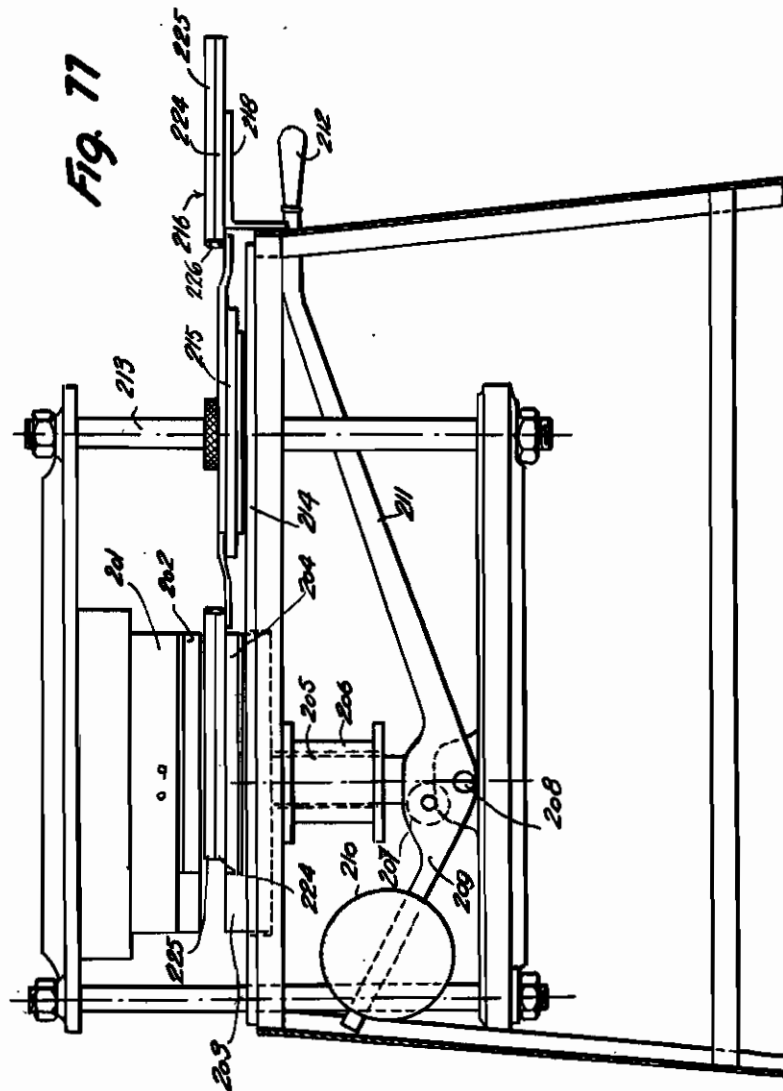


INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

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BY A. P. O.

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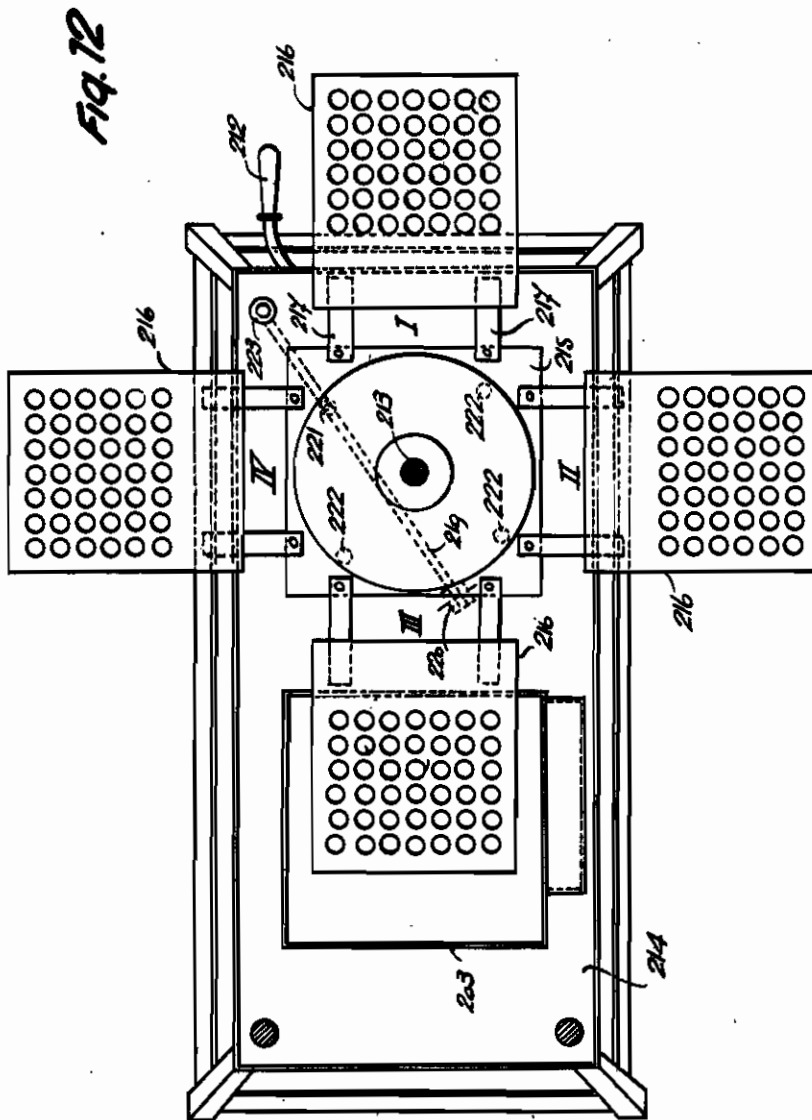


Inventor  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

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BY A. P. C.

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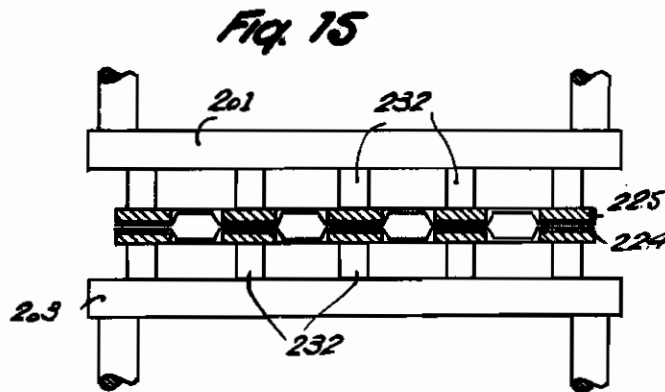
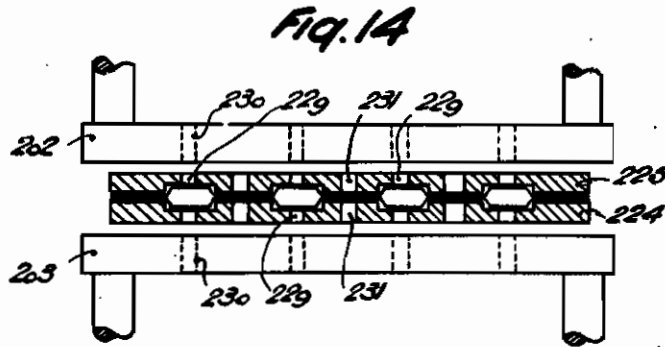
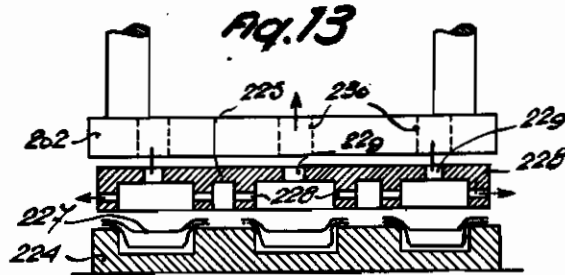
INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

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MAY 25, 1943.  
BY A. P. C.

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INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindley & Watson  
ATTORNEYS



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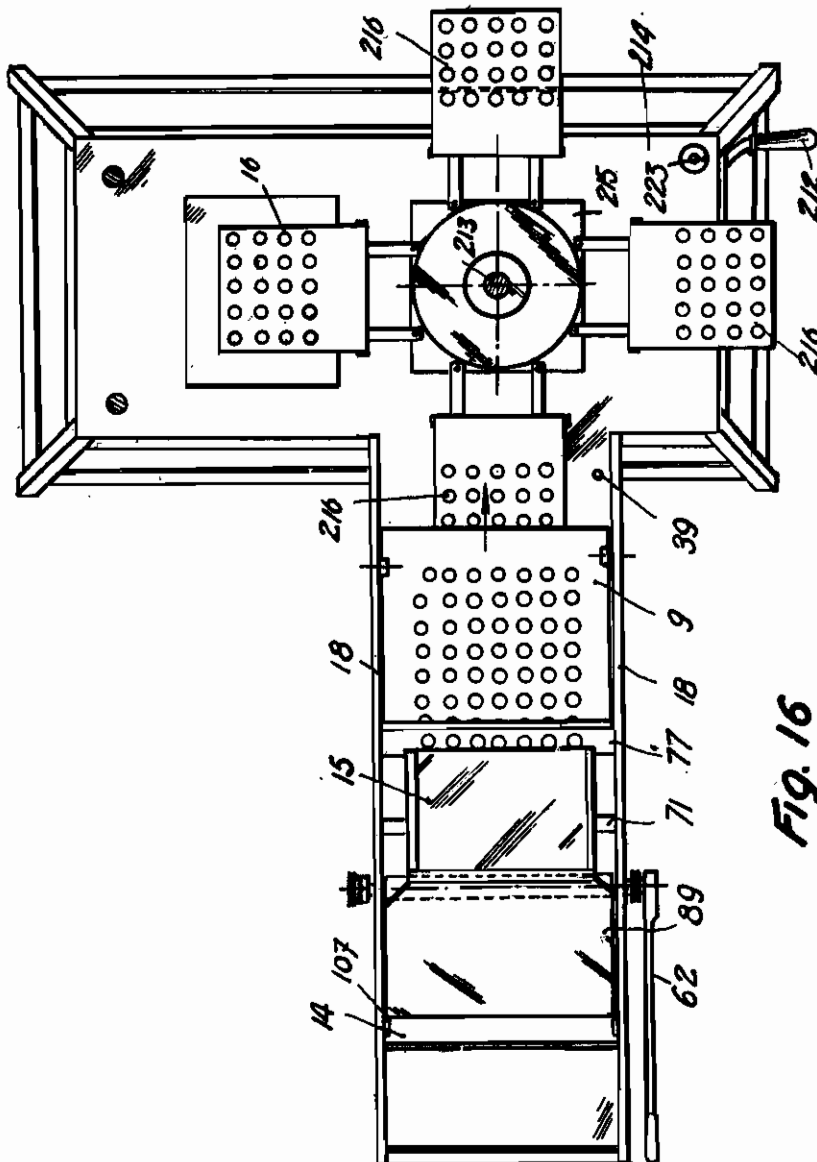


Fig. 16

INVENTOR  
Charles A. Nicolle  
By Watson, Cole, Grindle & Watson  
ATTYS

# ALIEN PROPERTY CUSTODIAN

## PACKING MACHINE

Charles Alexandre Nicolle, Montrouge, France;  
vested in the Alien Property Custodian

Application filed April 17, 1939

The object of this invention is a machine for mass packing of identical products, such as tablets, pills and the like into recipients or containers made of plastic material which has previously been transformed into plates, sheets, bands and the like.

Such containers or wrappers of plastic material, preferably cellulose material are generally constituted by sheets, bands or the like which are transformed by suitable pressing or moulding to cells for receiving the products and a wrapper may comprise either two mate cell sheets which, when superposed, will result in a complete wrapper, or a single cell sheet and a sheet plate laid on said cell sheet.

After being filled up with the products, the cells are closed up or sealed by means of suitable pressing the effect of which may be accompanied by that of heat, and even with the effect of a solvent or a special glue preliminarily spread over the flat sheet.

The object of this invention is to provide a machine for carrying out mechanically successive packing operations of filling the wrappers and closing or sealing the same by suitable pressure, these two operations following one another without interruption so that the machine works in a continuous manner.

The portion of the machine in which is carried out mechanical filling of the wrappers comprises the following principal featured elements:

(a) a feeder of sloping chute type which brings the products to pack to a distributor movable under the outlet of the feeder which lays the products into lodgings prepared in the distributor;

(b) a mechanism for bringing the distributor step by step under the feeder, to be there filled up with the products to pack;

(c) the distributor itself formed in such a manner that whenever it is brought to the position of being exactly above the packing press plate, it automatically empties its content which falls into the plastic packing cells preliminarily disposed on the press plate.

The portion of the machine in which is carried out closing up or sealing of the wrappers is constituted by the combination of a hot operated press with a device of conveying the moulds or dies adapted to cause the moulds containing the packing elements to seal to successively pass into the press, a stop position being especially provided for cooling the moulds, during the travel, after they left the press. The invention com-

prises also means for rapidly heating and cooling various portions of the moulds.

On the accompanying drawings:

Fig. 1 is a general perspective view of a primary form of the apparatus of the invention for mechanical packing, less the press;

Fig. 2 is a longitudinal section of the apparatus, the press shown in outline;

Fig. 3 is a plan view of the distributor;

Fig. 4 is a side front view of a second form of the apparatus, partly in longitudinal section;

Fig. 5 reproduces a portion of the Fig. 1, with the dose distributor in another position;

Fig. 6 shows a detail of the Fig. 4;

Fig. 7 is an end view of the machine, partly in cross-section;

Fig. 8 is a detail in cross-section of the muzzle portion of the chute;

Fig. 9 is an outer end view of the same muzzle portion;

Fig. 10 is an outer front view of the same muzzle portion when the machine is looked at lengthwise;

Fig. 11 is a side view of the portion of the machine for sealing or closing the wrappers with the products brought by the distributors;

Fig. 12 is a top plan view of the machine;

Fig. 13 is a detail view of a mould or die with means for air removal therefrom;

Fig. 14 is a cross-sectional view of a modified form of the mould of the Fig. 13;

Fig. 15 shows a cross-section particular means for heating the mould.

Fig. 16 is a sketched general view of the whole machine.

In the primary form of the apparatus for mechanical filling the wrappers, the apparatus comprises a frame constituted, for instance, by a base slab 1 and vertical side walls 2 and 3 extending throughout the entire length of the apparatus; this frame supports a fixable lower press plate 4 having a number of through bores 5 corresponding in number and disposition to the number of objects to be packed up by one single operation as provided for on one packing sheet. Each of said side walls of the frame has a longitudinal groove 6 to form a slide guide for shifting a distributor which thus may travel along the frame of the machine. This distributor comprises two superposed plates 7 and 8 the individual thickness of which is equal to the thickness of a tablet or to the diameter of a pill if pills are handled. The upper plate 7 of the distributor has a number of rows of holes 9 complying with the dimension of the objects to pack up, tablets or pills or like,

and said holes being disposed in the same manner as the through bores 5 of the press plate 4. The lower plate 8 of the distributor has the holes 9a corresponding in number and disposition exactly to the holes 9 of the upper plate 7. The holes 9a of the plate 8 normally are not opposite to the holes 9 of the upper plate, but are off-set diagonally as shown on the Fig. 3, so that then the holes 9 are obtruded by the lower plate (Fig. 2). The lower plate 8 may be shifted diagonally under the plate 7 to bring its holes 9a against those of the upper plate. For this purpose, the two plates 7-8 are united by four bolts 10 screwed into the plate 8 and their caps 11 are in abutting engagement with the upper face of the plate 7. The latter is provided with four slot-holes 12 obliquely disposed inclined at 45°, so that the plate 8 may swing horizontally under the plate 7. The length of the slot-holes 12 is such as to enable the holes 9a to sit exactly against the holes 9 of the upper plate 7. The plate 8 is normally held in its off-set relation to the plate 7 by a spring 13 pressing against one of the bolts 10 (Fig. 3).

Above the distributor just described, is disposed an automatic feeder as follows:

This feeder comprises a funnel hopper 14 extending in the direction of the width of the machine and tapering towards its base into a narrow slit the opening of which corresponds to the thickness of a tablet or to the diameter of a pill. Beyond this slit the hopper is prolonged by a sloping chute 15 the passage height of which is equal to the thickness of a tablet; the lower end of this chute terminates by an outlet gullet 16, this outlet being level with the top of the distributor plate 7. In the direction of the width of the machine, the chute 15 is divided by partitions into a number of gutters, for instance four gutters which correspond to the number of rows of holes 9 in the distributor. The top 17 which forms a cover for said gutters is preferable of glass or another transparent material so that the descent of the tablets or pills may be followed. The outlet gullet 16 is shaped so that the tablets which slope down flatly in the chute 15 redress themselves horizontally before lying down on the plate 7. On the other hand, the upper edges of the little partitions separating the different chutes 15 are sharpened into points whereby each tablet, owing to unstable equilibrium when it meets those points, falls down by itself into one of the gutters.

The frame work of the apparatus is provided at one of its ends with two lateral cheek plates 18; to one of them is secured a bracket 19 supporting a motor 20 which is shown as an electric motor, but which may also be a spring motor or any other mover. This motor makes turn a transversal shaft 21 provided with an eccentric 22 (Fig. 2) for the purpose of imparting a vibrating movement to the funnel hopper 14 which leans upon said eccentric. On the shaft 21 is secured also a sheave 23 which by means of belting 24 and a second sheave 25 rotates a transversal shaft 26 supported by the two cheek plates 18 and provided with a finger 27. This finger 27 is disposed so as to meet, when rotating with shaft 26, a mate finger 28 set on a third transversal shaft 29 and which it drives on a short distance and then lets escape. The shaft 29 in its turn is provided close to the cheek plates 18 with two pawls 30-31 which are in contact with the teeth of two indented racks 32-33 respectively mounted on the top of the upper plate 7 of the distributor. A

spring 34 pulling a little lever 35 secured to the end of the shaft 29 normally holds the pawls 30-31 in contact with the teeth of the racks 32-33. The distributor 7-8 may be moved in the direction of the arrow F (Fig. 2) by tractive power of a rope 36 attached to the plate 7 and pulled, over a sheave 37, by a counter-weight indicated by the letter P. For the purpose of moving in the direction opposed to the arrow F, the distributor 7-8 is provided with an operating pin handle 38, and a stop member 39 for the plate 8 of the distributor is provided at the outer end of the frame. The press is indicated in a general way by 40 (Fig. 2) being disposed above the fixable mould or die 4.

The operation of the apparatus is as follows:

At stand-still, the distributor 7-8 is in the position indicated on the Fig. 2. A certain quantity of tablets, as may be desired, is from time to time charged into the funnel hopper 14. Before this operation this tablets may have been placed in bulk on an inclined tray provided with a suitable slide gate operated by hand or automatically to let pass this tablets into the hopper. The motor is then started. The eccentric 27 causes the hopper to bob thus promoting the entering of the tablets into the chute 15. To avoid stoppage and wedging up of the tablets, the inside of the hopper is provided with a number of rods having smooth surface 42 or with a number of scattered apatite rods which may be moved from the motor. The tablets descend in the gutters formed within the chute 15, in as many ranges as there are the gutters and when arrived at the bottom of said gutters, they lie down flat on the top of the plate 7 of the distributor, owing to a special form of the gutter gullet 16.

The distributor 7-8, as already described, tends to be moved in the direction of the arrow F by the counterweight P, but it is normally held immovable by the two pawls 30-31 which are in engagement with the teeth of the racks 32-33. The finger 27 of the shaft 26 causes, at each turn, the finger 28 of the shaft 29 to move on a feeble distance and then escapes. The finger 29 driving the shaft 29 disengages the pawls 30-31 from the two racks 32-33 thereby permitting the distributor 7-8 to advance by one tooth length in the direction of the arrow F. As soon as this advance is effectuated, the distributor comes to stop again, and the first transversal row of holes 9 of the plate 7 takes position under the range of gutters of the chute 15, so that the tablets immediately fall into those holes. At the following escapement of the pawls 30-31 from the racks 32-33, the distributor 7-8 advances again by one tooth and a new row of holes 9 is filled up and so on until the distributor be completely loaded.

By this time, the operator seizes the operating handle 38 and causes the distributor 7-8 to slide towards the right (Figs. 1 and 2). During this sliding path of the distributor, the falling of the tablets contained in the feeding gutlets is stopped by the non-perforated portion of the plate 7 the length of which is conveniently adapted for this purpose. The displacement of the distributor towards the right is stopped automatically by the contact of the lower plate 8 with the stop member 39. This contact causes to stop at first the lower plate 8, whilst the upper plate 7 may still move on through a small length. This relative displacement of the plates 7-8 results, owing to the disposition of the slot holes 10, in causing the lower plate 8 to swing diagonally.

nally under the upper plate 7 and to bring all the holes 9a of the lower plate against the holes 9 of the upper plate. In other words, all the holes 9 which contain the tablets open at the bottom so as to cause the tablets to immediately fall into the packing cells 43 which have previously been laid on the lower press plate 4 (Fig. 2) positioned as shown. The operator brings then the distributor 7-8 to the left and a new phase of filling up the distributor may begin again. While said new filling up is going on, a mate packing portion or flat sheet is laid upon the sheet 43 for closing up the packing, and these two packing elements are then united by known means of pressure.

The figures 4 to 10 show a modified form of the apparatus just described, said modified form showing the following outstanding features:

Whilst in the primary form of the apparatus the products contained in the hopper progress practically in continuous manner within the gutters of the sloping chute of the feeder, their passage in the present form of the apparatus is effected at definite time intervals, in synchronism with the displacements of the distributor placed at the bottom of the feeder. This is obtained by means of a transmission operated by a hand lever placed at one side of the apparatus and arranged so as to cause, simultaneously with the recoiling of the distributor to the position in which he evacuates its content, the displacement of an endless band which receives from the hopper a determined quantity of products and discharges the same into the feeder.

Another feature of the present form of the apparatus consists of a device which, placed at the bottom of the feeder, prevents the products coming out of the gutters from getting in contact with the distributor before said recoiling movement of the distributors is finished.

The invention comprises some more devices of detail which will be set forth from the description with reference to the accompanying drawings, as follows:

In the present form of the invention, the apparatus is mounted upon a socle or a working bench comprising a table plate 50 and the legs 50. The motor 20, instead of being placed upon a bracket secured to one cheek plate 10, is installed inside of the bench which may be partially closed. As in the primary form of the invention, the distributor is formed by two plates 7-8 sliding one upon another and having through bores 9 and 9a. The upper plate 7 is pulled back by the rope 36 passed over the sheave 37 and pulled down by a counter-weight P attached to its end. In the present form, the distributor instead of being guided in the side grooves of the frame work, is guided between the rollers 52. The indented racks 32-33 are transferred to the lower face of the plate 7, and each of the pawls 30-31 which permit the racks to escape tooth by tooth therefrom, receives its oscillating movement from a tickler or pusher 53 guided through a socket 54 set in the table plate 50, and the ticklers or pushers 53 lean upon the contour of two cams 55-56 secured on a transversal shaft 57 bearing a sheave 58 which is rotated through the sheave 59 of the motor through the belting 60. Another transversal shaft 61 is provided outside of the frame work with a control lever 62 for operating by hand the displacements of the distributor in the direction of the arrow F, that is to say from the left to the right as per the Fig. 4. For this purpose, in the interior and at each

side of the frame is established a spur gear train comprising an indented sector secured on the transversal shaft 61, an indented wheel 64 in engagement with said sector and mounted on a second transversal shaft 65, and another gear wheel 66 secured on a third transversal shaft 67, and each of the latter gear wheels 66 is in engagement with one indented rack 68 secured to the lower surface of the plate 7 of the distributor. The lower 8 of the distributor is provided with a convenient stop claw 80 which at the passage end of the distributor, strikes against the stop member 30 which is the same as in the primary form of the invention. In abutment with the top of the distributor is the feeder which is doubly featured, firstly by the fact of being separated from the funnel hopper 14, and secondly by the fact of being mounted elastically for the purpose of responding to the action of a vibrator 70 which may be constituted, for example, by a trembler of electric bell type or the like. For this purpose, the feeder is supported by means of one or several angular members 71 secured to its back face and one or several springs 72 and 73 mounted on a cross-bar 74, and the tension of these springs is controlled by a nut 75 screwed on a threaded rod 76 disposed in the interior of each spring. The feeder terminates, close to the distributor, by a block portion 77 in which are provided as many passages or openings 78 as there are the descent gutters in the feeder, said openings corresponding by spacing to the holes 9 and 9a of the plates 7-8 of the distributor.

The Fig. 8, 9 and 10 show at a larger scale said block portion of the feeder with the special arrangement provided therein for preventing, at a certain moment of the operation, the objects such as tablets or pastils or the like 70 piled up in the openings 78 of the block portion from reaching the distributor. Said arrangement comprises a number of blades 80 made of any convenient material and spaced exactly as are spaced the openings 78 of the block; these blades are placed behind the block at the right of each of the openings. Said blades 80 are mounted on an oscillating bar 81 prolonged at both ends by an axle 82 extending through a support 83. On the other hand, each blade has near its lower end a little finger 84 or a projecting point extending through a hole 86 open to the corresponding opening of the block and adapted to very slightly penetrate into said opening outside of the supports 83 each oscillatable axle 82 of the bar 81 is provided with a leg or lever 88 which, through the action of the stop claw 87-88 placed on the plate 7 of the distributor, may take two positions, one which corresponds to the penetration of the finger or projecting point 84 through the openings 78 and the other one corresponding to the removal of these fingers from said openings, as will be explained in the course of the description of the manner in which the apparatus is operated. A braking or retaining device will be provided for maintaining the legs 86 in said two positions.

For certain tablet shapes such as, for instance, very thin tablets or lenticular ones which do not lend themselves to be easily seized by their edges, the stopping device is fixed preferably at the bottom of the feeder gutters as shown in 80a and 81a of the Fig. 8. In this case the height of the openings 78 is reduced to contain but two or even one single tablet, and the stop claws 87-88 are no more placed at the passage end of the distributor, but before the last or the last but one hole,

so as to exhaust the tablet charges contained in the openings 78.

In the present form of the invention, the funnel hopper 14 is separated from the feeder, and it deposits its contents upon a movable pathway constituted by an endless band 89 stretched over two rollers 90—91. Said band 89 receives an intermittent advancing movement synchronous with the feeding movement of the distributor by means of a sheave 92 which is secured to the transversal shaft 61 at the end opposed to the end of the lever 62, a belt or rope 93 and a second sheave 94 forming a part of one half 95 of a claw-coupling that may turn loose on the shaft 96 of the roller 91, whilst the other half 97 of this coupling is secured to said shaft 96. The claws or dogs of the coupling 95—97 are cut so as to cause the endless band 89 to move but in the forward direction indicated by the arrow A (Fig. 4). The endless band 89 may also be moved forward by hand for the purpose which will be set forth further below, by rotating a checkered button or the like 98 secured to the axle 96 bonded to the roller. Of course, the half 97 of the coupling must be spring controlled on its axle in order that its claws might escape from those of the other half of the coupling, while the checkered button 98 is turned backward.

To prevent the tablets from adhering to the surface of the endless band, a rapid vibrating movement is imparted to the band by means of the following device shown in detail on the Fig. 6. On the transversal shaft 57 is secured a sheave 99 which through a belt or rope 100 drives a second sheave 101 mounted at the outer side of the cheek plate 18 on an axle 102 to which it transmits its rotating movement. On the axle 102 and close to the inner face of the cheek 18 is secured a cam 103 upon the contour of which leans a double-armed lever 104 which oscillates about a little pivot 105. To the lever end 104 which does not lean upon the cam 103 is secured a vibrator finger 106 placed under the upper branch of the endless band 89 and extending but on a small distance under the band. When the motor 20 is set in motion, the rapid rotation imparted to the cam 103 causes, through the lever 104, the band to be rapidly flapped with the finger 106 and, owing to the rigidity this endless band must necessarily possess, the flaps thus effected produce in the whole extent of the band vibrations which prevent the objects from adhering to said band.

Finally, in order to disengage the tablets, pastils and the like or chippings thereof which may be wedged in between the bottom of the hopper 14 and the endless band 89, the hopper 14 is not mounted rigidly on the machine but is provided with the lugs 107 enabling it to turn about an axle 108 for the purpose of regulating the feed delivery or else removing it from the machine if necessary.

The operation of the apparatus is as follows:

At stand-still, the apparatus is in the position indicated on the Fig. 4. The feeder and the distributor are entirely empty of articles to pack in, but a provision thereof is in the hopper 14.

In order to start the apparatus, the operator turns the checkered button 98 to make move forward the band 89 on which are deposited the products coming out of hopper 14, said products then fall into the gutters of the chute 15. When said gutters are filled, the operator stops the movement of the band 89. The tablets, pastils and the like are superposed in the openings 78 of the block portion 77 of the feeder and the lower

tablets descend into the first row of holes 9 of the plate 7 of the distributor. The motor 20 is then started so that by action of the cam 56 and the tickler or pusher 53 the pawls 30—31 take up an oscillating movement which causes the racks 32—33, i. e. the whole of the distributor to move forward. The rows of distributor holes are then successively filled up as in the primary form of the apparatus. At the same time, the vibrator 76, operates upon the chute 14 of the feeder to promote the descent of the tablets and, on the other hand, the second vibrating member comprising the cam 103 and the little finger 106, operates upon the movable band 89. When the distributor 7—8 arrives at the inner end of its course to the left (Fig. 4), the claws 87 operate upon the two levers 85 and make penetrate the points 84 into the interior of the openings 79 or gutters thus blocking up the further descent of tablets; the purpose of this arrangement is to permit the distributor filled up with tablets to freely return to the right without risk of hooking on the products.

When the distributor is filled up, the operator pulls the control lever 62 thereby moving the distributor to the right (Fig. 4) with the aid of the spur gear train 63—64—66 and the racks 68. Towards the end of the course, the claw 69 secured to the lower plate 8 of the distributor strikes the stop member 39 so that the upper plate 7 alone continues to move. The holes 9 and 9a of the distributor are then superposed and the tablets, parts and the like may fall into the packing elements previously placed in the cells 5 of the mould 4 (Fig. 2). Similarly, when the distributor 7—8 arrives towards the end of its passage to the left, the claw 86 operates upon the lever 86 which results in making recoil the points 84 and setting free the lower tablets which are within the openings 78 and which may then fall into the holes 9 of the plate 7 of the distributor. The working cycle may then be started again as above described.

Once filled up the moulds are carried over to the machine for sealing or closing up operation of the packings, this machine being close by prolongation of the charging machine above described.

Such a machine shown on Figs. 11 and 12 of the accompanying drawings one of the constituent elements thereof being a hot operated press of any known type, and it is characterized by sealing moulds or dies adapted travel across the machine following a circular passage comprising a number of stands at least one of which is destined to the cooling operation. Another feature of this machine resides in that the dies are thin, entirely independent of the heating trays of the press, that, furthermore, they have a very much reduced mass and are made of a material which may rapidly grow hot or cool such as hardened aluminium so that the products contained in the wrappers be exposed to high temperature as short a time as possible, and special arrangements may be carried out for removing hot expanded air from the moulds and thus prevent the articles to pack from noxious effects of hot air during the stay in the moulds or dies between heating press trays or plates.

The hot press which one of the constituent elements of the machine may be of any known type. In the present example, the press comprises a stationary upper summer 201 supporting the upper heating tray or plate 202, and a movable lower plate 203 supporting the lower heating tray 204.

Normally the trays 202 and 204 are asunder, as it is shown on the Fig. 11, in order that the dies or moulds may be easily introduced in between them. The lower plate 203 is abutted through the piston 205 guided in a socket 206 to a lifting cam 207 arranged on a double-armed lever which may turn upon a pivot 208 and whose small arm 209 bears a counter-weight 210, whilst its longer arm 211 terminates by an operating handle 212.

On the axle 213 passed through the table 214 of the machine is mounted, a little above the table, a revolving plate 215 which in the present example is four-sided. Opposite to each side of the revolving plate 215 is placed a mould 216 supported by two straps 217 secured to the plate 215. Said straps may be flexible, to a certain extent, to permit the moulds 216 to be compressed without being wedged in between the heating trays 202—204 of the press. Angular members or consols such as 218 (Fig. 11) may be fixed to the end sides of the machine to support the moulds or dies at different stands. The revolving plate 215 is held fast at each of its four stands by a lever 219 (Fig. 12) turning upon a pivot 220 under the table 214 and provided with a stop finger 221 which may be engaged in one of four holes 222 bored on the lower face of the plate 215. The disengagement of the revolving plate is effectuated by pressing a button 223 fixed to the end of the lever 219 and extended over the upper level of the table 214. The lever 219 is controlled from underneath by a spring not shown.

The moulds 216 of which the Fig. 12 shows but the lower portion that in the present example is supposed to be provided with a number of cells, comprise a bottom or bearing die 224 and a counter-die 225. These two die portions may be independent one of another and in that case marking pins will be employed to correctly close up the die, or else they may be interhinged as shown in 226 of the Fig. 11. As already stated, they are made of a metal rapidly growing hot or cold, such as, for instance, hardened aluminium, and also show a reduced metal mass to hasten heating and cooling the same.

The operation of the machine is as follows:

At the stand I, the operator receives the mould coming out from the stand IV where it cooled. He takes up, and then places in the bearing die 224 a new lower packing sheet and sends the mould to the stand II where the cells are filled up either by hand or mechanically with the aid of an automatic apparatus installed sidewise close to the machine to distribute solid or pulverous products. The apparatuses of this type are described, for instance, in the French patents to the present applicant's name and entitled "Apparatus for mass packing of identical products" dated the 20th April 1938 and "Packings in plastic materials" dated the 23rd of December 1937.

As soon as filling operation is finished, the operator places the upper sheet or cover 227 of the packing and sends the shut up mould over to the stand III in between the heating trays 202—204 of the press whereby, the lever 221 being lowered, the mould is compressed and heated to produce a sealing of packing. During

this operation, the mould which precedingly was at the stand III is held stationary at the stand IV to cool, the cooling time being used for dismounting and placing in a new packing material the mould which presently is at the stand I. In this manner the apparatus works in a continuous cycle of rapid succession and without loss of time.

The Figs. 13, 14, 15 show several modified forms of moulds which may be employed with the machine, together with arrangements therein for securing the packings to seal against effects due to expansion of heated air and also for diminishing metal mass of the mould itself.

The Fig. 13 refers to the case of individual packings having individual covers 227, and of a bottom die 224 seated directly on a heating tray.

The counter die 225 has, as shown on the Fig. 13, carved portions opposite the cells of the bottom die 224. As the expansion of the air imprisoned in said carved portions may deform per pressure the covers 227 to seal, since the latter are softened owing to their stay in a strongly heated atmosphere, it may then be necessary to provide lateral air removing holes, such as 228 or upward ones such as 229, the latter being prolonged by air removal holes 230 provided in the upper press plate 202 (Fig. 13). The deforming of the covers 227 is thus prevented. The Fig. 14 refers to the case of packing formed in two cell sheets. The die which is formed by two portions 224—225 is seated between the heating plates 202—204 of the press as described with reference to the Figs. 11 and 12. Here, the two die portions are provided with air removal holes 229 prolonged by the holes 230 provided in the two heating plates, and, in addition, alleviation holes 231 are made in the die portions comprises between packing cells for the purpose of diminishing the die metal mass which will thereby grow hot or cool more rapidly.

In the modified form shown in the Fig. 15, the halves of the die instead of being heated by direct contact with the heating plates 201—203, are heated by means of adductors 232 in the form of cylinders or otherwise shaped members extended from the heating plates or coming therewith and abutting to the die portions corresponding to the places where the sealings are to be operated. The figure shows that in the present case the die appears to be extremely alleviated and that special air removing holes are superfluous, since the air may freely circulate between heating adductors 232.

Returning now again to the machine, it will be noted that the machine is mounted on the very frame 50 of the filling apparatus in such a manner that the revolving plate 216 is level with the table and that the moulds 4 are sealed placed exactly under the distributor as shown on the Fig. 5. Cette machine may be used for sealing any simple cellulose packing or packings constituted by several material thicknesses with interposed impermeabilizing layer.

CHARLES ALEXANDRE NICOLLE.