

Aug. 7, 1945.

M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

Filed Nov. 30, 1940

10 Sheets-Sheet 1

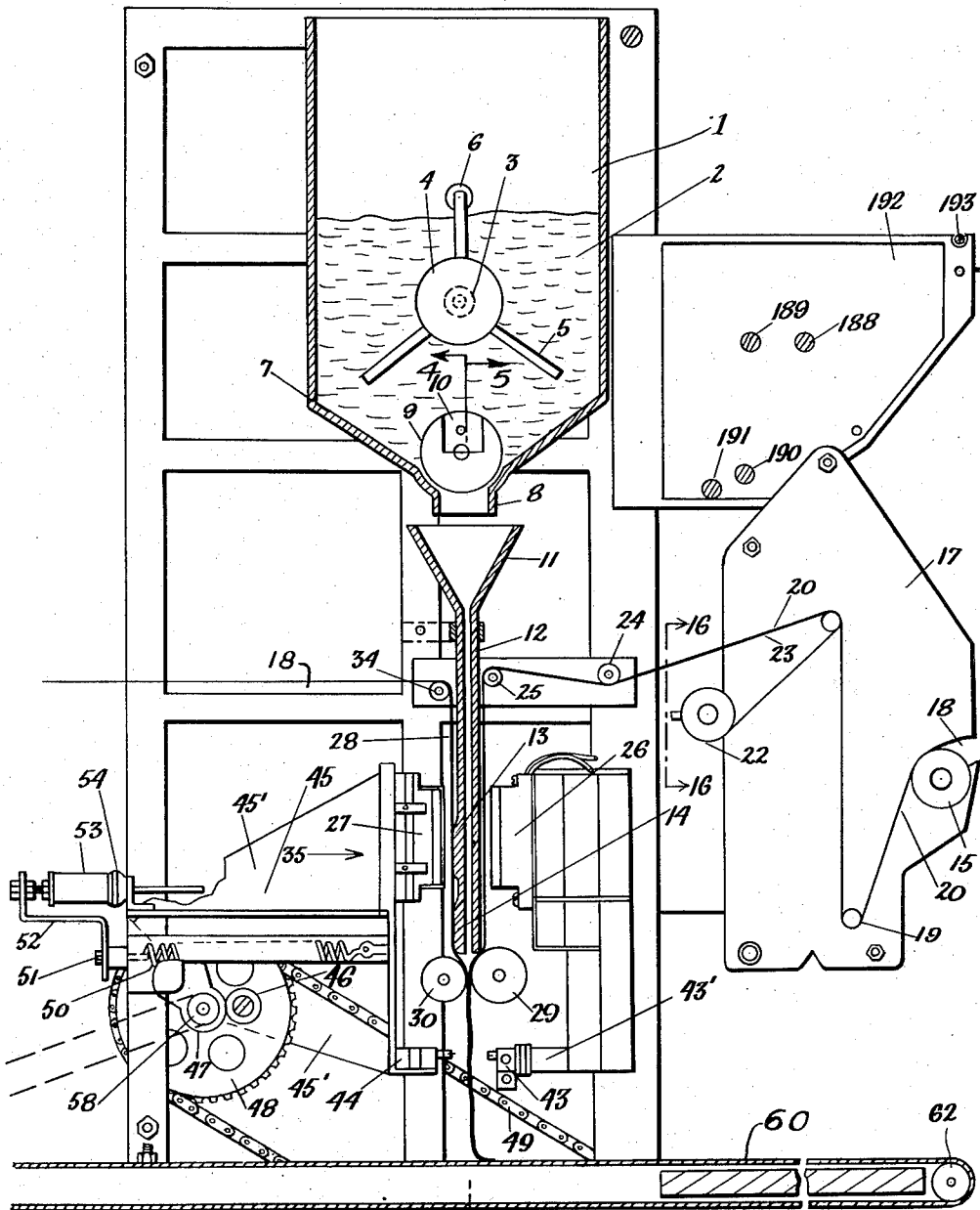


Fig. 1

4 5

Inventor
Maurice Weisman

by

Ezekiel Wolf
his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

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10 Sheets-Sheet 2

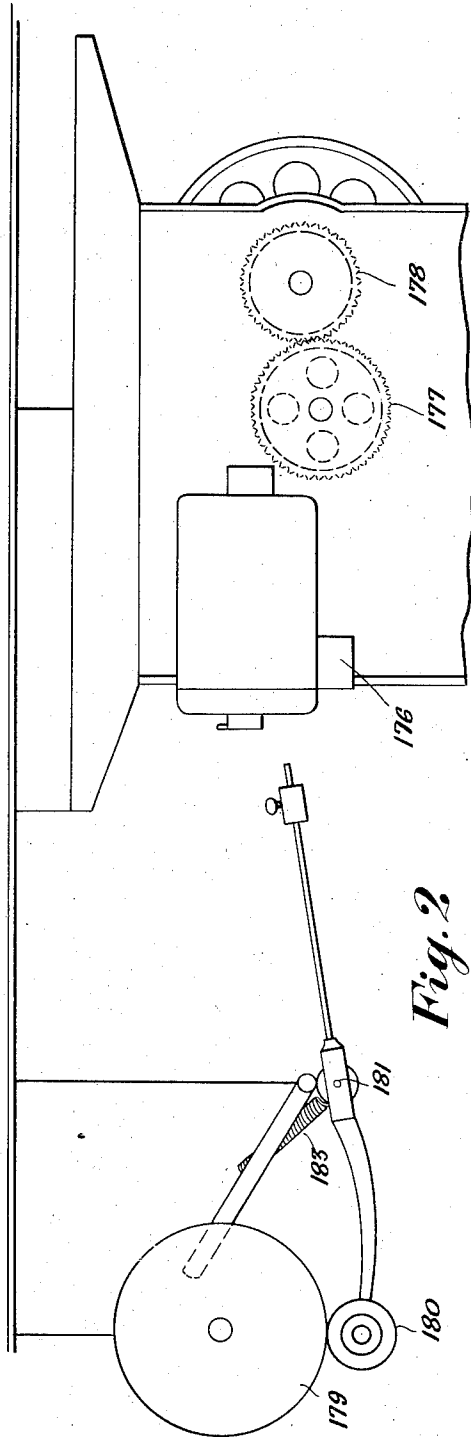


Fig. 2

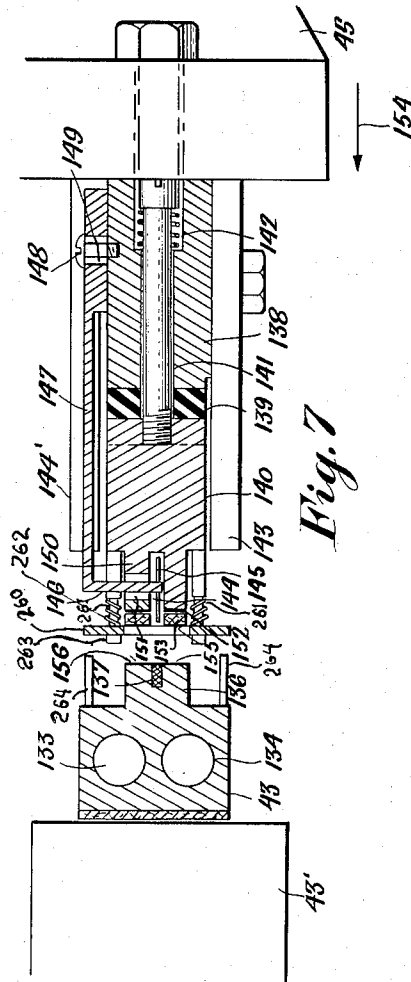


Fig. 7

Inventor

Maurice Weisman

by

Egbert Wolf

his Attorney

Aug. 7, 1945.

M. WEISMAN

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10 Sheets-Sheet 3

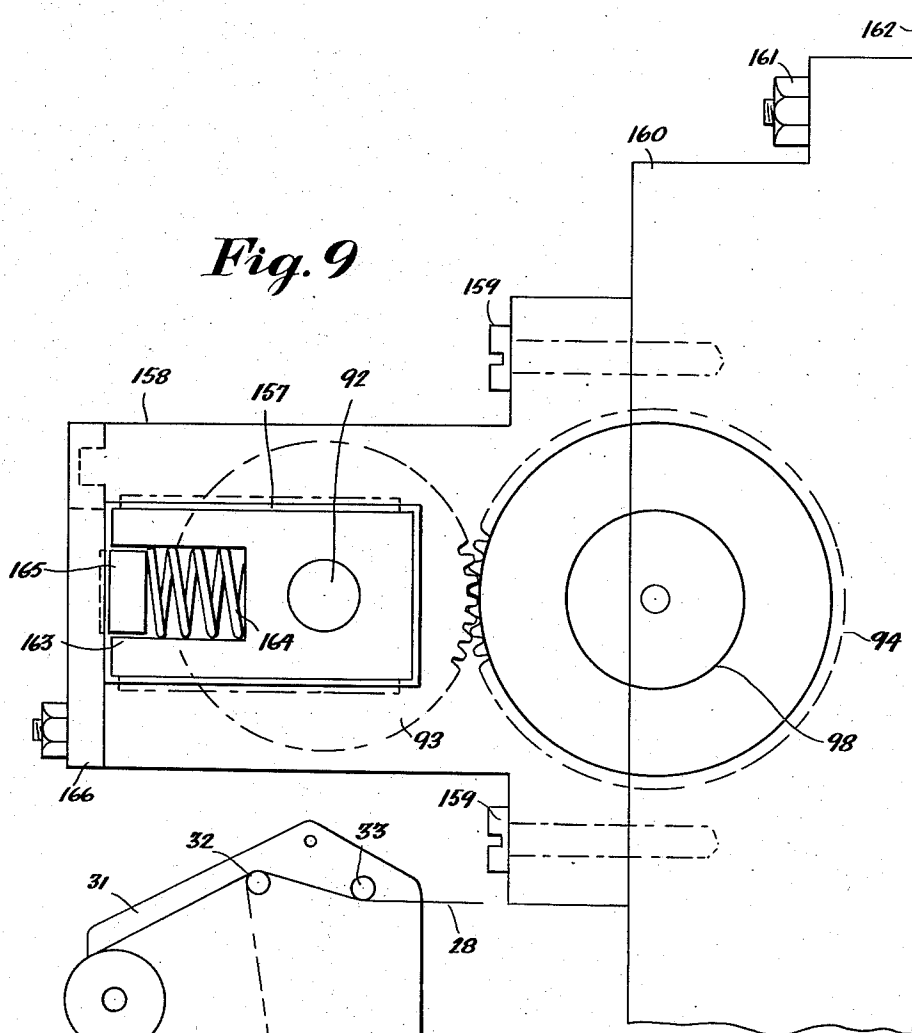
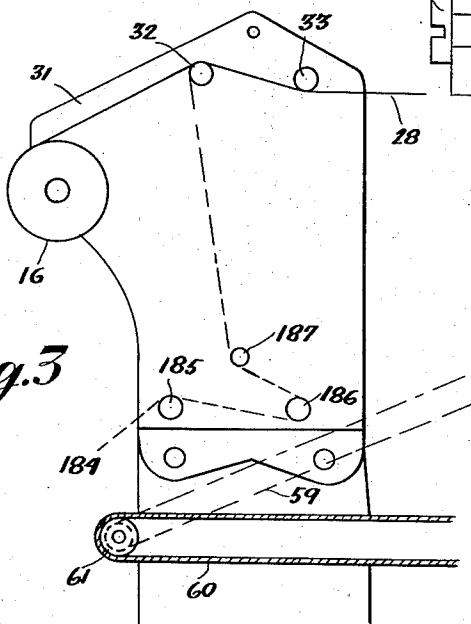


Fig. 3



Inventor
Maurice Weisman

by
Eubank Wolf
his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

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10 Sheets-Sheet 4

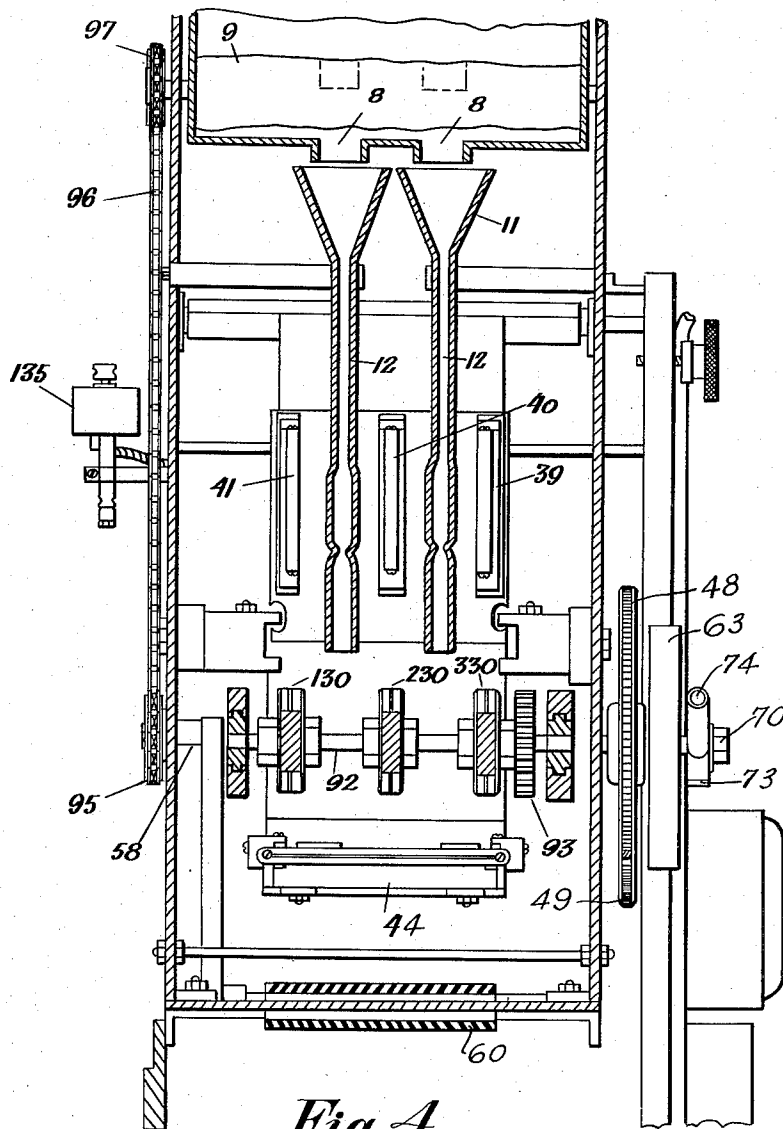


Fig. 4

Inventor

Maurice Weisman

by

Eckel Wolf
Attorney

Aug. 7, 1945.

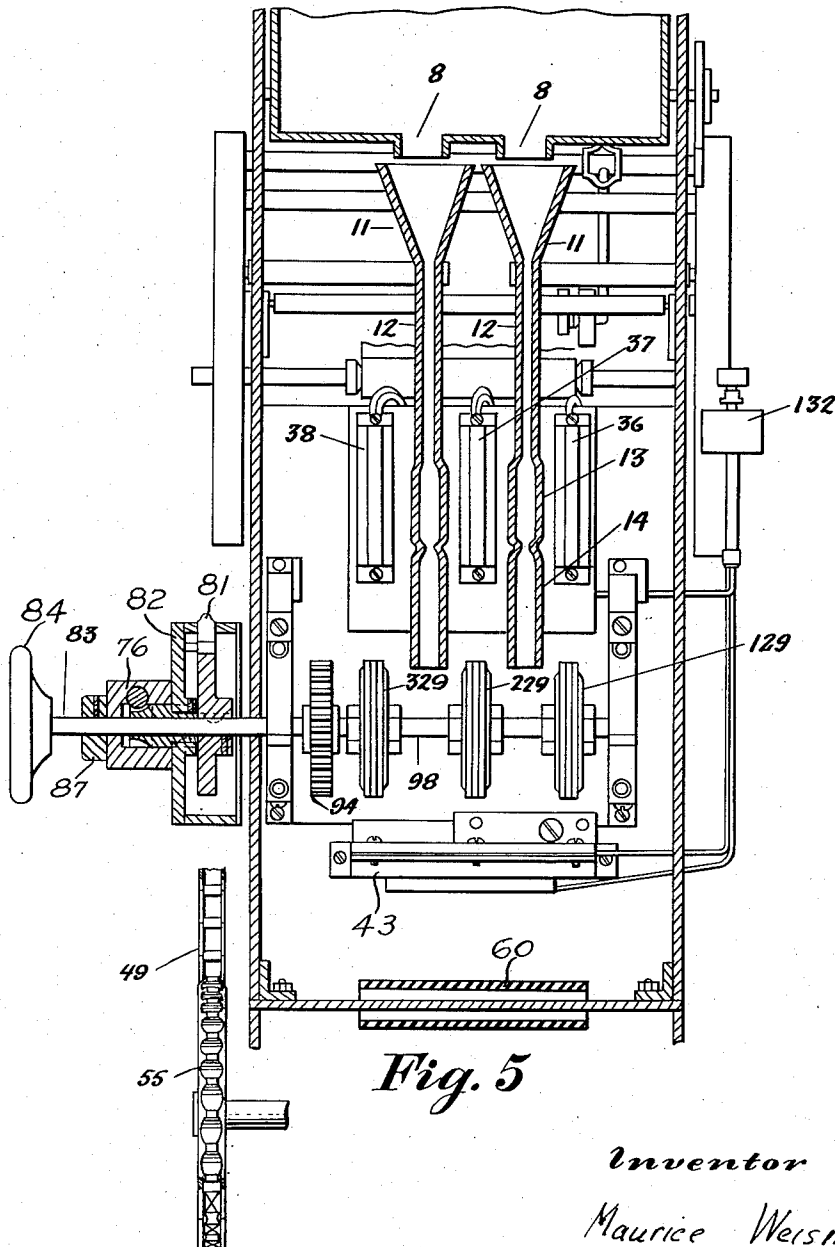
M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

Filed Nov. 30, 1940

10 Sheets-Sheet 5



Inventor

Maurice Weisman

vy

Ezekiel Wolf
his Attorney

his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

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10 Sheets-Sheet 6

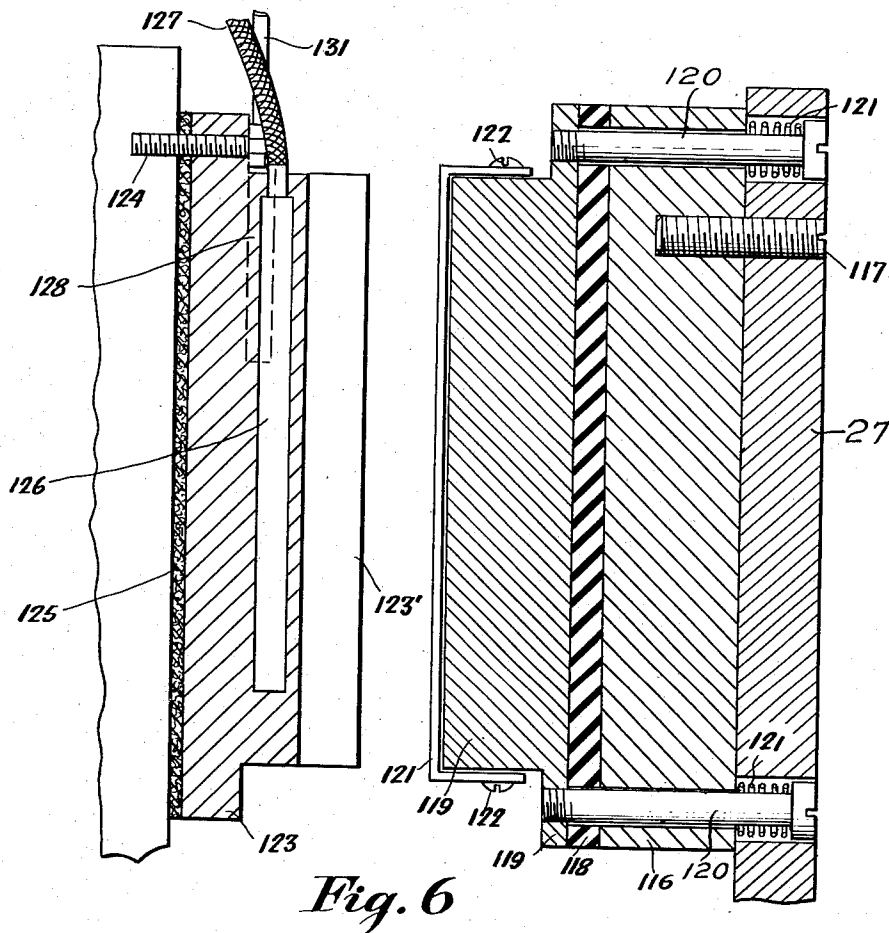


Fig. 6

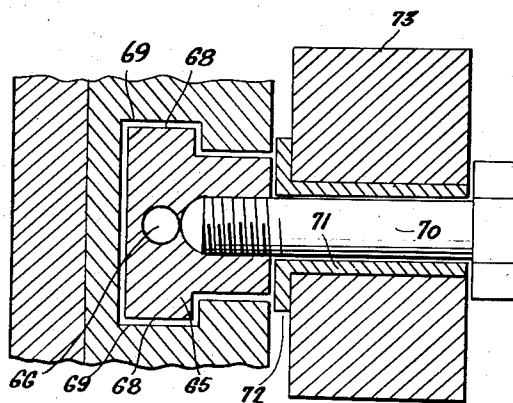


Fig. 12

Inventor
Maurice Weisman

by *Ezekiel Wolf*
his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

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10 Sheets-Sheet 7

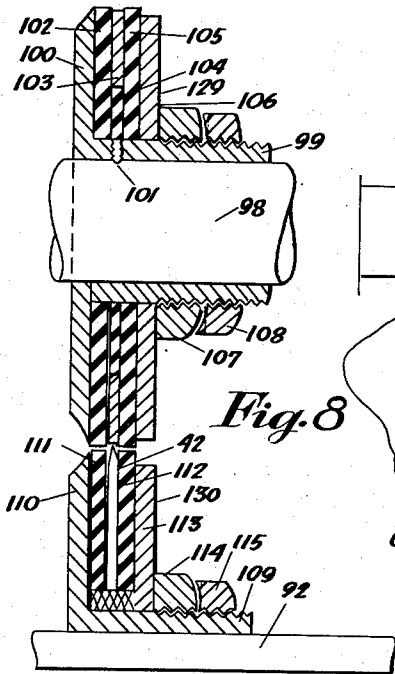


Fig. 8

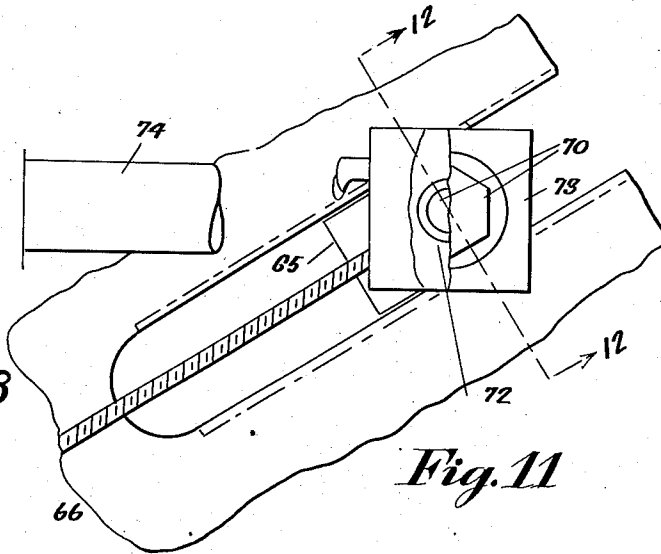


Fig. 11

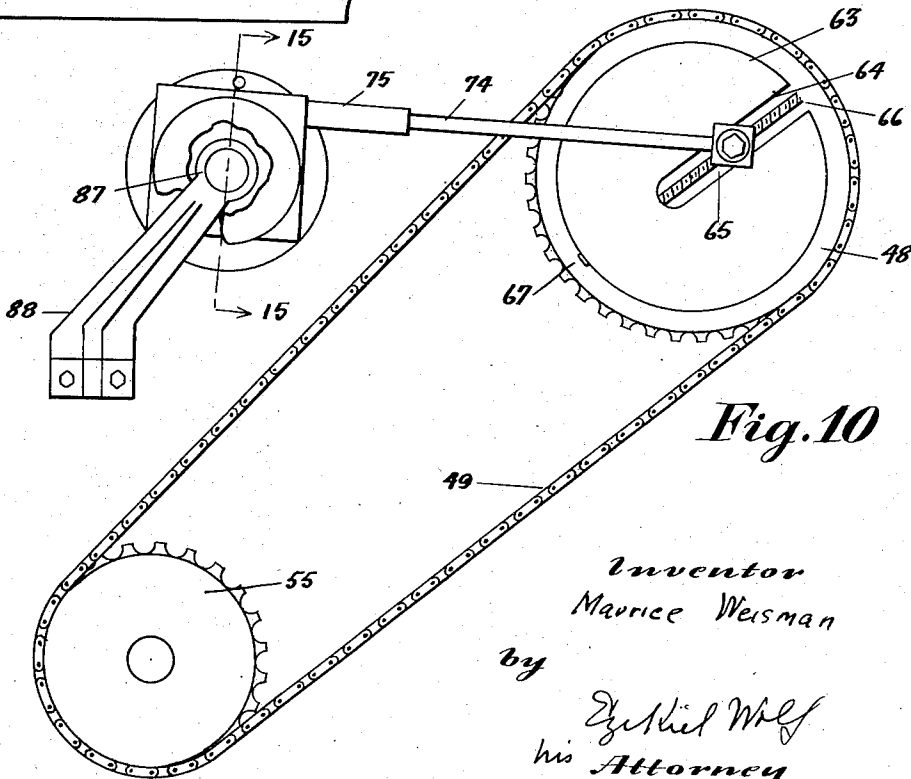


Fig. 10

Inventor
Maurice Weisman

by
Ezekiel Wolf
his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

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10 Sheets-Sheet 8

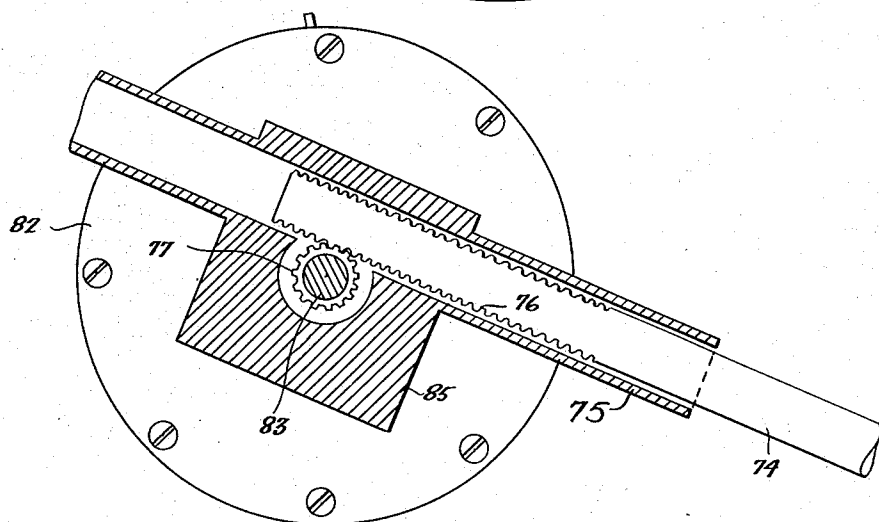
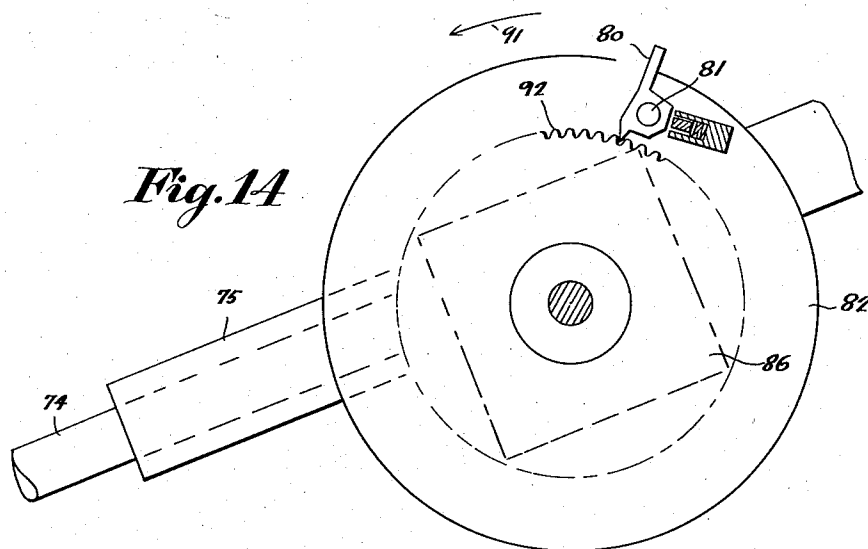


Fig. 13

Inventor

Maurice Weisman

by

Ezekiel Wolf

his Attorney

Aug. 7, 1945.

M. WEISMAN

2,381,091

METHOD AND APPARATUS FOR PACKING

Filed Nov. 30, 1940

10 Sheets-Sheet 10

Fig.19

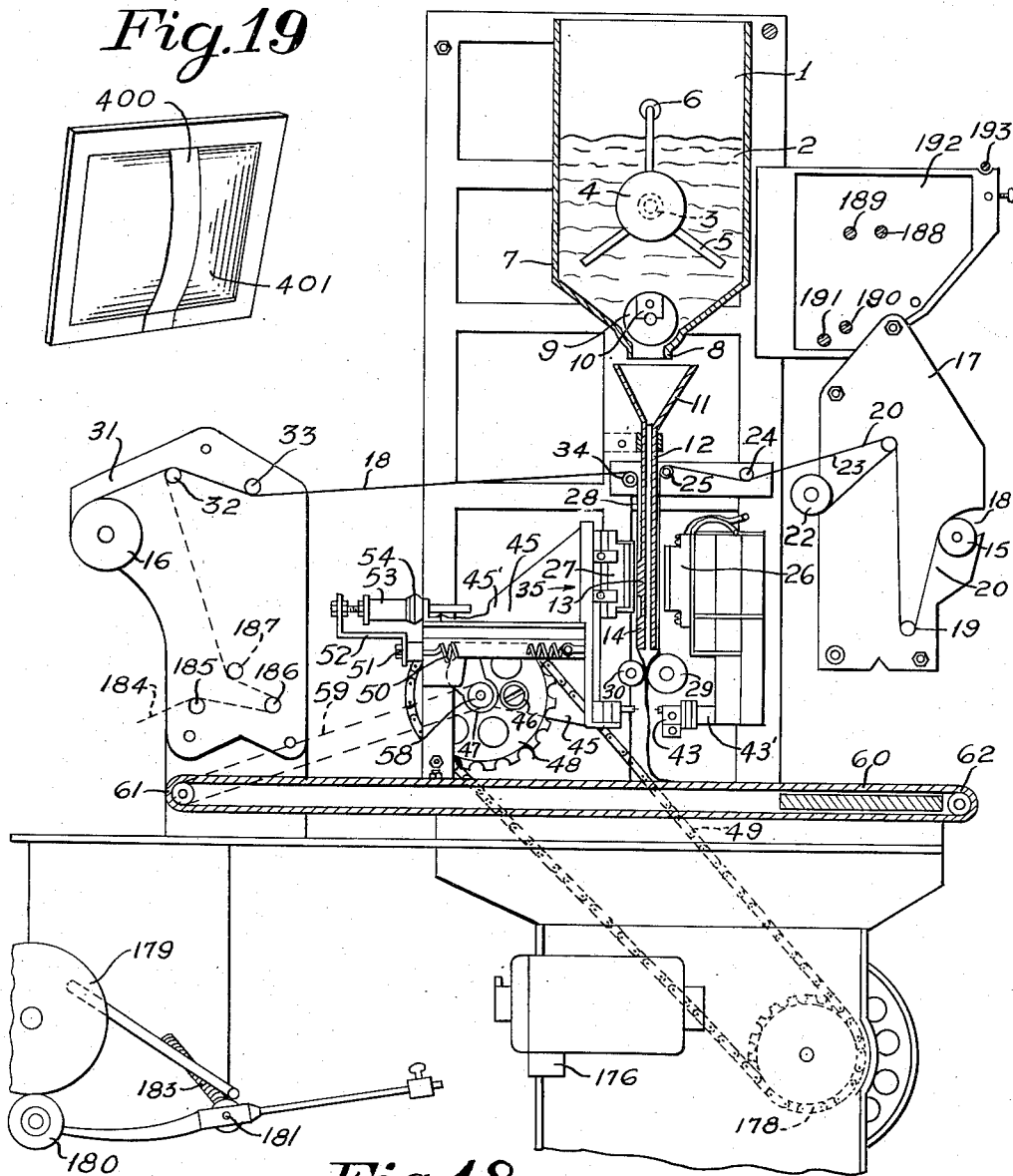


Fig.18

Inventor

MAURICE WEISMAN

By *Eckelhoff*
his Attorney

UNITED STATES PATENT OFFICE

2,381,091

METHOD AND APPARATUS FOR PACKING

Maurice Weisman, Roxbury, Mass., assignor to
Mabe Corporation, New York, N. Y., a corpo-
ration of New York

Application November 30, 1940, Serial No. 368,101

12 Claims. (Cl. 93—3)

The present invention relates to a method and apparatus for packing coffee or tea or any other type of material in packages for use in an extracting liquid, and more particularly for teas, coffee and coffee products to be used in making beverages.

The common practice in making packages for these materials to be used as beverages, is to use a gauze bag made of cotton or other fibrous material which is formed by sewing the edges of the material together to make an ordinary closed bag.

The present invention employs preferably a paper material which is particularly developed for this purpose and which is known as "Webril." This material comprises a cellulose acetate sheet made of a physical mixture of cotton and cellulose acetate fibres and has the properties of being thermoplastic under temperatures considerably higher than the boiling point of water, and practically insoluble in water, so that the package or bag will not disintegrate in boiling water.

Various other types of materials may be used of the same or equivalent nature. If the material is not thermoplastic, a thermoplastic bonding sheet may be used by which the edges of the materials may be sealed together to form the bag or container, since in the present case the stitching is not employed for this purpose.

The material preferably employed is made in a carded sheet in such a way as to provide sufficient porosity so that the water may penetrate through the material and wet the contents within the container. Preferably the material has long fibers which gives increased strength, and the material even though very thin and very porous, in repeated soakings in boiling water, remains in the same condition as when it is dry as far as its physical characteristics are concerned. This material also leaves no odor or taste, and goes through no chemical change when immersed in water.

Besides using materials of the types described above, woven material may be used with a thermoplastic binder sprayed on the edge or the face of one or both of the woven sheets, and in cases where porous carded sheet materials are used the thermoplastic binder may also be sprayed on the edges of the material on the faces which come together or they may be spotted on the material in spots along the edges to be bound.

In the present invention the package or container is formed by drawing the sheet or sheets of material over guide plates by means of feed-

ing rollers forming the container during this drawing process, sealing the sides of the container while a measured quantity of material is placed therein, and thereafter trimming the container in the final finishing process.

While the present invention may be applied to many types of packaging of material, it has particular application in the packaging of teas and coffees in small packages or bags for individual cup use.

In the present invention the bags or containers are made simultaneously in pairs, preferably by means of two opposing sheets which meet together and are sealed during the process in which the material is deposited in the container. The sheets are made of different widths, the smaller remaining flat through the whole process while the larger is formed to produce a permanent expansion so that no strain at all is placed upon the material. This construction necessitates the sealing of the ends of the container by means which take up the slack material of the larger sheet. This is preferably done by crimping the top and bottom ends of the bag transversely across the sheets at the time that they are severed. A transverse cutting knife for this purpose is placed in the mid-section of the transverse thermoplastic seal, so that the bag which is finished and the bag which is being filled are simultaneously sealed at one end at the same time that the bag is being severed from the sheets.

During the manufacture of the bag handles are applied preferably by a small strip of the same material of which the bag is made by thermoplastically sealing this strip to the bag at the same time that the top and bottom seals are effected.

Other means and methods of applying handles or paper strings to the bag may be employed in the same machine. The paper along the edge of the bag beyond the point of sealing may be cut so as to form a long strip which extends and is a part of one of the sheets of the bag and which permits the individual to lift the bag from the cup. While the bag may be made from two sheets, preferably in the present case, it is also possible to use a forming device which will fold over the edges of a single large sheet so as to make two opposed edges which would be the equivalent of the construction produced here. In many respects however, the principle of using two separate sheets, particularly with thin paper, produces a more reliable machine in that less forming and shaping mechanism is required.

Further features and advantages of the present invention will be better understood from the de-

scription in the specification below when taken in connection with the drawings showing an embodiment of the apparatus and containing a description of the methods employed.

In the drawings:

Figure 1 shows a general side view of a portion of the machine with certain parts in fragmentary section.

Figure 2 shows a side view of another portion of the machine which extends from the bottom of Figure 1.

Figure 3 shows a side view of the machine which extends from the lower side of Figure 1.

Figure 4 shows a vertical section through the machine looking in the direction of section line 4—4 of Figure 1.

Figure 5 shows a vertical section of the machine looking along the section line 5—5 of Figure 1.

Figure 6 shows a detail partly in section of the vertical heat sealing element.

Figure 7 shows a detail partly in section of the horizontal heat sealing and cutting element.

Figure 8 shows a detail of the feeding rolls and side cutting elements.

Figure 9 shows a further detail of the driving and feeding rolls and side cutting elements.

Figure 10 shows a detail of the drive for the feed rolls and control of their length of movement for producing the desired length of the bag.

Figure 11 shows a detail of the adjustment for varying the bag length.

Figure 12 is a section on the line 12—12 of Figure 11.

Figure 13 shows a detail of the feed roll driving mechanism in fragmentary section.

Figure 14 shows a detail of the feed roll driving mechanism as viewed from the opposite side of which Figure 13 is viewed.

Figure 15 shows a section taken substantially on the line 15—15 of Figure 10.

Figure 16 shows a fragmentary section taken on the line 16—16 of Figure 1.

Figure 17 shows a detail of the quantity measuring means in fragmentary section and

Figure 18 shows a general side elevation of the invention with fragmentary parts indicated in section and Figure 19 shows a view of the complete package.

Referring to the figures of the drawings, the product to be packaged as indicated by 2 in Figure 1, is placed in a hopper 1 at the top of the machine. Within this hopper may be any of the usual means for keeping the material evenly broken up, as for instance, a shaft 3 carrying hubs 4 at either end of the hopper from which extend spokes 5, the ends of which may be joined together with springs or bars 6. The shaft 3 may be driven from any of the external drive means which will be described later. The hopper 1, at its lower end, has sloping walls 7 which form at the center two outlet orifices 8. These orifices 8 are closed by a revolving shaft 9 driven in certain synchronism over the paper as will be described later. The shaft 9 is provided with two measuring pockets 10, one over each of the orifices 8. These measuring pockets 10 are filled when they come in contact with the material to be packed and deliver the same contents through the orifices 8 when the shaft is rotated to bring the measuring wells 10 in a position in front of the orifices. Below the orifices 8 are positioned two tapered funnels 11, 11, into which the coffee or tea falls as it begins to descend through the tubes 12 to be deposited at the lower end of

the tubes into the bag or container as it is formed. Towards the end of the tubes 12, there are provided one or more forming pockets 13 and 14 in each tube about which the paper is formed, as will presently be described. The paper is preferably fed from the two independent rolls 15 at the right end of the machine, as viewed from Figure 1, and 16 at the left end of the machine. The roll 15 is mounted in separate brackets 17 one on each side of the machine. These brackets 17 support the roll 15 in any well known way, as for instance, in the lower end of a slot 18 which serves as the bearing for the shaft upon which the roll is placed. Tension means, such as weights may be placed on the shaft to give some friction against the drawing of the paper as the feed begins to function. The paper 20 of the roll 15 is preferably drawn over a number of idler shafts, such as 19 and 21, so as to provide a uniform and smooth drawing of the paper. The handle strips for the bags are provided by the paper rolls 22, 22, of which there are two as shown in Figure 16. The paper strips 23 from the rolls 22 join the paper 20 at the roll 21 and feed along with it under the roller 24 and over the roll 25. Drawn across the frame of the machine, the papers 21 and 23 thereafter pass downward on the right side of the funnel 12 as indicated in Figure 1 between the side sealing elements 26 and 27, the element 26 being the heated element, while the element 27 is the cold element. The papers 20 and 23 as well as the paper 28 from the roll 16 are drawn and fed through the rollers 29 and 30 which rolls are shown more in detail in Figure 8 in connection with the side cutting discs.

The roll 16, which is the wider roll, is journaled in side brackets 31 at the sides of the machine in any usual fashion, and is passed over the idler roll 33 to the roll 34 adjacent the funnel 12. The paper 28 passes over this roll and vertically downward on the left side of the funnel 12 as viewed in Figure 1, between the elements 26 and 27 previously briefly described. The elements 26 and 27 seal the side edges and the center of the papers together. For this purpose the anvil 27 moves in the direction of the arrow 35 bringing the extended sides and center of the paper 27 into face to face relationship with the side edges and center of the paper 20. For this purpose the heated anvil 26 bears three heated shoes, 36, 37 and 38, Figure 5, which come into face to face relationship respectively with the shoes 39, 40 and 41, Figure 4, of the anvil 27. Following the sealing of these side edges, the disc knife 42, Figure 8, in the feed roller assembly, trims the sides of the bag and severs the twin bags from each other. The transverse cutting and sealing is effected by means of the lower transverse anvils 43 and 44, the anvil 43 carrying the heating element and the moving anvil 44 carrying the knife element which severs the sheet transversely in the sealing section of the paper so that the paper is sealed above and below the transverse cut. The feed rolls 29 and 30 are designated generally in Figure 1.

It will be noted in Figure 5 that the element 29 comprises three independent feed rolls 129, 229 and 329, the construction of each of which is shown in section in Figure 8, and will be described later. The feed roll 30 similarly comprises three elements which correspondingly engage the element of 29 and as indicated in Figure 4 are 130, 230 and 330, the construction of which is also shown in Figure 8.

The heating sealing anvils 26 and 43 are stationarily supported on the frames but may be adjusted in their vertical relation by their attachment to the frame in adjustable slots. The anvils 27 and 44 are mounted on the reciprocating carriage 45, the side brackets of which 45', carry the shaft 46 journaled therein, against which the cam 47 acts, which cam is driven by means of the spur gear 48 from the sprocket chain 49. A spring 50 is tensioned between a support on the reciprocating carriage 45 and a lower support 51 of the stationary frame. The reciprocating motion of the carriage 45 may be obtained either in this way or by a cam which keeps in contact with the reciprocating frame all the time. Mounted against the stationary support 51 is an angle support 52 carrying an adjustable back stop 53 mounted with a suitable rubber shock absorber device 54.

The sequence of operation of the mechanism is such that as the reciprocating carriage 45 moves to the right as shown in Figure 1 and thereby seals the side edges and base of the bag, the material to be packed, as for instance, tea or coffee is deposited through the funnel into the formed compartments of the bag. The paper from all the sheets, namely 20, 28 and 23 is fed a definite amount by the rotation of the feed rollers 29 and 30 which is controlled by a drive motion on the further side of the machine with reference to the view in Figure 1 which itself does not show this drive. This drive is shown however in Figures 9, 10, 11, 12, 13, 14 and 15. The general view as indicated in Figure 10 comprises a main drive wheel 55 mounted at the side of the frame. This gear drives through the sprocket chain 49, the gear 48 which directly drives the shaft 58 carrying the cam 47 for reciprocating the carriage 45. A belt 59 which passes around the shaft 58 drives in turn the continuous conveyor belt 60 at the base of the machine by which the bags are ultimately carried away. This belt 60 passes over the end shaft 61 and 62 journaled one at each end of the frame. The gear 48 carries a disc 63, Figure 10, which has a radial slot 64 in which is positioned a block 65 which threads on a long screw 66 passing from the other end of the disc 63 through the center of the slot. The screw 66 may be turned by the head 67 which projects from the side of the disc. The rotation of the screw 66 will move the block 65 in and out of the slot. The block 65 as seen in Figure 12 has two shoulders, 68 which ride in the grooves 69, 69, milled on the inside of the disc in which section the screw 66 passes. Screwed into the face of the block 65 is the bolt 70 which is surrounded by a collar 71 which has a flange 72, the external face of which bears against the block 65. The collar 71 is surrounded by a second block or piece 73 which is free with respect to the collar 71.

The bolt 70 it will be noted is just long enough so that when taken up to its end position, it will come in contact with the screw 66 so that the block 65 will be locked in the desired position in the adjustment which is made.

The block 73 carries a shaft 74 which moves back and forth in the collar 75. Properly selecting the position of the block 65, the desired motion of the rod 74 is obtained. The rod 74 has a set of ratchet teeth 76 milled across its lower face and this engages the ratchet gear 77 (Figure 15) which is pinned by means of the pin 78 to a cover 82, which at its top carries a pawl 80 mounted by a shaft 81 journaled in the cover

plate 82. The ratchet gear 77 and the cover plate 82 are both concentric with the shaft 83, which on its external side has a hand wheel 84. As shown in Figure 15, the shaft 83 passes through the whole assembly. The collar 75 previously mentioned, is carried by a block 85 which is journaled on a shoulder 86 against which the ratchet gear 77 is rigidly mounted, and this shoulder 86 is also concentric with the shaft 83. The shaft 83 is supported in this position at its external end by the bearing 87 which is mounted on the side of the frame by means of the bracket 88. (Figure 10). When the pawl 80 is in the position shown in Figure 14, it will operate against a ratchet gear 89 which is pinned to the shaft 83 by means of the pin 90. The pawl 80 may be manually moved in the direction of the arrow 91, in which case the ratchet teeth 92 of the ratchet gear 89 will slide by the pawl and the pawl in this position will not grip the teeth of the ratchet gear 89. The shaft 83 carries the feed rollers 129, 229, and 329, and for each forward motion of the ratchet rod 74 will produce a definite movement of the shaft 83 and the feed rolls 129, 229 and 329, when the ratchet 80 is in the position indicated in Figure 14.

In the operation of this part of the mechanism therefore the rod 70 in a rotation of the plate 63, as viewed in Figure 10, is moved forward engaging the ratchet teeth 77 which moves the plate 82 and the whole casing 79. This casing carrying the pawl 80 moves in turn the ratchet gear 89 which drives or rotates the shaft 83 the desired amount. The longer stroke of the rod 74 will produce a greater rotation of the feed rollers 129, 229 and 329 and therefore a longer bag.

At the end of the stroke of the shaft 74, the carriage 45 has travelled to the right as viewed in Figure 1, to bring the anvils 27 and 44 into engagement with the anvils 26 and 43 respectively. It will be noted that the carriage 45 goes through a complete cycle with one revolution of the spur gear 48 and that this revolution of the spur gear 48 also advances the papers a definite given amount.

In event it is desired to turn the paper independently with the rotation of the spur gear 48 from the motion of the rod 74, this may be done by moving the pawl in the direction of the arrow 91 which will free the shaft 83 completely and permit the direct rotation of the feed rollers 129, 229 and 329 by manual rotation of the hand wheel 84.

The second set of feed rollers 130, 230, 330 are all mounted on a single shaft 92 and are driven by the gear 93 which meshes with a corresponding gear 94 pinned on the shaft 83. The gear 94 is preferably slightly larger than the gear 93 to correspond with the difference in size between the rollers 129, 229 and 329 and the rollers 130, 230 and 330. This difference in size always keeps the rollers meshed together at different points so that their wear is entirely uniform. Carried directly to the shaft 58 on the left side of the machine as viewed in Figure 4, is a sprocket gear 95 carrying the sprocket chain 96 which drives a second sprocket gear 97, which drives the shaft 9 carrying the meshing wells 10 within the hopper.

A single rotation therefore of the sprocket gear 48 brings one complete cycle in operation of the machine producing a single feed of a measured amount of coffee or tea, a single reciprocating motion of the carriage 45 and a single sealing operation of both the vertical and horizontal seal-

ing anvils as well as a single advance of a measured amount of paper.

The cutting mechanisms will now be more fully described.

The vertical cutting rolls are indicated in Figure 8. The rolls 129, 229 and 329 are each mounted on a common shaft 98 which may be the same shaft as 83 or an extension or a connection therewith. A threaded collar with a normally extending flange 100 is pinned to the shaft 98 by a pin 101. Fitting over the collar and against the inner face of the flange is a rubber ring 102 against which is positioned a metal plate with an inner core 104 of rubber. This disc and core is packed up by a second disc of rubber 105, both rubber discs 102 and 105 extending slightly beyond the edge of the disc 103. This assembly is held tightly in place by a backing disc 106 clamped by means of the nuts 107 and 108. The shaft 92 is constructed in the following fashion.

A collar 109 with a flange 110 is pinned to the shaft 92. Against the flange 110 is the rubber disc 111 against which rests the cutting disc knife 42 which in turn is backed up by the rubber disc 112, the whole assembly being clamped firmly in place by the clamping plate 113 by means of the nuts 114 and 115. The discs 102 and 105 and 111 and 112 grip and draw the paper, while the steel knife 42 has its blade edge projecting beyond the ends of the rubber discs 111 and 112 engaging the softer metal plate 103 which may be of copper or other suitable material.

The reciprocating carriage 45 carries at its forward end a metallic plate 116, Figure 6, which is held to the reciprocating frame by means of bolts 117. At the face of the plate 116 is a rubber plate 118, against which is mounted a second metallic plate or shoe 119 which is held against the rubber in the direction of the plate 116 by means of screws 120 which is passed through the back frame and threaded into flanges of the plate 119. The screws 120 are mounted against the plate 116 against a spring 121 in such a fashion as to permit a yielding of the plate 119 as the carriage is brought up against its opposing carriage in the side sealing process.

The faces of the metallic member 119 is covered with a leather surface 121 held to the plate by means of the screws 122, 122.

The stationary anvil against which the moveable anvil just described is brought in the operation of the machine, comprises a metallic shoe 123 which is held against the frame by means of bolts 124 and heat insulated therefrom by means of an asbestos pad 125. The plate 123 has a bore from the top end downward in which is inserted a heating coil or rod 126 which is supplied with heat by the line 127. A thermostatic control tube 128 is also inserted in the plate and has wire connections 131 running to a thermostat control device 132, Figure 5. The horizontal sealing and cutting means is accomplished by the elements 43 and 44 at the lower end of the machine. The general section of this is shown in Figure 7.

The stationary member 43 comprises a block which is mounted to an extension 43' of the carriage. The block 43 carries a heating tube 133 and a thermostatic control element 134 which is connected to the thermostat element 135 (Figure 4).

The block 43 has a projecting section 136 with a center insert of copper 137. The face of the section 136 has a chrome finish similarly as the plate of the vertical heating element 123. The movable carriage 45 carries a projecting plate 138

which is firmly mounted against the carriage 45, against this rubber plate 139 is a second steel plate 140. The plate 140 is held to the plate 138 by means of a bolt 141 which threads into the plate 140 against the pressure of a spring 142 so that the plate 140 may yield and come slightly against the rubber plate 139. At the top and the bottom of the plates 138 and 140 are side projecting plates 143 and 144' so as to confine the motion of the plate 140 directly against and away from the plate 138. The plate 140 has a groove or slot 144 milled in its center and in this plate is positioned the cutting knife 145 in such a position so that it might slide horizontally forward and backwards a slight distance with reference to the motion of the plate 140. The knife blade has a slot in the center into which projects the arm 146 of the holder 147 which is rigidly mounted by means of the bolt 148 against the plate 138. The position of the knife may be slightly adjusted with respect to the slot 144 by means of the slightly enlarged slot 149 through which the bolt 148 passes. It should also be noted that the upper fork 150 has a slightly enlarged slot 151 so as to permit a slight motion of the blade freely with reference to the slot 144. The surface of the slotted end 152 of the plate 140 is covered by means of a leather cover 153. As the anvil 45 goes forward to the left as shown in Figure 7 by the arrow 154, the leather surface 153 engages the chrome face of the plate 136, the leather yielding on account of the rubber 139 to permit the knife blade to project beyond the leather surface and cut the paper which lies between its edge and the chrome face. At the same time a seal is made on the surface above the copper insert as well as on the surface below the copper insert.

To prevent the paper from adhering to the leather surface, a stripper plate 260 is provided which is supported by the rods 261 passing through holes in the plate so that the plate may be freely moved along the rods. Springs 262 surround the rods so as to return the plate back again in position. The rods at their ends have enlarged heads 263 so that the plate will be held on the rods. The plate 260 has an opening at the center through which the anvil may pass when the plate comes up against the blocks 264 mounted on the heated anvil 43. When therefore the anvil 40 is again retracted the plate 260 will move forward stripping the paper from the face of the leather surfaces.

Suitable designs or embossings may be used on the faces 155 and 156 and these preferably having crimping surfaces so as to take up the excess in the larger sheet.

It will be noted that both the vertical and the horizontal sealing means permit the yielding of the crimping surface. This yielding is of such a nature that the heat is applied for just the correct interval of time to effect a uniform and perfect seal of the package.

Other advantages are obtained by this yielding type of mounting which is also applied to the feed rolls as illustrated in Figure 9. The shaft 92, Figures 4 and 9, is journaled in a block 157 which slides in grooves in the block 158 mounted by means of the bolts 159 to the piece 160 which is bolted through the bolts 161, to the frame 162 which is part of the frame of the machine.

The block 157 has a hole 163 drilled at the rear end in which there is inserted a spring 164 to the end of which is attached a piston or block 165. This block bears against a face plate 166

which is held to the block 158 so that the shaft 92 is spring tensioned in position by means of this arrangement. The shaft 92 carries the rollers 130, 230 and 330 which are therefore spring tensioned against the rollers 129, 229 and 329 carried by the shaft 98. The shaft 98 is journaled in the block 160 by means of the split bearing formed by the block 160 and the block 158. These two shafts 98 and 92 are geared together as indicated by the gears 94 and 93. Means for providing a measured feed is shown in Figure 17. The shaft 9 has a cavity 167 in which there is fitted a cup 168 of the same shape as the cavity which may be screwed into the shaft 9 by means of the threaded neck 169 at the bottom end of the cup which threads into a bore 170 in the shaft 9. The cup itself is threaded in the neck 169 as indicated by 171 and into this threaded bore there is screwed a rod 172, which at its front end carries a piston or disc 173 fitting within the recess of the cup 168. The piston 173 is threaded in position by a suitable tool operating in the holes 175 leaving the desired size cup of the material to be deposited in the orifices 8 below.

The shaft 9 is rotated as has been described in such a manner as to deliver a volume of coffee or tea as the material to be packed during each cycle of the operation of the machine.

In Figure 2 is shown the base of the machine comprising the main drive motor 176 which operates through reduction gears 177 and 178, the main drive wheel 55 driving the sprocket chain 49. In Figure 2 to the left is shown an additional paper roll 179 with a friction roll 180 acting against it to prevent the roll from unrolling faster than it is drawn. This roll 180 is mounted to be pivoted by a pivot 181 and is counter-balanced by a weight 182 as well as controlled by a spring 183.

A roll may be of coarse paper and be used as a cover for a bag. In this case the paper from the roll 179 as indicated by the numeral 184, Figure 3, may be passed over and under a series of guide rolls 185, 186 and 187, to be joined at the roll 32 to the paper 28.

Similarly when bonding sheets or other sheets are used in the connection with the paper on the other side of the machine, these are carried around the shafts 188, 189, 190 and 191, the paper roll itself being mounted on shafts journaled in the brackets 192 one on each side of the machine by the bearings 193 in any other suitable position.

In the description above, it should be noted that the cutting knives, principally the cutting disc knife 42 may be notched at intervals so as to provide small spots where no cutting will take place. This will retain the pieces of paper at the sides of the sheet so that they may be torn off after the whole bag has been completed. The cross cutting knife may also extend only across the bottom sections of the bag leaving free edges. By these means chains of bags may be formed so that when the bags are packed they can be folded over one another into a box or other container. The chains of bags can be pulled out and one or more as may be desired can be dropped into the pot or cup in which the coffee or tea is made. The cross cut knife may produce two partial cuts transversely in the sealed sections when double bags are formed leaving a center uncut section, an end uncut section, whereby either one string of bags or two strings of bags may be used.

The strap 400, Figure 19 or handle is crimped

to the bags 401 by the top and bottom sealings of the bags. These handles may be left slightly extended if desired by drawing the strip over a suitable guide carried by one of the anvil pieces. The sealing sections transversely across the bag may be imposed and crimped for various designs or markings simply by immersing the hot anvil plate by engraving or cutting on the hot anvil plate the desired design.

Other variations of the present construction may be incorporated when used in the present machine without departing from the principles of the invention as described above.

Having now described my invention, I claim:

1. A method of packaging tea, coffee or the like in an intermittent process, which comprises feeding a given length of two sheets of different effective width in face to face relation with each other intermittently, forming the wider sheet to produce a pouch effect against the narrower sheet, cementing the edges and the center lengths of the sheets together longitudinally simultaneously along the whole of such lengths, cutting the sheets longitudinally in the cemented lengths, filling the pouch and substantially simultaneously crimping and sealing the sheets transversely to form the bottom and top of the bag.

2. A method of packaging tea, coffee or the like in an intermittent process, which comprises feeding a given length of two sheets of different effective width in face to face relation with each other intermittently, forming the wider sheet to produce a pouch effect against the narrower sheet, cementing the edges and the center lengths of the sheets together longitudinally simultaneously along the whole of such lengths, cutting the sheets longitudinally in the cemented lengths, filling the pouch and substantially simultaneously crimping and sealing the sheets transversely to form the bottom and top of the bag, and cutting the bags from the sheet simultaneously with the transverse crimping and sealing operation in the transverse sealed section.

3. In combination with a machine for packaging tea, coffee or the like, means including pairs of feed rolls for feeding a plurality of sheets of thermoplastic, porous, flexible, thin material from supply rolls, means positioned in the path of the travel of said sheets before the position of the feed rolls for sealing said sheets in sections at the center and at the sides of said sheets and means operating with the feed rolls for cutting said sheets in said sealed sections, said feed rolls comprising a plurality of rubber discs bearing laterally against said cutting disc as one set of rolls and as the other set of feed rolls, a pair of rubber discs bearing laterally against a bearing disc, the pair of rolls having their peripheral surface bearing against each other at the gripping point.

4. In combination in a machine for packaging tea, coffee or the like, two pairs of gripping feed rolls positioned to bear against each other at their surfaces, one pair of said rolls comprising a plurality of rubber discs having a bearing plate therebetween, said rubber discs projecting beyond the edge of said bearing plate, the other pair of rollers having a pair of rubber discs with a cutting disc against which the rubber discs bear, said cutting disc having a cutting edge projecting slightly beyond the surface of said bearing discs.

5. In combination in a machine for packaging tea, coffee or the like, two pairs of gripping feed rolls positioned to bear against each other at their surfaces, one pair of said rolls comprising

a plurality of rubber discs having a bearing plate therebetween, said rubber discs projecting beyond the edge of said bearing plate, the other pair of rollers having a pair of rubber discs with a cutting disc against which the rubber discs bear, said cutting disc having a cutting edge projecting slightly beyond the surface of said bearing discs, said cutting disc being notched at intervals to allow spots on said paper that is not cut.

6. In combination in a machine for packaging tea, coffee or the like, two pairs of gripping feed rolls positioned to bear against each other at their surfaces, one pair of said rolls comprising a plurality of rubber discs having a bearing plate therebetween, said rubber discs projecting beyond the edge of said bearing plate, the other pair of rollers having a pair of rubber discs with a cutting disc against which the rubber discs bear, said cutting disc having a cutting edge projecting slightly beyond the surface of said bearing discs, said cutting disc being mounted on a rubber collar and said rubber collar on a shaft, said shaft supporting the entire disc assembly.

7. In a machine for packaging tea, coffee or the like, in combination with means for feeding a plurality of sheets of porous, flexible, thin material having thermoplastic qualities intermittently in desired lengths, means positioned transversely of said feed having a cold anvil on one side of said sheet and a hot anvil on the other side thereof, a cutting knife centrally located in the face of one anvil, means supporting said cutting knife free from said anvil, said means rigidly supporting said knife and yielding means supporting said anvil to said rigid means and means for intermittently bringing said anvils together at the end of the operation of said intermittent feed.

8. In a machine of the type described in claim 7, a cold anvil having an elongated flat face with a slot running longitudinally therein, leather means covering the face on both sides of said slot, means yieldingly supporting said anvil to a rigid support, a cutting knife positioned in said slot and rigidly supported to said rigid means, and guide plates positioned on both sides of said anvil to combine the motion of the leather faces parallelly to its surface.

9. In a machine for packaging tea, coffee or the like, means for feeding a plurality of sheets of flexible, porous, thin, thermoplastic material in desired lengths intermittently, anvil means having a stationary element positioned on one side of said sheets and having longitudinal shoes extending in the direction of the feed, moveable anvil means positioned on the other side of said sheets having shoes positioned opposite said previously mentioned shoes forming a tube posi-

tioned between said sheets, and means for moving the moveable anvil means normally to the face of the sheets to bring the edges of one sheet into contact with the edges of the other sheet and means operated simultaneously with the movement of said anvil means for sealing and crimping together said sheets in sections transversely across the sheets.

10. A method of packing tea, coffee or the like which comprises feeding two sheets of material in face to face relation, feeding a strip externally of said sheets and simultaneously therewith, sealing the opposing sheets together simultaneously along the edges thereof and longitudinally in the central portion of the sheets to form the sides of a pair of bags, and thereafter cutting the sheets in the middle of said central portion longitudinally to form twin bags, sealing together and cutting simultaneously both the sheets and the outer strip transversely across a small section thereof, sealing the top end of one set of bags with the outer strip and closing the bottom end of the next set of bags with the outer strip.

11. A machine for packaging tea, coffee or the like, comprising supply rolls, means for feeding two sheets of porous flexible, thin sheet material in face to face relationship to one another from said supply rolls with a stop and go motion, one of said sheets being wider than the other, means for extending the central portion of said wider sheet away from the other sheet comprising a hollow mandrel whereby the side edges of the opposing sheets are brought together forming a punch when the bag is put together, means for sealing the sheets together along the side edges so brought together, means for sealing the sheets in a cross section transversely to form the bottom of the package just being made and the top of the package just being completed, means for filling through the hollow mandrel the package being made and means for severing the finished packages from the sheets in the cross section which was sealed.

12. In a machine for packaging tea, coffee or the like, means for feeding a plurality of sheets of porous, flexible, thin material having thermoplastic qualities intermittently in desired lengths, anvil means positioned transversely of said feed having a cold anvil on one side of said sheets and a hot anvil on the other side thereof, one of said anvil means having a slot in its central portion, a cutting blade positioned therein away from the sides of the slot, means rigidly supporting said blade in said position and means yieldingly suspending said anvil means.

MAURICE WEISMAN