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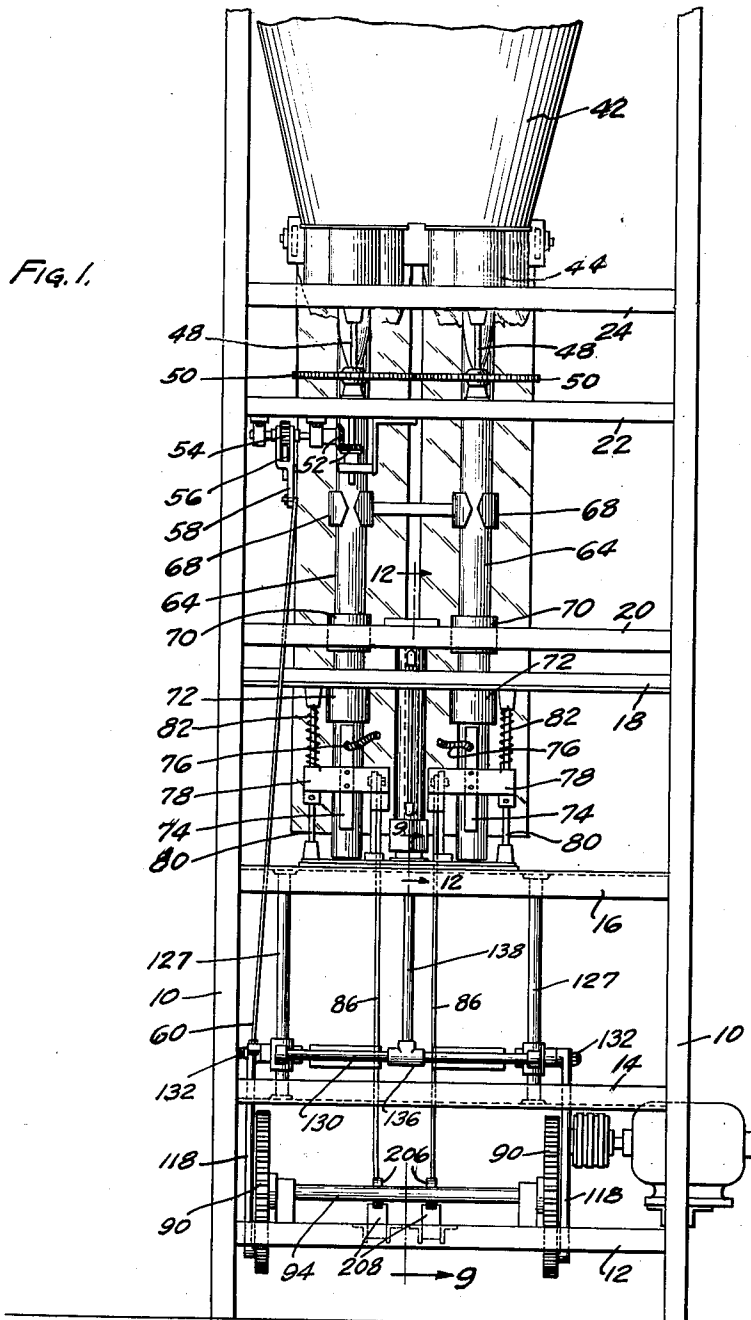
R. W. SMITH

2,237,119

AUTOMATIC PACKAGING MACHINE

Filed July 26, 1940

6 Sheets-Sheet 1



INVENTOR.

RAYMOND W. SMITH

BY

Harry H. Kitzman
ATTORNEY.

April 1, 1941.

R. W. SMITH

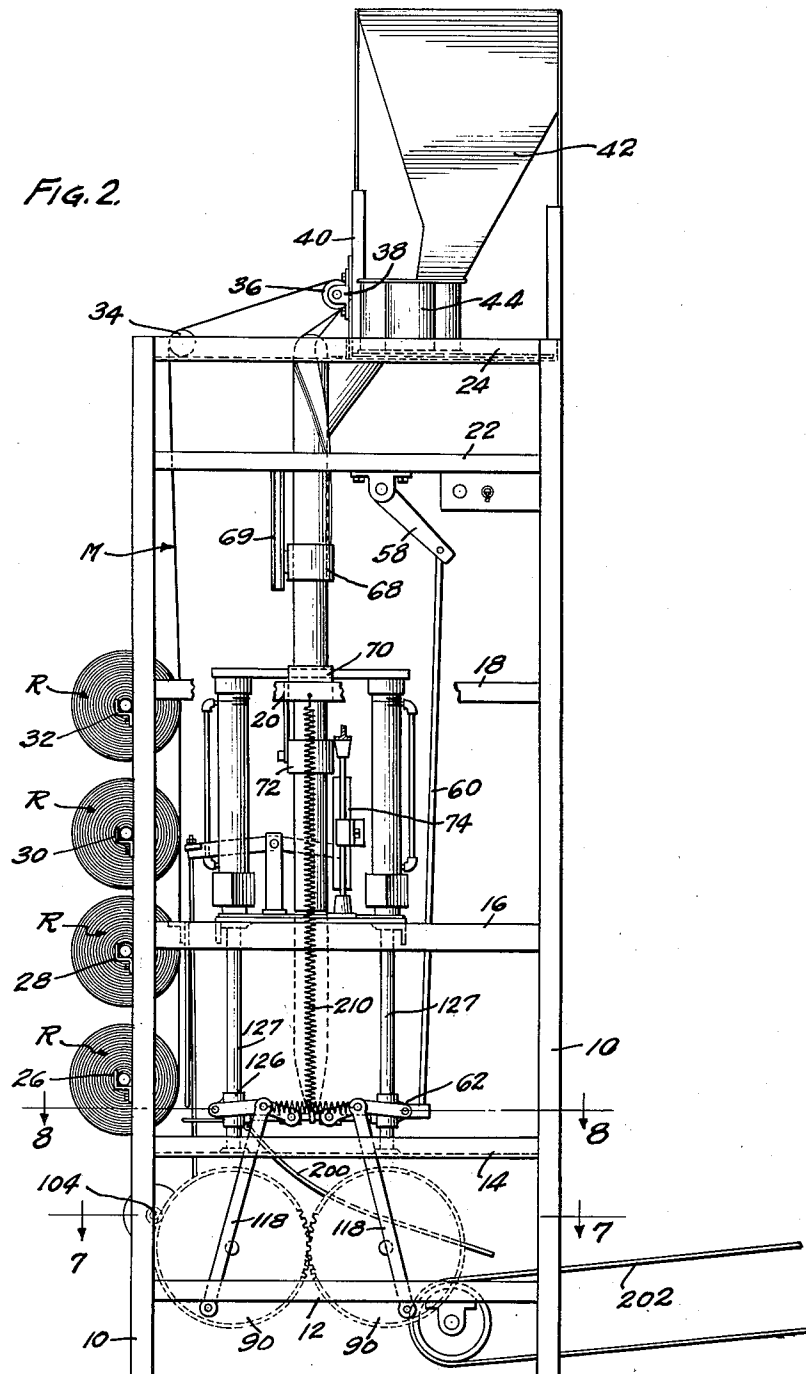
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AUTOMATIC PACKAGING MACHINE

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FIG. 2.



INVENTOR.

BY *RAYMOND W. SMITH*
Harry H. Hitzman
ATTORNEY.

April 1, 1941.

R. W. SMITH

2,237,119

AUTOMATIC PACKAGING MACHINE

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Fig. 3.

Fig. 4.

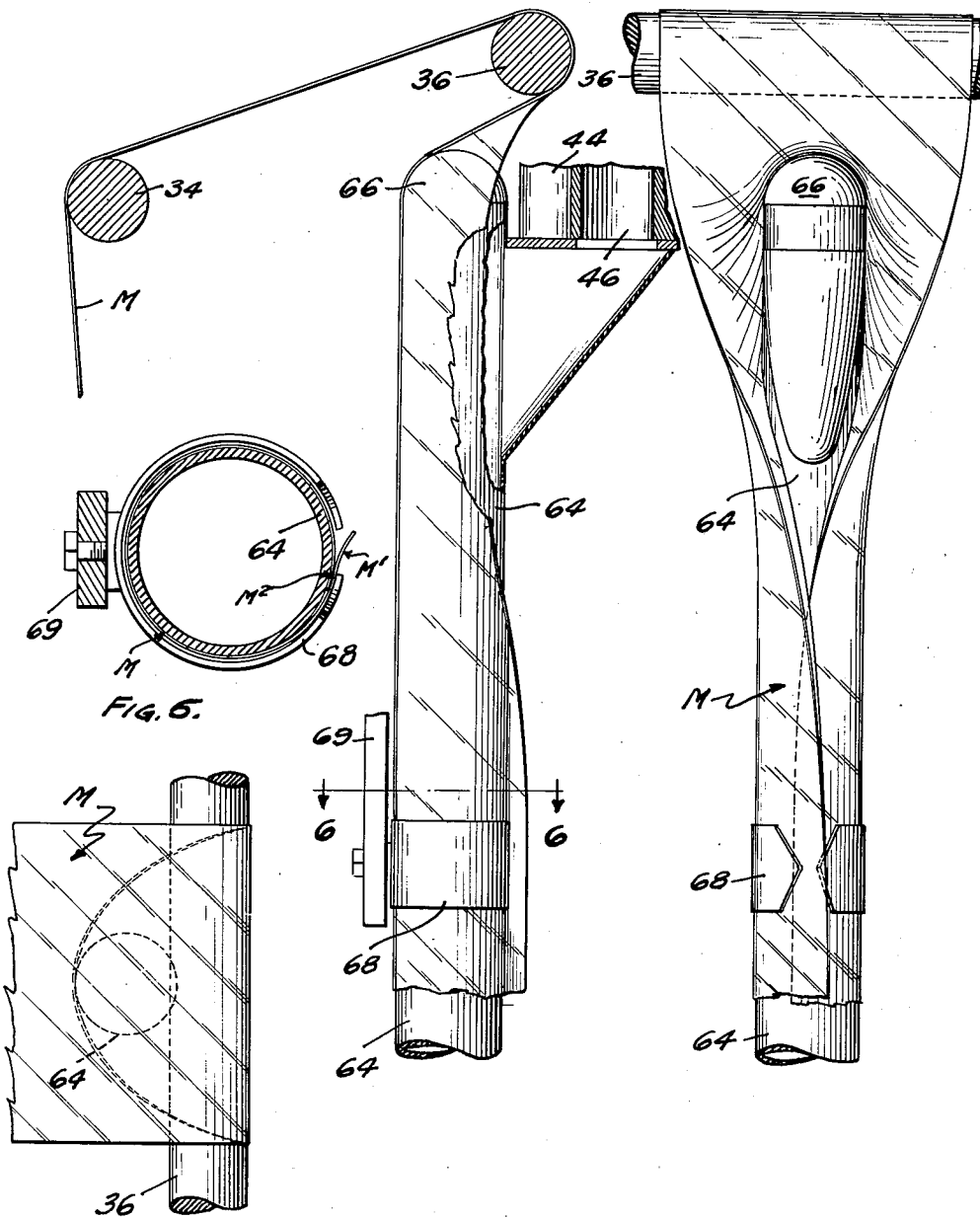


Fig. 5.

INVENTOR.
RAYMOND W. SMITH
BY Harry H. Hageman
ATTORNEY.

April 1, 1941.

R. W. SMITH

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Fig. 8.

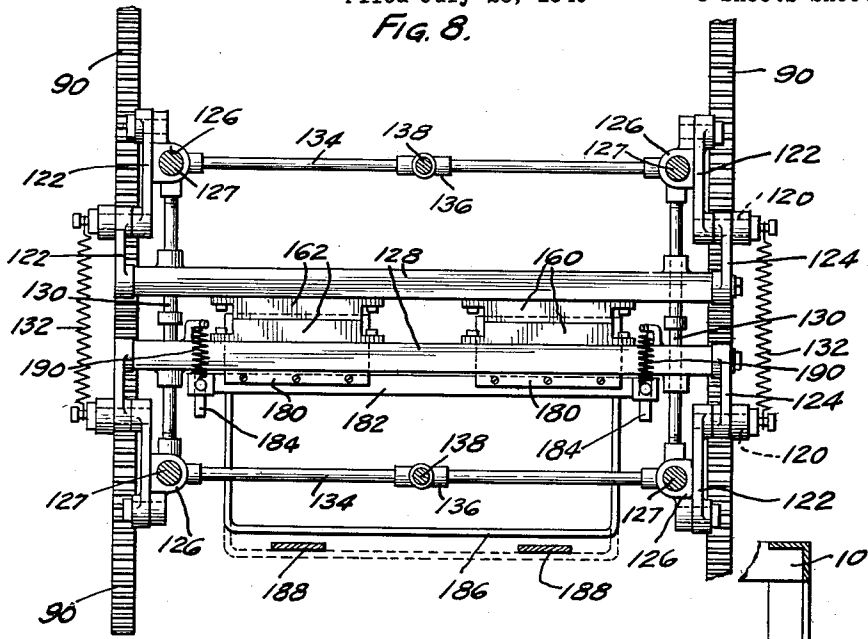
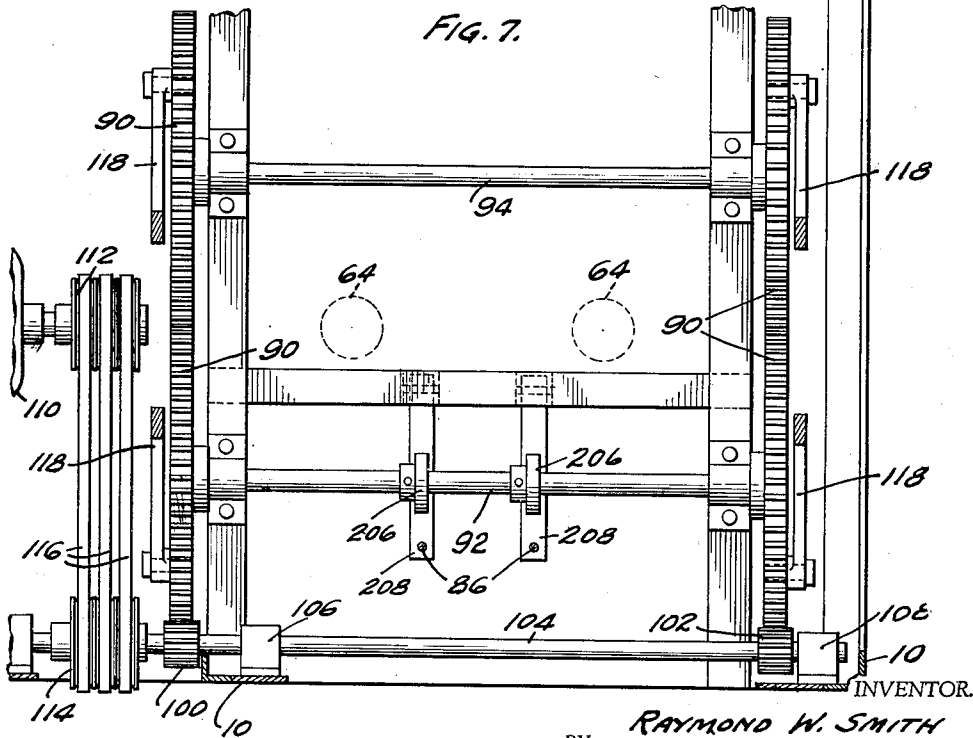


Fig. 7.



BY

RAYMOND W. SMITH

Harry A. Hitzman
ATTORNEY.

April 1, 1941.

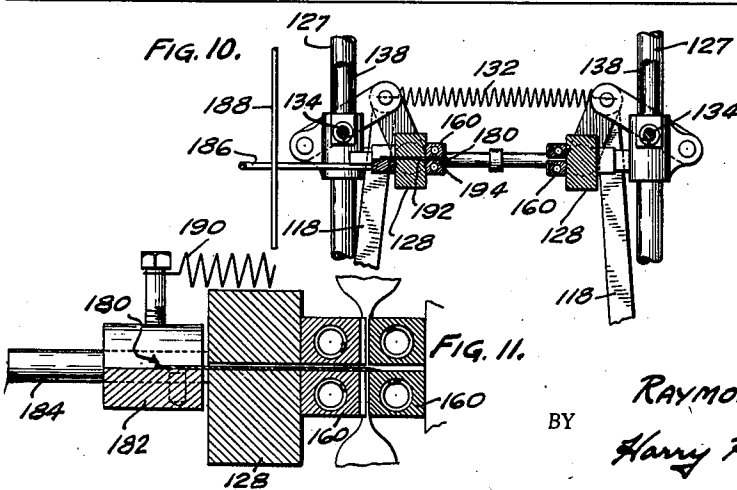
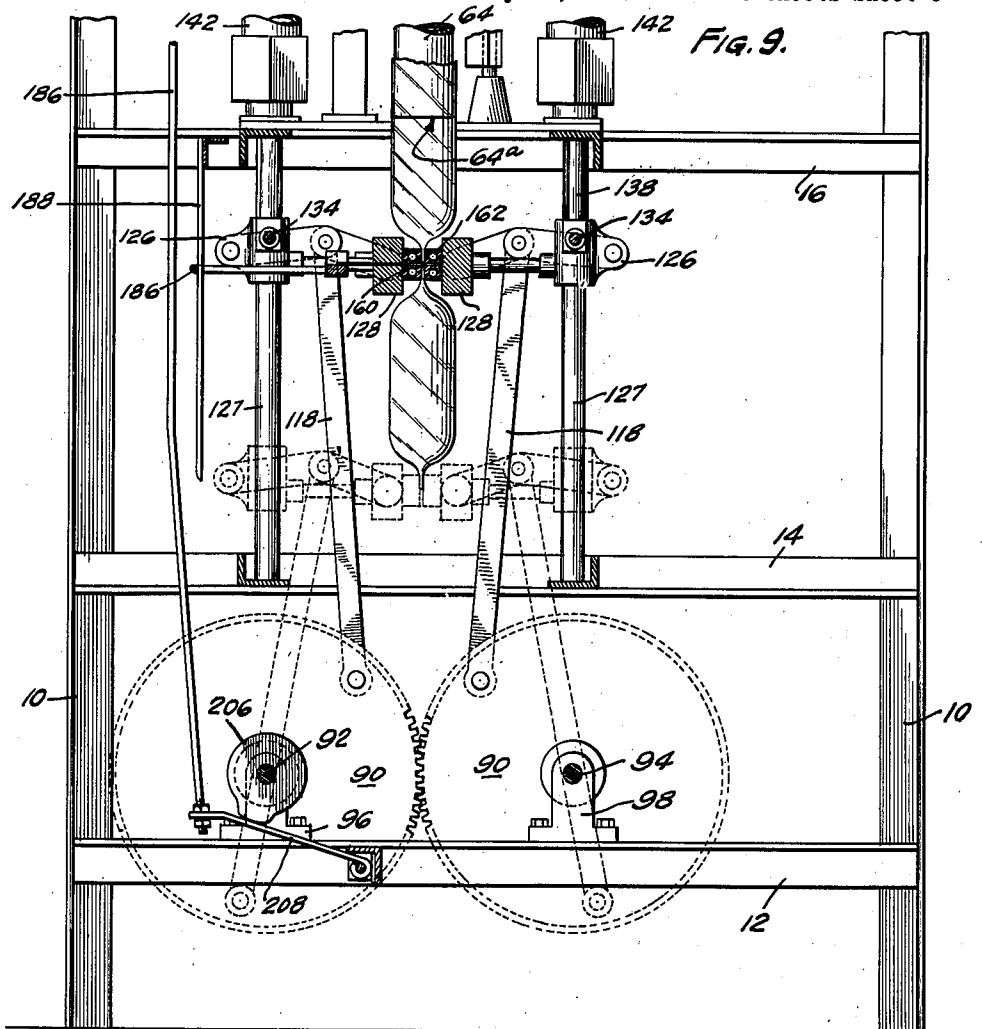
R. W. SMITH

2,237,119

AUTOMATIC PACKAGING MACHINE

Filed July 26, 1940

6 Sheets-Sheet 5



INVENTOR.
RAYMOND W. SMITH
BY
Harry H. Hitzman
ATTORNEY.

April 1, 1941.

R. W. SMITH

2,237,119

AUTOMATIC PACKAGING MACHINE

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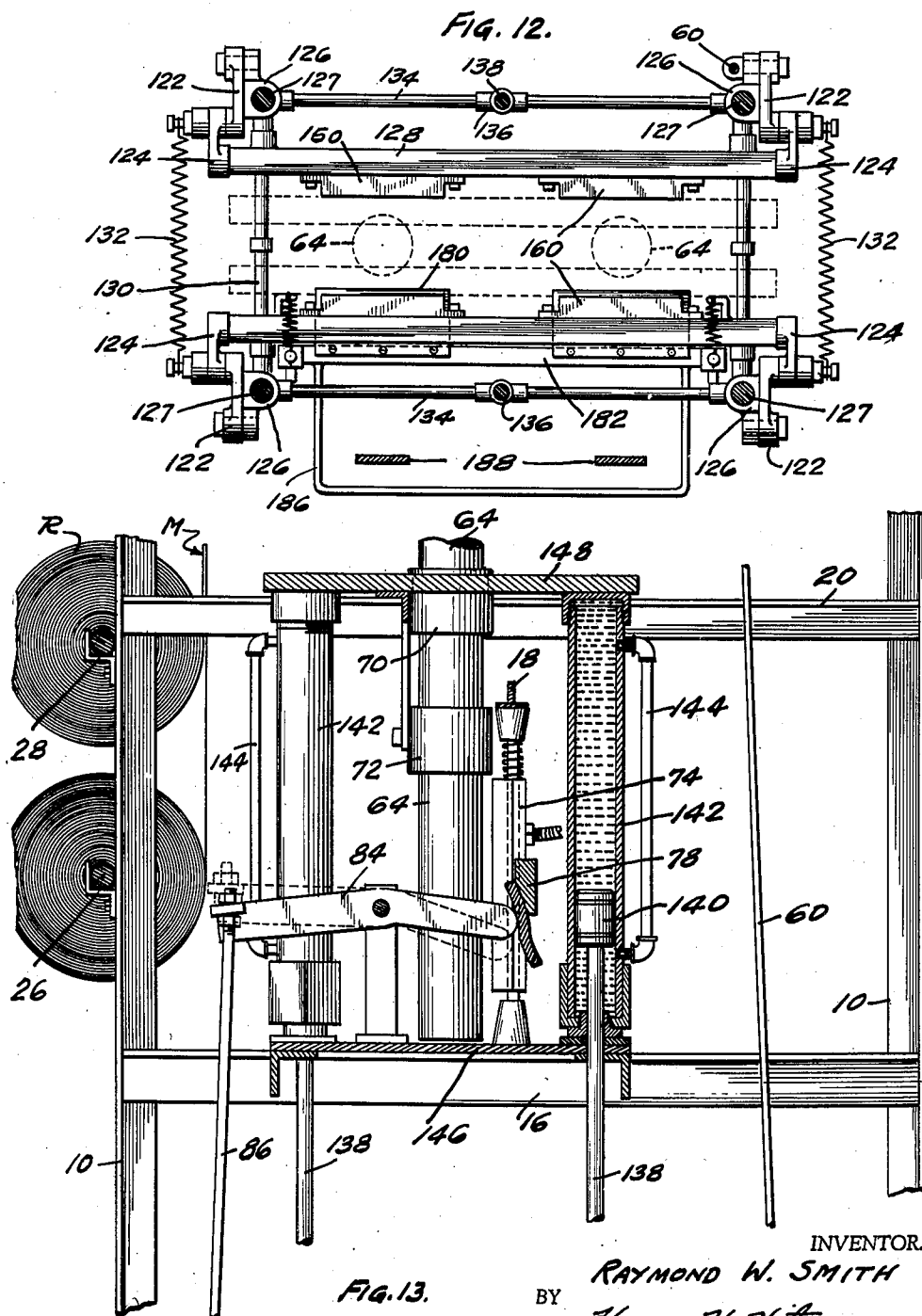


FIG. 13.

BY

RAYMOND W. SMITH

Harry H. Hitzeman
ATTORNEY.

ATTORNEY.

UNITED STATES PATENT OFFICE

2,237,119

AUTOMATIC PACKAGING MACHINE

Raymond W. Smith, Chicago, Ill., assignor to
Transparent-Wrap Machine Corporation, New
York, N. Y., a corporation of New York

Application July 26, 1940, Serial No. 347,679

16 Claims. (Cl. 93—3)

My invention relates to machines of the general type capable of manufacturing or forming a bag, package or container from a roll of material, filling the same with a product in measured quantities and then closing the package and disconnecting it from the roll.

My invention relates more particularly to machines of this type that are automatic in operation and capable of making and filling bags in a continuous uninterrupted process.

Machines of the general type mentioned have been on the market for some time. Each of them, however, has certain defects in construction and operation which limits to some degree its usefulness and type of material which it can handle. For example, each of the machines of the prior art employ a forming device for forming the flat material from which the bag is constructed into a tubular shape. The packaging material is drawn from a reel and passed over the former by which it is bent to a tubular shape and the overlapping side edges are sealed to form the package. The bottom of this tubular portion is sealed; the article to be packed is dropped through the entire tube to its bottom; the top of the container is then sealed, preferably while it is still attached to the remainder of the tube; the filled container still attached is pulled down to the delivery position and severed from the remainder of the tube.

The bending of the package material over the former tends to tear and rip the same with the result that the machine must be stopped frequently to rethread the package material. While Cellophane or other similar bag material is extremely tough and does not tear so easily, other substances such as paper, glassine and other more frangible material tears and rips easily, particularly if flexed or bent over sharp corners or steep angles.

The principal object of my invention is to provide an improved package making and filling machine with a packaging material feed so arranged with respect to the filling tube that no forming mechanism need be employed, the packaging material being fed from above directly around the filling tube.

A further object is to provide a construction and assembly of elements, in a machine of the class described so constructed that tearing, ripping and otherwise disrupting the package material as it comes from the reel is eliminated.

A further object of the invention is to provide an improved longitudinal seal member for seal-

ing the side edge of the tube and improved means for operating the same.

A further object is to provide improved cross-sealing means for closing the upper and lower ends of the filled bags with automatically operated knife means that cut the filled bag from the lower end of the tubular column of package material.

A further object of my invention is to provide an improved combined heat-sealing and knife means whereby one bottom and one top bag seal is made and the bags are separated between said seals all in one cycle of operation.

A further object of my invention is to provide improved and simplified drive means for operating the mechanism described including means associated with the heat sealing members for intermittently advancing the package material from the rolls through the entire machine.

A further object is to provide a sealing means for making the top and bottom seals in the bags capable during the sealing period of advancing the package material through the machine.

Other objects and advantages will be more apparent from the following description wherein reference is had to the accompanying six sheets of drawings, upon which

Fig. 1 is a front elevational view of my improved machine;

Fig. 2 is a side elevational view thereof;

Fig. 3 is a somewhat diagrammatic view illustrating the manner in which the web of package material passes over feed rollers to the top of the filling tube;

Fig. 4 is a fragmentary front elevational view of the parts generally shown in Fig. 3;

Fig. 5 is a fragmentary plan view of one of the horizontal feed rollers and the filling tube;

Fig. 6 is an enlarged sectional view through one of the guide collars for the web of material, and is taken on the line 6—6 of Fig. 3;

Fig. 7 is a fragmentary plan view through the lower part of the drive mechanism taken generally on the line 7—7 of Fig. 2;

Fig. 8 is a similar fragmentary section with parts of the frame omitted a short distance above Fig. 7; is taken generally on the line 8—8 of Fig. 2, and illustrates the bag sealing and severing mechanism in a closed position;

Fig. 9 is a fragmentary vertical sectional view through the machine taken generally on the line 9—9 of Fig. 1 and illustrates the bag closing mechanism in a position just starting to pull down on the web of material. The lowermost

position of the closing jaws is shown in dotted lines in the same figure;

Fig. 10 is a fragmentary changed position view of the closing jaws of Fig. 9 shown just prior to the time that they have been closed about the bag and started on their downward stroke;

Fig. 11 is a similar fragmentary view showing the operation of the knife member in severing the packages;

Fig. 12 is a fragmentary plan view similar to Fig. 8 with the sealing jaws and associated mechanism shown in the same position as Fig. 10; and

Fig. 13 is a fragmentary vertical sectional view through the machine taken generally on the line 12—12 of Fig. 1.

The machine embodying the herein disclosed invention is intended to utilize any suitable sheet material, and particularly thin transparent material such as regenerated cellulose, preferably of the moisture proof type or any similar moisture proof transparent or semi-transparent material hereinafter referred to as packaging material, and in using such material, the sealing of the bottom, top, and if desired the side seam also, may be effected by the application of heated sealing units. Hence, in the construction shown, the sealing members are preferably heated electrically by the use of resistance material. It will be understood, however, that the invention is not limited in this respect and it is contemplated that the joining of the material to form the tube top, bottom and side seams shall be by the use of adhesives or folds or any other improved method. It is feasible in some instances to feed the articles into the tubular feed conduit either by hand or by hand controlled mechanism, but it is preferable in most cases to feed it automatically in timed relationship to the formation of the container. By so doing a very considerable speed of operation is obtained. Automatic feeds which may be employed will take different forms, depending upon the material to be fed and the quantity. In the form of the invention shown in the drawings, the feed mechanism is designated to feed into each container a measured quantity of small articles such as popcorn, peanuts, cracker jack, or other similar articles, and in the embodiment shown I have preferred to employ the type of feed mechanism shown and described in the patent to C. W. Vogt, No. 2,113,636; also, it is understood that other types of automatic feed mechanism may be employed.

In the embodiment of the invention which I have chosen for illustration, I have shown generally a vertically disposed frame comprising the angle members 10 supported both for rigidity and to provide supports for other mechanism at spaced intervals by the angle members 12, 14, 16, 18, 20, 22 and 24. I provide pairs of supporting brackets 26, 28, 30 and 32 for a plurality of reels R of packaging material M. The packaging material may extend upwardly over the guide rollers 34 and around a directing roller 36 mounted in brackets 38 on the uprights 40 which form a part of the support for the hopper 42. The hopper 42 communicates with the revolving mechanism 44 provided with vertically disposed measuring cylinders 46. These cylinders are rotated in timed relation to the sequence of operations of the machine by shaft members 48 drivingly connected to a pair of face gears 50. A pair of bevelled gears 52 connect the shaft 48 in driving relation to a ratchet 54 which is turned a portion of a revolution for each operation by a dog member 56 connected to a reciprocating lever 58.

The lever 58 is connected by a rigid rod member 60 to one of the brackets 62 hereinafter to be described.

Referring more particularly to Figs. 3 to 6, the formation of the cylindrical tube will now be described. When the web of material M passes over rollers 34 and 36, it is bent back upon itself and pulled around the vertical feed tube 64. The feed tube 64 is provided with a semispherical cap 66 which causes the web of paper being drawn down about the same to take a natural formation thereabout and form the greater portion of a complete circle as it is drawn down around the tubular feed conduit 64.

When the material is first threaded through the machine, one of the edges M' is overlapped over the other edge M², so that as the material passes down around the conduit 64 inside of a guide collar 68, the material will be practically formed into a complete circular tube with the edge M' overlapping the edge M². In this position it is guided downwardly through a pair of similar collars 70 and 72, and when the web reaches the region of the side sealing means 74 the material is overlapped and may be sealed by a slight pressure of the heat sealing means against the side of the tube. The collar 68 may be adjustably mounted in a vertical bracket 69 which extends downwardly to support the same from the angle support members 22.

As can be seen in Fig. 1, the mechanism has all been devised as a duplex machine, consequently using two rolls of packaging material to provide a double thickness package, and duplicate parts throughout the machine for making and filling the bags. Since these parts are identical, only one complete assembly will be herein described.

The heat sealing means 74 for effecting the longitudinal seal in the tubes may comprise a heating member connected to a source of electricity by the conduits 76. Each of the heating members are mounted upon a bracket 78 supported upon vertical shafts 80 positioned between the support members 16 and 18. A spring member 82 normally tends to hold the sealing member against the tube 64. To provide an intermittent motion I have provided a pair of rocker arm members 84 adapted to be rocked from the drive mechanism by the rod members 86. The arm 84 is thus rocked through a short angular motion with its end bearing against the bracket 78 so that in timed relation with the other mechanism the heaters 74 are moved away from the tube 64 during said intervals of operation.

The mechanism for making the cross seals and at the same time moving up and down to pull the web of material through the machine will now be described. This mechanism may include dual sets of face gears 90 mounted upon cross shafts 92 and 94 supported in brackets 96 and 98 upon the cross frame members 12. The face gears, which are of exactly the same size and engage each other, may be driven by a pair of bevelled gears 100 and 102 mounted upon a cross shaft 104. The shaft 104 is mounted in suitable bearings 106 and 108 connected to the vertical uprights 10. The drive for shaft 104 may be obtained from a suitable source of energy such as the electric motor 110 which carries a pulley 112 that drives a drive pulley 114 keyed to the shaft 104 by a plurality of belt members 116.

Each of the four face gears 90 carry a pivotally mounted connecting rod 118 which extends upwardly (see Figs. 7, 8 and 9), and connects

to a pin 120 carried by a pair of levers 122 and 124. Each of the levers 122 is connected to a vertically disposed sliding bearing 126 and each of the levers 124 is connected to a cross seal bracket 128. The bearings 126 reciprocate upon vertical rods 127 fastened between the cross frame members 14 and 16. The bearings 126 are joined on each side by an adjustable cross bar 130 provided at its opposite ends with right and left hand threads, whereby the tension upon the seal members may be increased or decreased. The pin members 120 are joined upon each side by a compression spring member 132 for assisting in drawing the same together during a certain portion of the operation. The bearings 126 upon opposite sides of the machine are connected by a cross brace 134 which carries a socket 136 into which a vertically disposed rod 138 is fastened. The rods 138 (see Fig. 13) extend upwardly and are provided at their upper extremities with piston rods 140 that travel up and down in a cylinder 142 which is filled with oil or other suitable material. During the operation of the machine, on the upward stroke of the piston 140 the oil is forced out and below the piston by means of a small by-pass 144, and during the down stroke of the piston the action is reversed and the oil or other fluid is forced upwardly in the same manner.

The purpose of having the sealing jaws connected to the pistons 140 is to provide the desired pressure upon the heat-sealing members during their downward stroke as well as to regulate the timing of the entire mechanism during its operation. The cylinders 142 as shown may be mounted upon a cross platform 146 positioned upon the support members 16, and may be connected at their upper ends by a cross brace 148.

The making of the upper and lower seals of the bag is effected by a pair of sealing jaws 160 and 162 carried by the support bars 128. The sealing units may preferably be heat-sealing units of the type used for making the longitudinal seal, and may be connected to a suitable source of electricity to heat the same to the desired temperature. The operation of the heat-sealing jaws is as follows: When the machine is started and the material has been formed about the filling tube 64 and reaches a point below the end 64a of the filling tube 64, the gears 90 will have revolved so that the connecting rods 118 will have carried the bearings 126 to their uppermost position. Due to the sets of links 122 and 124, the jaws 160 and 162 will have been retracted to the position shown in Fig. 10 on their upward journey, thus passing upwardly about the sides of the bag. As the rods 118 pass over the peak of their rise and start to descend, the links 122 and 124 will be moved apart by the initial downward pulling action and the jaws will be forced together upon opposite sides of the material of the formed tube. Due to the retard action of the cylinders 142, a large amount of pressure will be brought to bear through the sealing jaws against the opposite sides of the material. This pressure will remain throughout the downward stroke of the rods 118, during which the jaws are carried downwardly to the dotted line position shown in Fig. 9. At this point it is desirable to sever the connection between the top of a lower bag and the bottom of the next highest bag.

Accordingly (see Figs. 8 and 11), I provide a pair of knife members 180 which are mounted upon a cross bar 182 that is carried upon hori-

zontal stub members 184 of one of the seal support bars 128. The knife support bars 182 also carry a U-shaped member 186 which, during the upward travel of the jaw assemblies, is raised upon the outside of a pair of vertically disposed blades 188. As the jaws are closed upon the beginning of the downward stroke, the U-frame 186 which connects to the cross member 182, is kept in the extended position during the downward travel of the jaws during the sealing operation. When the sealing jaw assembly has reached the position shown in dotted lines in Fig. 9, the U-rod 186 passes below the end of the blades 188, and by reason of the spring members 190 connected to the cross member 128, the knife assembly, including the flat blades 180, the cross bar 182 and the U-rod 186, is pulled forward sharply, the knife traveling through the slot 192 in the frame 128 and the slot 194 in the heater element 160, thus sharply and quickly severing one bag from another at a point midway between the extremities of the seal.

In this manner the upper and lower seal of adjacent bags is made simultaneously, and during the same cycle of operation and at the end of a sealing operation, the lower bag is severed from the next higher bag. The severed bag may drop by gravity upon a receiving platform 200 pivotally connected to a pair of movable bearings 126, from which, during the reciprocation of these bearings, the bags are shaken off upon a suitable conveyor 202 to carry them from the machine.

The operation of rod 86 to move the longitudinal heater member 74 away from the tube 64 is accomplished by a cam 206 mounted upon the shaft 92 and operating against a pivoted lever 208 connected to the lower end of rod 86. To assist in steadying the operation of the reciprocating jaws, I provide a pair of comparatively heavy spring members 210 connected to the cross braces 130 at their lower end, and at their upper end to the frame member 20.

From the above and foregoing description it will be apparent that I have provided a comparatively simple and efficient machine for making and filling bags. It can be seen that in the cycle of operation, the bag is formed about the filling tube through which the product is delivered, the longitudinal seal is made directly against the side of the filling tube, the sealing jaws move up and close the bottom of the tubular bag, draw the same downwardly and effect the sealing simultaneously of the upper end of one bag and the lower end of another. During the return movement of the jaws from the lower to the upper position, the charge of the product with which the bag is to be filled is delivered into the bag. At the same time the longitudinal seal is being made upon the next portion of the tube. When the jaws arrive at their upper station, the filling mechanism is stopped, the longitudinal seal is moved away from the tube, the jaws grip the closed bag at a point above the top level of the charge of the product, move downwardly carrying the tubular bag with them, seal the upper end of the filled bag and the lower end of the next succeeding bag, and at the bottom of their stroke the knife members snap into position and cut off the lower bag.

While I have illustrated and described this specific embodiment of the invention, it will be apparent to those skilled in the art that changes and modifications may be made in the exact details shown. I do not wish to limit myself in any

particular; rather what I desire to secure and protect by Letters Patent of the United States is:

1. In a tube making apparatus, a guide roller having a horizontal axis or rotation, a vertically disposed molding and filling tube having its upper end disposed beneath and to one side of said roller, a conduit from a hopper connected to said tube below the top thereof, means for projecting a web of material over and around said roller, against the upper edge and around the top of said tube, then around said tube to induce a draping flare which causes the edges to overlap, means for heat-sealing the overlapped edges and other means for making spaced horizontal seals in the tube thus formed.

2. In a tube making apparatus, a guide roller having a horizontal axis or rotation, a vertically disposed molding and filling tube having its upper end disposed beneath and to one side of said roller, a conduit from a hopper connected to said tube below the top thereof, means for projecting a web of material over and around said roller, against the upper edge and around the top of said tube, then around said tube to induce a draping flare which causes the edges to overlap, means for heat-sealing the overlapped edges and other means for making spaced horizontal seals in the tube thus formed, and means for charging the bags thus formed with a measured quantity of material.

3. In a tube making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected over said extremity and to thereby be conformed around said conduit solely by the draping effect induced upon said web, and means for sealing the overlapping edges of said material to each other.

4. In a tube making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, said conduit having a semi-spherical cap thereon, a guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected over said cap and around the sides of said conduit thereby to be conformed around said conduit solely by the draping effect induced upon said web, and means for sealing the overlapping edges of said material to each other.

5. In a tube making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, said conduit having a semi-spherical cap thereon, a guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected over said cap and around the sides of said conduit thereby to be conformed around said conduit solely by the draping effect induced upon said web, and means for sealing the overlapping edges of said material to each other and means for making cross-seals in said tube at

regular intervals to provide therein a plurality of pockets.

6. In a tube making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, said conduit having a semi-spherical cap thereon, a guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected over said cap and around the sides of said conduit thereby to be conformed around said conduit solely by the draping effect induced upon said web, means for sealing the overlapping edges of said material to each other, means for making cross-seals in said tube at regular intervals to provide therein a plurality of pockets, and means for separating said pockets to provide individual bags.

7. In a bag making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a rounded cap on the upper end of said conduit, a horizontally disposed guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over said cap and to thereby be conformed around said conduit solely by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end, means for sealing the overlapping edges of said material to each other, other sealing means for making top and bottom cross seals in the tube to form bags, and drive means associated with said last named sealing means for intermittently feeding the web of material through the machine.

8. In a bag making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a rounded cap on the upper end of said conduit, a horizontally disposed guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over said cap and to thereby be conformed around said conduit solely by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end, means therebelow for sealing the overlapping edges of said material to each other, other sealing means for making top and bottom cross seals in the tube to form bags, drive means associated with said last named sealing means for intermittently feeding the web of material through the machine, and knife means associated with said last named sealing means for severing closed portions of said tube into individual bags.

9. In a bag making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a rounded cap on the upper end of said conduit, a horizontally disposed guide roller positioned above and in front of the upper extremity of said con-

duit around which a web of material is directed to be deflected down and back over said cap and to thereby be conformed around said conduit solely by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end, means therebelow for sealing the overlapping edges of said material to each other, other sealing means for making top and bottom cross seals in the tube to form bags, drive means associated with said last named sealing means for intermittently feeding the web of material through the machine, and knife means associated with said last named sealing means for severing closed portions of said tube into individual bags, said knife means associated with the cross-sealing means and disposed between the portions thereof which make the top and bottom seals.

10. In a bag making and filling machine, having apparatus for measuring out charges of the material to be filled, the combination of a vertical conduit through which said charges are conveyed by gravity, a rounded cap on the upper end of said conduit, a horizontal guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over the cap and to thereby be conformed around the conduit by the draping effect induced upon said web, guide members around said conduit spaced from the upper end thereof, means for sealing the overlapping edges of the material to each other, other sealing means for making top and bottom cross-seals in the tube of material to form bags, drive means for reciprocating said cross sealing means to effect the seal and move the web of material forward during a portion of their action, hydraulic control means associated therewith for providing pressure for said sealing jaws during the sealing operation and knife means associated with the cross-seal means for severing closed portions of said tube into individual bags.

11. In a bag making and filling machine, a vertical conduit through which measured charges of a product are conveyed by gravity, a rounded cap on the upper end of said conduit, a horizontal guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over the cap and to thereby be conformed around the conduit by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end thereof, means for sealing the overlapping edges of the material to each other in an intermittent action, jaw sealing means for making top and bottom cross-seals in the tube of material to form bags, drive means for reciprocating said jaw sealing means to effect the seal and move the web of material forward during a portion of their action, hydraulic control means associated therewith for providing pressure for said sealing jaws during the sealing operation and knife means associated with the cross-seal means for severing closed portions of said tube into individual bags, said knife means carried by said sealing jaws and adapted to work at the end of each sealing operation.

12. In a bag making and filling machine, a vertical conduit through which measured charges of a product are conveyed by gravity, a rounded cap on the upper end of said conduit, a horizontal guide roller positioned above and in front of the upper extremity of said conduit around

which a web of material is directed to be deflected down and back over the cap and to thereby be conformed around the conduit by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end thereof, means for sealing the overlapping edges of the material to each other in an intermittent action, jaw sealing means for making top and bottom cross-seals in the tube of material to form bags, drive means for reciprocating said jaw sealing means to effect the seal and move the web of material forward during a portion of their action, hydraulic control means in the form of oil cylinders having pistons attached to and associated therewith for providing pressure for said sealing jaws during the sealing operation and knife means associated with the cross-seal means for severing closed portions of said tube into individual bags, said knife means carried by said sealing jaws and adapted to work at the end of each sealing operation.

13. In a bag making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a rounded cap on the upper end of said conduit, a horizontally disposed guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over said cap and to thereby be conformed around said conduit solely by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end, means for sealing the overlapping edges of said material to each other, sealing jaws for making top and bottom cross seals in the tube to form bags, drive means associated with said last named sealing means for intermittently feeding the web of material through the machine, and hydraulic control means associated with said drive means and acting on said sealing jaws for effecting pressure thereon during the sealing operation.

14. In a bag making and filling machine having apparatus for measuring out charges of a material to be filled, the combination of a vertical conduit through which said charges are conveyed gravitationally from said apparatus including a side opening near its upper extremity, a rounded cap on the upper end of said conduit, a horizontally disposed guide roller positioned above and in front of the upper extremity of said conduit around which a web of material is directed to be deflected down and back over said cap and to thereby be conformed around said conduit solely by the draping effect induced upon said web, guide collars around said conduit spaced from the upper end, means for sealing the overlapping edges of said material to each other, sealing jaws for making top and bottom cross seals in the tube to form bags, drive means associated with said last named sealing means for intermittently feeding the web of material through the machine, and hydraulic control means associated with said drive means and acting on said sealing jaws for effective pressure thereon during the sealing operation and for moving said jaws apart during the movement of the web of material through the machine.

15. In a tube making apparatus, a guide roller having a horizontal axis of rotation, a molding and filling tube positioned below and to one side of said roller, said tube having a semi-spherical

extremity at its upper end, a feed conduit connected to the side of said tube below its upper end, and means for projecting a web of material over and around said roller, against the surface of said semi-spherical extremity, then around said tube to induce a draping flare.

16. In a tube making apparatus, a guide roller having a horizontal axis of rotation, a folding and filling tube positioned below and to one side of said roller, said tube having a semi-spherical 10

extremity at its upper end, a feed conduit connected to the side of said tube below its upper end, and means for projecting a web of material over and around said roller, against the surface of said semi-spherical extremity, then around said tube to induce a draping flare, said means including horizontal sealing members adapted to intermittently advance said web through the machine.

RAYMOND W. SMITH.