R. V. CRAGGS.

TWIN PACKET MACHINE.

APPLICATION FILED JUNE 19, 1915.

1,161,455.

Patented Nov. 23, 1915.

11 SHEETS—SHEET 1.

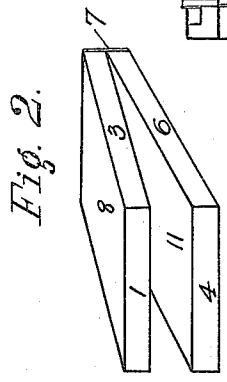


Fig. 2.

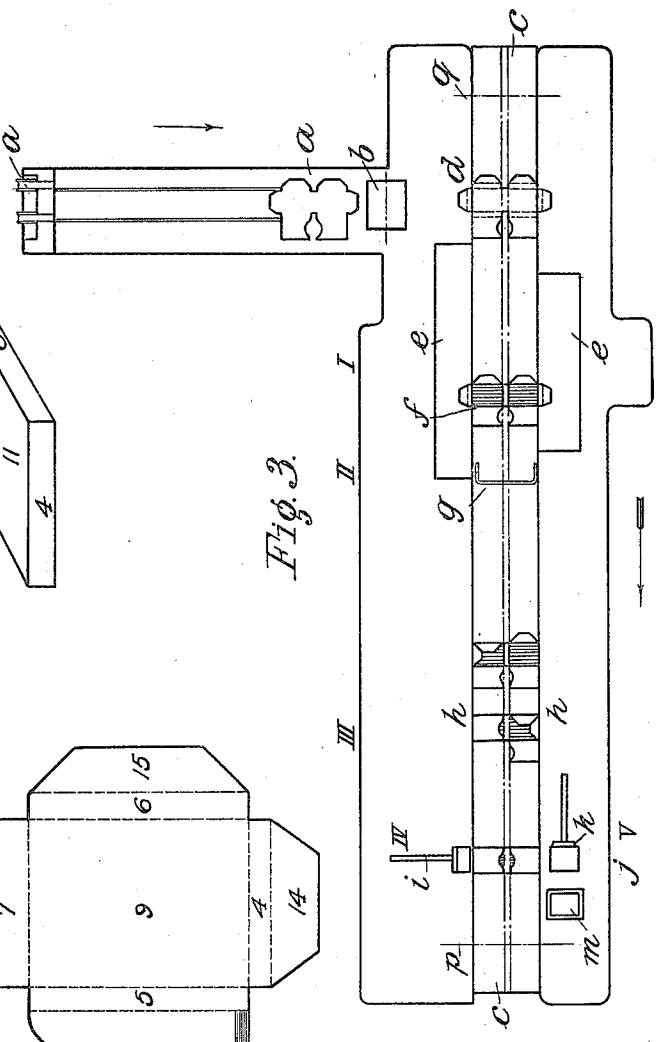


Fig. 3.

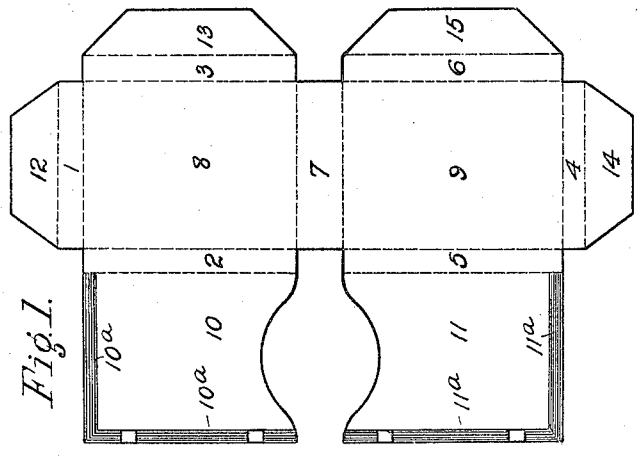


Fig. 1.

Witnesses.

John C. Sanders

J. Edward Burch.

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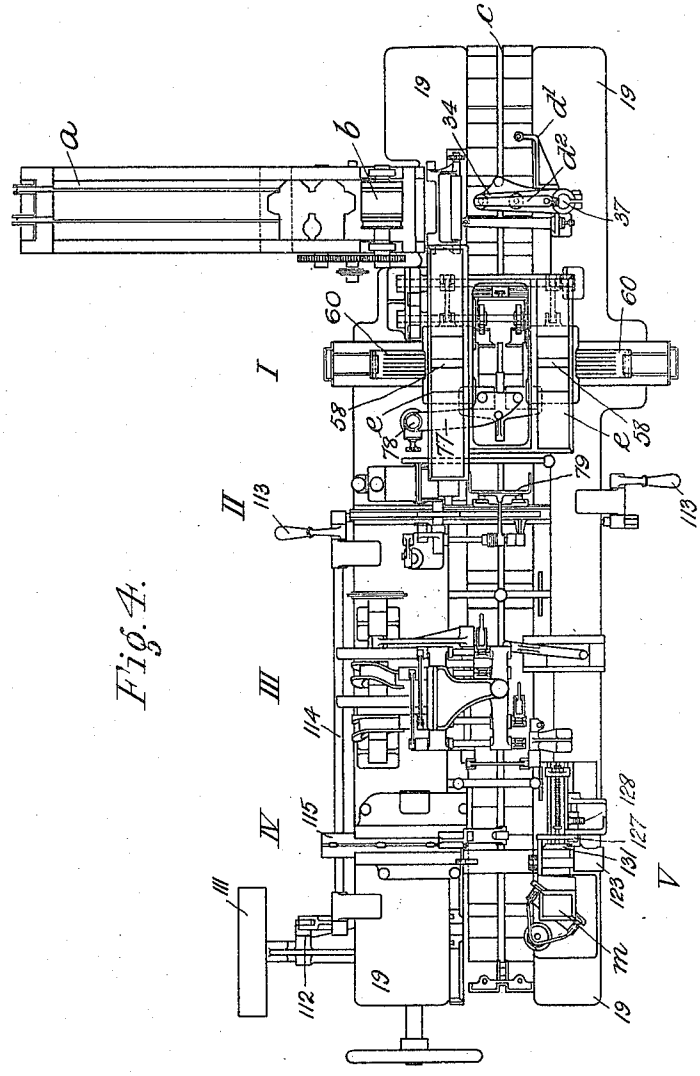


Fig. 4.

Witnesses.

John C. Sanders

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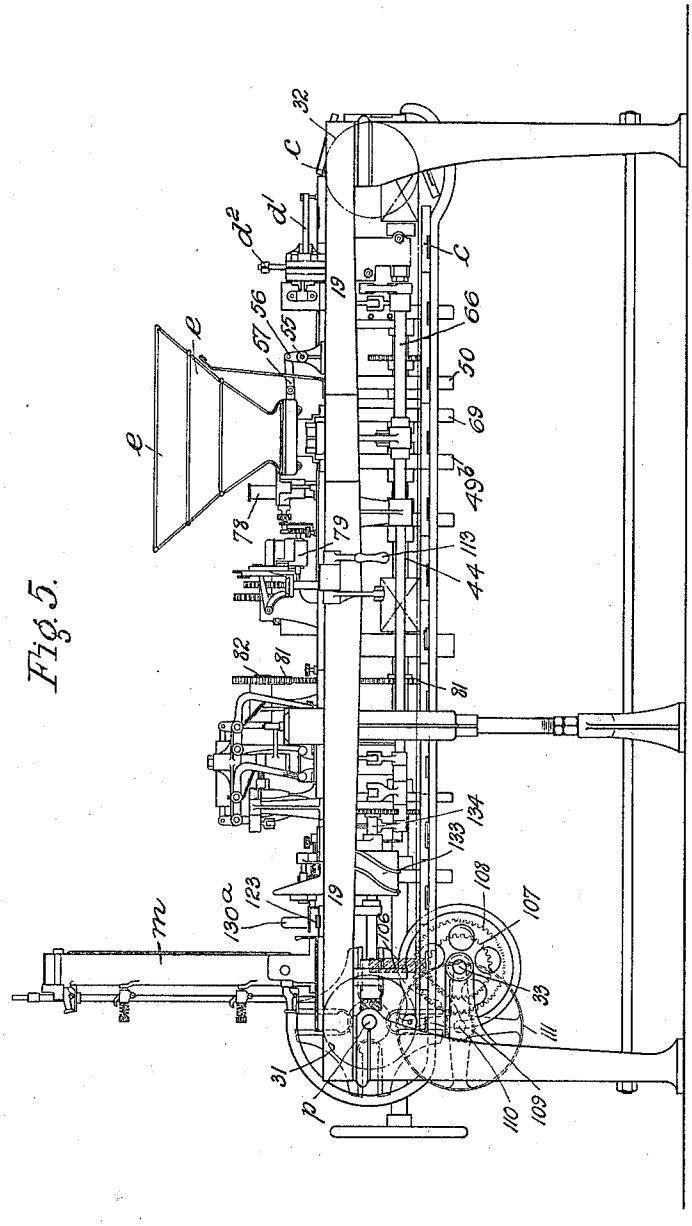


Fig. 5.

Witnesses.

John C. Sanders

Edwin L. Busch.

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COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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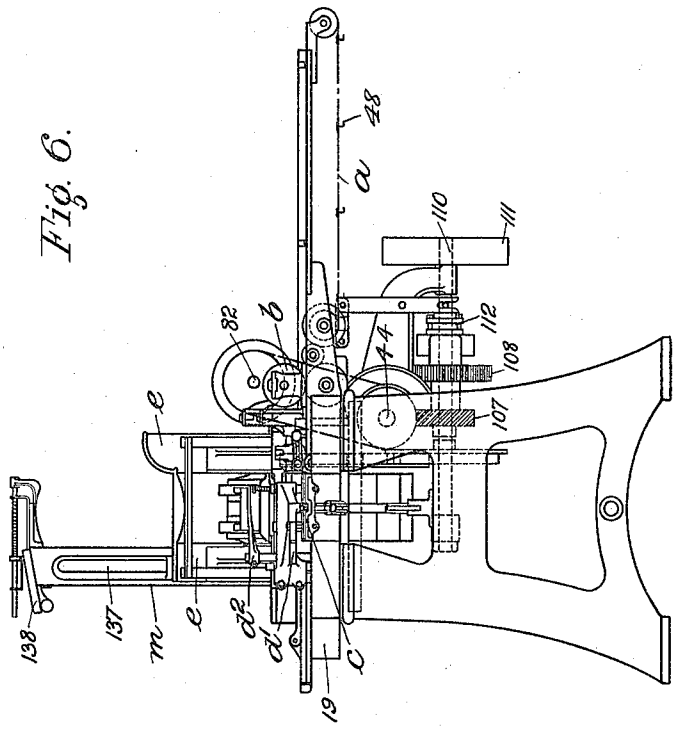
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11 SHEETS—SHEET 4.

Fig. 6.



Witnesses.

John C. Sanders

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11 SHEETS—SHEET 5.

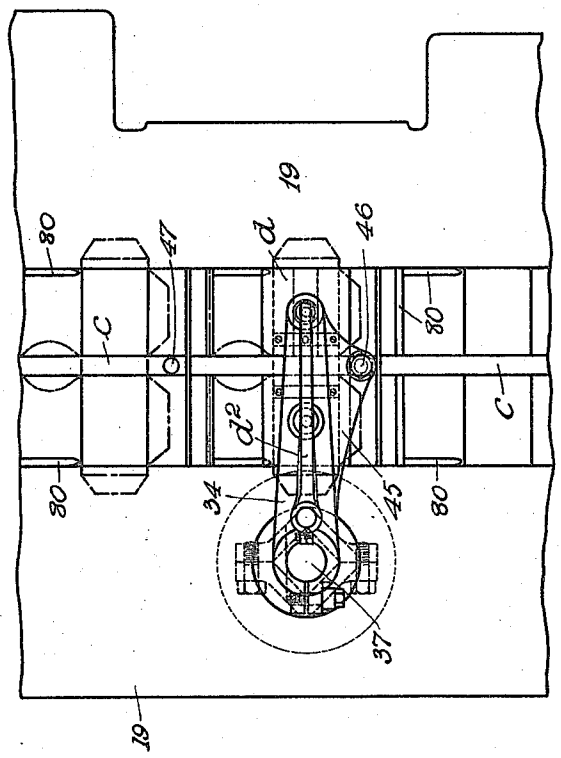


Fig. 7.

Witnesses.

John C. Sanders

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11 SHEETS—SHEET 6.

Fig. 9.

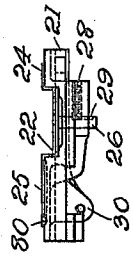
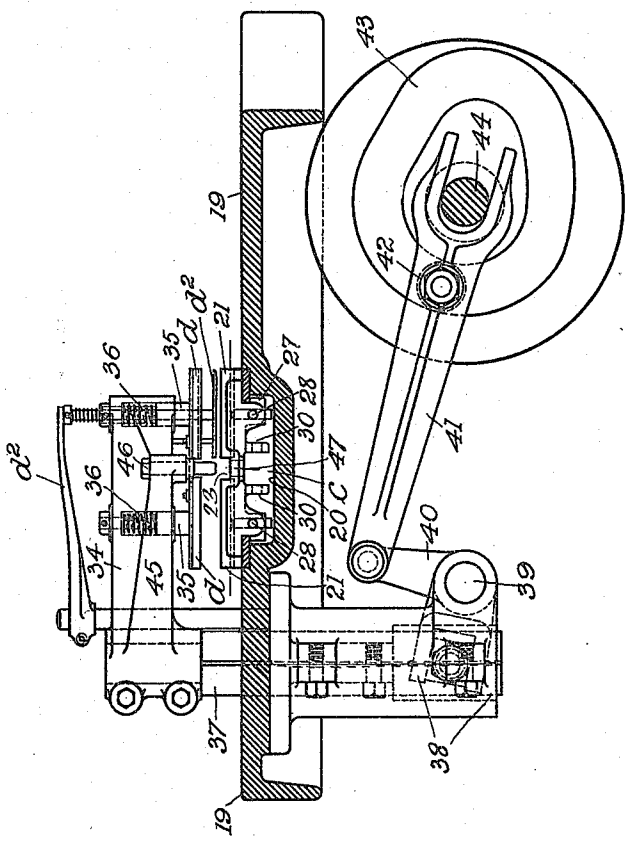


Fig. 8.



Witnesses.

John C. Sanders

J. Edwin Burch.

Inventor.

Ross V. Craggs.

By Mc Macrae White

Att'y

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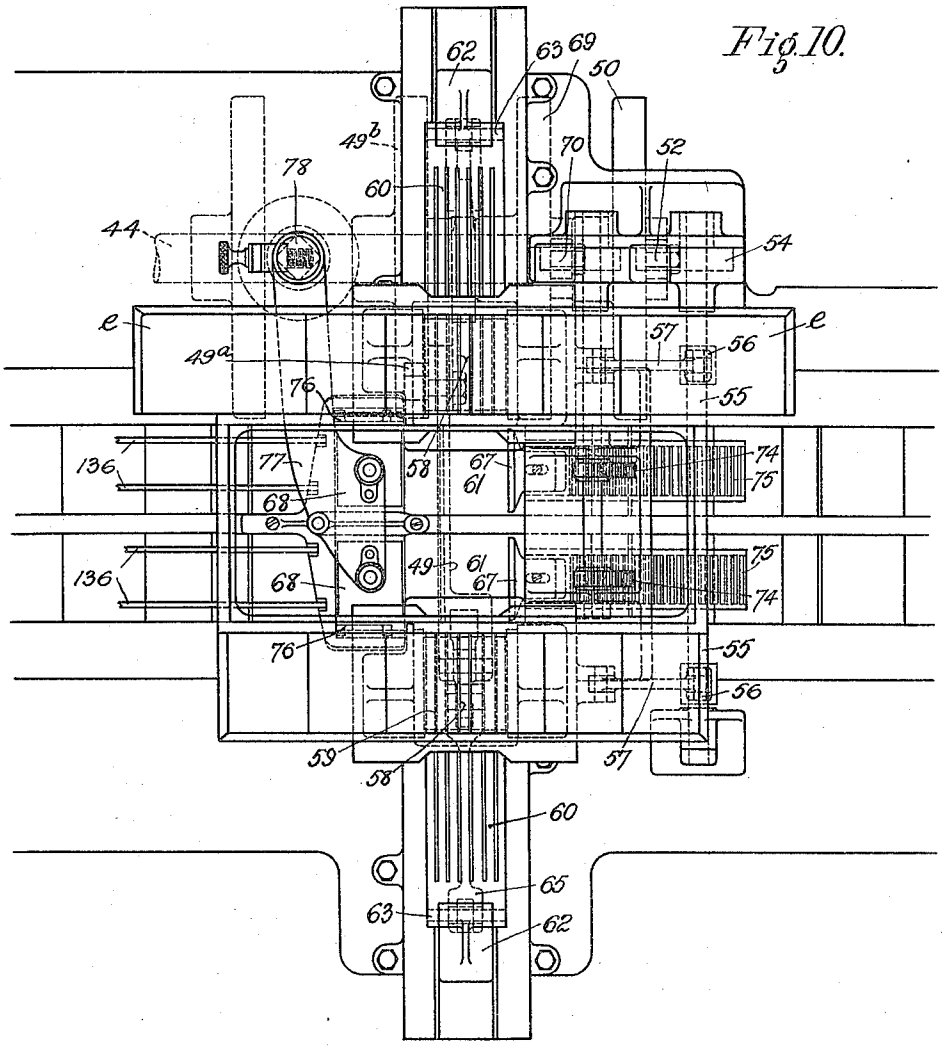
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11 SHEETS—SHEET 7.

Fig. 10.



Witnesses.

John C. Sanders

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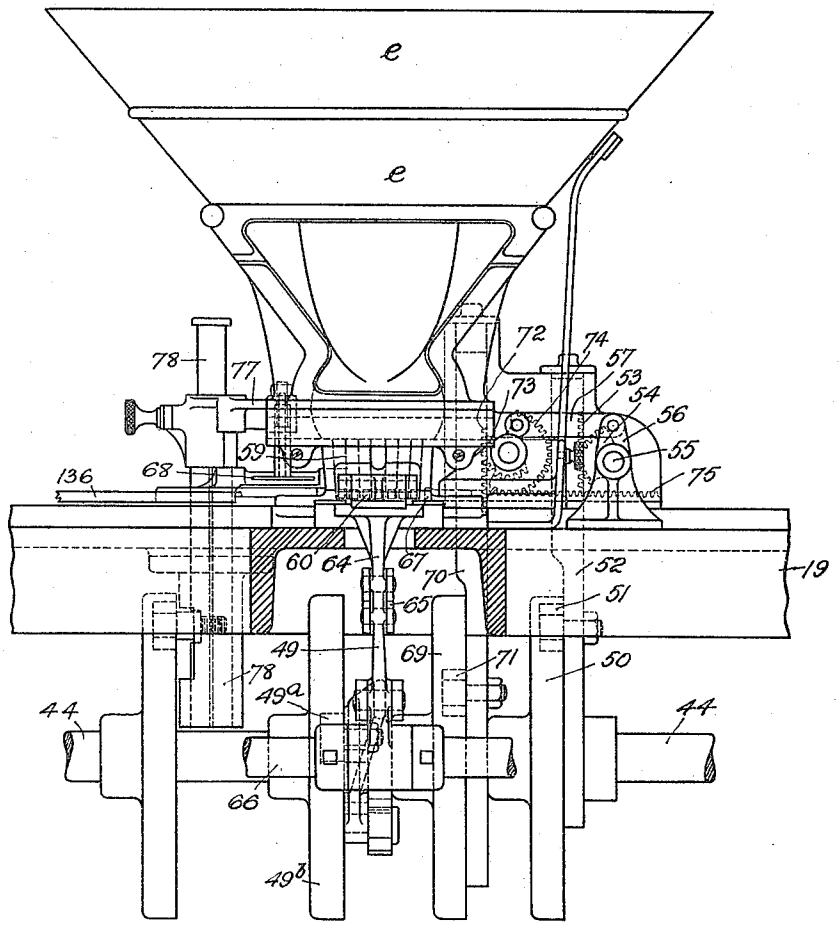
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11 SHEETS—SHEET 8.

Fig. II.



Witnesses.

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Rose V. Craggs

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COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

R. V. CRAGGS.

TWIN PACKET MACHINE.

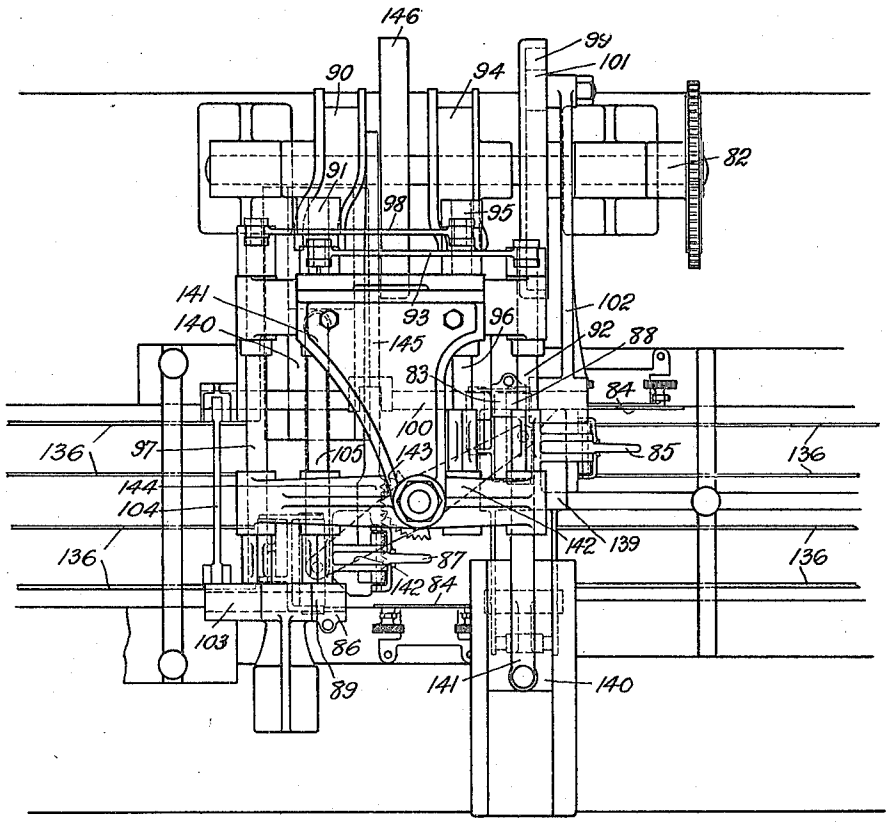
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Patented Nov. 23, 1915.

11 SHEETS—SHEET 9.

Fig. 12.



Witnesses.

John C. Sanders

J. Edwin Busch.

Inventor.

Ross V. Craggs

By Mc Wallace White

Atty

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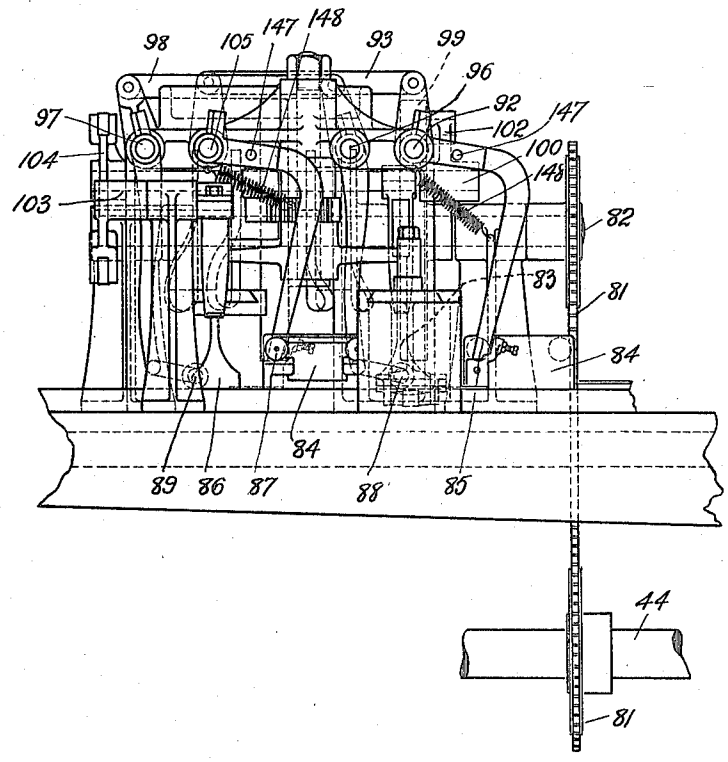
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1,161,455.

Patented Nov. 23, 1915.

11 SHEETS—SHEET 10.

Fig. 13.



Witnesses.

John C. Sanders

J. Edwin Busch.

Inventor.

Ross V. Craggs

By Mc Narnay White

Att'y.

R. V. CRAGGS.

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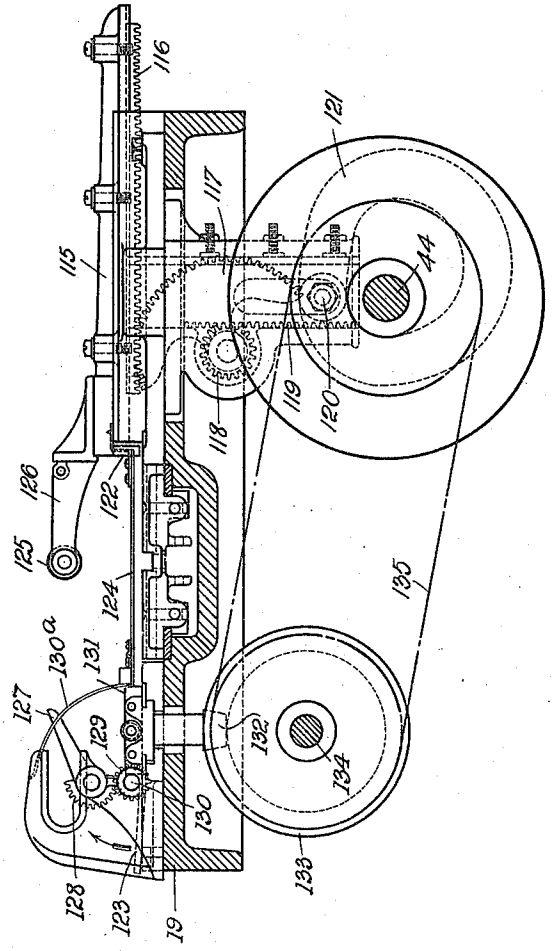


Fig. 14.

Witnesses.

John C. Sanders

Edwin Bench.

Inventor.

Ross V. Craggs

By Wallace White

Atty

UNITED STATES PATENT OFFICE.

ROSS V. CRAGGS, OF NEW YORK, N. Y., ASSIGNOR TO RICHARD H. WRIGHT, OF DURHAM, NORTH CAROLINA.

TWIN-PACKET MACHINE.

1,161,455. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed June 19, 1915. Serial No. 35,051.

To all whom it may concern:

Be it known that I, Ross V. CRAGGS, citizen of the United States of America, residing at 328 Clinton street, city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented new and useful Improvements in Twin-Packet Machines, of which the following is a specification.

This invention relates to improvements in machinery for packing cigarettes and other similar articles in twin packets similar to the packet or wrapper described and illustrated in connection with the complete specification for British Patent No. 27,778 of 1909, and the object of the said improvements is essentially to simplify the construction of the combination of devices employed for the purpose of inclosing the cigarettes in the wrapper, the folding-over of the flaps of the wrapper, the gumming of the same to form a twin packet as therein described, and finally turning over the one set of cigarettes or half of the packet on to the other half and in this form discharging the same from the machine into a stacker wherein the packets are retained for such a time as to insure the drying of the gum by which the wrappers are secured in their folded form, the completed packet being automatically ejected from this stacker for distribution as finished articles of commerce.

In order to simplify and elucidate the general description of the improved machine reference may be had to the accompanying drawings (Sheet 1) wherein—

Figure 1 illustrates the blank which is to be formed into a twin packet for containing the two sets of cigarettes, Fig. 2 the completed and charged packet, and Fig. 3 is a diagram illustrating the progress and transformation of the blank into the finished article or twin packet charged with cigarettes, the details of the mechanism being hereinafter more fully described and illustrated in the other accompanying sheets of the drawings in which Fig. 4 is a plan of the entire machine, Fig. 5 a longitudinal elevation of Fig. 4, Fig. 6 an end view of the machine as viewed from the conveyer and where the blanks or wrappers are first introduced preparatory to being creased for folding, Figs. 7, 8 and 9, respectively plan, end view and side elevation of the mold-chain or conveyer to an enlarged scale hereinafter more fully described, Figs. 10 and 11 respectively plan and longitudinal elevation of the feed mechanism for introducing the cigarettes into the wrappers, Figs. 12 and 13 respectively plan and longitudinal elevation of the folding mechanism, and Fig. 14 a side elevation of the ejector and turning-over mechanism.

Referring to Figs. 1, 2 and 3, the wrapper blanks are fed automatically or by hand on to the conveyer table or band *a* and are conveyed forward in the direction of the plain arrow to beneath a rotating creasing device or roller *b* which due to pressure imparted thereto creases the wrapper at the parts marked 1, 2, 3, 4, 5, 6 and 7, and by this operation the blank is transferred therefrom on to a special mold-chain or conveyer *c* which is made up of elements of such a character as to serve a similar purpose as the mold-wheel described in the specification of the aforesaid British Patent No. 27,778 of 1909. This mold-chain or conveyer *c* is supported on the main bed of the machine for the greater portion of its length and is driven intermittently by any suitable gearing so as to provide for the several operations or stages of the process to be performed in the operation of packing and forming the twin packets.

The mechanism for effecting the necessary intermittent motion of the mold-chain or conveyer and the synchronization of the several operations may be of the ordinary mechanical transmission, preferably in the first place governed by clutch gear or a fast or loose pulley which receives a continuous rotatory motion by means of a belt or otherwise. The wrapper blank by this intermittent longitudinal movement of the conveyer *c* is transferred in the direction of the feathered arrow to beneath a pair of plungers *d* which on their descent press the portions 8 and 9 of the blank into that portion of the conveyer-chain beneath, which is formed in such a manner as to be capable of yielding to the pressure applied by the plungers *d*, whereby the wrapper assumes a depressed form wherein the cigarettes are subsequently placed.

On a further movement in the direction of the feathered arrow (hereinafter referred to as Operation 1) the blank in its bent or depressed form is brought to beneath the hoppers *e* containing the cigarettes to be delivered into the respective sides 8 and 9 of

the twin packet. This hopper and feeding mechanism is preferably of the form illustrated and described in British Patent No. 25089/12, but instead of the feeding mechanism beneath the hopper having a reciprocatory motion imparted thereto, preferably the reciprocatory motion is imparted to the hopper, and similar closing-up mechanism for pressing the cigarettes together preparatory to being inserted in the wrapper may be employed as described in the aforesaid patent specification. The cigarettes from the hoppers are delivered on to plates where they are pressed together and then transferred on to spring-yielding devices similar to those commonly employed in this class of machinery situated beneath the pair of plungers *f* by which they are pressed past their yielding supports into the depressed portions 8 and 9 of the wrapper. These plungers receive the necessary intermittent up and down motion by any suitable mechanism driven from and by means of the main driving-shaft.

The mold-chain *c* by its next movement (Operation II) brings the packet charged with its cigarettes to beneath the gumming devices *g* whereby the flaps 10 and 11 are gum-besmeared on their edges 10^a and 11^a, as indicated in Fig. 1, by means of a suitably shaped dabber which is automatically supplied on its underside with the adhesive material by any suitable modification of gumming device as commonly employed for this purpose.

The further movement of the conveyer *c* (Operation III) brings the packet into a position whereby the flaps 12 and 13 are first turned over on to the cigarettes preparatory to the gummed flap 10 being folded over on to the said flaps 12 and 13 to secure the latter in position.

The next movement brings the packet into a position where similar mechanism deals with the flaps 14, 15 and 11 in a similar manner.

The folding operations aforesaid having been completed, on further movement of the mold-chain or conveyer *c*, (Operation IV) it brings the double packet in its "laid open form" opposite to the ejector plunger *i* whereby the same is pushed forward and the one packet or side is turned over on to the other by means of folding devices *j* on the creases referred to as 7, this latter portion of the wrapper forming the end or cover of the twin packet. On the completion of this operation the one set of cigarettes is superposed on the other, and afterward (Operation V) by means of the plunger *k* the folded twin packet is transferred into the base of the stacker *m* which may preferably be constructed as described in the specification of British Patent No. 13,014 of 1912 with yielding sides, and is of such a height as to insure the gummed portions being dried by the time the packet reaches the top thereof, whence it is delivered into a shoot for conveyance to other packing machines, or ejected for distribution as may be required.

Having thus briefly outlined the essential features of the machine, it will be seen that the conveyer-chain *c* forms an important characteristic of the improved machine, the construction and adaptation of which is illustrated in Figs. 7 to 9, on reference to which it will be seen that the bed of the machine 19 is provided with a longitudinal channel or groove 20 wherein the mold-chain or conveyer *c* travels, that is to say, the depending portions of the elements mounted on this chain form guides whereby the same are retained in perfect alinement during their travel from one end of the machine to the other. In Fig. 7 will be clearly seen the situation or disposition of the carton blank which is to be transformed into the twin packet and charged with cigarettes. Each element of the mold-chain *c* consists of an entablature 21 which is provided with a transverse recess 22 that is divided into two parts by reason of the longitudinal recess 23. These recesses 22 afford the supporting surfaces for the portions of the blank marked 8 and 9 and incidentally 7, and the portions 13 and 15 of the blank are supported on the surfaces 24, while the portions 10 and 11 of the blank are disposed on the surfaces 25 of the element or entablature 21. The recesses 22 are provided with false bottoms to which are attached stems 26 passing through bosses 27 and retained therein by set screws 28 which engage the slots 29 whereby the limited freedom of movement is secured.

The entablature 21 is provided with two depending lugs 30 to which are pivotally attached the links of the chain by which the elements have imparted to them the intermittent longitudinal motion necessary for traveling along the bed of the machine into the respective positions in order that the several operations may be effected in sequence as already described. The driving chain carrying the aforesaid elements is mounted on sprocket-wheels 31 and 32 fixed to the axes *p* and *q* situated at opposite ends of the machine, the shaft *p* having imparted to it an intermittent rotary movement by means of the ordinary Maltese cross mechanism driven from the continuously rotating main driving-shaft 110 through the intermediate shaft 33 (Fig. 5).

The blank or wrapper is shown in these Figs. 7 to 9 as having been pressed into the portion 22 of the element of the mold-chain *c* and its shape is delineated by dot and dash lines.

In Figs. 7 and 8 is also shown the plungers *d* which are employed for pressing the parts 8 and 9 of the wrapper into the re-

cesses 22 of the mold-chain *c*. These plungers *d* are mounted on an arm 34 projecting transversely over the mold-chain *c*, and are provided preferably with stems 35 at the back of which are placed springs 36 to procure the necessary yielding effect. The arm 34 is fixed to the rod 37 to which is imparted an up and down reciprocatory motion by means of the attachment therewith of the lever 38 fixed to the oscillating shaft 39 actuated by the lever 40 with its connecting-rod 41 that carries the bowl 42 engaging the gutter-cam 43 secured to the shaft 44. This arm 34 having imparted to it the up and down movement already described serves another purpose, namely that of securing an absolute precise amount of movement of the mold-chain *c* so as to insure the exact register of the same with the various devices for the respective operations, and for this purpose the bracket 45 is formed on the arm 34 from which depends the pin 46 that engages with the hole 47 provided in each element of the mold-chain *c* on each downward movement of the rod 37.

To insure the false bottom in the recess 22 being at the bottom thereof at the time the element is in the position for the blank to be pressed into same, a bracket d^1 (Figs. 4, 5, and 6) may be provided on the side of the arm 34 extending backward carrying a depending plunger which presses said false bottom into its base preparatory to the blank being fed on to the mold-chain. Likewise a supplementary plunger d^2 mounted centrally of the plunger *d* may be employed for pressing the other side or end of the blank into the recess as shown in Figs. 4 to 8.

The characteristic features of the mold-chain having now been described reference may be had particularly to Figs. 4, 5 and 6 of the drawings, in which it will be seen that the conveyer-table for the blank is situated at right angles to the mold-chain, and that the band upon which the blanks are fed is provided with hooks or the like 48 by which means the blank is brought beneath the creasing roller *b* by which it is prepared and delivered on to the mold-chain or conveyer *c* to be pressed into the portion 22 by means of the plungers *d* as hereinbefore described and illustrated in Figs. 7 to 9.

By reason of the intermittent motion of the mold-chain *c* the blank is next brought beneath and between the two hoppers *e* containing the cigarettes, the details of the mechanism in connection therewith being illustrated in Figs. 10 and 11, to which reference is now directed, the function of the apparatus having been described in the introductory part of the specification as Operation I.

In the example illustrated it is presumed that the packet is to be charged with seven cigarettes on either side, that is to say, the twin packet in its complete form contains fourteen cigarettes. The method of feeding cigarettes on to the blank as already briefly described consists of a modification of the apparatus described in the British Patent Specification No. 25089/12. The hoppers *e* have imparted to them a reciprocatory motion longitudinally of the machine by means of suitable gearing driven from the longitudinal shaft 44 to which is attached the necessary gutter-cam 50 with which engages the bowl 51 mounted on the rod 52 that is provided with a rack 53 engaging with a sector 54 mounted on the spindle 55 to which is attached a crank 56 pin-jointed to the connecting-rod 57 attached to the base of the hopper *e*. By this reciprocatory motion the slot 58 in the base of the hopper traverses the entire width occupied by the partitions 59 situated beneath to form compartments for the reception of the cigarettes to be fed into the wrapper. The lowermost row of cigarettes thus fed into these compartments formed by the partitions 59 is then transferred therefrom by the plungers 60 on to a plate 61 by the reciprocatory movement imparted to the said plungers 60. The plungers 60 are preferably mounted hingeably to the bracket 62 by means of the pin 63 so that the same may be turned up into the vertical position and thereby become inoperative. The necessary transverse reciprocatory movement may be imparted to these plungers by any convenient means, for example as clearly shown in Fig. 11 wherein the depending portion 64 of the bracket 62 is connected up by suitable links 65 and lever 49 mounted on rocker shaft 66 and operated by the bowl 49^a engaging with the gutter-cam 49^b fixed to the shaft 44. The cigarettes being thereby delivered on to the plate 61 in loose form are then pressed together and transferred therefrom by means of the plungers 67 on to or over that portion of the mold-chain which is situated beneath the vertical reciprocating plungers 68. The plungers 67 may be conveniently operated by means of the gutter-cam 69 mounted on the shaft 44 whereby the rod 70 carrying the bowl 71 is raised and lowered, the tooth rack 72 engaging with the sector 73 which in turn rotates the toothed quadrant 74 that meshes with the horizontally disposed toothed rack 75 which is attached to or forms part of the plungers 67. By this motion the cigarettes which lie on the plate 61 are closed together and are transferred therefrom on to spring yielding devices 76 preparatory to being forced into the depressed portions 8 and 9 of the wrapper by means of the plungers 68. The plungers 68 are mounted on an arm 77 preferably in a similar manner to the plungers before referred to as *d*. This arm 77 is se-

cured to the vertical shaft 78 to which is imparted the necessary up and down movement for the purpose of pressing the cigarettes into the packet beneath the yielding devices 76 on which the cigarettes rest preparatory to Operation II.

The further movement of the mold-chain brings the charged wrapper with its edges 10^a and 11^a beneath the gumming device, which consists of a rising and falling dabber 79 (Fig. 4). While the dabber 79 is in its raised or elevated position the underside or edge of the same is gum-besmeared, so that when the downward movements take place the outer edges of the flaps 10 and 11 are supplied with the adhesive material for the purpose of securing the flaps 12, 13 and 14, 15 in the closed position. The dabber 79 is also slotted on its underside to allow the bars 136 (Figs. 10, 11 and 12) to pass therethrough which bars 136 serve to keep the flaps of the wrapper and contents flat and in position. The bars 136 are preferably hingeably mounted and of convenient length so that the same can be readily removed the weight of said bars serving to retain the flaps and cigarettes in the flat position.

Each element of the chain is preferably provided with grooves 80 (Fig. 9) to allow of a desired freedom of movement at the edges 10^a and 11^a of the flaps of the wrapper. This preparatory operation having been performed, it must be presumed that the mold-chain is brought into the proper position for the mechanism to come into operation, which is particularly illustrated in Figs. 12 and 13, for effecting the folding operation previously referred to as Operation III.

It will be observed that this mechanism is driven by means of chain-gear 81 by which the shaft 82 is driven, and in turn, by reason of the several cams mounted thereon, the folders are operated in sequence. The folding mechanism is essentially a modification of the folding apparatus commonly employed in this class of machinery, and is operated in the following manner:—Upon the mold-chain coming to rest beneath the folding mechanism a thin metal plate 139 is slid over the cigarettes in the packet by means of the slide 140 operating through links 141 by the arms 142, which receive reciprocatory motion by means of the toothed sector 143 engaging with rack 144 on one end of the rod 145 the other end of which rod carries a bowl engaging the gutter-cam 146 mounted on the shaft 82. The object of the plate 139 is firstly to keep the cigarettes in position during the folding operations, and secondly to provide a firm unyielding surface on which the flaps 12, 13 and 10, and 14, 15 and 11 are folded and secured. The flap 12, having been brought into the vertical position by means of the guide-plate 84, is first folded over on to the plate 139 by means of the depending arm or folder 83, and then the flap 13 is folded over in a similar manner by the folder 85, which retains them in position until the gummed flap 10 is folded over on to the flaps 12 and 13 by means of the folder 88, the said flaps being now retained in position due to the gum-besmeared edges 10^a coming in contact therewith, the folder 85 receding to permit the said flap 10 being folded over as described. The metal plate 139 is now withdrawn from the packet and the mold-chain is moved a step forward bringing the packet under the second set of folding devices where a similar operation to that described above takes place on the other half of the twin-packet, the flaps 14 and 15 being first folded over by means of the folders 86 and 87 respectively and then the gummed flap 11 turned over on to them by means of the folder 89 to retain them in position. In order that a certain amount of lost motion may take place while the arms 85 and 87 are pressing upon and retaining the flaps 12, 13 and 14, 15 in position respectively, the said arms are pin jointed at 147 the said lost motion being taken up by the spring 148.

The driving mechanism for effecting the above described operations and the movements of the folders, may be briefly described as follows:—The shaft 44 on which is mounted the chain-gear 81 receives rotatory motion by means of the skew gear-wheel 106 meshing with skew gear-wheel 107 on shaft 33, which in turn receives motion through spur-wheel 108 meshing with pinion 109 on shaft 110 which is driven by the pulley 111 through the clutch-gear 112 operable by the hand levers 113 mounted on or connected with way-shaft 114 (Figs. 4, 5 and 6). Referring to Figs. 12 and 13, the chain-gear 81 drives the shaft 82 on which is mounted the gutter-cam 99 which imparts oscillatory motion to folder 83 on shaft 100 by means of the bowl 101 on arm 102. Similar motion is imparted to folder 86 mounted on shaft 103 by means of the connecting rod 104. The folder 87 mounted on the shaft 105 has imparted to it a similar oscillatory motion by means of the lever 91 which carries a bowl engaging with flanged cam 90 mounted on the shaft 82, a like movement being imparted to folder 85 mounted on shaft 92 by means of the connecting-rod 93.

The arm or folder 88 mounted on shaft 96 has an oscillating motion imparted thereto by means of the lever 95 which carries a bowl engaging with the flanged cam 94 on shaft 82, a like movement being imparted to the arm or folder 89 on the shaft 97 by means of connecting-rod 98.

It will be observed that, owing to the disposition of the two sets of folders, that

folding operations only take place on one half of any one wrapper at one time, that is to say, a movement of the mold-chain takes place between the folding of the upper half of the wrapper and the folding of the lower half; although the mechanism through the connecting links 93, 98 and 103, performs each operation simultaneously but on the ends of successive wrappers.

Operation IV: The packet thus folded in its extended form is now brought opposite to the ejector mechanism whereby it is pushed out of the mold-chain on to the side of the bed 19 of the machine preparatory to being forced into the stacker *m*. On its way to the ejector mechanism the mold-chain *c* passes over inclines or projections provided on the bottom of the longitudinal channel or groove 20 in the bed 19 of the machine, whereby the false bottoms of the recesses 22 (Fig. 9) are raised by means of the stems 26 to the level of the surfaces 24 and 25 of the element 21. The ejector mechanism may consist of the slide 115 (Fig. 14) which has imparted to it a transverse reciprocatory motion by means of the rack 116 gearing with the toothed sector 117 driven by pinion 118 gearing with rack 119 which has an up and down movement imparted to it by bowl 120 working in the gutter-cam 121 mounted on the shaft 44. Upon forward movement of the slide 115 taking place the plate 122 on the front edge thereof engages with the packet, which has been raised out of the recess 22 in the element 21 as before described, and pushes it to the left in the figure until the forward half of the twin packet rests on the plate 123, the packet being prevented from rising during this operation by the thin plate 124. During this forward movement of the slide 115 the roller 125 on the bracket 126, carried by the said slide 115, engages with the arm or tappet 127 whereby the toothed sector 128 is turned imparting an oscillatory movement to the plate 123 which is attached to the spindle 130 carrying the pinion 129 with which the aforesaid sector 128 engages thereby causing the plate 123 to make a semi-circular movement as indicated by the arrow, whereby the forward half of the packet resting upon it is turned over on to the other half, the portion 7 of the wrapper forming the end or cover of the twin packet as shown in Fig. 2, the packet being guided in this turning movement by the curved plate 130a.

The finished twin-packet is now ready to be transferred to the stacker *m*, (Operation V). As already described the stacker *m* is preferably constructed in accordance with the specification of British Patent No. 13014/12, that is to say with a yielding side to permit of the easy raising of the several packets which may be contained within the same. The packet having been folded and deposited on to the space in front of the plunger 131 by the ejector plunger 115, is now transferred therefrom by a longitudinal movement into the base of the stacker *m*, such movement being imparted to the plunger 131 by the bowl 132 engaging with the flange cam 133 on the shaft 134 which receives motion from shaft 44 by chain gear 135.

On reference to Fig. 6 it will be seen that the stacker is provided with sight-glass 137 to enable the attendant to see the amount of accumulation of packets within the stacker *m*, and according as the packet of cigarettes is introduced at the base of the stacker so, assuming the stacker to be full, is the uppermost packet ejected automatically therefrom into the delivery chute 138 (Fig. 6) whence it may be transferred to another conveyer or collected as a finished article of commerce.

What I claim is:—

1. A machine for packing cigarettes into wrappers comprising an endless mold-chain provided with means for supporting creased blanks, means for imparting an intermittent longitudinal movement to said chain whereby said blanks are conveyed the whole length of the machine in a series of consecutive movements, means for depressing portions of said creased blanks for the reception of the cigarettes, means for feeding cigarettes into proper position relatively to said depressed portions of said blanks, means for gumming the edges of the outer flaps of said blanks, means for folding over the flaps of the blanks so as to form double packets in "laid-open" form and means for folding one packet on to the other so as to form finished twin packets in which one set of cigarettes is superposed on the other, all the said operations being performed during said consecutive movements of the aforesaid mold-chain.

2. In a machine for packing cigarettes into wrappers comprising an endless mold-chain provided with means for supporting the blanks, means for creasing said blanks and feeding same on to said supporting surfaces, means for imparting an intermittent longitudinal movement to said chain whereby said blanks are conveyed the whole length of the machine in a series of consecutive movements, means for depressing portions of said creased blanks for the reception of the cigarettes, means for feeding cigarettes into proper position relatively to said depressed portions of said blanks, means for gumming the edges of the outer flaps of said blanks, means for folding over the flaps of the blanks so as to form double packets in "laid-open" form, means for folding one packet on to the other so as to form finished twin packets in which one set of cigarettes is superposed on the other, all the said operations being performed dur-

ing said consecutive movements of the aforesaid mold-chain, and means for feeding said finished twin packets into a stacker and automatically discharging same from said stacker as finished articles of commerce.

3. In a machine for packing cigarettes into wrappers of the kind described the combination of an endless mold-chain composed of transversely disposed elements, movable means in said elements for receiving those portions of the wrappers which receive the cigarettes, fixed means for receiving the other parts of the said wrappers, means for pivotally connecting said elements to a driving chain and means for imparting intermittent longitudinal movements to said driving and mold-chains.

4. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless mold-chain composed of transversely disposed elements, movable means in said elements for receiving those portions of the wrappers which receive the cigarettes, fixed means for receiving the other parts of the said wrappers, and means for imparting intermittent longitudinal movements to said mold-chain of means mounted transversely of said mold-chain for depressing the cigarette-receiving portions of the wrappers into recesses containing the movable parts of said elements, and devices carried by said depressing means and engaging with said mold-chain to insure the correct register of said mold-chain during its intermittent movements.

5. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless mold-chain composed of transversely disposed elements, movable means in said elements for receiving those portions of the wrappers which receive the cigarettes, fixed means for receiving the other parts of the said wrappers, and means for imparting intermittent longitudinal movements to said mold-chain of an arm positioned transversely of said mold-chain, a pair of plungers elastically mounted on said arm, means for imparting reciprocating vertical movements to said plungers and depending pin engaging with a hole in one of the elements of said mold-chain and carried by said arm.

6. In a machine for packing cigarettes into wrappers of the kind described, the combination with a mold-chain composed of transversely disposed elements, movable parts and fixed parts in said elements, and means for imparting an intermittently longitudinal movement to said mold-chain of a pair of hoppers adapted to contain cigarettes and mounted on either side of said chain, means for reciprocating said hoppers to facilitate the fall of said cigarettes from said hoppers into compartments, means for ejecting cigarettes from said compartments on to receiving plates mounted over said mold-chain, means for pressing together said cigarettes into closed formation, and means for pressing said cigarettes into depressed portions of the wrappers on the aforesaid movable parts of said chain elements.

7. In a machine for packing cigarettes into wrappers of the kind described the combination with a chain composed of transversely disposed elements, movable parts and fixed parts in said elements, the cigarette-receiving portions of said wrappers being carried by said movable parts and the flap portions of said wrappers being supported by said fixed parts, of means for supplying gum to the edges of said flap portions comprising a channel-shaped dabber, for besmearing the underside thereof with adhesive material, and means for imparting a vertical reciprocating movement to said dabber.

8. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless-mold-chain composed of transversely disposed elements, movable parts of said elements carrying those portions of the wrappers into which cigarettes have been fed, and fixed parts of said elements supporting the flap portions of said wrappers, means for applying gum to the edges of two of the side flaps of said wrappers, and means for imparting an intermittent longitudinal movement to said chain, of means for turning the end flaps of said wrappers into a substantially vertical position, means for folding said end flaps and the ungummed side flaps on to the cigarettes, and means for turning over the gummed side flaps on to the aforesaid folded flaps.

9. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless mold-chain composed of transversely disposed elements, movable parts of said elements carrying those portions of the wrapper into which cigarettes have been fed, and fixed parts of said elements supporting the flap portions of said wrapper, and means for applying gum to the edges of two of the side flaps of said wrapper, of means for keeping the cigarettes in position during the folding of said flap portions, means for turning one end flap of one half of said wrapper into a substantially vertical position, means for folding over said end flap on to the cigarettes, means for folding over one ungummed side flap, means for withdrawing said folding means, means for turning over one gummed side flap on to said folded flaps, means for withdrawing the means for retaining the cigarettes in position, means for imparting a longitudinal movement to said mold-chain, means for effecting in a similar

manner the folding of the flaps of the other half of said wrapper, and means for consecutively operating said withdrawal and folding means.

10. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless mold-chain composed of transversely disposed elements, movable parts of said elements carrying those portions of the wrappers into which cigarettes have been fed, and fixed parts of said elements supporting the flap portions of said wrappers, means for applying gum to the edges of two of the side flaps of said wrappers, and means for imparting an intermittent longitudinal movement to said chain, of means for turning the end flaps of said wrappers into a substantially vertical position, means for folding said end flaps and the ungummed side flaps on to the cigarettes, means for turning over the gummed side flaps on to the aforesaid folded flaps so as to form double packets in "laid-open" form, means for raising said packets out of the recesses formed in the element of the mold-chain, and means for folding one packet on to the other so as to form finished twin packets in which one set of cigarettes is superposed on the other.

11. In a machine for packing cigarettes into wrappers of the kind described the combination with an endless mold-chain composed of transversely disposed elements, movable parts of said elements carrying those portions of the wrapper into which cigarettes have been fed, and fixed parts of said elements supporting the flap portions of said wrapper, and means for applying gum to the edges of two of the side flaps of said wrapper, of means for keeping the cigarettes in position during the folding of said flap portions, means for turning one end flap of one half of said wrapper into a substantially vertical position, means for folding over said end flap on to the cigarettes, means for folding over one ungummed side flap, means for withdrawing said folding means, means for turning over one gummed side flap on to said folded flaps, means for withdrawing the same for retaining the cigarettes in position, means for effecting in a similar manner the folding of the flaps of the other half of said wrapper so as to form double packets in "laid-open" form, means for raising said packets out of the recesses formed in the element of the mold-chain, means for folding one packet on to the other so as to form the finished twin packet in which one set of cigarettes is superposed on the other, means for ejecting said finished packets from the mold-chain, means for feeding said packets into a stacker and for automatically discharging same therefrom, and means for driving said mold-chain in a series of intermittent movements.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROSS V. CRAGGS.

Witnesses:
JOHN G. BURCH,
JOHN C. SANDERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."