F. GIROUD, DEC'D.
E. E. CHAPMAN, EXECUTRIX.
PACKAGING MACHINE.
APPLICATION FILED OCT. 18, 1913.

1,110,125.

Patented Sept. 8, 1914.

7 SHEETS—SHEET 1.

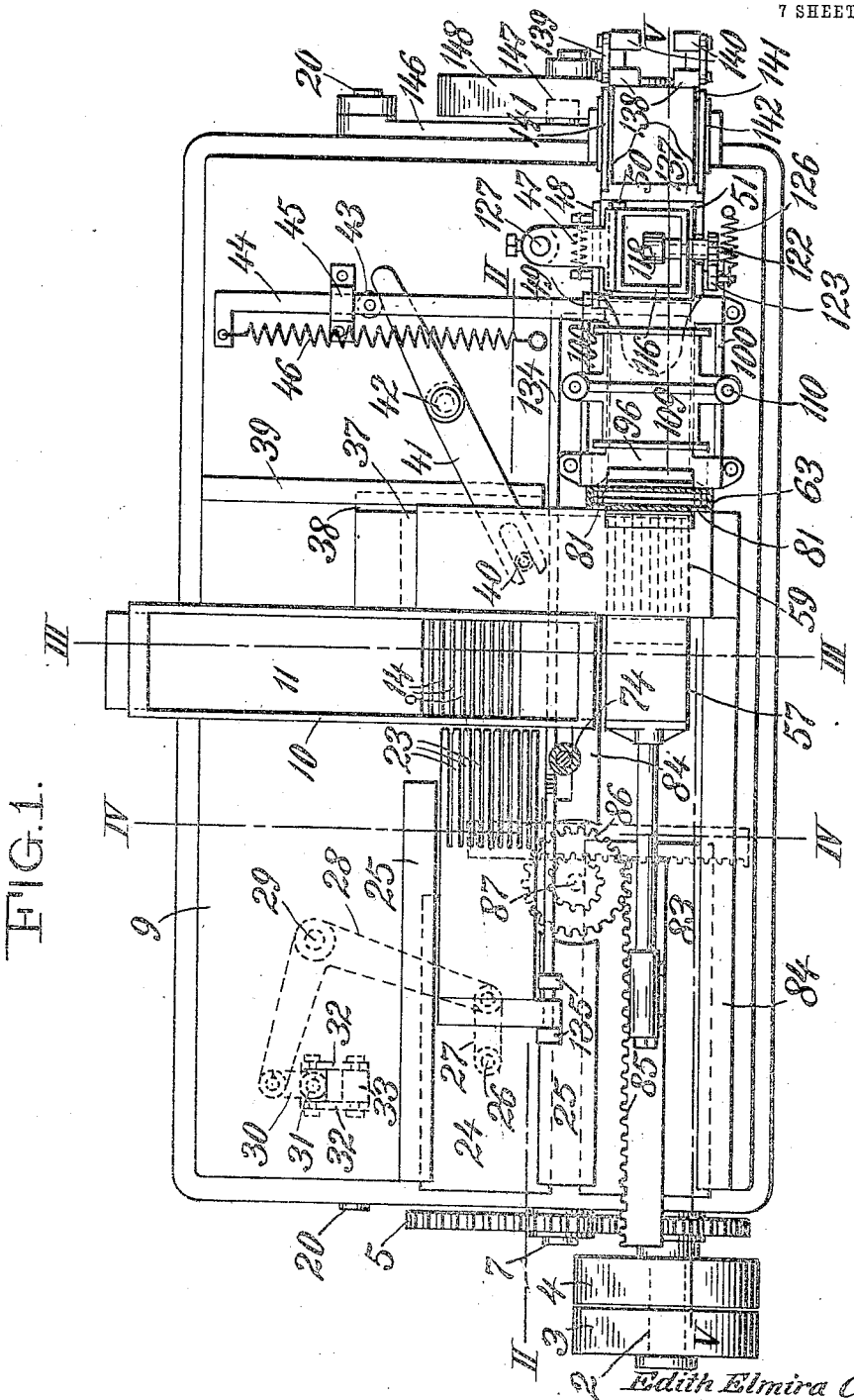


FIG. 1.

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By her Attorney
Donn Twitchell

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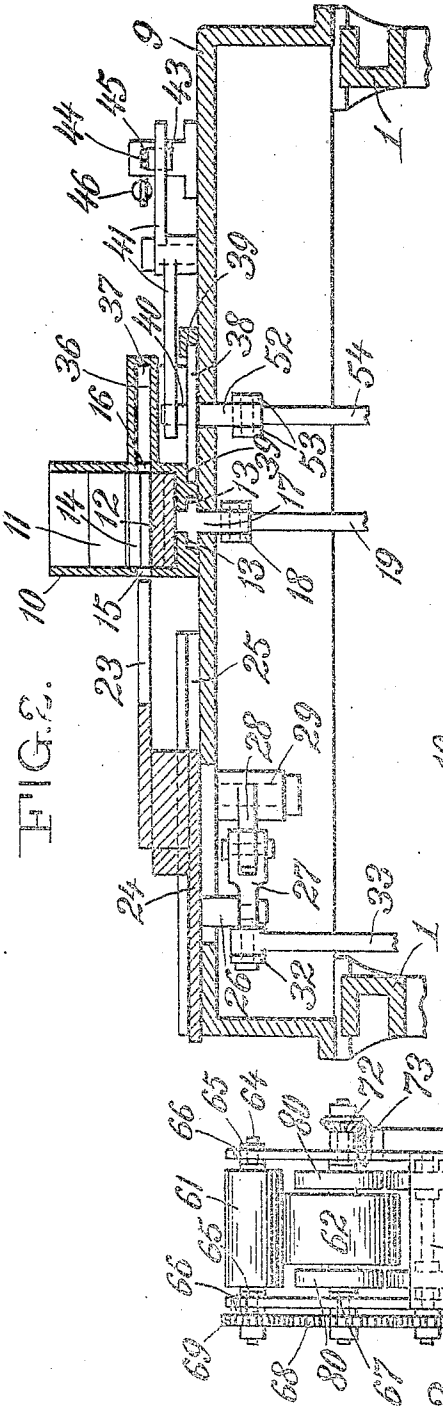


FIG. 2.

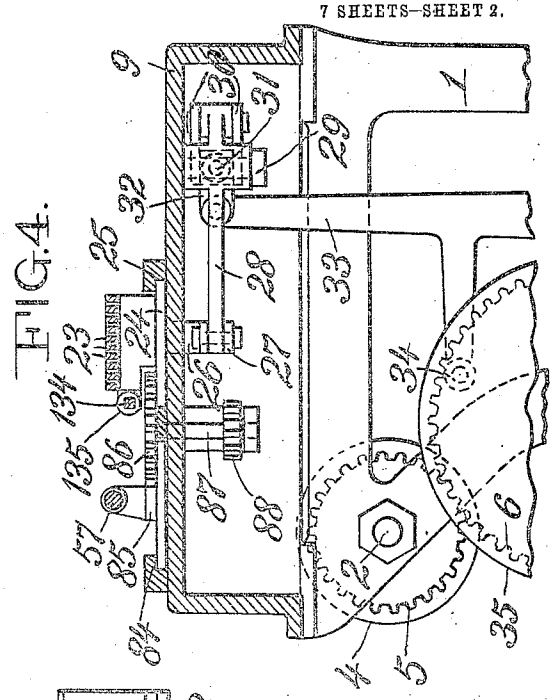


FIG. 4.

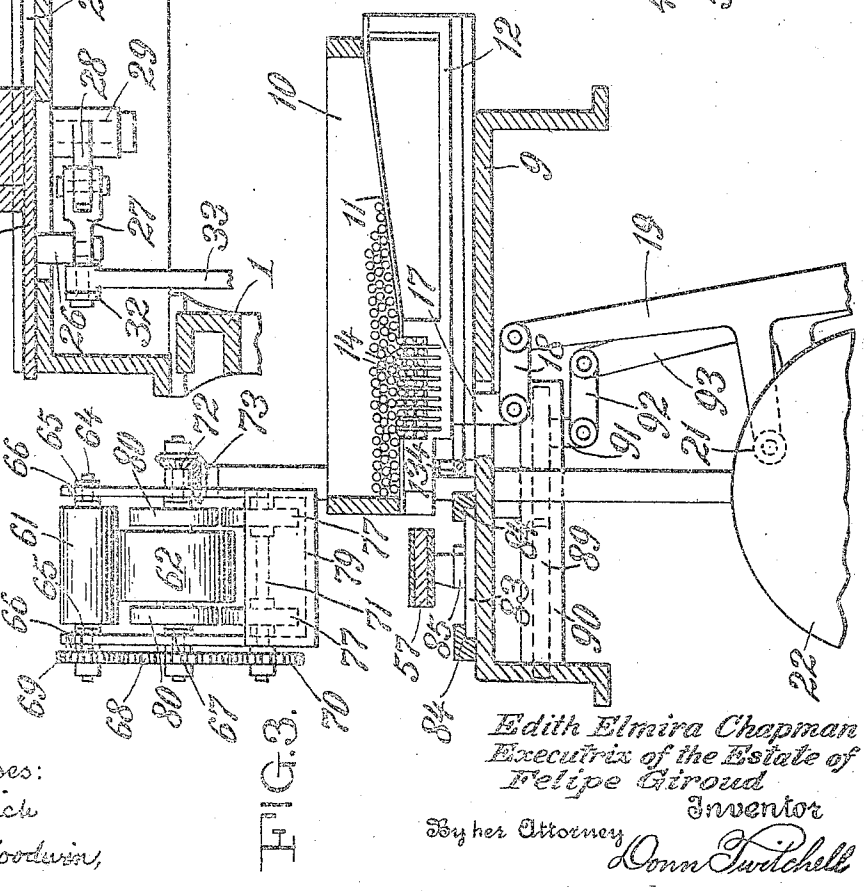


FIG. 3.

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7 SHEETS—SHEET 3.

FIG. 5.

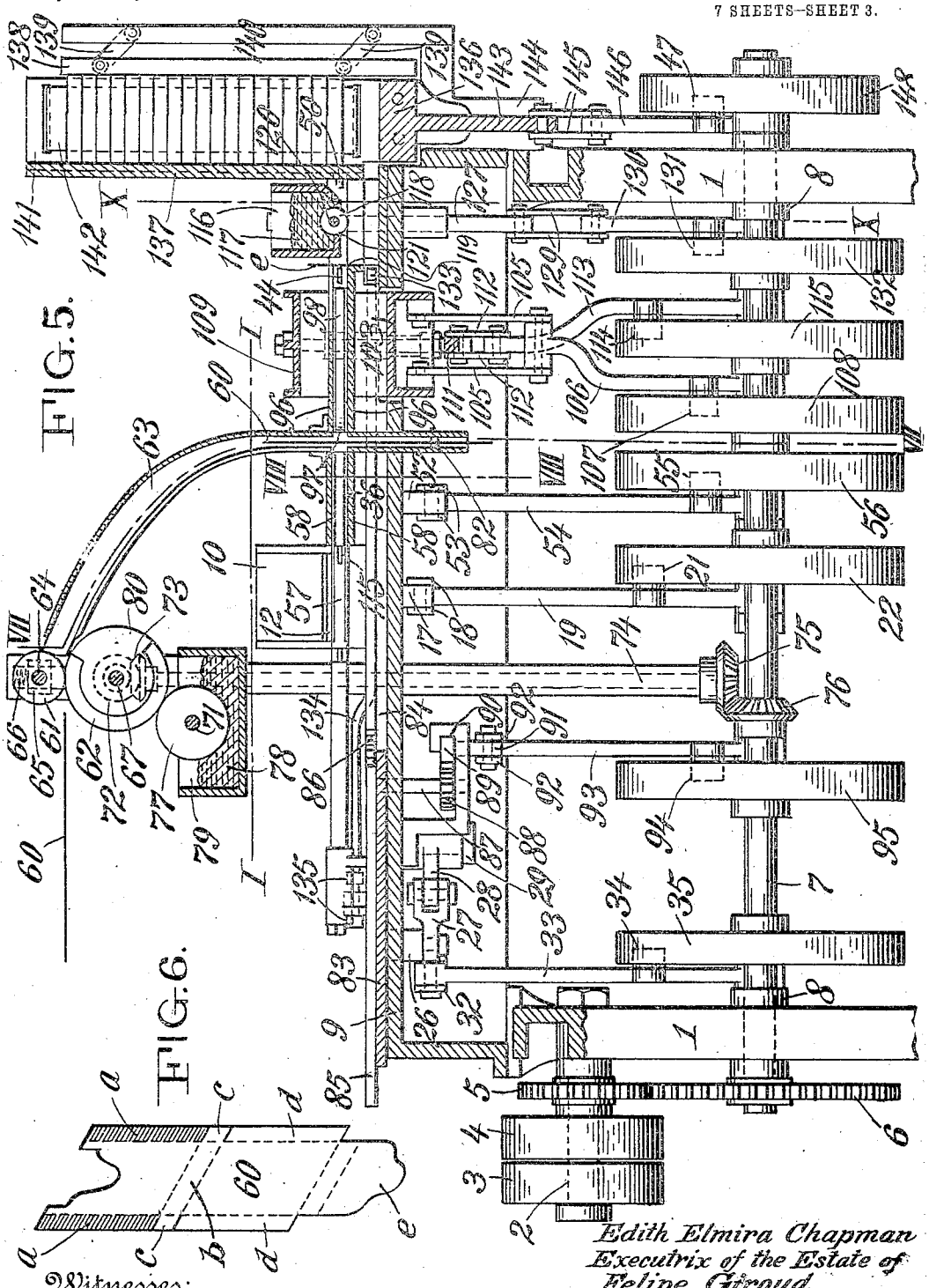


FIG. 6.

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7 SHEETS—SHEET 4.

FIG. 8.

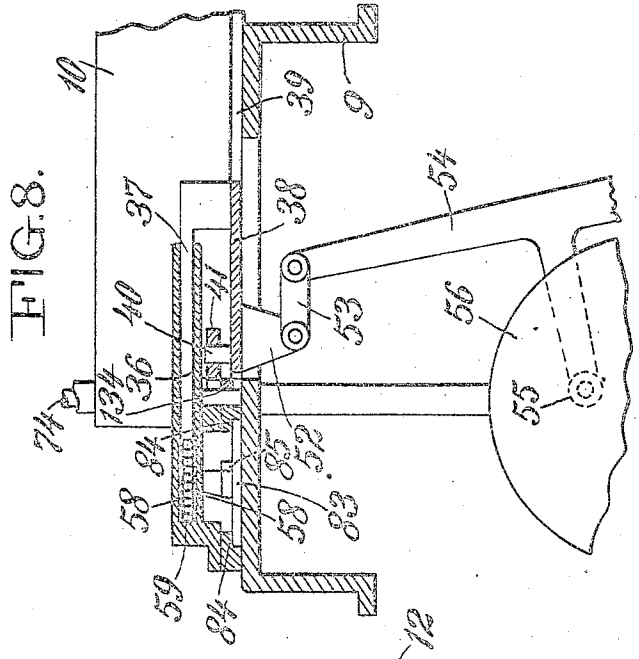


FIG. 9.

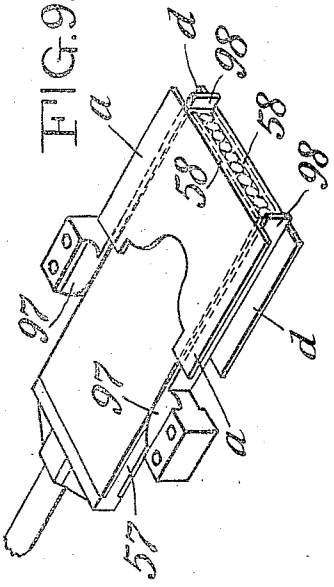
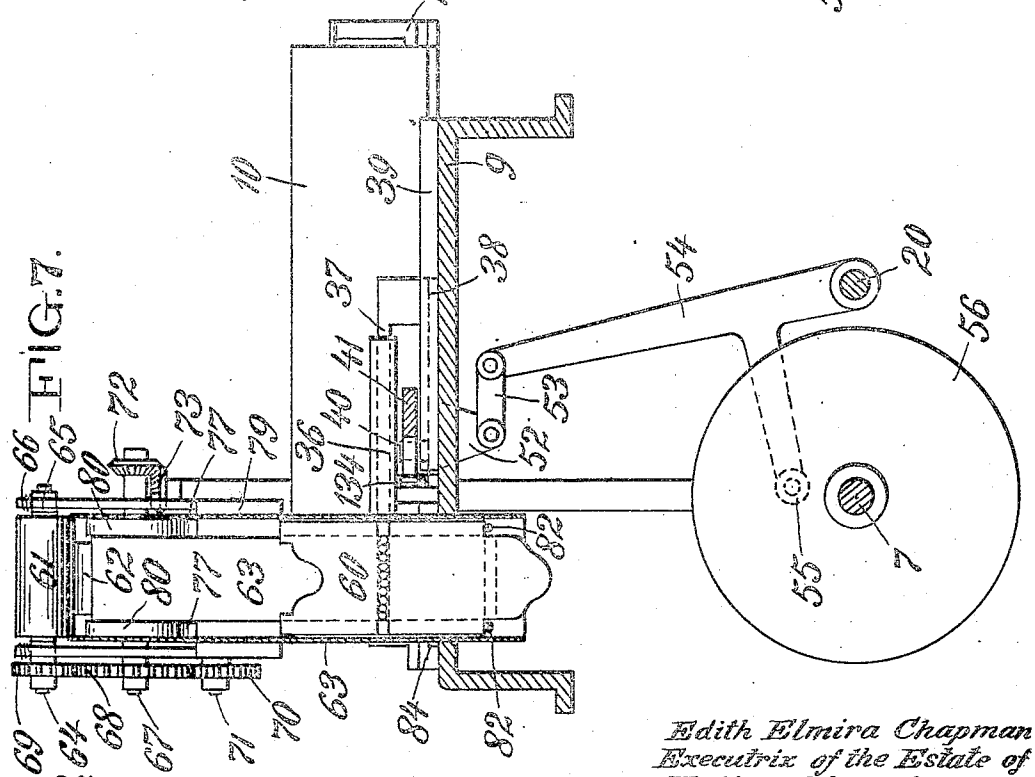


FIG. 7.



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7 SHEETS—SHEET 5.

FIG. 14.

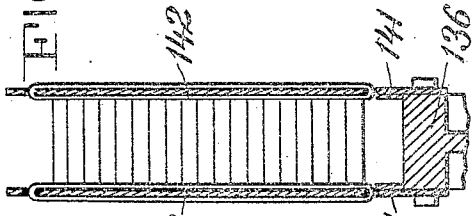


FIG. 13.

FIG. 12.

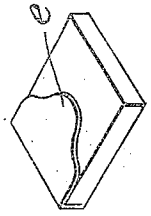


FIG. 10.

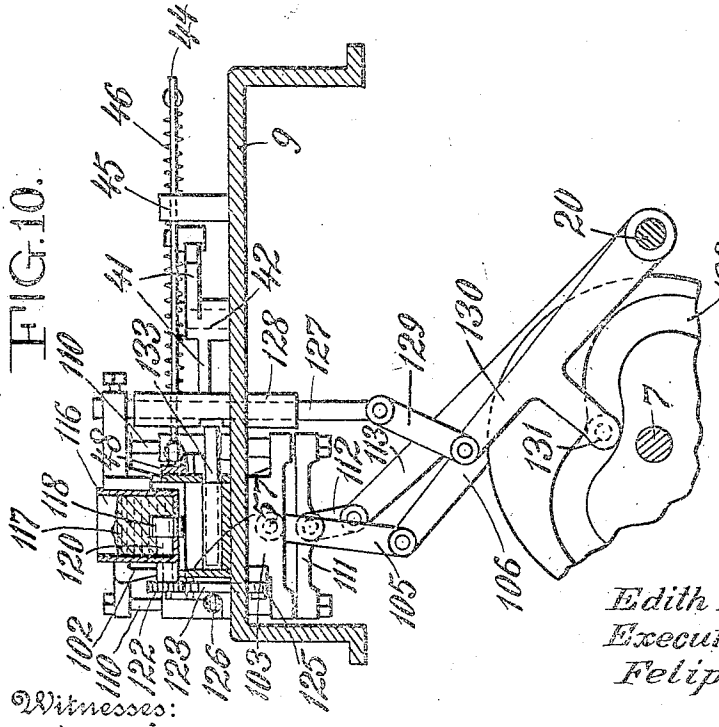
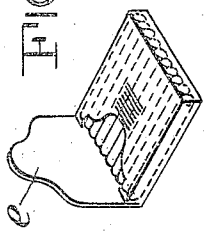


FIG. 11.



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7 SHEETS—SHEET 6.

FIG. 15.

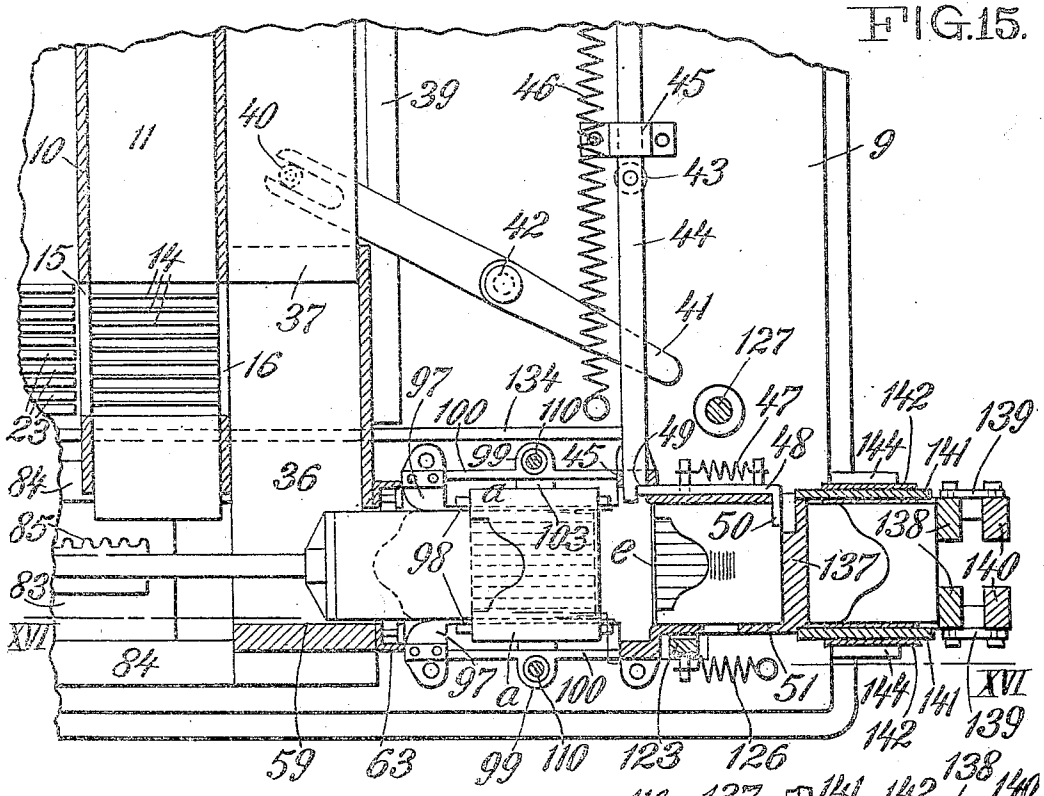
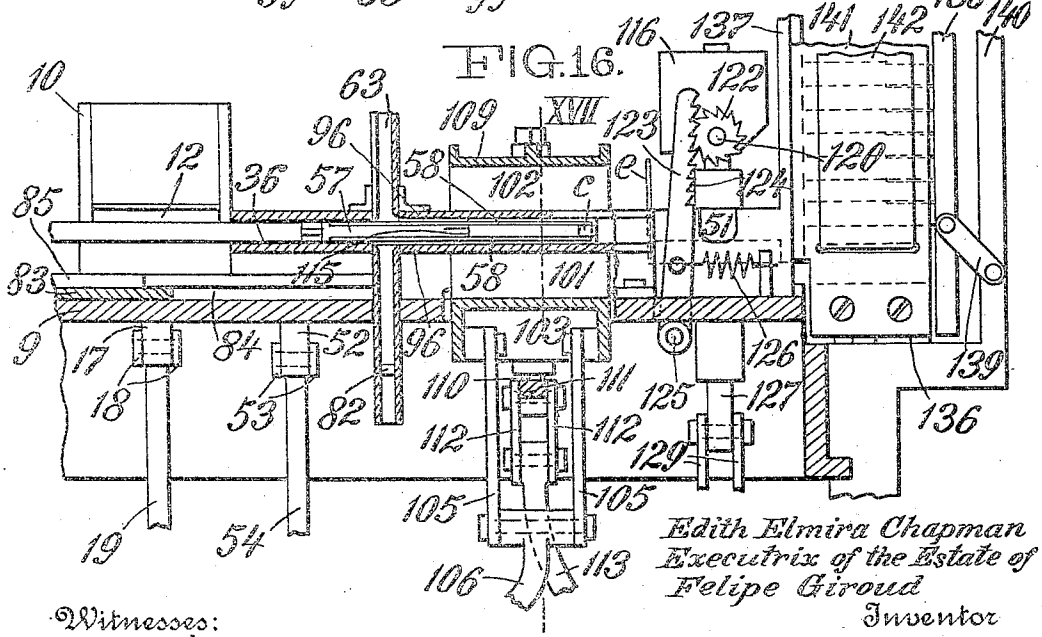


FIG. 16.



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7 SHEETS—SHEET 7.

FIG. 17.

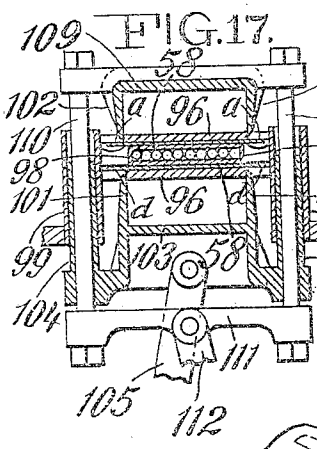


FIG. 18.

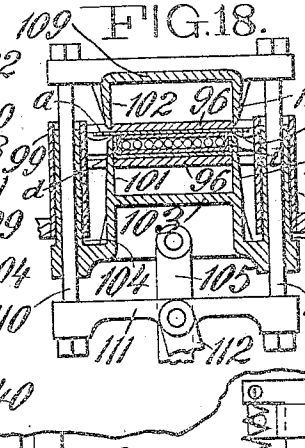


FIG. 19.

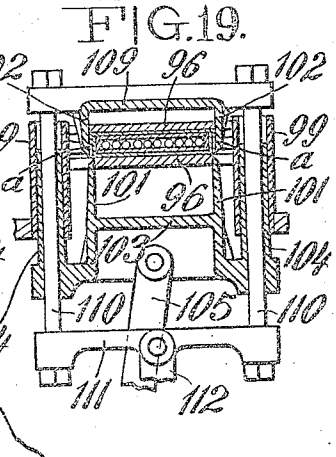


FIG. 20.

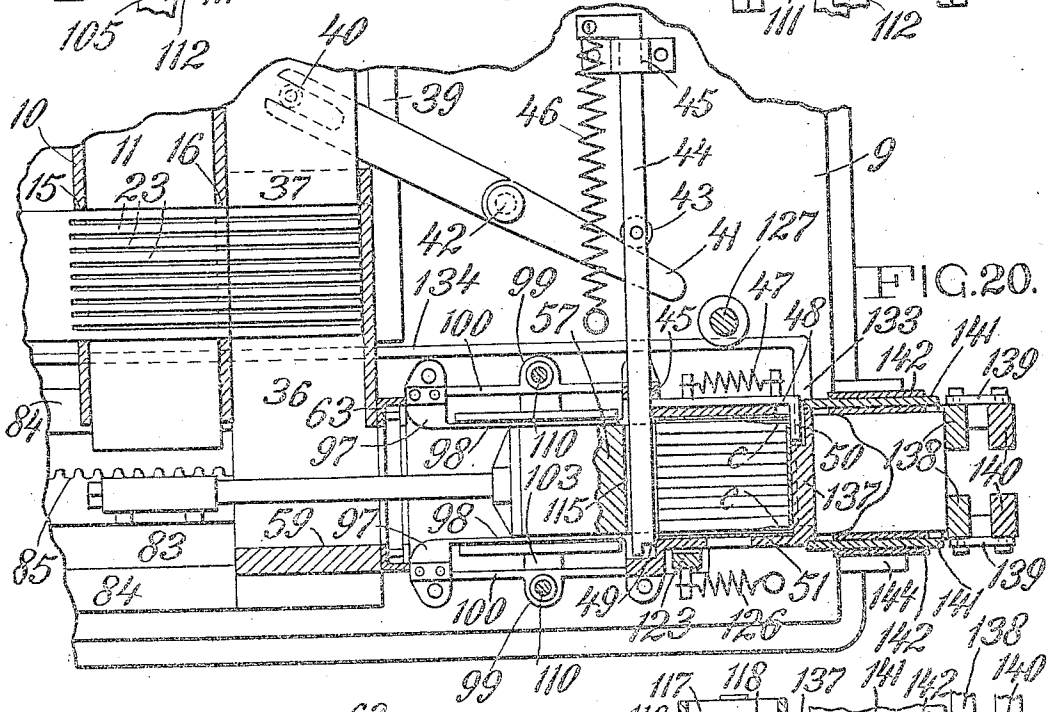
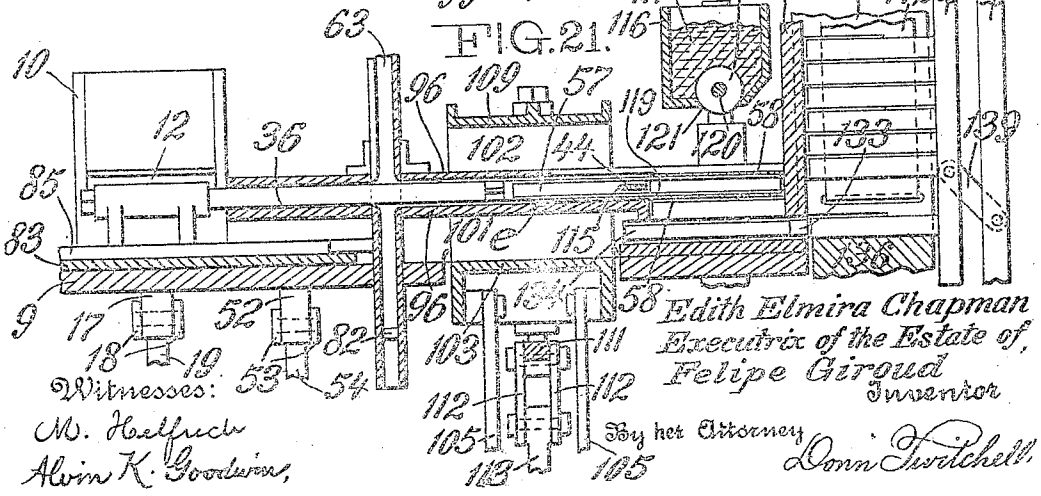


FIG. 21.



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Inventor

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UNITED STATES PATENT OFFICE.

FELIPE GIROUD, DECEASED, LATE OF NEW YORK, N. Y., BY EDITH ELMIRA CHAPMAN, EXECUTRIX, OF NEW YORK, N. Y., ASSIGNOR TO PACKAGE MACHINERY COMPANY, A CORPORATION OF MASSACHUSETTS.

PACKAGING-MACHINE.

1,110,125. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed October 18, 1913. Serial No. 795,955.

To all whom it may concern:

Be it known that FELIPE GIROUD, late a citizen of the Island of Cuba, and a resident of the city of New York, in the county of New York and State of New York, deceased, did invent a certain new and useful Improvement in Packaging-Machines, of which the following is a specification.

In the United States patent for a packaging machine, granted to Felipe Giroud June 16, 1908 and numbered 890,976, mechanism was shown whereby a certain number of articles could be separated from a magazine during successive operations of the machine and carried to mechanism whereby they were compressed into a compact bunch and secured by an inclosing wrapper. The present invention relates to improvements on said patent, the object being to simplify said mechanism for compressing the articles and to provide a means whereby the inclosing wrapper can be applied without depending upon the articles to be wrapped as a foundation upon which to fold the wrapper.

The invention consists of a reciprocating plunger having forwardly extending plates at its forward end which serve as a carrier for the separated bunch of articles, and which take against and cause the wrapper to be folded upon said plates during forward movement thereof between stationary wrapper folding plates and movable folders shown in said patent.

The invention further consists of means for holding the articles during return movement of said forwardly extending plates.

The machine is further provided with mechanism for completing the package in a manner different from that shown in said patent.

In the accompanying drawings, Figure 1 is a plan view, partly in section, on the line I—I of Fig. 5. Fig. 2 is a longitudinal section on the line II—II of Fig. 1. Fig. 3 is a transverse section on the line III—III of Fig. 1. Fig. 4 is a transverse section on the line IV—IV of Fig. 1. Fig. 5 is a longitudinal section on the line V—V of Fig. 1. Fig. 6 is a perspective view of a wrapper blank having paste applied to certain portions thereof. Fig. 7 is a transverse section on the line VII—VII of Fig. 5. Fig. 8 is a transverse section on the line VIII—VIII of Fig. 5. Fig. 9 is a perspective view of part of the cigarette carrying means, and a partially folded wrapper. Fig. 10 is a transverse section on the line X—X of Fig. 5. Fig. 11 is a perspective view of a bundle of cigarettes having a wrapper partially folded thereon. Fig. 12 is a perspective view of the wrapper when folded to form a completed package containing the cigarettes. Fig. 13 is an end elevation of part of the machine, showing an upwardly extending channel which receives the completed packages. Fig. 14 is a sectional view of a vertically moving plunger, which has upward extensions, forming part of said channel. Fig. 15 is a sectional plan view, showing the cigarette carrying parts in a position different from that shown in Fig. 1, and also showing the wrapper folded as in Fig. 9. Fig. 16 is a sectional elevation on the line XVI—XVI of Fig. 15. Fig. 17 is a transverse section on the line XVII—XVII of Fig. 16. Figs. 18 and 19 are sectional views similar to Fig. 17, showing different positions of the wrapper folding mechanism. Fig. 20 is a sectional plan view showing the cigarettes and wrapper advanced to a position different from that shown in Fig. 15. Fig. 21 is a longitudinal section, showing parts occupying the position shown in Fig. 20.

Fixed to the frame 1 of the machine is a shaft 2 upon which is journaled a loose pulley 3 and a driving pulley 4. Forming part of the driving pulley 4 is a gear wheel 5 which is in mesh with a larger gear wheel 6. Gear wheel 6 is secured to a shaft 7 which is journaled in bearings 8, forming part of the frame 1. To the upper part of frame 1 is secured a table 9 upon which various operating parts of the machine are mounted. Secured to table 9 is the magazine 10 into which the cigarettes are placed with the long axis of the cigarettes uniformly extending transversely thereof. The floor 11 of the magazine is inclined in order that the cigarettes, by the force of gravity, will move or roll toward one end of the magazine. The floor 11 forms part of a sliding carriage 12 which has reciprocating movement in guides 13. The upper side of the carriage 12 is provided with several partition plates 14 extending transversely thereof. These partitions are separated to a distance slightly geater than the diameter of a ciga-

rette and form pockets having such depth as to hold more than one cigarette when the same are placed one above another, as shown in Fig. 3.

The magazine 10 is provided with side openings 15 and 16, which are in range with the lowermost series of cigarettes in said pockets. To the under side of carriage 12 is secured a downwardly extending lug 17 which is connected by a link 18 to one arm of a bell-crank lever 19. The bell-crank lever 19 is pivoted on a longitudinally extending shaft 20 which is fixed to frame 1. The other arm of bell-crank lever 19 is provided with a roller 21 adapted for engagement with a cam 22 which is secured to shaft 7. The mechanism just described causes the aforesaid reciprocating movement of carriage 12, and the cam 22 is so shaped that when the parts occupy the position shown in Figs. 15 and 20, the series of pockets formed by the partitions 14 will be in range with a series of plungers 23 attached to a reciprocating carriage 24, which is adapted to slide in guides 25. A stud 26 projecting from the under side of carriage 24 is connected by a link 27 to one arm of a horizontally extending bell-crank lever 28 which is pivoted at 29 to the table 9. The other arm of bell-crank lever 28 is connected by links 30 to a universal joint 31. Said universal joint is connected by links 32 to one arm of a bell-crank lever 33, which is pivoted to the fixed shaft 20. The other arm of bell-crank lever 33 is provided with a roller 34 adapted for engagement with a cam 35 which is secured to shaft 7. The cam 35 is shaped to actuate the mechanism just described in such a manner that the plungers 23 are forced through the side openings 15 of the magazine and into said pockets, thereby forcing the lowermost series of cigarettes from said pockets through the side openings 16 of the magazine to rest in a channel 36, and in front of a plunger 37, which has reciprocating movements at right angles to those of plungers 23, as shown in Fig. 20. Said cam 35 then causes the plungers 23 to be withdrawn from said pockets and moved to the position shown in Fig. 1. At the same time the plunger 37 moves the bunch of cigarettes in the channel 36 from the position shown in Fig. 20 to the position shown in Fig. 1. The plunger 37 is attached to a carriage 38 which is adapted to slide in guide 39.

A roller 40 on carriage 38 is in engagement with one arm of a lever 41 which is pivoted at 42 to the table 9. The other end of lever 41 engages a roller 43 on a plate 44 which is free to slide in guides 45. A spring 46 serves to hold roller 43 against lever 41, as is shown in Fig. 20. Then, as the carriage 38 and plunger 37 move to the position shown in Fig. 1, the lever 41 being actuated by means of roller 40 on carriage 38 causes movement of the plate 44 from the position shown in Fig. 20 to position shown in Fig. 1. When this occurs a spring 47 forces a sliding bar 48 into engagement with a shoulder 49 at the end of plate 44. Then, as carriage 38 and plunger 37 move away from the position shown in Fig. 1, the lever 41 will be moved away from roller 43, and the plate 44 will be held by means of the bar 48, as is shown in Fig. 15. The sliding bar 48 has extension 50, which projects into a chamber 51, for purposes hereinafter described.

A lug 52 projecting from the under side of carriage 38 is connected by links 53 to one arm of a bell-crank lever 54, which is pivoted to the fixed shaft 20. The other arm of bell-crank 54 is provided with a roller 55 engaging the cam 56 on shaft 7, which cam is shaped to cause such movements of the plunger 37 as will coöperate with said movements of plungers 23 and with movements of a plunger 57 having reciprocating movement at right angles to those of plunger 37. Plunger 57 is provided with upper and lower plate extensions 58, forming a channel in range with the channel 36. During the movement of plunger 37 from the position shown in Fig. 20 to the position shown in Fig. 1, the cigarettes in channel 36 are forced into the channel formed by the upper and lower extensions 58 of plunger 57, and travel of the cigaretts being checked by a fixed vertical wall 59, the cigarettes are compressed into a compact bunch as shown in Fig. 8. During the operations just described, a wrapper blank 60 by any suitable means, not shown, is fed between continuously revolving rollers 61 and 62, and thereby forced into a chute 63, which guides the wrapper to a position in front of the plunger extensions 58 and in front of said cigarettes between them.

Roller 61 is secured to a shaft 64 which is journaled in bearings 65 and a spring 66 acting on said bearings, serves to maintain a yielding pressure of roller 61 upon roller 62. Roller 62 is secured to a shaft 67 to which is secured a gear wheel 68 which is in mesh with a gear wheel 69 secured to shaft 64. Gear wheel 68 is also in mesh with a gear 70, which is secured to a shaft 71. Secured to shaft 67 is a bevel gear wheel 72 which is in mesh with a bevel gear wheel 73 secured to a vertical shaft 74. To the vertical shaft 74 is secured a bevel gear wheel 75, which is in mesh with a bevel gear wheel 76 secured to shaft 7. It will be seen that the mechanism just described will cause continuous revolutions of the shafts 74, 67, 71, and 64.

Secured to shaft 71 are rollers 77 which travel in contact with paste 78 in a receptacle 79. As the rollers 77 revolve, paste is carried up thereby from the receptacle, and deposited upon surfaces 80 which are concentric with part of the periphery of wheel

62. The surfaces 80 are secured to the shaft 67 in such a manner that the surfaces travel in line with side flaps of the wrapper 60, while the roller 62 travels in line with the body thereof. Consequently, as the blank is fed forward by the rollers 61 and 62, the surface 80 will apply paste to the side flaps, and as the surface is limited in extent, it will apply paste only to a limited part of the side flaps, as shown as *a*, in Fig. 6. The chute is cut away on each side at 81, in order that the paste coated flaps will not come in contact with the chute during travel of the wrapper down the chute. The wrapper comes to rest on supports 82, which cause the portion *b* to be in range with the bunch of cigarettes and the plunger extensions 58.

The plunger 57 to which the extensions 58 are attached is secured to a carriage 83 adapted to slide in guides 84. Forming part of carriage 83 is a rack-bar 85, which is in mesh with a gear wheel 86 secured to a vertical shaft 87. Secured to vertical shaft 87 is a small gear wheel 88, which is in mesh with a reciprocating rack-bar 89. The purpose of making the gear wheel 88 smaller than gear wheel 86, is to enable short reciprocating movements of the rack-bar 89 to cause long reciprocating movements of the rack-bar 85, and the attached carriage 83 and plunger 57. The rack-bar 89 moves in guides 90, and has a lug 91 projecting from its under side which is connected by links 92 to one arm of a bell-crank lever 93. Bell-crank lever 93 is pivoted to the fixed shaft 20. The other arm of lever 93 is provided with a roller 94, which engages a cam 95 on shaft 7. The cam 95 is shaped to cause forward movement of the plunger 57 from the position shown in Figs. 1 and 5 to the position shown in Figs. 15 and 16. During this forward movement of plunger 57 the cigarettes also will be carried forward and the upper and lower extensions 58 of the plunger will force the wrapper against upper and lower stationary plates 96, thereby causing the wrapper to be folded upon the plunger extensions 58. At the same time stationary side projections 97 will fold the small end flaps *c* against a portion of the sides of the bunch of cigarettes. The stationary side projections 97 are provided with plate extensions 98, and the height of said projections and extensions is such as to permit free passage of the side flaps *a* and *d*, so that, when the plunger, cigarettes, and wrapper reach the position shown in Fig. 15, the side flaps *a*, *d*. will overhang the plate extensions 98, as shown in Fig. 9. The upper and lower stationary plates 96, the side projections 97, 98, and hollow columns 99, form part of a frame 100, which is secured to the table 9. That part of the stationary plates 96 below and above the overhanging side flaps *a*, *d*, is cut away, as shown in Figs. 1, 15 and 17, to permit vertical reciprocating movement of folders 101 and 102. The lower folder consists of two upwardly extending blades 101, forming part of a frame 103, having hollow uprights 104, which fit loosely within the hollow columns 99.

By means of links 105, the frame 103 is connected to an arm 106 which is pivoted on the fixed shaft 20. The arm 106 is provided with a roller 107 adapted for engagement with a cam 108 on shaft 7. The upper folder has blades 102 similar to the blades 101, except that they are separated to a slightly greater distance, and extend downward from a frame 109. Fixed to the frame 109 are rods 110, which extend downward through the hollow uprights 104 and are connected at their lower ends by the cross-head 111. Cross-head 111 is connected by links 112 to an arm 113 which is pivoted upon shaft 20, and provided with a roller 114 adapted for engagement with a cam 115 by which it is operated.

Fig. 17 shows the relative positions of the two folders 101 and 102 before the folding operations; and Fig. 18 their position at the time that the lower flaps *d* of the wrapper have been turned up and folded against the plate extensions 98 of the side projections 97. Fig. 19 shows the lower folder 101, as having returned to its original position, and the upper folder 102 as having turned the paste-coated upper flaps *a* down against the upturned lower flaps *d*. During the folding operation above described, the plunger 57 remains stationary, but upon the folders returning to their original or inoperative portions shown in Fig. 17, the plunger 57, is, by means of the mechanism actuated by cam 95 moved farther forward to the position shown in Fig. 20. This forward movement of plunger 57 carries the cigarettes and wrapper forward, and at the end of said movement, the upper plate extension 58, acting through the wrapper, takes against the projection 50 in chamber 51, thereby moving the sliding-bar 48 away from the shoulder 49 on plate 44, resulting in release and consequent quick movement of said plate 44 from the position shown in Fig. 15 to the position shown in Fig. 20. The plunger 57 is cut away at the rear of the cigarettes, to permit said movement of plate 44, as shown at 115 in Figs. 20 and 21. During return movement of the plunger 57 the cigarettes will be held by the plate 44 and the wrapper will be held by the cigarettes during withdrawal of the plate extensions 58 from their positions between the cigarettes and the wrapper.

When the plunger 57 reaches the position shown in Fig. 5, a box 116 containing paste 117 and carrying a paste coated wheel 118, is moved downward to apply paste upon the

wrapper of the partially wrapped package shown in Fig. 21. The downward movement of box 116 is sufficient to cause the wheel 118 to move said package downward, causing the wrapper flap *e* shown in Fig. 21 to take against an edge 119 of the lower plate 96, whereby said flap is turned upward to the position shown in Figs. 5 and 11.

The wheel 118 is secured to a shaft 120, which is journaled in the box 116 in such a manner that part of the wheel is in contact with paste 117 and part extends out through an opening 121 in the bottom of the box. The shaft 120 extends out through a side wall of the box, and upon the outer end of said shaft is secured a ratchet wheel 122 which is engaged by a pawl 123 having a series of ratchet teeth 124, whereby the wheel is rotated during downward movement of the box 116. The pawl 123 is pivoted at 125 to the table 9, and a spring 126 holds the pawl against the wheel, so that the pawl can swing away from the inclined teeth of the ratchet wheel, and consequently have no effect upon the wheel during upward movement of the box 116. The box 116 is secured to a vertical rod 127 having reciprocating movement in a guide 128. The lower end of the vertical rod 127 is connected by links 129 to an arm 130 which is pivoted to the fixed shaft 20. A roller 131 on arm 130 engages a cam 132 by which the arm and its connections to said box 116 are actuated. Cam 132 is so shaped that when a second forward movement of plunger 57 causes a second package to be moved to the position shown in Figs. 15 and 16, the box 116 will be raised to the position shown in Fig. 16. When further forward movement of plunger 57 causes the second package to be moved into the chamber 51, the lower plate extension 58 of the plunger, acting through the wrapper of the second package, will force said upturned flap *e*, downward upon the paste-coated portion of the first named package, as shown in Figs. 12 and 21. When a second downward movement of the box 116 causes the second package to be moved downward, the first package will thereby be forced further downward, to rest in front of a plunger 133. Forming part of plunger 133 is a rod 134, which extends rearwardly and is connected to the reciprocating carriage 24. The connection 135 to the carriage is one permitting lost motion of the rod 134, in order that the carriage may have greater movement than the rod, whereby said carriage is made serviceable for actuating the plunger 133 forming part of said rod.

Referring now to Figs. 15, 16, 20, and 21, it will be seen that when plunger 57 moves from the position shown in Fig. 15 to that shown in Fig. 20, the plungers 23 on carriage 24 will also have moved the cigarettes from the pockets in carriage 12 into the channel 36, and as a consequence, the rod 134 and plunger 133 connected to carriage 24 will move the first package from the position shown in Figs. 15 and 16 to the position shown in Figs. 20 and 21.

As shown in Fig. 21, plunger 133 moves a completed package to rest upon a plunger 136 having vertically reciprocating movements between a stationary upright 137 and upwardly extending movable bars 138, which are connected by downwardly inclined links 139 to stationary uprights 140. The plunger 136 has upwardly extending side plates 141, between which said package is forced by means of said plunger 133. During return movement of plunger 133, the plunger 136 moves the completed package upward between the upright 137 and bars 138, and owing to the action of said inclined links 139, the bars 138 will be moved away from the package, thus permitting free upward movement of the package.

When the plunger 136 moves downward, friction of the package against the bars 138 will cause downward movement of the bars, and the inclined links 139 will consequently cause the bars to be forced against the package sufficient to prevent downward movement of the package. As succeeding packages are moved upward, by means of plunger 136, the preceding packages will be moved higher up, partly by friction against endless ribbons 142, which are mounted on said side plates 141. Then as the plunger 136 and the attached side plates 141 move downward, the friction of the bars 138 against the packages, owing to the action of the inclined links, will cause the packages to be held up and movement of said endless ribbons 142 will permit said downward movement of the side plates 141.

The plunger 136 has a downward extension 143 which is adapted for sliding movement in guides 144. Extension 143 is connected by links 145 to a lever 146, which is pivoted upon the fixed shaft 20. Lever 146 is provided with a roller 147 adapted for engagement with a cam 148 by which it is actuated.

Having described the invention, what is claimed is:

1. A packaging machine comprising a wrapper folding channel having upper and lower plates and two vertically reciprocating folders, each of said folders having a vertical plate adapted to move past side edges of said upper and lower channel plates; a plunger having upper and lower forwardly extending plates secured to its forward end, the width of said plunger plate extensions being less than the space between said vertical plates forming part of said vertically reciprocating folders; means whereby articles are brought to rest between said

plunger plate extensions; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, said wrapper being of greater width than the width of said plunger plate extensions; means for causing forward movement of said plunger, whereby said articles and wrapper are moved forward to rest between said wrapper folding channel plates and said vertically reciprocating folders, thereby causing the wrapper to be folded upon said plunger plate extensions between which said articles rest; and means for actuating said vertically reciprocating folders, whereby portions of the wrapper overhanging said plunger plate extensions are folded substantially as described.

2. A packaging machine comprising a wrapper folding channel having upper and lower plates and two vertically reciprocating folders, each of said folders having a vertical plate adapted to move past side edges of said upper and lower channel plates, a reciprocating plunger having upper and lower forwardly extending plates secured to its forward end, the width of said plunger plate extensions being less than the space between said vertical plates forming part of said vertically reciprocating folders; a second plunger having reciprocating movements in range with and at right angles to those of the first named plunger; means whereby a series of articles are brought to rest in front of said second plunger; means for actuating said plungers, whereby the second plunger moves said articles forward to rest between said plunger plate extensions; a stationary vertical wall serving to check travel of several of said articles, whereby the articles are compressed into a compact bunch; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, said wrapper being of greater width than the width of said plunger plate extensions; said plunger actuating means then causing forward movement of the first named plunger, whereby said articles and wrapper are moved forward to rest between said wrapper folding channel plates and said vertically reciprocating folders, thereby causing the wrapper to be folded upon said plunger plate extensions between which said articles rest; and means for actuating said vertically reciprocating folders, whereby portions of the wrapper overhanging said plunger plate extensions are folded substantially as described.

3. A packaging machine comprising a wrapper folding channel having upper and lower plates and projections extending inward from two vertical sides thereof, said inwardly extending side projections having right angularly extending plates of less height than the space between the upper and lower plates of said wrapper folding channel; a plunger having upper and lower plates secured to its forward end, the width of said plunger plate extensions being less than the space between said plate extensions of said inwardly extending side projections; means whereby articles are brought to rest between said plunger plate extensions; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, said wrapper being of greater width than the space between said plate extensions of said inwardly extending side projections; means for causing forward movement of said plunger, whereby said articles and wrapper are forced into said wrapper folding channel, thereby causing portions of the wrapper to be folded upon said plunger plate extensions between which said articles rest, said limited height of said plate extensions of said inwardly extending side projections permitting free passage of upper and lower overhanging portions of the wrapper; and two vertically reciprocating folders causing said overhanging portions of the wrapper to be folded upon said plate extensions of said inwardly extending side projections of said wrapper folding channel.

4. A packaging machine comprising a plunger having upper and lower forwardly extending plates at its forward end, means whereby articles are brought to rest between said plunger plate extensions, a wrapper folding channel having upper and lower plates and projections extending inward from the two vertical sides thereof, and said inwardly extending projections being of less height than the space between the upper and lower plates of said wrapper folding channel; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, said wrapper being of greater width than the space between said inwardly extending side projections and the width of said plunger plate extensions; means for causing forward movement of said plunger, whereby said articles and wrapper are forced into said wrapper folding channel, thereby causing portions of the wrapper to be folded upon said plunger plate extensions between which said articles rest, said limited height of said inwardly extending side projections permitting free passage of upper and lower portions of the wrapper overhanging said plunger plate extensions; said inwardly extending side projections having plate extensions which said upper and lower overhanging portions of the wrapper also overhang; and two vertically reciprocating folders causing said overhanging portions

of the wrapper to be folded upon said plate extensions of said inwardly extending side projections of said wrapper folding channel.

5. A packaging machine comprising a plunger having upper and lower forwardly extending plates at its forward end, means whereby articles are brought to rest between said plunger plate extensions, a wrapper folding channel having upper and lower plates and projections extending inward from the two vertical sides thereof, and said inwardly extending projections being of less height than the space between the upper and lower plates of said wrapper folding channel; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, means for applying paste to certain marginal portions of said wrapper, and means for guiding said paste coated wrapper to said wrapper supporting means, said wrapper being of greater width than the space between said inwardly extending side projections and the width of said plunger plate extensions; means for causing forward movement of said plunger, whereby said articles and wrapper are forced into said wrapper folding channel, thereby causing portions of the wrapper to be folded upon said plunger plate extensions between which said articles rest, said limited height of said inwardly extending side projections permitting free passage of upper and lower portions of the wrapper overhanging said plunger plate extensions; said inwardly extending side projections having plate extensions which said upper and lower overhanging portions of the wrapper also overhang; and two vertically reciprocating folders, one of said folders adapted to fold one of said overhanging portions of the wrapper against said plate extensions of the inwardly extending side projections of said wrapper folding channel and the other folder adapted to fold said paste coated marginal portion of the wrapper against said portion of the wrapper folded against said plate extensions of the inwardly extending side projections of said wrapper folding channel.

6. A packaging machine comprising a plunger having upper and lower forwardly extending plates at its forward end, means whereby articles are brought to rest between said plunger plate extensions, a wrapper folding channel having upper and lower plates, projections extending inward from the two sides thereof, said projections having plate extensions; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plunger plate extensions, said wrapper being of greater width than the space between said inwardly extending side projections, and the width of said plunger plate extensions, and means for causing forward movement of said plunger, whereby said articles and wrapper are forced into said wrapper folding channel, thereby causing portions of the wrapper to be folded upon said plunger plate extensions between which said articles rest, said inwardly extending side projections and the extensions thereof having limited height, whereby free passage of upper and lower portions of the wrapper which overhang said plunger plate extensions and said plate extensions of said inwardly extending side projections of the wrapper folding channel, is permitted; two vertically reciprocating folders causing said overhanging portions of the wrapper to be folded upon said plate extensions of said inwardly extending side projections of the wrapper folding channel; means whereby said articles and wrapper are moved clear of said plate extensions of said side projections of the wrapper folding channel and means whereby said plunger plate extensions are moved clear of said articles and wrapper.

7. A packaging machine comprising a reciprocating plunger having forwardly extending plates, the space between said plates forming a channel at the forward end of said plunger, means whereby articles are brought to rest within said channel; a wrapper folding channel and a receiving chamber, a plate having transverse movement into and out of said wrapper folding channel, a spring normally forcing said plate into said wrapper folding channel, a trigger bar adapted for engagement with said transversely moving plate, and having a projection adapted for movement into and out of said receiving chamber; and means for actuating said transversely moving plate whereby it is moved out of said wrapper folding channel and into position to be engaged and held by movement of said spring pressed trigger bar, said movement of the trigger bar causing said projection thereon to be moved into said receiving chamber; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plate extensions of said plunger; and means for actuating said plunger whereby forward movement thereof causes said articles to be moved forward and the forward ends of said plunger plate extensions cause said wrapper to be forced through said wrapper folding channel, thereby causing the wrapper to be folded upon the exterior of that part of said plunger having said channel containing said articles, forward movement of said plunger also causing said articles and wrapper to be moved into said receiving chamber and the forward end of one of said plunger plate extensions, acting through said wrapper, and taking against said projection on the trigger bar, causes movement thereof, there-

by releasing and causing movement of said transversely moving plate at the rear of said articles; and said wrapper actuating means then causing return movement of said plunger, said transverse plate serving to hold said articles and wrapper during movement of said plunger plate extensions clear of said articles and wrapper.

8. A packaging machine comprising a reciprocating plunger having forwardly extending plates, the space between said plates forming a channel at the forward end of said plunger, a wrapper folding channel, a plate having transverse movement into and out of said wrapper folding channel, a spring normally forcing said plate into said wrapper folding channel, and a trip mechanism coöperating with said transversely moving plate; a second plunger having reciprocating movements at right angles to those of the first named plunger, and a pivoted lever actuated by said second plunger; means for supporting articles between said second plunger and said channel at the forward end of the first named plunger and means for actuating said plungers, whereby forward movement of the second plunger moves said articles forward to rest within said channel at the forward end of the first named plunger, said forward movement of the second plunger also causing said lever to move said transversely moving plate out of said wrapper folding channel thereby causing said trip mechanism to be set; means for supporting a wrapper between said wrapper folding channel and the forward ends of said plate extensions of the first named plunger; said plunger actuating means then causing forward movement of the first named plunger, whereby said articles are moved forward and the forward ends of said plunger plate extensions cause said wrapper to be folded through said wrapper folding channel, whereby the wrapper is folded upon the exterior of that part of said plunger having said channel containing said articles; said plunger actuating means also causing return movement of said second plunger; thereby causing said lever to be moved out of engagement with said transversely movable plate; forward movement of the first named plunger then causing said trip mechanism to be actuated, thereby releasing and causing movement of said transversely moving plate at the rear of said articles; and said plunger actuating means then causing return movement of said plunger, said transverse plate serving to hold said articles and wrapper during movement of said plunger plate extension clear of said articles and wrapper.

9. A packaging machine comprising a reciprocating plunger, a wrapper folding channel, a receiving chamber, and a paste applying device having vertically reciprocating movements in said receiving chamber; means for supporting articles between said wrapper folding channel and said plunger, means for supporting a wrapper between said articles and said wrapper folding channel; and means for actuating said plunger whereby forward movement thereof causes said articles and wrapper to be forced through said wrapper folding channel and into said receiving chamber, whereby part of said wrapper is folded around said articles and an unfolded part remains in said wrapper folding channel, means for actuating said paste applying device whereby downward movement thereof causes paste to be applied to said folded wrapper, and also causes downward movement of said articles and wrapper, whereby said wrapper folding channel causes said unfolded part of the wrapper to be further folded around said articles, and also causes a portion of said wrapper to extend upward across said wrapper folding channel, said means for actuating said plunger then causing other articles and wrapper to be forced through said wrapper folding channel; and the wrapper thereby partly folded around the last named articles, and moving into said receiving chamber, by taking against said upturned portion of the first named wrapper, causes said upturned portion to be folded upon said paste applied to the folded part of the first named wrapper.

10. A packaging machine comprising a reciprocating plunger having forwardly extending plates, the space between said plates forming a channel at the forward end of said plunger, means whereby articles are brought to rest within said channel, a wrapper folding channel, a receiving chamber and a paste applying device having vertically reciprocating movements in said receiving chamber, means for supporting a wrapper between said wrapper folding channel and the forward ends of said plate extensions of said plunger; and means for actuating said plunger whereby forward movement thereof causes said articles and wrapper to be forced through said wrapper folding channel and into said receiving chamber, thereby causing the wrapper to be folded upon the exterior of that part of said plunger having said channel containing said articles, means whereby said articles and wrapper are held in said receiving chamber during return movement of said plunger; means for actuating said paste applying device whereby downward movement thereof causes paste to be applied to said wrapper, and also causes downward movement of said articles and wrapper, whereby said wrapper folding channel causes said wrapper to be further folded upon said articles, and also causes a portion of said wrapper to extend upward

across said wrapper folding channel, said means for actuating said plunger then causing other articles and wrapper to be forced through said wrapper folding channel, and the wrapper thereby folded upon the exterior of that part of said plunger having said channel containing said articles, and moving into said receiving chamber, by taking against said upturned portion of the first named wrapper, causes said upturned portion to be folded upon said paste applied to the first named wrapper.

11. A packaging machine comprising a reciprocating plunger, a second plunger having reciprocating movements at right angles to those of the first named plunger, and a third plunger having reciprocating movements at right angles to those of the second plunger, means for supporting articles between the two last named plungers; and means for actuating said plungers, whereby the third plunger moves said articles forward to rest in front of said second plunger, said plunger actuating means then causing the second plunger to move said articles forward to rest in front of the first named plunger; a wrapper folding channel, a receiving chamber, and a paste applying device having vertically reciprocating movements in said receiving chamber; means for supporting a wrapper between said wrapper folding channel and said articles in front of the first named plunger; said plunger actuating means then causing forward movement of the first named plunger, whereby said articles and wrapper are forced through said wrapper folding channel and into said receiving chamber, whereby part of said wrapper is folded around said articles and an unfolded part remains in said wrapper folding channel, means for actuating said paste applying device whereby downward movement thereof causes paste to be applied to said folded wrapper, and also causes downward movement of said articles and wrapper, whereby said wrapper folding channel causes said unfolded part of the wrapper to be further folded around said articles and also causes a portion of said wrapper to extend upward across said wrapper folding channel, said means for actuating said plungers then causing other articles and wrapper to be forced through said wrapper folding channel, and into said receiving chamber, thereby causing said upturned portion of the first named wrapper to be folded upon said applied paste.

12. A packaging machine comprising a reciprocating plunger, a wrapper folding channel, a receiving chamber, and a paste applying device having vertically reciprocating movements in said receiving chamber; means for supporting articles between said wrapper folding channel and said plunger, means for supporting a wrapper between said articles and said wrapper folding channel; and means for actuating said plunger whereby forward movement thereof causes said articles and wrapper to be forced through said wrapper folding channel and into said receiving chamber, whereby part of said wrapper is folded around said articles and an unfolded part remains in said wrapper folding channel, means for actuating said paste applying device whereby downward movement thereof causes paste to be applied to said folded wrapper, and also causes downward movement of said articles and wrapper, whereby said wrapper folding channel causes said unfolded part of the wrapper to be further folded around said articles, and also causes a portion of said wrapper to extend upward across said wrapper folding channel, said means for actuating said plunger then causing other articles and wrapper to be forced through said wrapper folding channel; and the wrapper thereby partly folded around the last named articles, and moving into said receiving channel, by taking against said upturned portion of the first named wrapper, causes said upturned portion to be folded upon said applied paste; said means for actuating said paste applying device then causing downward movement thereof, thereby causing paste to be applied to the wrapper folded around the second series of articles and also causing downward movement thereof, thereby causing downward movement of the first series of articles and wrapper; and a reciprocating plunger adapted to force the first series of articles and wrapper from under the second series of articles and wrapper, substantially as described.

13. A packaging machine comprising a wrapper folding channel, a receiving chamber, and a paste applying device having vertically reciprocating movements in said receiving chamber, means whereby a series of articles and a wrapper are forced through said wrapper folding channel and into said receiving chamber, whereby part of said wrapper is folded around said articles and an unfolded part remains in said wrapper folding channel, means for actuating said paste applying device whereby downward movement thereof causes paste to be applied to said folded wrapper, and also causes downward movement of said article and wrapper, whereby said wrapper folding channel causes said unfolded part of the wrapper to be further folded around said articles and also causes a portion of said wrapper to extend upward across said wrapper folding channel, said means for forcing articles and wrapper then causing another series of articles and a wrapper to be forced through said wrapper folding channel; and the wrapper thereby

partly folded around the last named articles and moving into said receiving channel, by taking against said upturned portion of the first named wrapper, causes said upturned portion to be folded upon said applied paste; said means for actuating said paste applying device then causing downward movement thereof, thereby causing paste to be applied to the wrapper folded around the second series of articles, and also causing downward movement thereof, thereby causing downward movement of the first series of articles and wrapper; a vertically disposed receiving channel and a plunger having vertical reciprocating movements therein; and a reciprocating plunger adapted to force said first series of articles and wrapper into range with said vertically reciprocating plunger, said vertically reciprocating plunger serving to force said articles and wrapper into said vertical receiving channel, substantially as described.

14. In a packaging machine, a vertically disposed receiving channel and a plunger having vertical reciprocating movements therein; a second plunger having reciprocating movements at a right angle to those of the first named plunger; means whereby wrapped articles are brought to rest in front of said second plunger, means for actuating said second plunger whereby forward movement thereof causes said wrapped articles to be forced to rest upon the first named plunger; means for actuating the first named plunger whereby said wrapped articles are forced upward into said receiving channel; movable bars forming part of said channel, inclined links pivoted to said bars and arranged to permit movement of said bars away from said wrapped articles during their upward travel, and causing movement of said bars into frictional engagement with said wrapped articles during return movement of the first named plunger.

Signed at New York city in the county of New York and State of New York this 16th day of October A. D. 1913.

EDITH ELMIRA CHAPMAN,

Executrix of the estate of Felipe Giroud, deceased.

Witnesses:

F. J. MOONEY,

W. L. SHERWOOD.