

I. LÁZAGA.  
PACKING MACHINE.  
APPLICATION FILED OCT. 1, 1910.

1,018,429.

Patented Feb. 27, 1912.

6 SHEETS—SHEET 1.

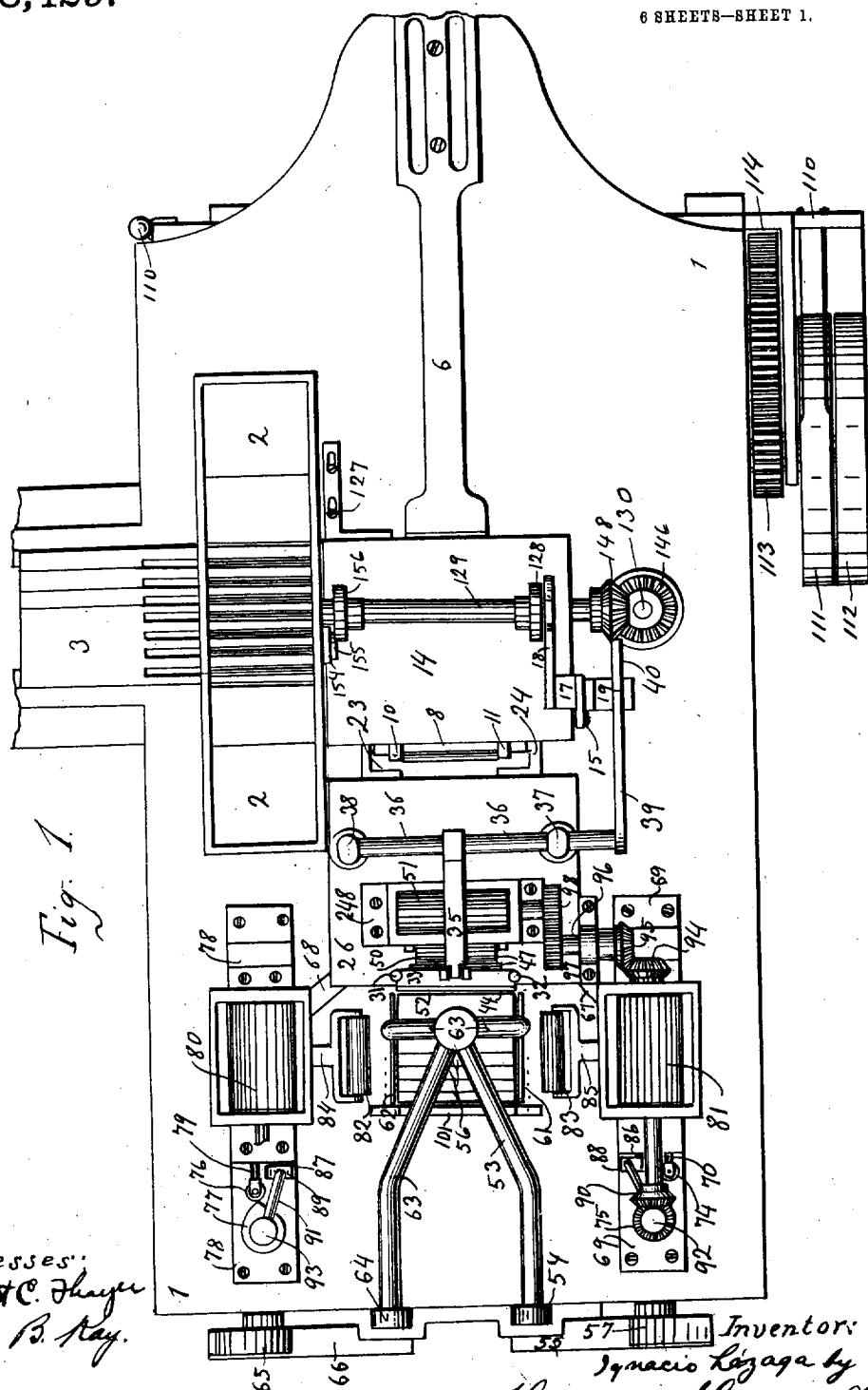


Fig. 1.

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Inventor:  
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**1,018,429.**

6 SHEETS—SHEET 2.

*Fig. 8.*

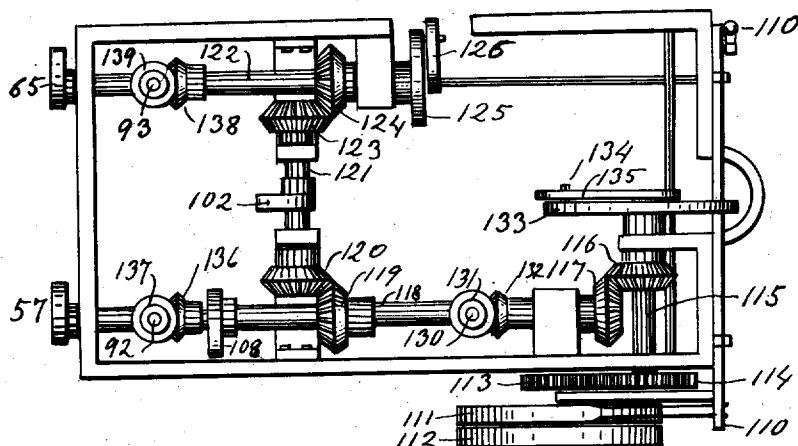


Fig. 6.

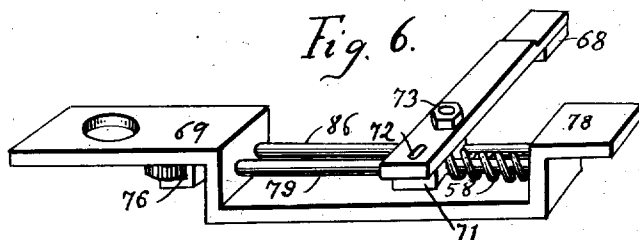


Fig. 3.

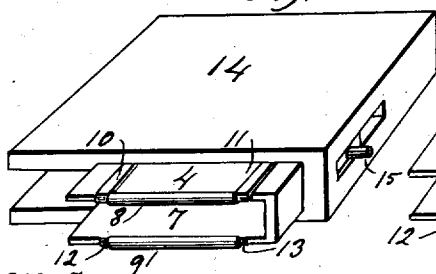
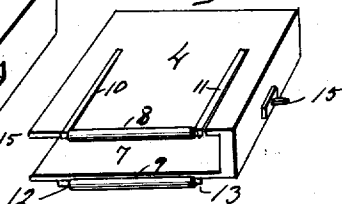


Fig. 2.



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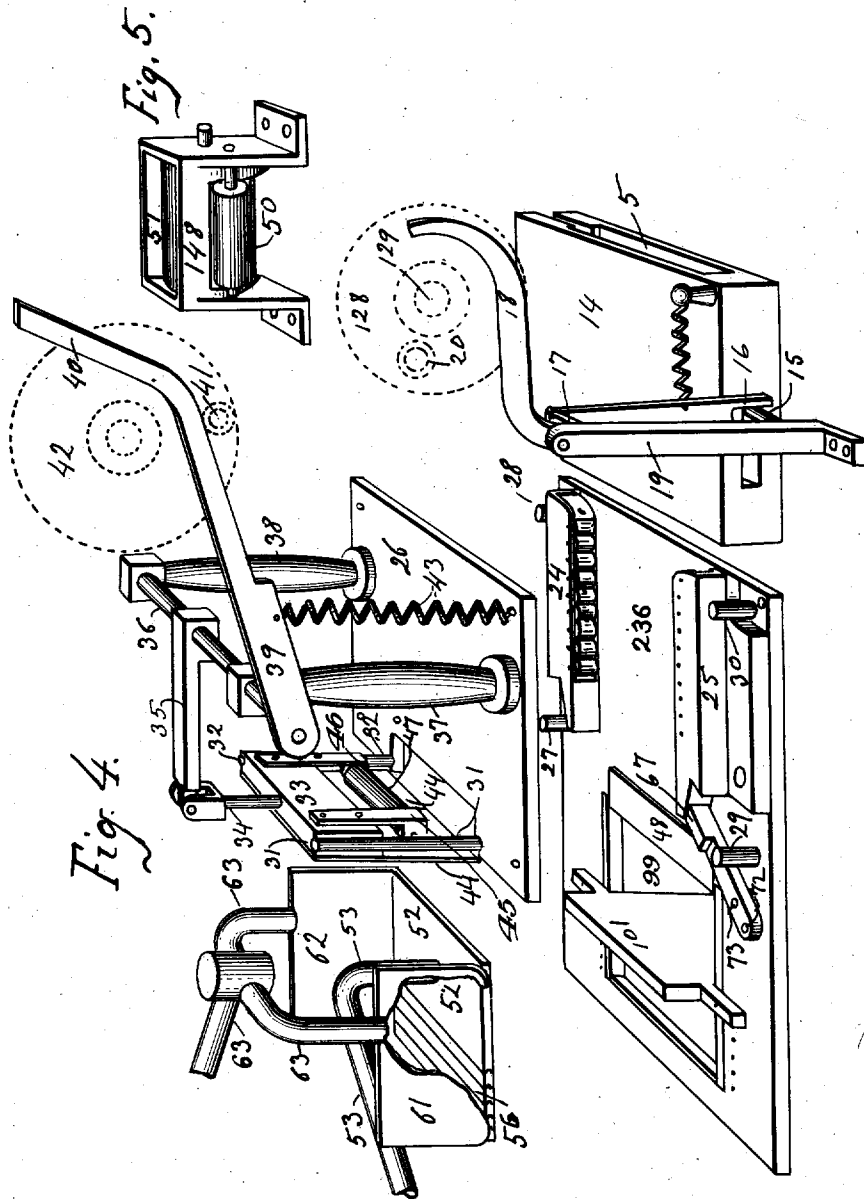
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6 SHEETS—SHEET 3.



Witnesses:  
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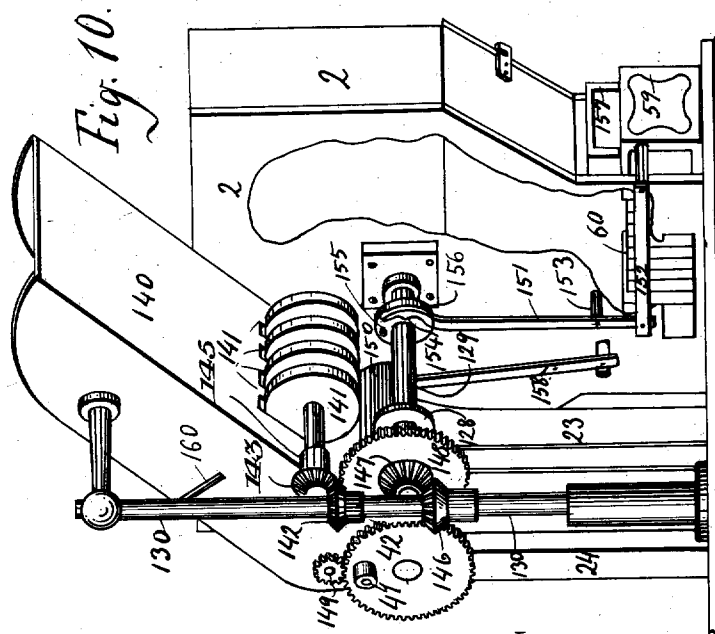
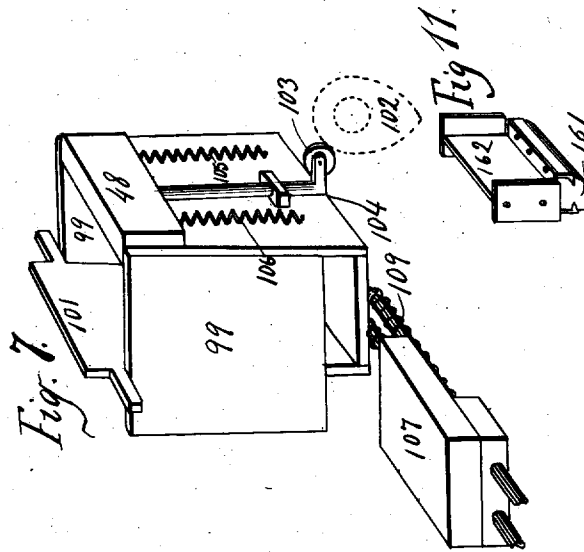
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6 SHEETS—SHEET 4.



Witnesses:  
Robert C. Shayer  
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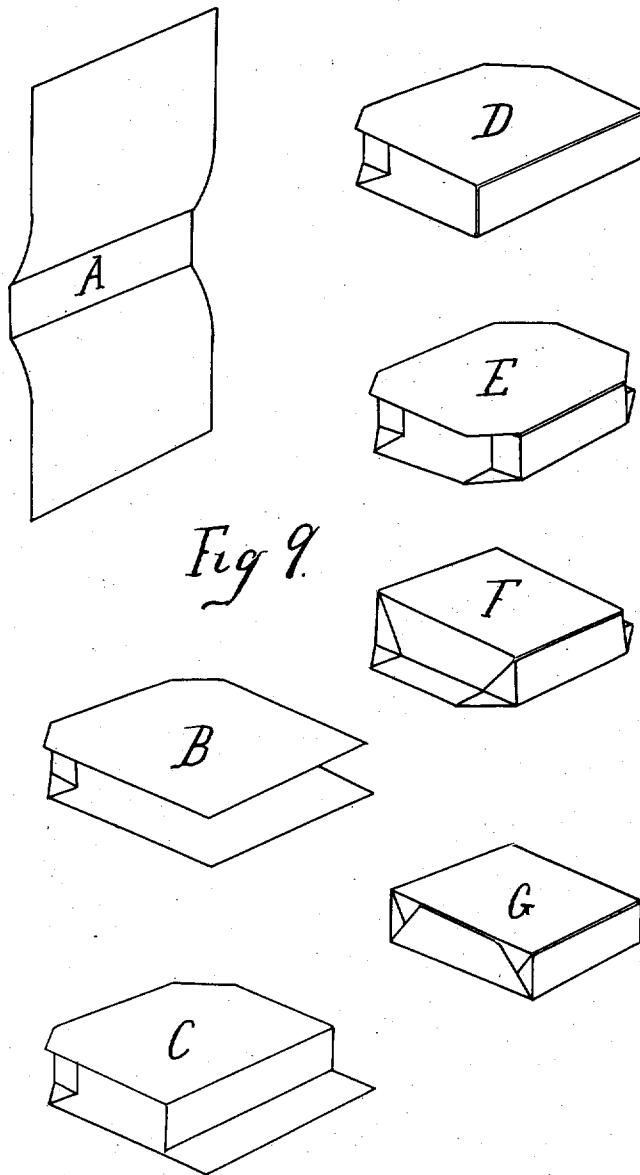
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6 SHEETS—SHEET 5.



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6 SHEETS—SHEET 6.

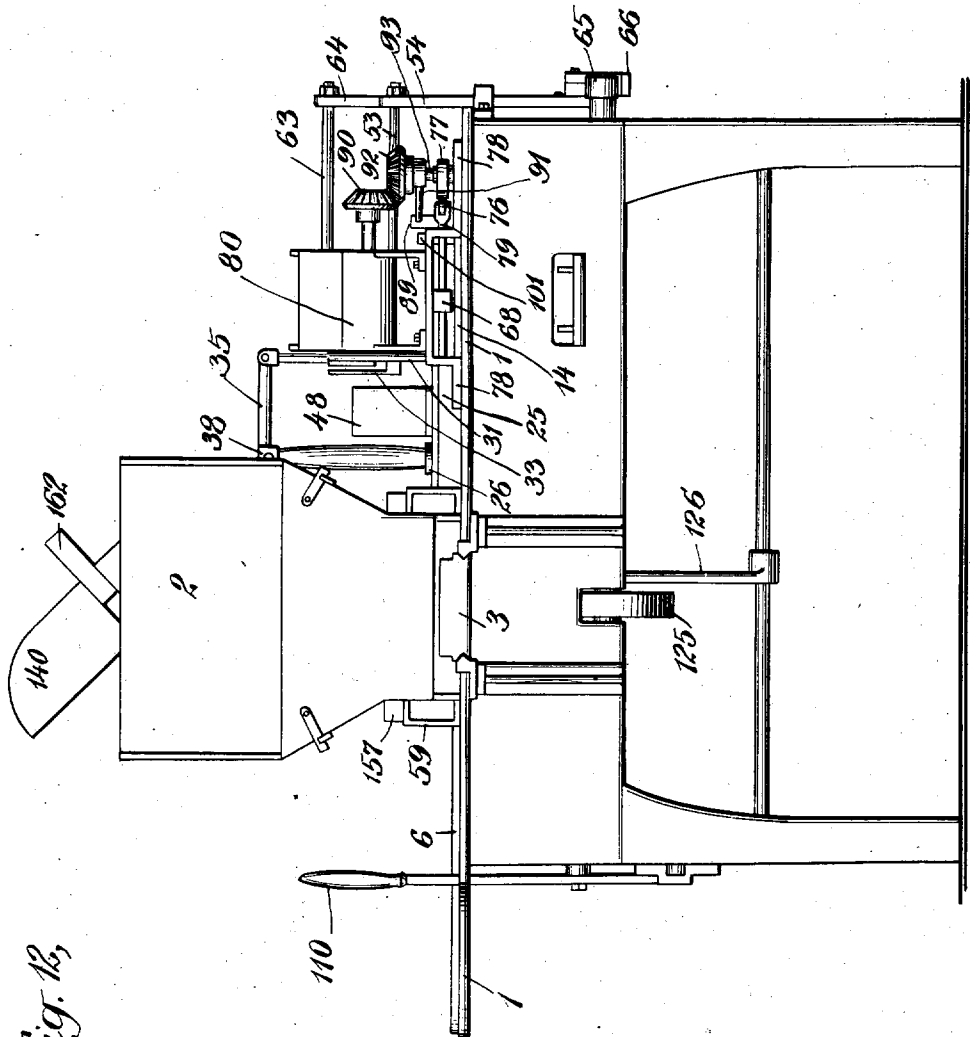


Fig. 13,

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# UNITED STATES PATENT OFFICE.

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## PACKING-MACHINE.

1,018,429.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, IGNACIO LÁZAGA, a citizen of Cuba, residing at Habana, Cuba, have made a certain new and useful Invention Relating to Packing-Machines for Packing Small Articles, such as Cigarettes.

The number of cigarettes or other articles in a package may be varied by suitably adjusting the various parts of the machine and the package is inclosed in a wrapper which is folded and pasted.

In the accompanying drawing showing in a somewhat diagrammatic manner, an illustrative embodiment of this invention, Figure 1 is a plan view of the whole machine, Fig. 2 represents in perspective the movable carrier which receives the cigarettes from the counter, Fig. 3 represents the movable carrier and support, Fig. 4 represents in perspective the label folding devices which are shown somewhat separated for greater clearness, Fig. 5 represents a paster, Fig. 6 represents in perspective, and in an inverted position, one of the paster supports and end folder devices, Fig. 7 represents in perspective, the final lower end folder and the folding devices, Fig. 8 is a plan of the operating mechanism, Fig. 9 represents the folded package cover in various stages of completion, Fig. 10 represents in perspective, the wrapper or label box and cigarette counter partly in section, Fig. 11 represents the separator device for the wrapper box, Fig. 12 is a side elevation of the machine.

In the illustrative form of machine shown in the drawings, the operating members are mounted upon a suitable frame or supporting table 1.

The cigarettes or other cylindrical articles may as indicated in Figs. 10 and 1 be fed into the hopper 2 from time to time so that the desired number may be fed therefrom by the pusher 3 which forces them into the movable carrier 4. This carrier, as is indicated in Figs. 2, 3 and 4 has an open side through which the cigarettes are inserted and has its opposite ends open so that the ejector 6 shown in Fig. 1 may enter one of these openings and push the cigarettes out through the other between suitable light rolls 8 and 9 which, as indicated in Figs. 1, 2 and 3, may be yieldingly mounted on light springs 10, 11, 12 and 13 in the carriage. This movable carrier 4 is mounted

within a suitable support 14 which as shown in Figs. 3 and 4 may be recessed so as to have a channel which is continuous with the opening in the carrier 4. The support may also be provided with a suitable aperture or slot through which the pin 15 attached to the carrier 4, may project so as to be engaged by the forked lower end 16 of an operating lever 16, 17, 18, as indicated in Fig. 4. This lever may be pivoted at its central portion 17 to a suitable bracket 19 and have its curved upper end 18 bent in such shape as to cooperate with the cam roller 20 on the face of the cam disk 128 on shaft 129 as indicated. This cam roll thus intermittently oscillates the lever so as to force the pin 16 and connected carrier 4 to the left as shown in Fig. 4, while at other times the spiral spring 22 withdraws it into normal retracted position.

As indicated in Fig. 10, the feeder for intermittently supplying the wrappers or printed trade-mark labels inclosing the cigarette packages may have an inclined bottom 140 communicating with the conduit or set of guide slots 23, 24, into which the wrappers are fed and held in the path of the cigarettes. Suitable feed rolls 141 having treads of rubber or other gripping material may be arranged to enter the slots indicated in the label box so as to engage the lowest wrapper and feed the same forward while the others are held back by the rubber or other face 161 on the separator 162 which may be mounted in the slot 160 in the wrapper box. The feed rolls may be intermittently rotated by the intermittent gearing comprising the beveled pinions 143 on the shaft 145 of the rolls and the cooperating pinion 142 on the vertical shaft 130. This shaft also carries the beveled pinion 146 meshing with a similar one 147 attached to the spur gear 148 which meshes with a similar gear 42; the latter operating the pinion 149 on a discharge roll cooperating with the roll 150 so as to grip and discharge into the feed slots 23, 24, each wrapper as it is withdrawn from the pile in the wrapper box by the feed rolls.

The folding devices as indicated in Fig. 4, comprise two brackets 24, 25, mounted upon the bottom plate or support 236 and provided with a series of vertical rollers to minimize catching or tearing of the wrapper

of the package which is pushed between them by the ejector 6. These brackets are normally covered by the top plate 26 which rests upon the short cylindrical supports or columns 27, 28, 29, 30, which are sufficiently high to hold this top plate out of contact with the brackets and allow the folded wrapper to pass between these members. The top plate may, as indicated, be provided with two guide pins 31, 32 adjacent its rear portion to guide the paster frame 33 in its vertical movements. This frame may be connected with the roll lever 35 by the stem 34 having a yoke and connecting pivot at its upper end. The lever 35 is indicated as rigidly secured to the shaft 36 mounted in bearings in the posts 37, 38 and having connected thereto the paste lever 39 normally drawn downward by the spiral spring 43. The outer end of this paste lever 39 is so curved as to be located in the path of the cam roller 41 on the disk 42 so as to intermittently reciprocate the paster frame and connected parts at the proper time. This paster frame 33 may, as indicated, carry two pieces 45, 46, in which the paste roller 47 may be mounted so as to apply paste to the lower lateral edge of the wrapper. The upper edge folder 44 may also be mounted in this paster frame so that it is forcibly carried into contact with the upper lateral edge of the package and fold it down over the cigarettes or other material therein. The pasted lower side of the wrapper may be folded upward to form the lateral seam of the package by any desired means as for instance by the folding blade 48, indicated in Figs. 4 and 7. A suitable pasting device such as is indicated in Fig. 5, may be provided to supply paste to the lateral wrapper seam and this paste box 51 may be mounted upon the bridge piece or bracket 248 as indicated in Fig. 1. In an obvious way the paste feed roll 50 operating as indicated through a slot in the paste box is engaged at the proper time by the paste roll 47 on the paster frame 43 so as to receive the proper amount of paste therefrom which is subsequently applied to the wrapper. As the package is still farther advanced toward the left in Fig. 4 it comes beneath the presser 52 which is mounted on the bar 54 by the stem 53, see Fig. 1. The eccentric 57 raises the bracket 55 on the lower end of this bar so as to bring down the presser 52 upon the packages at the proper time and hold them while the cooperating side folders are acted. This presser may, as indicated, comprise a series of removable sections 56 so that its width may be adjusted to correspond with the width of packages containing any desired number of cigarettes or the like. The side folders may be in the form of plates 61, 62 mounted on the yoke 63 and vertical stem 64 guided in the frame

1 and carrying at its lower end the bracket 66 with which the eccentric 65 cooperates. Before the upper side folders just described operate, it is desirable to fold the rear end folds of the pasted wrapper and for this purpose the end folders 67, 68, may be mounted on the frame 1 as shown in Figs. 1 and 4. The construction of these end folders is indicated more in detail in Fig. 6 which is a bottom view showing the folder 68 together with its pivot 73 by which it may be pivotally connected with the table 1. The outer end of this folder may be provided with the slot 72 with which cooperates a suitable pin or projection on the block 71 mounted on the stem 79 reciprocating in the bridge 78. A suitable spiral spring 58 normally holds the block 71 and cooperating folder in the inoperative position shown in Fig. 6 and the roll 76 on the end of the stem 79 is acted on at the proper time as shown in Fig. 12 by a suitable eccentric 77 so as to oscillate the folder about its pivot and form this rear end fold as indicated at E in Fig. 9. The opposing end folder 67 is similarly constructed and operated through the eccentric 75 and cooperating roll 74 on the bar or stem 70 mounted in the bridge 78.

The pasting devices for applying paste to the ends of the wrapper may be in the form of suitable paste boxes 80, 81, mounted on the bridges or supports 69 and 78. The paste rollers 82, 83, may be mounted upon the forked stems 84, 85, connected to the bars 86, 87, mounted beneath these bridges and provided at their ends with suitable levers 88, 89. These levers may be operated in any desired way as by the cam projections 90, 91, on the shafts 92, 93, which may also operate the paste drums within these paste boxes 80, 81, by suitable gearing. As is indicated in Fig. 1, the bevel gears 94, 95 may be used to operate the auxiliary shaft 96 carrying the spur gear 97 meshing with a cooperating gear 98 to rotate the paste drum in the paste box 51 which may be mounted on a suitable bridge member or bracket 248 in the frame.

The final folding operation is performed by a suitable folding box or casing 99 which as indicated in Fig. 7 may have three fixed sides and one adjustable side or plate 101 which may be mounted in any position required to properly cooperate with packages of different size. This plate 101 protrudes sufficiently to engage the package which is forced into engagement therewith. As is indicated in Fig. 7, the folder 48 may be mounted in suitable guides in the folding box 99 and be operated by the eccentric roll 103 on the rod 104, the cam or eccentric 102 raising this roll and connected folder at the proper time, while at other times it is drawn downward into the position indicated by the spiral springs 105, 106. The

discharger 107 is arranged to cooperate with this folding box and laterally discharge the packages therefrom. This discharger is normally held in the inactive position indicated by the springs 109 and is forced into the box at the proper time by a suitable eccentric 108 so as to engage the end of the lower package and force it from the folding box after the paste has set sufficiently.

The cigarette hopper 2 may have sloping sides, as indicated in Figs. 1 and 10 and be provided with a block 59 adjacent its lower portion in which suitable vertical partitions 60 are formed, between which the cigarettes or similar articles may drop to form vertical rows at the bottom of this counting block; this action being facilitated by a slight reciprocating or shaking motion of the block if desired through the link 152. This link may, as indicated in Fig. 10, be connected to the lever 151 pivoted about the point 153 and having its upper end curved and provided with a central projection 154 with which cooperates the roll 156 on the shaft 129 so as to impart an intermittent shaking motion to the block 59. The feeding of the cigarettes into these counting grooves may also be facilitated by the reciprocating frame or spacer 157 mounted above the block 59 and oscillated by being linked to the pivoted shaft 158 operated by a suitable cam on the shaft 149.

When cigarettes have been inserted in the hopper 2 and the wrappers or printed inclosing labels placed in the label box the drive belt is transferred by the belt shifter 110 from the loose pulley 111 to the drive pulley 112 which is connected with the pinion 113 in mesh with the gear 114 on the shaft 115. This shaft through the bevel pinions 116, 117, operates the shaft 118 and this shaft through the bevel pinions 119, 120, rotates the shaft 121 connected with the shaft 122 by the bevel pinions 123, 124. The shaft 122 carries the disk 125 having a cam to operate the lever 126 and move the pusher 3 forward into the counter so as to push the desired number of cigarettes from this counting device into the removable carrier 4 where they lie in two superimposed layers held by the rolls 8, 9, and the light springs carrying them which prevent their disarrangement. As is indicated in Fig. 1, this pusher 3 may deliver to the carrier the desired number of cigarettes which may be suitably varied by removing one or more of the separable sections indicated at the right of the pusher 3. If desired, these cigarettes may be held in alinement during their transfer by a suitable L guide 127 which, as indicated in Fig. 1, may be adjusted in position adjacent the counting hopper so as to be in alinement with the edge of the pusher. When the cigarettes are in position within the carrier the latter

may be moved laterally as indicated in Figs. 1 and 4 by the levers 16, 17, 18, operated by the cam 20 on the disk 128, on shaft 129 which is operated by the shaft 130 of the label box operated through the pinions 131, 132, see Figs. 1 and 8. The carrier 4 as it advances engages the label or wrapper which has been fed into the conduit or alining slots 23, 24, so as to form the first fold therein as shown at A, Fig. 9. Then, the cam 134 on the disk 133 on shaft 115 operates the ejector lever 135 moving the ejector 6 to the left and thus pushing the cigarettes sidewise out of the carrier and underneath the presser 52. This movement also carrying them between the brackets or first end folders 24, 25 so as to fold the wrapper into the position indicated in B, Fig. 9. Then, when the ejector 6 retreats the roll 41 engages the end of the paste lever 40, forcing the connected roll lever and paster frame 35 indicated in Fig. 4, downward so as to carry the upper edge folder 34 into engagement with the wrapper and fold the same as shown at C, Fig. 9. Thereupon the eccentric 102 raises the folding block or folder 48 as the folder 44 is raised into inoperative position so that the lateral edge of the wrapper is folded upward, pasted by the roll 47 and then closed inward to form the lateral fold of the package as shown at D, Fig. 9. The shafts 92, 93, through the pinions 136, 137 and 138, 139, are operated from the shafts 118 and 122 so as to rotate the eccentrics 75, 77, against the rolls 74, 76, on the stems or rods 70 and 79, so as to rock the rear end folders 67, 68, against the wrapper and form the rear end folds therein as shown at E, Fig. 9 after which the springs such as 58 return these folders to their original position indicated in Fig. 4. The eccentric 65 on shaft 122 engages the bracket 66 and moves downward the connected bar 64 and stem 63 so as to operate the side folders 61, 62 and bring them against the upper end folds of the wrapper and fold the same as shown at F, Fig. 9. Thereupon the cam projections 90, 91, shown in Fig. 1, engage the levers 88, 89, which through the members 86, 87, swing downward the paste levers 84, 85, and connected paste rolls 82, 83, until they engage the rolls in the paste boxes 80, 81, to take paste therefrom and then apply the same to the end folds of the wrapper. Then the eccentric 57 on the shaft 118 engages the bracket 55 and lowers the bar 54 and stem 53 so as to bring the connected presser 52 down upon the package and force the same into the folding box 99, turning upward the lower end folds of the pasted wrapper which is then held in this completed position until securely fastened in the position shown at G, Fig. 9. The packages of course pile up one on another as they are con-

tinuously forced into the folding box 99 until they are successively discharged from this box by the discharger 107 actuated by the eccentric 108 on the shaft 118.

5 Having described this invention in connection with illustrative embodiments, forms, proportions and arrangements of parts, to the details of which disclosure the invention is not of course to be limited, what is  
10 claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

1. In cigarette packing machines, a hopper and connected counting device comprising  
15 a pusher having disengageable sections, a support adjacent said counting device, a carrier having a channel and movably mounted in said support, gripping rolls  
20 and light springs mounting said rolls adjacent the discharge end of said channel, an ejector to eject between said rolls the cigarettes inserted by said pusher in said channel, a wrapper feeding device to feed separate  
25 wrappers into alinement adjacent said carrier, means to move said carrier and the contained cigarettes toward said alined wrappers, a pair of brackets having projecting folding rolls adjacent said alined  
30 wrappers to form end folds therein cooperating swinging end folders adjacent said brackets and means to paste and complete the folding of said wrappers around said cigarettes including an adjustable width  
35 folding box to hold a plurality of wrapped packages and a discharger laterally discharging the separate completed packages therefrom.

2. In cigarette packing machines, a hopper and connected counting device comprising  
40 a pusher having disengageable sections, a support adjacent said counting device, a carrier having a channel and movably mounted in said support, yielding gripping members mounted adjacent the discharge  
45 end of said channel, an ejector to eject from said carrier channel the cigarettes inserted by said pusher, a wrapper feeding device to feed separate wrappers into alinement adjacent said carrier, means to move said carrier  
50 and the contained cigarettes toward said alined wrappers, a pair of brackets having projecting folding rolls adjacent said alined wrappers to form end folds therein as the forming packages pass between them,  
55 cooperating swinging end folders adjacent said brackets and means to paste and complete the folding of said wrappers around said cigarettes including an adjustable width folding box to hold a plurality of  
60 wrapped packages.

3. In cigarette packing machines, a hopper and connected counting device comprising a  
65 pusher having disengageable sections, a support adjacent said counting device, a carrier having a channel and movably mounted in

said support, yielding gripping members  
mounted adjacent the discharge end of said  
channel, an ejector to eject from said carrier  
channel the cigarettes inserted by said  
pusher, a wrapper feeding device to feed  
70 separate wrappers into alinement adjacent  
said carrier, means to move said carrier and  
the contained cigarettes toward said alined  
wrappers, a pair of brackets adjacent said  
alined wrappers to form end folds therein  
75 as the forming packages pass between them,  
cooperating swinging end folders adjacent  
said brackets and means to paste and complete  
the folding of said wrappers around  
said cigarettes including an adjustable width  
80 folding box to hold a plurality of wrapped  
packages.

4. In cigarette packing machines, a hopper and counting device comprising a pusher  
85 having disengageable sections, a support adjacent said counting device, a carrier having a channel and movably mounted in said support, gripping members adjacent the discharge end of said channel, an ejector to  
90 eject from said carrier channel the cigarettes inserted by said pusher, a wrapper feeding device to feed separate wrappers adjacent said carrier, means to move said carrier and the contained cigarettes toward said wrappers,  
95 a pair of folding brackets adjacent said fed wrappers to form end folds therein as the forming packages pass between them, cooperating end folders adjacent said brackets and means to paste and complete the folding  
100 of said wrappers around said cigarettes including an adjustable width folding box.

5. In cigarette packing machines, a hopper and connected counting device comprising  
105 a pusher, a support adjacent said counting device, a carrier having a channel provided with rolls and movably mounted in said support, an ejector to eject between said rolls the cigarettes inserted by said pusher  
110 and to force them into contact with the alined wrappers, a wrapper feeding device to feed separate wrappers into alinement adjacent said carrier, means to move said carrier and the contained cigarettes toward said  
115 alined wrappers and means to fold said wrappers around said cigarettes.

6. In cigarette packing machines, a counting device comprising a counting pusher  
120 having means to regulate the number of cigarettes delivered by said pusher, a movable support having an open channel into which said cigarettes are inserted by said  
125 pusher, yielding channel constricting, gripping means on said support adjacent the discharge end of said channel, means to feed separate wrappers into alinement with said  
130 channel, lateral end folding devices substantially in line with said channel, an ejector to push the cigarettes in said carrier against said wrappers and into cooperation with said  
folding devices, side pasting and folding de-

vices and additional folding devices for completing the folding of said wrappers including a folding box to hold a plurality of wrapped packages, a cooperating presser to force the packages into said folding box and side folders to fold the wrapper end of a package engaged by said presser.

7. In cigarette packing machines, a counting device comprising a counting pusher having means to regulate the number of cigarettes delivered by said pusher, a movable support having an open channel into which said cigarettes are inserted by said pusher, yielding constricting gripping means on said support adjacent the discharge end of said channel, means to feed separate wrappers into alinement with said channel, lateral end folding devices cooperating with said channel, an ejector to push the cigarettes on said carrier against said wrappers and into cooperation with said folding devices and pasting and adjustable folding devices for completing the folding of said wrappers including a folding box to hold a plurality of wrapped packages, a cooperating presser to force the packages into said folding box and side folders to fold the wrapper ends of a package engaged by said presser.

8. In cigarette packing machines, a counting device comprising a pusher, a movable support having an open channel into which said cigarettes are inserted by said pusher, gripping means on said support adjacent the discharge end of said channel, means to feed separate wrappers into alinement with said channel, means to move said carrier and the contained cigarettes toward said alined wrappers and pasting and folding devices cooperating with said channel, an ejector to push the cigarettes on said carrier against said wrappers and into cooperation with said folding devices to complete the folding of said wrappers, said folding devices including a folding box to hold a plurality of wrapped packages, a cooperating presser to force the packages into said folding box and side folders to fold the wrapper ends of a package engaged by said presser.

9. In cigarette packing machines, a counting device comprising a pusher, a movable support having an open channel into which said cigarettes are inserted by said pusher, means to feed separate wrappers into alinement with said channel, means to move said carrier and the contained cigarettes toward said alined wrappers, an ejector to push the cigarettes on said support against said wrappers and pasting and folding devices for completing the folding of said wrappers including a folding box to hold

a plurality of wrapped packages, a cooperating presser to force the packages into said folding box and side folders to fold the wrapper ends of a package engaged by said presser.

10. In packing machines for packing cigarettes or similar articles, a counting device comprising a pusher having means to regulate the number of articles delivered by said pusher, a cooperating support, a carrier movably mounted in said support and having an open channel, yielding gripping means on said carrier cooperating with the discharge end of said channel between said gripping means, means to move said carrier with respect to said support to bring said articles adjacent alined wrappers, means to feed said wrappers into alinement and adjustable folding means to fold said wrappers around said articles.

11. In packing machines for packing cigarettes or similar articles, a counting device comprising a pusher having disengageable sections to deliver a corresponding number of articles, a movably mounted receiving carrier having yielding gripping means to retain said articles in position therein, an ejector to eject said articles from said carrier and wrapper feeding, pasting and folding devices to fold said wrapper around said articles and form a package comprising a presser having adjustable sections and a cooperating folding box of adjustable width to receive the wrapped packages.

12. In packing machines for packing cigarettes or similar articles, a counting device comprising an adjustable member to deliver a corresponding number of articles, a receiver having gripping means to receive said articles and wrapper feeding and folding devices cooperating with said receiver to fold said wrappers around said articles and form packages, said folding devices comprising an adjustable size presser and an adjustable size cooperating folding box to receive said packages.

13. In packing machines for packing cigarettes or similar articles, a counting device, a cooperating support, a carrier having a channel and movably mounted in said support, gripping rolls and light springs mounting said rolls adjacent the discharge end of said channel, an ejector to eject between said rolls the cigarettes in said channel and means to move said carrier with respect to said support.

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