

Jan. 31, 1933.

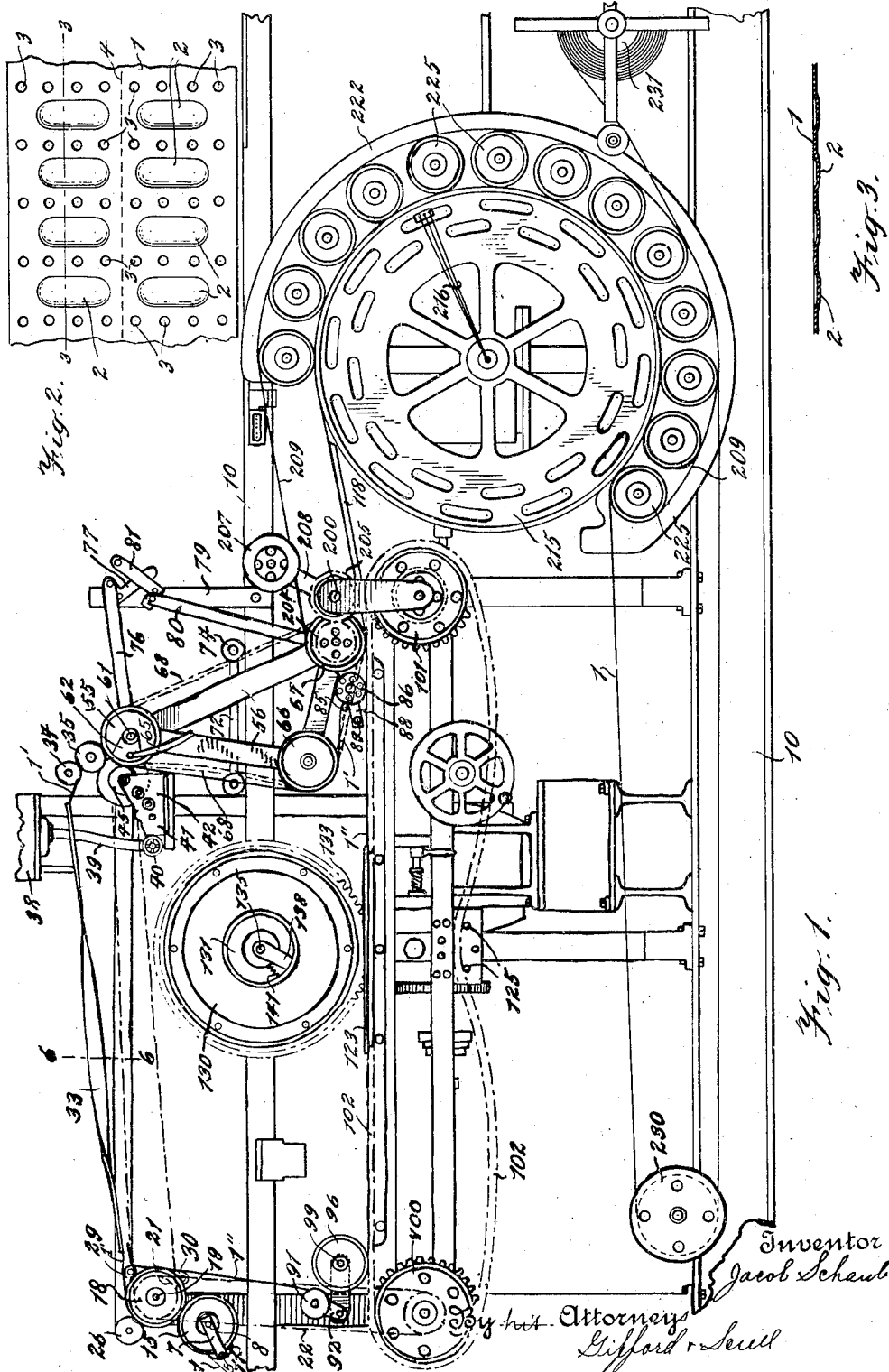
J. SCHAUB

1,895,899

PACKAGING MACHINE

Filed Jan. 19, 1927

7 Sheets-Sheet 1



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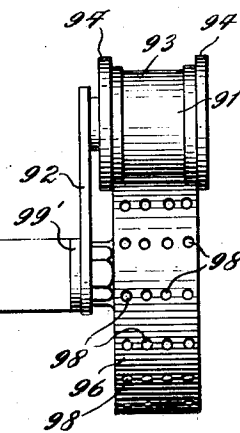
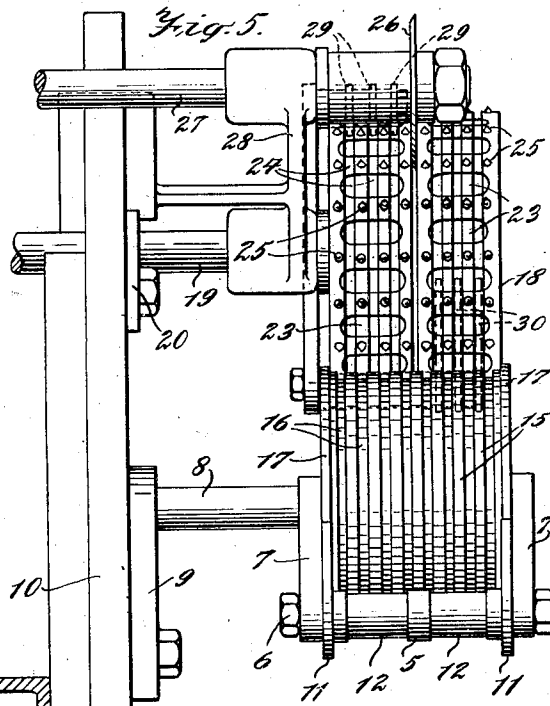
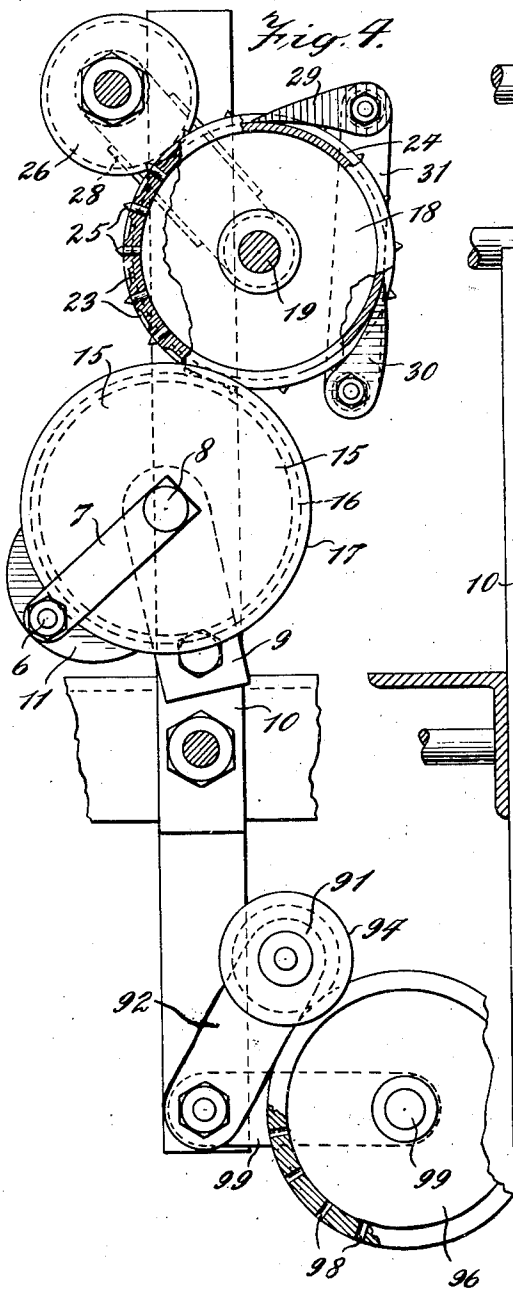
J. SCHAUB

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Jacob Schaub Inventor

By his Attorneys  
Grifford & Scull

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J. SCHAUB

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Fig. 6.



Fig. 8.

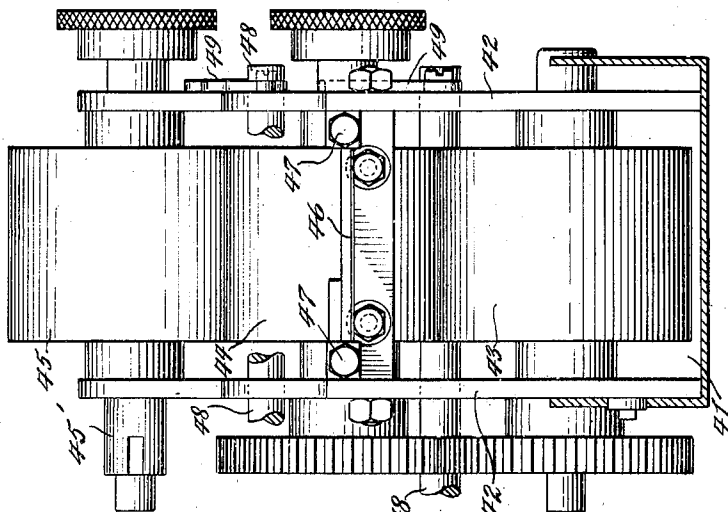
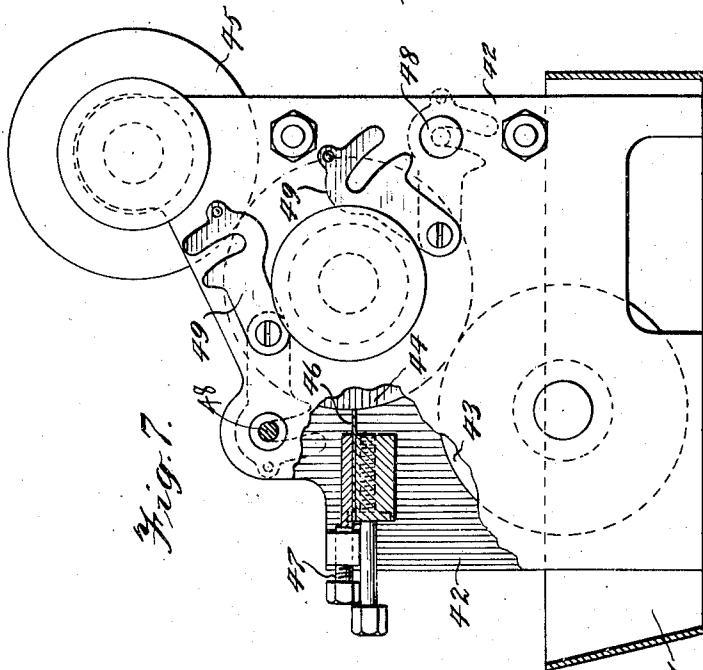


Fig. 7.



Jacob Schaub Inventor

By his Attorneys  
Gifford & Hull

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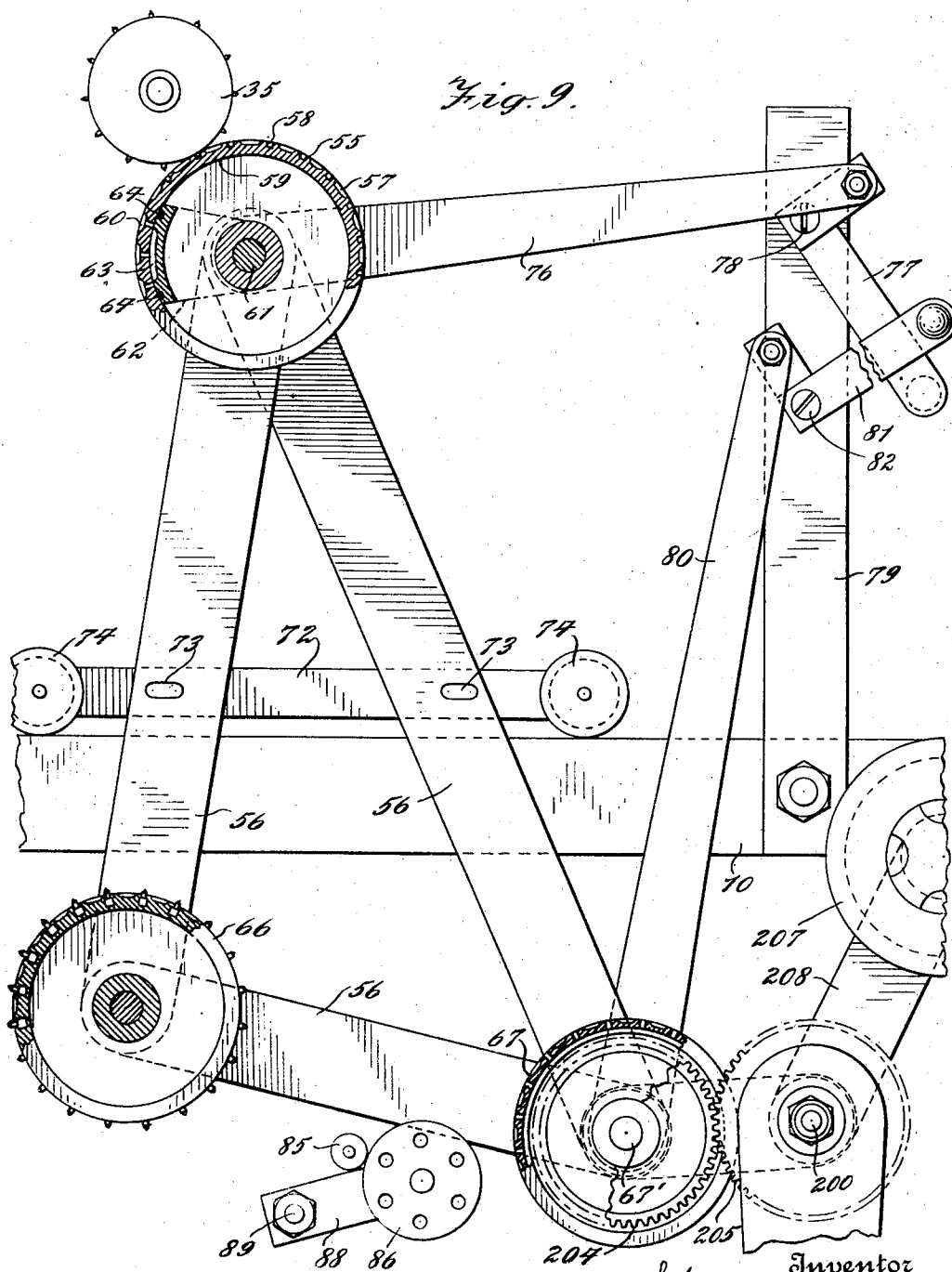
J. SCHAUB

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PACKAGING MACHINE

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Jacob Schaub Inventor  
By his Attorney  
Gifford & Seuel

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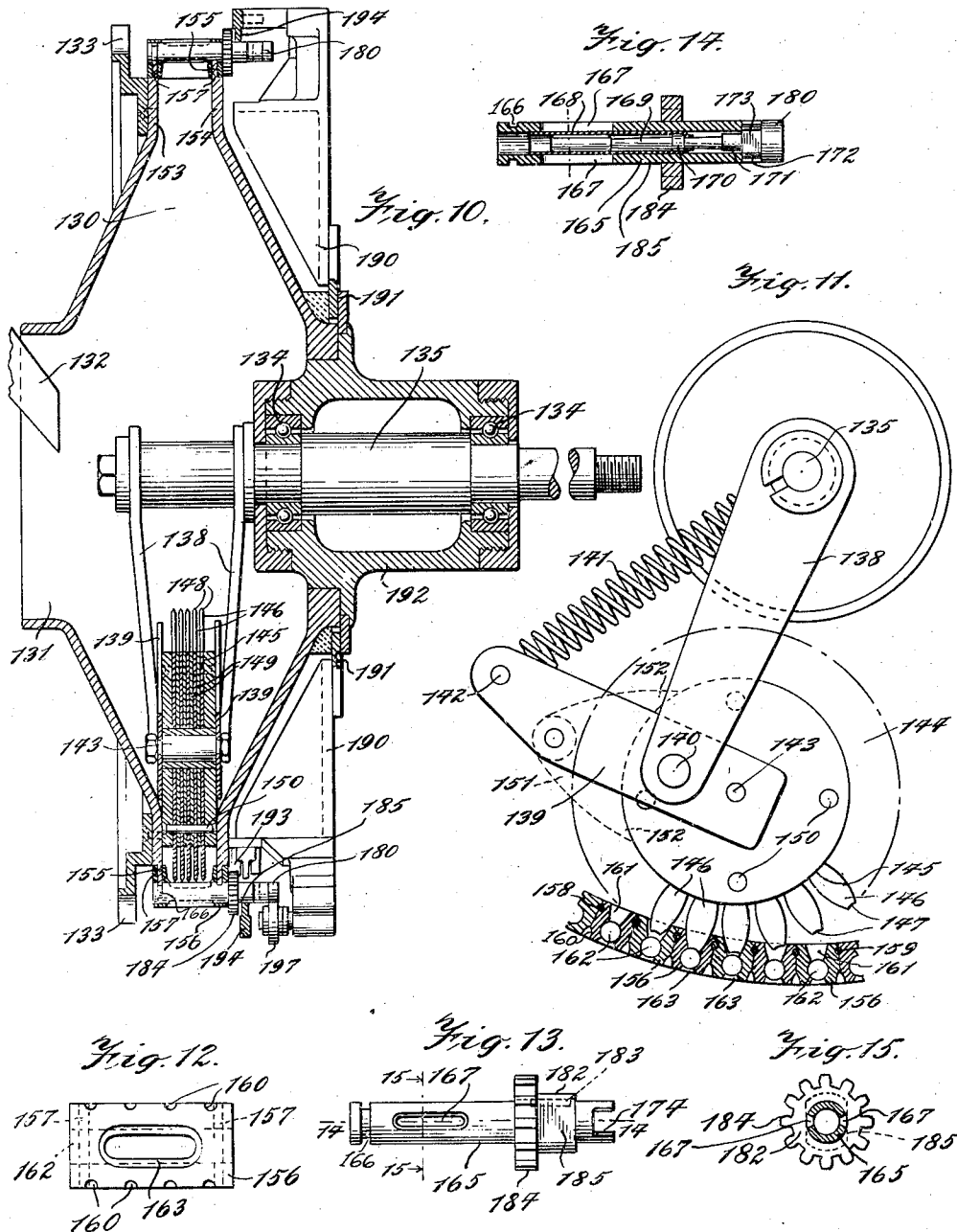
J. SCHAUB

1,895,899

PACKAGING MACHINE

Filed Jan. 19, 1927

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Jacob Schaub Inventor

By his Attorneys  
Gifford & Seull

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J. SCHAUB

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PACKAGING MACHINE

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*Fig. 16.*

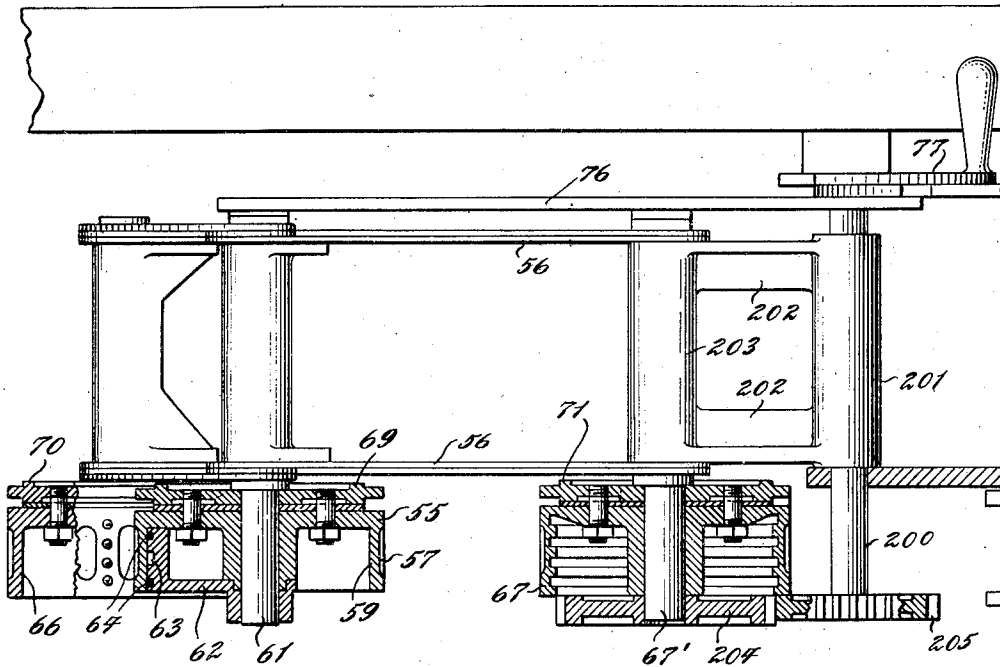
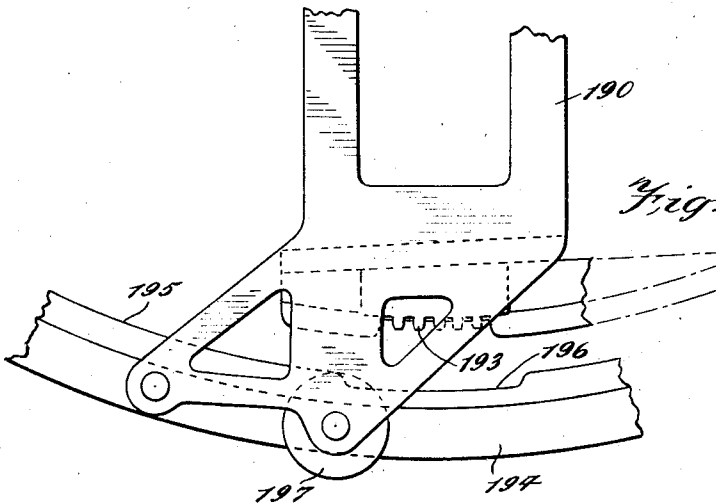


*Fig. 17.*



*Jacob Schaub* Inventor

By his Attorneys  
*Clifford & Seull*

Jan. 31, 1933.

J. SCHAUB

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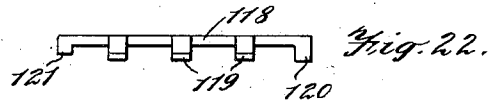
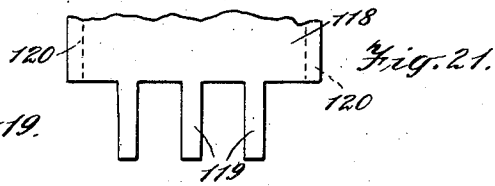
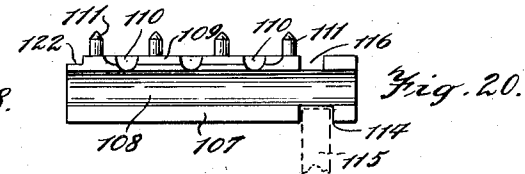
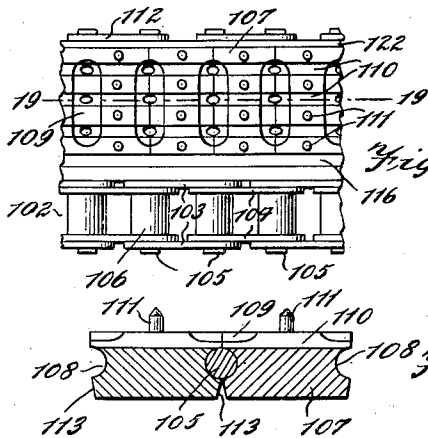
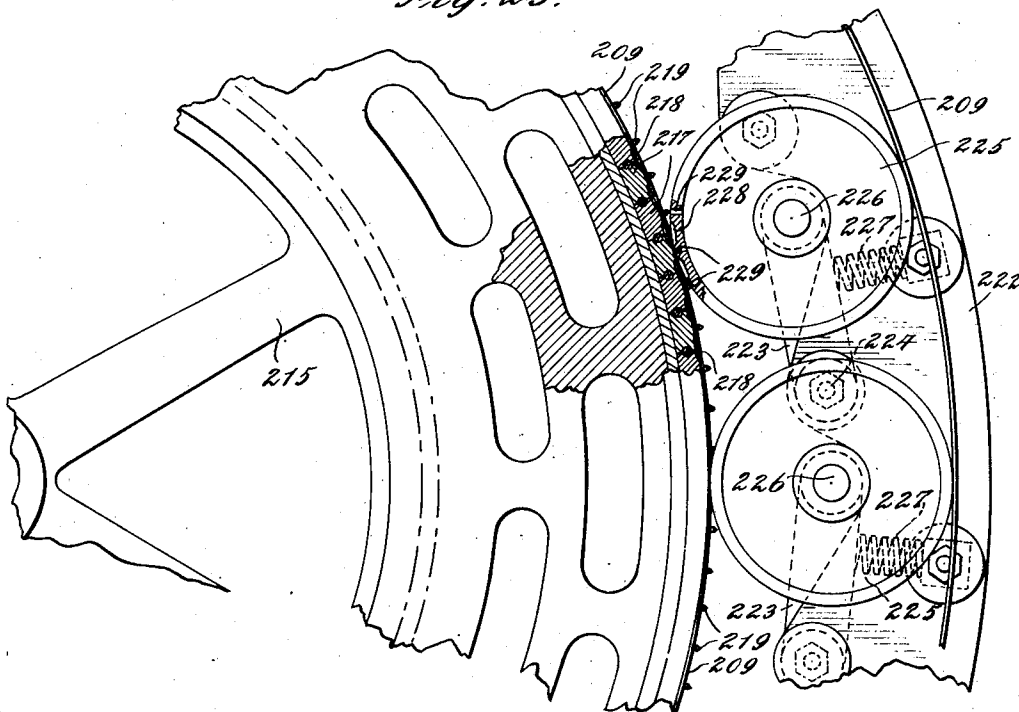


Fig. 23.



Jacob Schaub Inventor  
By his Attorneys  
Gifford & Snell

# UNITED STATES PATENT OFFICE

JACOB SCHAUB, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO BEST FOODS, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

## PACKAGING MACHINE

Application filed January 19, 1927. Serial No. 161,972.

This invention relates to a device for packaging powdered or granular solid material automatically. By this invention, materials of this character can be automatically fed in predetermined quantities into receptacles and sealed against access of air or moisture. The receptacles are fed to the machine in a strip, containing a series of receptacles, and the strip may be wound up into a roll after the material has been received and sealed in the receptacles.

The invention will be understood from the description in connection with the accompanying drawings in which Fig. 1 is a side elevation of the device; Fig. 2 is a plan view of the strip of material containing the receptacles; Fig. 3 is a section along the line 3—3 of Fig. 2; Fig. 4 is a side elevation of the slitting mechanism; Fig. 5 is a front elevation of the same; Fig. 6 is a section along the line 6—6 of Fig. 1 on an enlarged scale; Fig. 7 is a side elevation of a mechanism for applying adhesive material; Fig. 8 is an end elevation of the same; Fig. 9 is a side view showing some of the details of the device; Fig. 10 is a vertical section through the charge feeding mechanism; Fig. 11 is a side view of a packing device; Fig. 12 is a plan view of a metal block on the periphery of the charge feeding mechanism; Fig. 13 is a plan view of a charge measuring element; Fig. 14 is a longitudinal section along the line 14—14 of Fig. 13; Fig. 15 is a section along the line 15—15 of Fig. 13; Fig. 16 is a plan view partly in section corresponding to Fig. 9; Fig. 17 is a side view on an enlarged scale showing a detail of Fig. 10; Fig. 18 is a plan view partly broken away showing the feeding belt; Fig. 19 is a section along the line 19—19 of Fig. 18; Fig. 20 is a side view showing one of the blocks of the metal belt; Figs. 21 and 22 are plan and end views respectively of strip removing device, and Fig. 23 is a side view partly in section showing the heat sealing mechanism.

In the drawings reference character 1 (Fig. 2) indicates a strip of material, such as celluloid that can be softened by heat, for example, that is provided with two rows of pockets or depressions 2 and transverse rows

of holes or perforations 3. Strip 1 is to be slitted or severed along the dotted line 4 between the rows of pockets, one side with the open faces of the pockets being left upwardly to receive the charges of material, but the other side being turned over with the faces downwardly, and applied to the side containing the feed pockets or receptacles after having had adhesive material applied thereto. The two sides of the strip are then pressed firmly together so as to seal the material in the pockets. In order for the strip 1 to be slit, it is passed over a roller 5 (Figs. 1 and 5), thence under the roller 15 and around the roller 18, where it is slitted by the slitter 26. The strip 1 is passed over the roller 5 with the closed sides of the pockets next to the roller. This roller is mounted on a shaft 6 that is held in the ends of straps 7, the other ends of which are pivoted to the shaft 8, which is, in turn, rigidly mounted upon the bracket 9 that is bolted to the frame 10 of the machine. The roller 5 is provided with guides 11 at the ends thereof; between which guides the strip 1 passes with the pockets or depressions therein passing along the peripheral recesses 12 provided in the roller 5, the undepressed portions of the strip 1 passing along the rings between and at the ends of the recessed portions 12. The roll 15 is journaled on the shaft 8 and the surface thereof is provided with circumferential grooves 16 and side flanges 17.

The roll 18 is carried by the shaft 19 that is journaled on the frame of the machine as shown at 20. It is driven from a sprocket 21 (Fig. 1) which, in turn, is driven by a chain belt 22 connected to the other moving parts of the machine. The roll 18 is provided with two circumferential rows of depressions 23 to receive the pockets or depressions 2 of the strip 1 without marring or distorting the same and circumferential rows of pins 25 with conical ends corresponding in number and position to the holes 3 in the strip 1 are provided on the surface of the roll 18 and project into the recesses in the roll 15. In this way the strip 1 is carried around the roll 18 with the pins 25 extending through the holes 3, so as to pull the strip 1 positively along for

feeding the same to the machine. The disc shaped slitter 26 is mounted upon a stationary shaft 27 carried by a bracket 28 and projects into the central one of the grooves 24 on the roll 18. The peripheral edge of the slitter 26 is made beveled and it is so positioned that its straight edge lies close to the side of the groove, thus causing the slitting of the strip 1 to occur along the line 4-4 (Fig. 2). Sets of fingers 29 and 30 mounted upon a bracket 31, extend to the grooves 24, the upper set 29 extending into the grooves on the left-hand side (Fig. 5) and the set 30 extending into the grooves on the right-hand side. These fingers are for removing the two slit pieces after the slitting operation has taken place. The path of the strip removed by the fingers 29 and designated by reference character 1' will be traced and then the path of the strip 1'' that is removed by the fingers 30 will be traced. The half of the strip removed by the fingers 29 is carried to the lower side of the flat twisted guide piece 33 (Figs. 1 and 6) with in-turned edges and is gradually turned over so that the open faces of the pockets will be downwardly as the strip emerges at the end of the guide 33. The half 1' of the strip passes under the idler 34, the surface of which is provided with depressions to receive the pockets 2, thence around the roll 35 into contact with the roll 55. The mechanism for applying adhesive material to the strip 1' will now be described. It comprises a source 38 of supply of glue, for example, from which a pipe 39 provided with a valve 40 leads to a pan or receptacle 41 (Figs. 1, 7 and 8). A framework comprising side pieces 42 is fastened in the pan 41 and projects above the same. Contacting rollers 43, 44 and 45 are journaled in the side pieces 42, the surfaces of these rollers being smooth, the lower one 43 dipping into the glue in the pan 41 and the upper one 45 being preferably of rubber, or having a layer of rubber around the outside circumference thereof. As the glue is picked up by the roller 43 from the pan 41, it is transferred to the roller 44 near the surface of which an adjustable scraper 46 is mounted, so as to be adjustable by means of the screws 47 to regulate the thickness of the layer of glue, which is picked up from the roller 44 by means of the roller 45 and transmitted to the undepressed portions of the piece 1', around the edges of the pockets or depressions 2, without going into them. The pan 41 and frame 42 with the rollers is held in position by means of fixed pins 48 attached to the frame of the machine and projecting through holes in the side pieces 42. After the frame has been slid into place along the pins 48 on the frame of the machine, it can be held in place by means of latches 49 pivoted on the side piece 42 which drop into notches near the projecting ends of the pins 48. At the same time, the end of the shaft 45' of the

roller 45 engages a clutch that is geared to the driving mechanism of the machine, so that the roller 45 is positively driven at the appropriate speed.

In order to make it more certain that the adhesive material will not contact with the pockets or depressions 2, a suction device is provided on the roll 55 (Figs. 1, 9 and 16) that is journaled at the upper end of a triangular frame 56. Depressions 57 are provided on the surface of the roller 55 to receive the pockets 2. Holes 58 are also provided in the surface of the roll 55, corresponding to the holes 3 in the strip so that pins on the roll 35 may project through the holes 3 in a strip into the holes 58 on the roller. The roll 55 is in the form of a cylinder with a somewhat thick wall, the inner surface of which is made smooth, as shown at 59. The wall of the cylindrical roll 55 is provided with radial holes therethrough, extending from the bottoms of the depressions 57 to the inside surface 59. The stationary shaft 61 upon which the roll 55 is mounted, carries a stationary suction member 62, the outer end of which is extended circumferentially and longitudinally and shaped to have a smooth fit against the inner surface 59 of the roll 55. The portion of the suction member 62 that is shaped to fit the surface 59 is recessed or cut out a distance circumferentially sufficient to extend at least as far as the distance between two depressions 57, and a gasket 64 of resilient material, such as leather or rubber, is lodged in a groove surrounding the recess 63 so that an air-tight joint with the surface 59 is maintained all around the depression or cut-out portion 63. A suction pipe 65 communicates with the cut-out portion 63 and maintains a partial vacuum therein so that as each one of the recesses 57 passes over the suction device, the bottom of the corresponding pocket 2 of the strip will be held in firm contact with the bottom of the depression, so that the danger of the same contacting with the roller 45 and having glue stuck thereto is obviated.

The triangular frame 56 also carries a roll 66 that is provided with depressions to accommodate the pockets 2 of the strip, and with pins to project through the holes 3 of the same. The piece 1' of the strip, after having had the glue applied thereto by means of the roller 45, passes around the roll 66 and thence to the roll 67 in a manner that will be described more in detail below. A chain belt 68 passes around sprockets 69, 70 and 71 (Fig. 16) that are attached to the rolls 57, 66 and 67, respectively, and adjustable circumferentially thereof, thus making adjustment possible so that the pockets 2 will always come exactly in the depressions therefor that are provided on the surfaces of these rolls. A belt adjuster 72 (Fig. 9) is mounted on the frame 56 and by means of slots 73, it may be adjusted longitudinally.

This belt adjuster carries rollers 74 at opposite ends thereof, which contact with the chain belt 68, thus serving to adjust the position of the rollers with respect to each other, so that the pockets 2 will fit exactly into the depressions on the rollers.

The frame 56 is rigid and its lower right-hand corner is pivoted on the shaft 67' upon which the roll 67 revolves and can be turned about this shaft as a center by means of the strap 76 that is connected to the shaft 61. The other end of the strap 76 is connected to the bell crank lever 77 that is pivoted at 78 to the standard 79 on the frame 10 of the machine. As the bell crank lever 77 is turned, the shaft 61 and roll 55 swing about the shaft 67' as a center, so that the roll 55 can be thereby moved out of contact with the glue applying roller 45. A strap 80 (Figs. 1 and 9) connects the shaft 67' to the bell crank 81 that is pivoted at 82 to the standard 79. When the crank 81 is turned, the shaft 67' and roll 67 are moved on an arc around the shaft 200 as a center for a purpose to be described below.

As the portion 1' of the strip passes from the roll 66 to the roll 67, it passes over a smooth roller 85 (Figs. 1 and 9), thence partially around a pressure roll 86 that is provided with depressions for the pockets 2. The roll 86 is carried on a shaft at the outer ends of the arms 88 that are pivoted at 89. As the portion 1' of the strip passes under the roll 86, it is applied to the other half of the strip 1" whose travel up to this point from the slitting device 26 will now be described.

When the portion 1" of the strip is removed from the roll 18 by means of the fingers 30, it passes downwardly into contact with the adjusting roller 91 (Figs. 1, 4 and 5) that is revolvably mounted on a shaft at the end of the bracket 92 that is adjustably connected to the frame 10 of the machine. The roller 91 is provided with depression 93 to accommodate the pockets 2 of the strip. Circular flanges 94 at the ends of the roller 91 extend along the outside edges of the roll 96 that is revolvably mounted on a shaft 99 at the end of a bracket 99' that is adjustable on the frame 10 of the machine. The roll 96 is provided with holes 98 accommodating the pins 111 of the feeding chain 102 (Figs. 1, 18, 19 and 20). The piece 1" passes partially around the roll 96 and rests upon and is carried forward by a series of traveling metal blocks that carry pins which project into the holes 98. Sprockets 100 and 101 are journaled upon the frame of the machine and one or both of these sprockets may be positively driven in any convenient manner, as, for example, by an electric motor. A sprocket chain 102' passes around the sprockets 100 and 101, this chain being made up of pairs of side straps 103 and 104 (Fig. 18) and connecting pins 105 with rollers 106

journaled on the pins between the straps. Metal blocks 107 (Figs. 18, 19 and 20) of widths corresponding to the distances between the pins 105 are provided with semi-circular grooves or recesses 108 at their ends. The metal blocks 107 are also provided with recesses 109 for the pockets 2, one-half of the recesses for each pocket being in each of adjacent metal blocks 107. Parallel grooves 110 extend along the top surface of the blocks 107 and pins 111 are extended upwardly from the top surface of the blocks, corresponding to the holes 3 in the strip 1". The metal blocks are assembled in the chain by threading the same into place longitudinally along the pins 105 between the same and are retained in place by straps 112 near the ends of the pins 105. The lower edges of the blocks 107 are cut away, as shown at 113, so as to make it possible for the blocks to be carried around the sprockets 100 and 101. The blocks 107 may be provided with grooves 114 along the bottom thereof to pass along the guide or track 115 Fig. 20 and a similar groove 116 may be provided on the upper side of the blocks.

A plate 111 (Figs. 1, 21 and 22) is provided with fingers 119 that lie in the grooves 110. The grooves 110 are made deeper than the recesses 109 so that the fingers 119 lying in the bottom of the grooves 110 will be below the bottom of the pockets 2 of the strip and thus remove the strip from the metal plates at the proper time. The plate 118 is provided with a flange 120 that extends into the grooves 116 and a flange 121 that extends into the recesses 122 at the edges of the blocks 107.

As the strip 1" resting upon the blocks 107 is carried to the right (Fig. 1) with the open faces of the pockets upward, it is carried to a plate support 123 for the upper run of the chain 102 and blocks 107 approximately midway between the sprockets 100 and 101, and supports 125 may be provided on the frame of the machine over which the lower run of the chain 102 may pass. As the strip 1" passes along the support 123, the pockets are filled with the material by means of a dispensing device in the form of a hollow feeding wheel 130 (Figs. 1 and 10).

The feeding wheel or dispensing device 130 is of double-cone shape with the bases of the cones facing each other. The front cone is provided with an opening 131 into which a spout or chute 132 extends for feeding a supply of the material from any convenient source into the wheel 130. Teeth 133 are provided around the periphery of the wheel 130 and project into the spaces between the rollers 106 of the chain 102, thus causing the wheel 130 to be revolved as the chain 102 passes thereunder. A ball bearing 134 (Fig. 10) is provided on the stationary shaft 135 for the wheel 130, the shaft 135 being rigidly

mounted on the frame of the machine. Arms 138 (Figs. 1, 10 and 11) rigid on the shaft 135 extend rigidly in the wheel 130 and carry at their ends cross arms 139 that are pivoted to the arms 138 at 140. A tension spring 141 connects a cross pin 142 at the ends of the arms 139 to the shaft 135. A cross pin 143 at the other ends of the arms 139 serves as a shaft or bearing for a packing wheel 144. The packing wheel 144 is made up of a series of spaced discs 145, the peripheries of which are composed of toothed projections 146, the ends of which are slightly concave, as shown at 147. The edges of the discs 145 are beveled slightly, as shown at 148, to enable the same to pass more readily into the material that has to be fed to the pockets 2 of the strip 1". Spacing discs 149 of less diameter than the discs 145 are interposed between the discs 145. The discs 145 and 149 are clamped together to make a wheel by means of the rivets 150. A scraper 151 mounted on a stationary pin between the cross arms 139, has fingers 152 extending between the discs 145 into contact with the periphery of the discs 149, so as to keep the material that might otherwise become packed between the discs 145 in loosened condition.

The bases of the cones forming the wheel 130 terminate in parallel flanges 153 and 154, and are recessed at their peripheries to form thin annular rims 155.

A circular row of wedge-shaped metal blocks 156 (Figs. 10, 11 and 12) are provided with grooves or slots 157 to fit the rims 155. Semicircular grooves 158 are provided along the sides of the blocks 156 and pins 159 extend through the rims 155 and the grooves 158 to retain the blocks in place around the periphery of the wheel 130. Semicircular holes 160 are provided along the edges of the blocks, these adjacent semicircular holes in adjacent blocks making holes into which the pins 111 (Figs. 18, 19 and 20) on the metal blocks 107 extend, after passing through the holes 3 in the strip 1". Recesses 161 are provided on the inner sides of the blocks 156 into which the teeth 146 of the packing wheel 144 extend and by which this wheel is driven. The material that is fed into the wheel 130 through the spout 132 falls to the lower portion of this wheel and the discs 145 in revolving catch the material between the teeth 146 and pack it into the spaces 161, from which it is picked up in charges of predetermined size and fed to the pockets 2 by means of dispensing valves that are revolvably mounted in the holes 162 that communicate with the recessed portions of the blocks 156. The holes 162 serve as bearings for the dispensing valves and recesses 163 on the opposite side of the blocks from the recesses 161 extend from the holes 162 to the outside surfaces of the blocks.

Each one of the dispensing valves com-

prises a hollow rod or pipe 165 (Figs. 13, 14 and 15) that is revolvably mounted in the hole 162 of a block 156 and serves as a charge measuring and dispensing device. The rods 165 are provided with annular grooves 166 near the ends thereof to fit on to the periphery of the rim 155 to keep the rods in place. Each rod 165 is provided with a pair of charging pockets 167 that are 180° apart and flare outwardly to facilitate discharging of material therefrom. A rubber tube 168 fills the hollow portion of each pipe or hollow rod 165 and a knock-out pin 169 extends into the tube 168. Each knock-out pin 169 is provided with a pivot or fulcrum ring 170 near one end of the rubber tube 168, which fits tightly around the ring. Each pin 169 is also provided with a ring 171 slightly less in diameter than the hole in the rod or pipe 165 and with a ring 172 slightly larger than this hole with its opposite sides flattened, as shown at 173. The flattened sides 173 of the pin 169 fit closely into the notched end 174 of the rod 165, the sides of this notch being parallel to each other. Each pin 169 terminates in a head or ring 180. Each hollow rod or pipe 165 has a sleeve 182 keyed thereon, as shown at 183, and these sleeves are provided with toothed flanges 184. The opposite sides of the sleeves 182 are flattened, as shown at 185.

A spider 190 (Figs. 10 and 17) has a frictional connection, as shown at 191, with the hub 192 of the feeding wheel 130. The spider 190 can be held stationary while the hub is revolving or the spider 190 will revolve with the hub 192 by the frictional engagement therewith, unless it is held by a stop or the like to prevent it from revolving. The spider 190 carries a toothed segment 193 with half as many teeth as the number on the flange 184 of the sleeve 182 located in the path of travel of the teeth of this flange. The spider 190 also carries a ring 194 concentric with the shaft 135 and located so that the flat sides 185 of the sleeves 182 rub against the inner surface 195 of the ring 194 as they are carried around by the revolving wheel 130. A notch or cut-out portion 196 is provided along the inner surface of the ring in proximity to the toothed segment 193. As the wheel 130 is revolved to bring the metal blocks 156 into the lower portion of their path, the material to be fed into the pockets 2 of the strip 1" is pressed by the packing wheel 144 through the openings 161 in the metal blocks and into the upper charging pockets 167 of the charge measuring dispensing rods or pipes 165 that are revolvably mounted in the transverse holes or bearings 162 of the metal blocks 156. The sliding of the flat sides 185 of the sleeves 182 on the rods or pipes 165 along the inner edge 195 of the ring 194 keeps the pockets 167 turned toward the center of the wheel 130 so as to receive the material. When the sleeves 182 reach the cut-out portion 196, they are

free to revolve. At this moment, the teeth 184 strike the stationary teeth 193 and since there are half as many teeth 193 as there are teeth 184, the sleeve 182 will be turned one-half of a revolution, thus bringing the pocket 167 thereof opposite the opening 163 in the metal block 156. At the same time, the strip 1' is carried along the outside or lower surfaces of the blocks 156 with the pins 111 of the metal blocks 107 extending through the holes 3 in the strip into the holes 160 between the blocks 156 and with the pockets 2 of the strip 1' immediately below the openings 163 so as to receive the material therefrom. The size of the charging pockets 167 is such that they will hold approximately twice as much material as the pockets 2 in the strip, so that as the pockets 2 leave the charging device, the material is piled up in the pockets. As soon as the sleeves 182 are turned one-half a revolution by the toothed segment 193, the other flat surface 185 is caused to slide along the inside surface 195 of the ring 194 so that the other pocket 167 is brought into position to be charged with material the next time the pipe 165 is brought around to the charging position, thus causing alternate pockets 167 in the pipe 165 to be charged and discharged at successive revolutions of the wheel 130.

The material, especially if in powdered form, would sometimes become clogged in the pockets 167 and not drop into the pockets 2 when the pipe 165 is turned, and for this reason, the knock-out pin 169 is used. The spider 190 carries a roller 197 located in the path of the heads 180 of the knock-out pins 169, so that the heads 180 will strike the roller 197 immediately after the pipes 165 have been revolved half a revolution, and while the pockets 2 of the strip are immediately below the openings 163 of the metal blocks 156. When the head 180 strikes the roller 197, the flat sides 173 of the ring portion 172 of the knock-out pin 169 is moved upwardly along the notched end 174 of the pipe 165 and since this pin is fulcrumed at 170, its opposite end extending into the rubber tube 168 between the pockets 167 will give a blow to the material in the lower pocket 167 through the resilient rubber, thus loosening the material if it should happen to be caught and causing it to drop into the corresponding pocket 2. When it is desired to permit the wheel 130 to revolve without feeding charges of material into the pockets 2, the stop or obstruction that prevents the spider 190 from revolving is removed, so that the pipes 165 are not reversed anywhere in their annular path of travel and therefore no material is fed from the wheel 130.

As the strip 1' leaves the feeding wheel 130, the pockets 2 thereof contain about twice as much material as is required to fill them and when they reach the pressure roll 86 (Fig. 1), the other half 1' of the strip with the

pockets facing downwardly is led upon the strip 1', thus causing the material to be enclosed in a double pocket. The pins on the chain or conveyor 102 and on the various rollers projecting through the holes 3 of the strips, together with the mechanism above explained for adjusting the rollers, make it certain that the pockets of the strips 1' will be superposed in the exact correct position upon the pockets in the strip 1'. Since the strip 1' has had adhesive material applied thereto, the two strips will be stuck together under the pressure roll 86. The strips 1' and 1'' are caused to be more securely cemented together by the mechanism that will now be described. A shaft 200 (Figs. 1, 9 and 16) is journaled in the frame of the machine and carries a sleeve 201 that is connected by arms 202 to the sleeve 203 on the shaft 67' of the roll 67, under which roll the two strips 1' and 1'' pass as above described. The roll 67 is provided with a gear 204 which meshes with a gear 205 on the shaft 200 that is geared to the driving mechanism of the machine in any convenient manner. An idler 207 is mounted at the end of arms 208 pivoted on the shaft 200 and an endless steel band 209 that is provided with openings to accommodate the pockets 2 of the strip 1' passes around the roll 67, thence around a series of rollers on the finishing wheel 215 (Figs. 1, 2 and 3). The finishing wheel is adapted to be heated in any convenient way, as, for example, by electric current that passes through wires 216 into heating elements located near the outside periphery of the wheel. The outside periphery of the wheel 215 is provided with a series of metallic blocks 217 which may be held in place in a manner similar to the way the blocks 156 are held in place on the wheel 130. The blocks 217 are provided with depressions or recesses 218 for the pockets and with pins 219 corresponding in number and position to the holes 3 in the strip 1. The steel band 209 is also provided with holes corresponding to the pins 219 and the holes 3. An arc-shaped support 222 extends partially around the wheel 215 and carries a number of arms 223, one end of each of which is pivoted to the support, as shown at 224. The arms 223 carry at their other ends shafts 226 upon which pressure rollers 225 are revolvably mounted. Compression springs 227 bear against the arms 223 and keep the pressure rollers 225 in firm contact with the outside periphery of the wheel 215. The rollers 225 are provided with depressions 228 to accommodate the pockets and with holes 229 to accommodate the pins 219.

After the strips 1' and 1'' have been stuck together under the roll 86, they then pass under the roll 67 where the steel band 209 contacts with the upper side thereof, and as the strip carrying the charging pockets passes further along the fingers 119 of the plate

118 (Figs. 1, 21 and 22), lift the same and cause the same to be carried along with the band 209 into contact with the outer surface of the wheel 215, where the strip is heated and is also pressed by means of the pressure rollers 225. The strip of charging pockets after leaving the last one of the rollers 225, is carried around a roller 230, thence back to a roll 231, thus giving the strip an opportunity to cool before it is wound upon the reel. The steel band 209 passing around the last one of the rollers 225 passes back along the outside surfaces of the series of rollers 225 and around the roll 67. The idler 207 serves to keep the band 209 taut.

I claim:

1. The process of packaging loose dry material which comprises filling said material into pockets in a pliable strip that is capable of being softened by heat, applying covers to said pockets and sealing the same thereto while applying heat.

2. The process of packaging loose dry material which comprises filling said material into pockets in a pliable strip that is capable of being softened by heat, applying covers to said pockets and sealing the same thereto while applying heat, then cooling and reeling the strip.

3. The process of packaging loose dry material which comprises slitting a strip containing rows of pockets, separating the two pieces, filling the pockets in one piece with said material and applying the other strip to it.

4. The process of packaging loose dry material which comprises slitting a strip containing rows of pockets, separating the two pieces, filling the pockets in one piece with said material and applying the other strip to it with the pockets reversed and matched.

5. The process of packaging loose dry material which comprises slitting a strip containing rows of pockets, separating the two pieces, filling the pockets in one piece with said material, applying adhesive around the edges of the pockets in one piece and placing the two pieces together with the pockets facing each other.

6. The process of packaging loose dry material which comprises slitting a strip containing rows of pockets, separating the two pieces, filling the pockets in one piece with said material, turning the other piece over, applying adhesive thereto and sticking the two together.

7. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of attached pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets.

8. In a packaging machine, means for dispensing charges of predetermined size, means for passing a strip containing a series of

attached pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets.

9. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of connected pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets and cause them to adhere by the interposition of adhesive material.

10. In a packaging machine, means for dispensing charges of predetermined size, means for passing a strip containing a series of connected pockets by said dispensing means so as to receive the charges therefrom, means to apply covers to said pockets, and means to heat said strip after the covers are applied.

11. In a packaging machine, means for dispensing charges of predetermined size, means for passing a strip containing a series of pockets by said dispensing means so as to receive the charges therefrom, means to apply covers to said pockets, means to heat said strip after the covers are applied, and means to roll up said strip after cooling the same.

12. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, and means to apply another row of said pockets to said filled row.

13. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, and means to apply another row of said pockets to said filled row in matched reversed position.

14. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to feed approximately twice as much material to each pocket as is required to fill it, and means to apply another row of said pockets to said filled row.

15. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of evenly spaced pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said first-named means comprising a hollow revoluble wheel.

16. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of evenly spaced pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said first-named means comprising a hollow revoluble wheel having charge measuring devices connected thereto.

17. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of connected pockets by said dispensing means so as to receive the charges therefrom, and means to

apply covers to said pockets, said second-named means comprising a series of blocks.

18. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of connected pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said second-named means comprising a sprocket chain and sprockets.

19. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of connected pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said second-named means comprising a sprocket chain, sprockets and blocks carried by said chain.

20. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said last-named means comprising an adhesive applying device and a pressure roller.

21. In a packaging machine, means for dispensing charges of predetermined size, means for passing a series of pockets by said dispensing means so as to receive the charges therefrom, and means to apply covers to said pockets, said last-named means comprising an adhesive applying device, a pressure roller and a heating device.

22. In a packaging machine, means comprising a grooved roller and a slitting device extending into a groove of said roller for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, and means to apply another row of said pockets to said filled row.

23. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, means to apply another row of said pockets to said filled row, and a device for applying adhesive to said last-named row of pockets to cause them to adhere to said first-named row of pockets.

24. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, means to apply another row of said pockets to said filled row, and a device for applying adhesive material around the edges of said pockets.

25. In a packaging machine, means for slitting a strip of material containing rows of pockets, means to fill one row of said pockets, means to apply another row of said pockets to said filled row, and a device for applying adhesive material around the edges of said pockets and preventing adhesive from getting inside said pockets.

26. In a packaging machine, a device for

guiding a strip of material having pockets therein and applying adhesive material to one side thereof, said device comprising contacting revoluble rollers one of which has recesses for said pockets, and suction means connected to said recesses.

27. In a packaging machine, a device for guiding a strip of material having pockets therein and applying adhesive material to one side thereof, said device comprising contacting revoluble rollers one of which has recesses for said pockets, and means to create suction at the bottom of said recesses at a predetermined point in the revolution of said recessed roller.

28. In a packaging machine, a hollow roller provided with recesses along its outer surface, said hollow roller being provided with passages from said recesses to the inner surface of said roller, and a suction device contacting with the inner surface and communicating with said passages.

29. In a packaging machine, means for applying a cover to a strip of material having pockets therein, said means comprising revoluble rollers between which said strip passes, one of said rollers having recesses on its surface to accommodate said pockets.

30. In a packaging machine, means for applying a cover to a strip of material having pockets therein, revoluble rollers between which said strip passes, one of said rollers having recesses on its surface to accommodate said pockets, and means for heating said roller.

31. In a packaging machine, means for applying a cover to a strip of material having pockets therein, said means comprising a large heated revoluble roller and a series of smaller rollers pressed against the same.

JACOB SCHAUB.