

**April 12, 1927.**

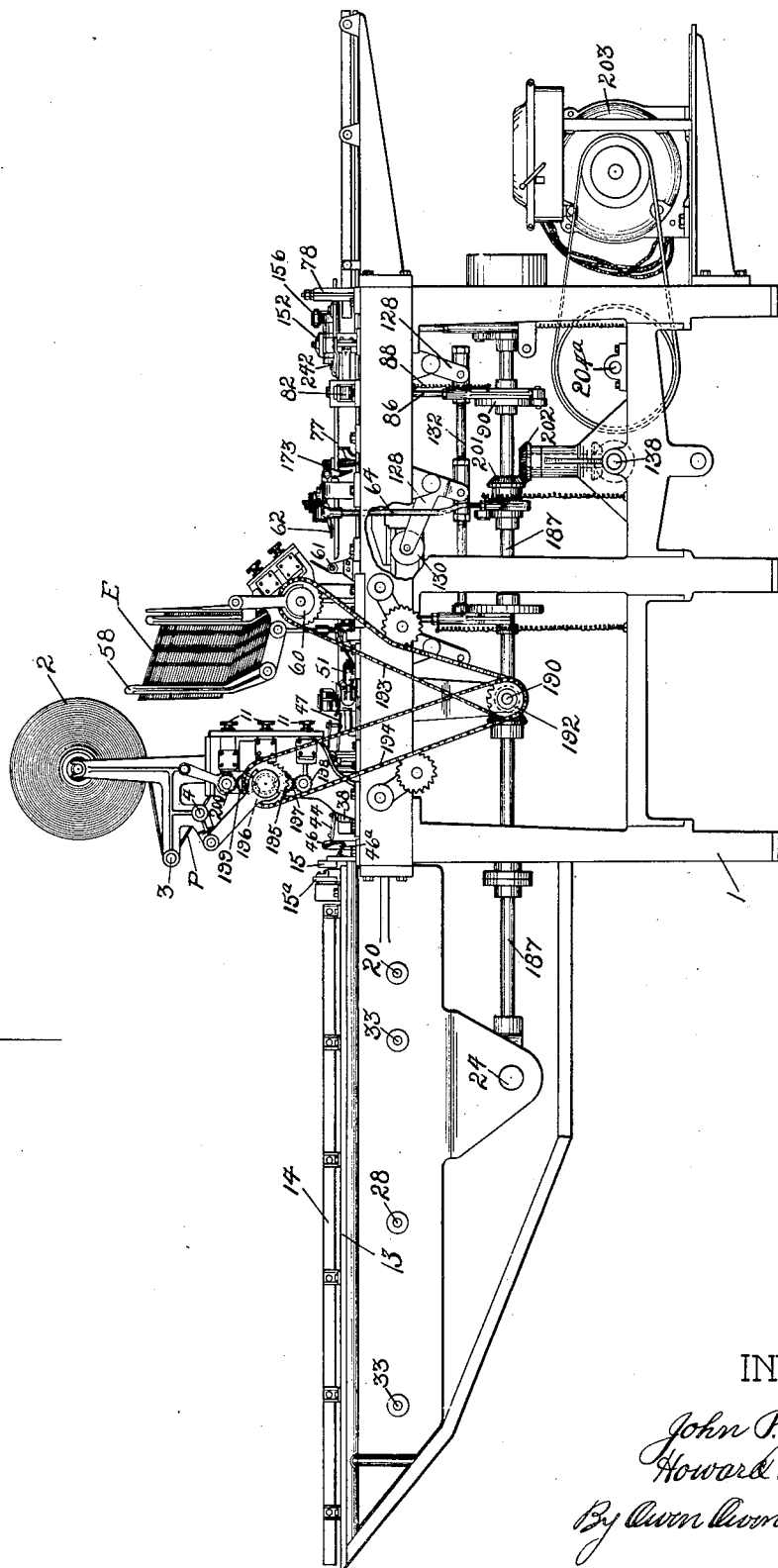
**1,624,203**

J. P. ALDRICH ET AL

# PACKAGE WRAPPING MACHINE

Filed Nov. 22, 1923

11 Sheets-Sheet 1



INVENTORS

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1,624,203

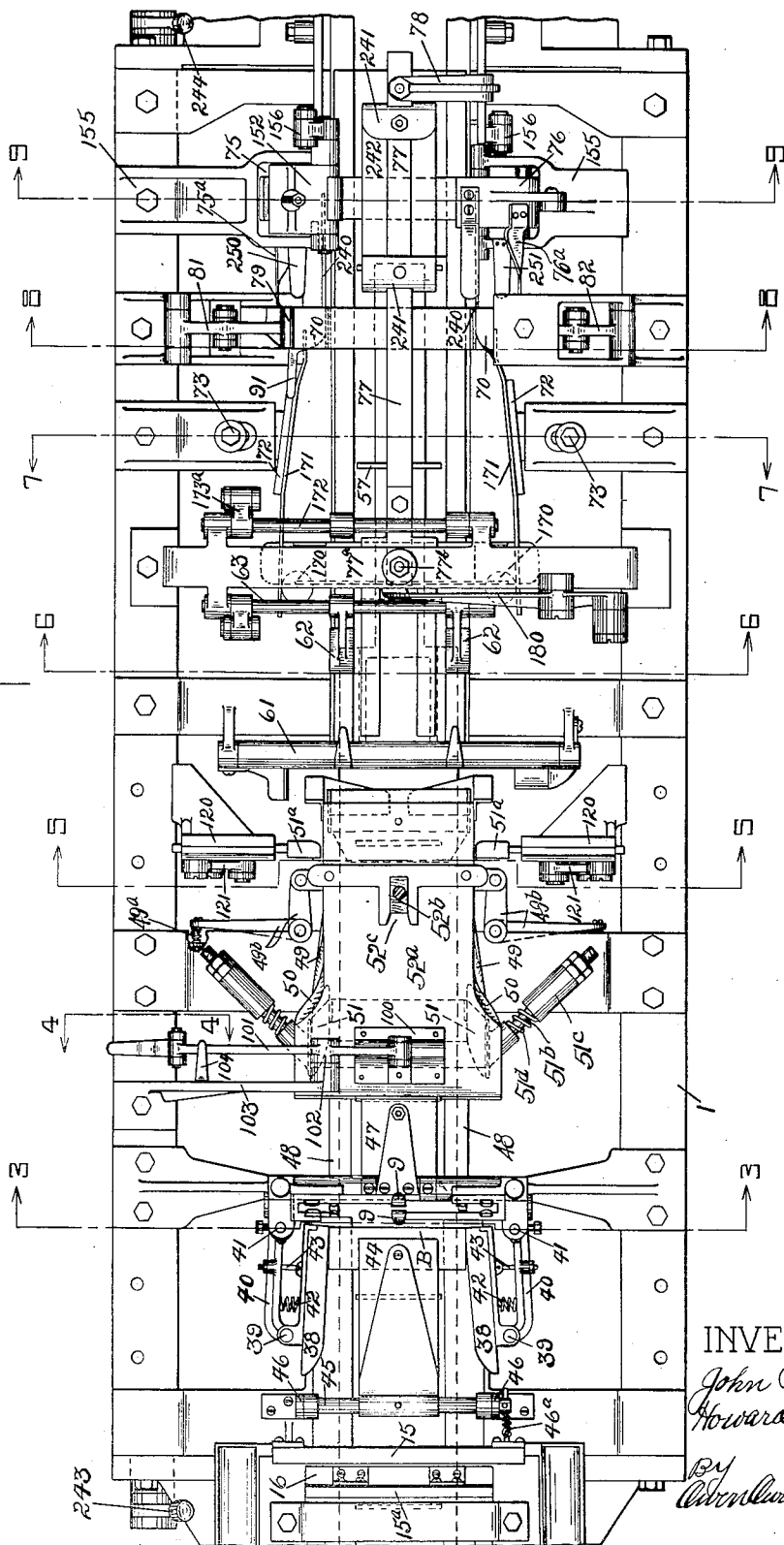
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PACKAGE WRAPPING MACHINE

Filed Nov. 22, 1923

11 Sheets-Sheet 2

FIG. 2.



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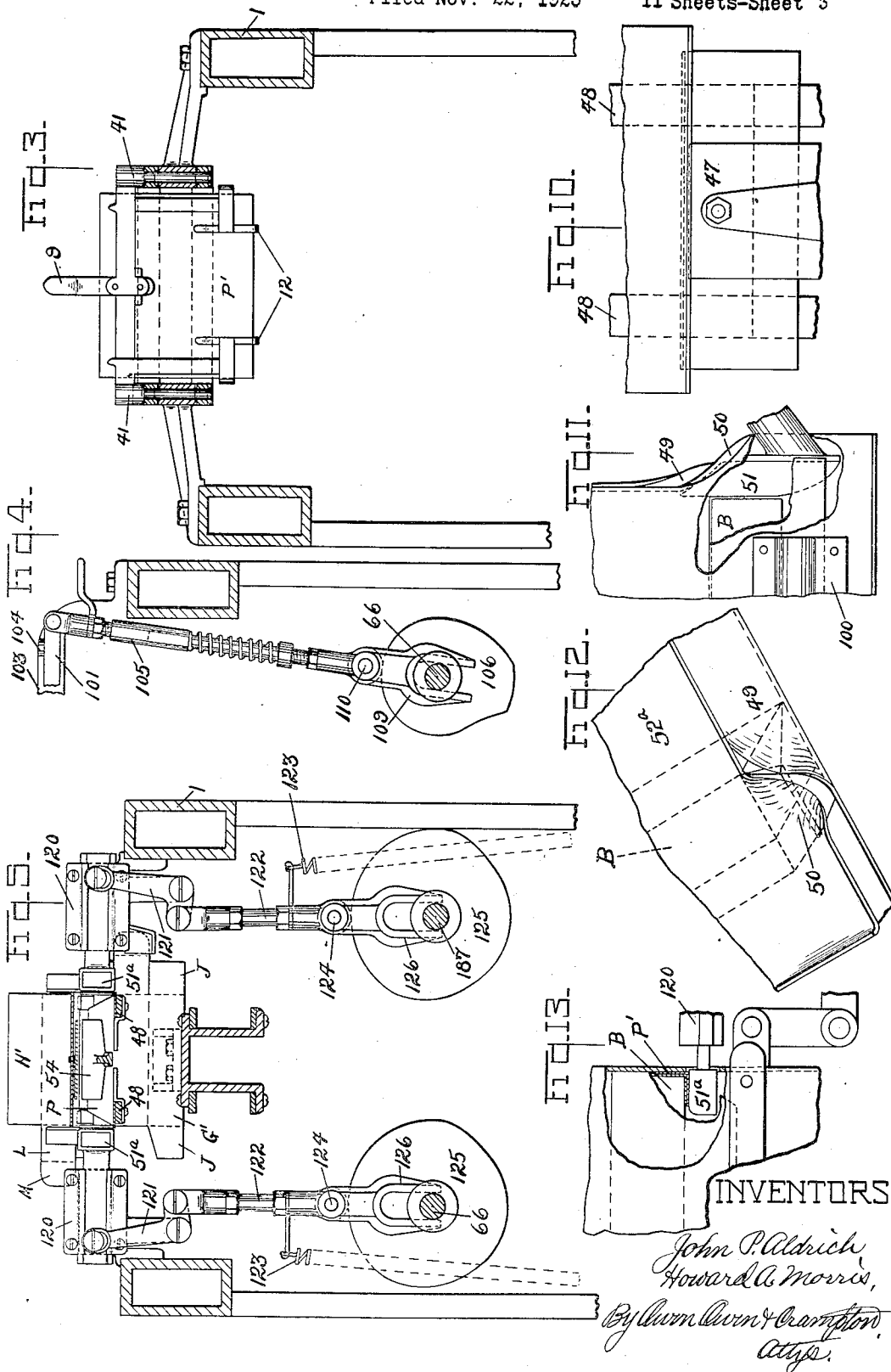
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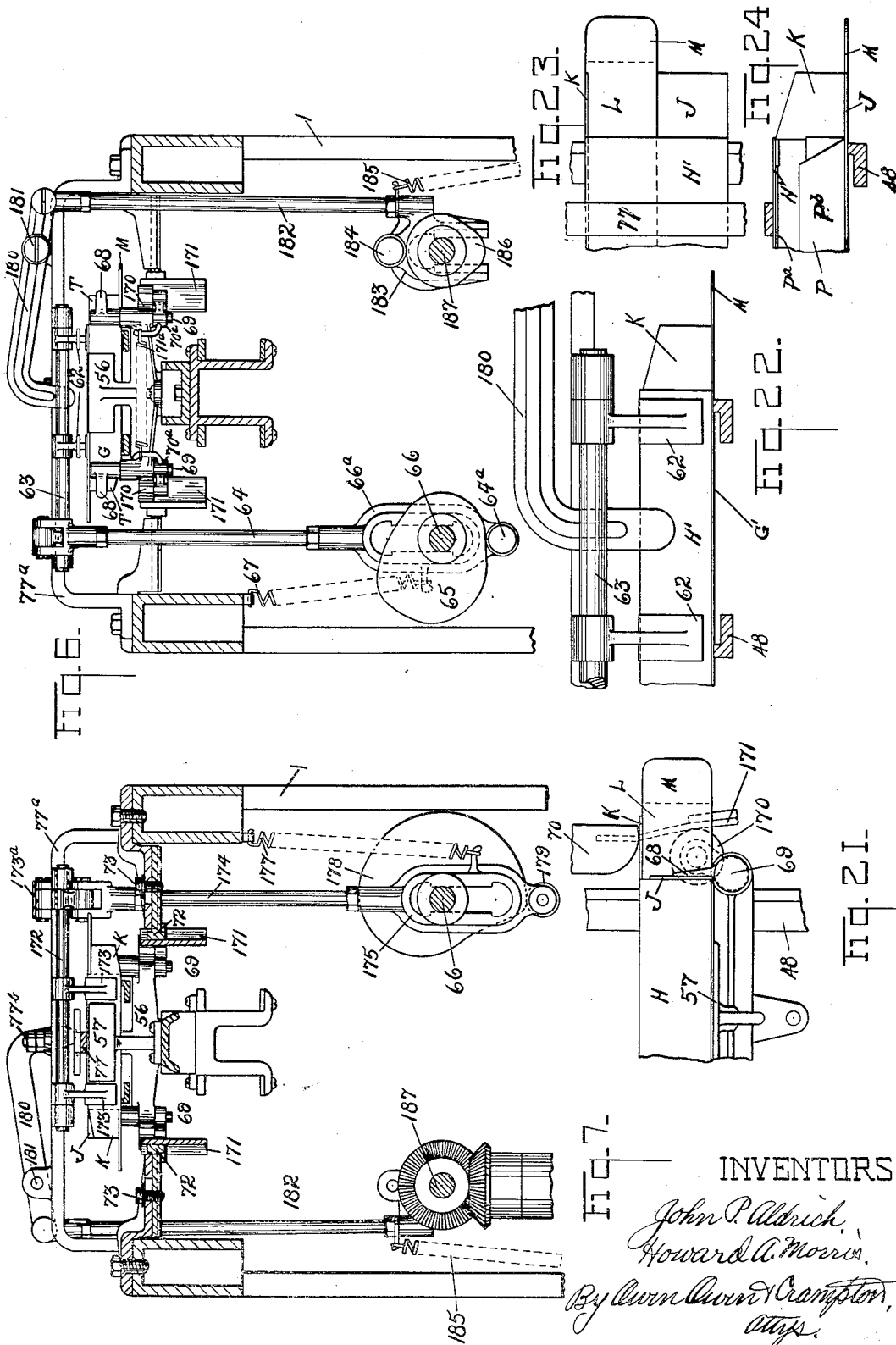
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PACKAGE WRAPPING MACHINE

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11 Sheets-Sheet 4



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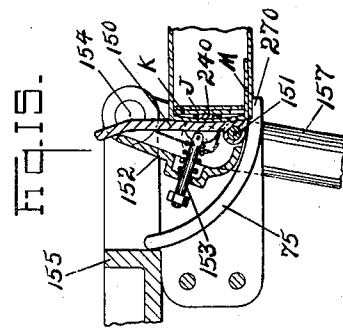
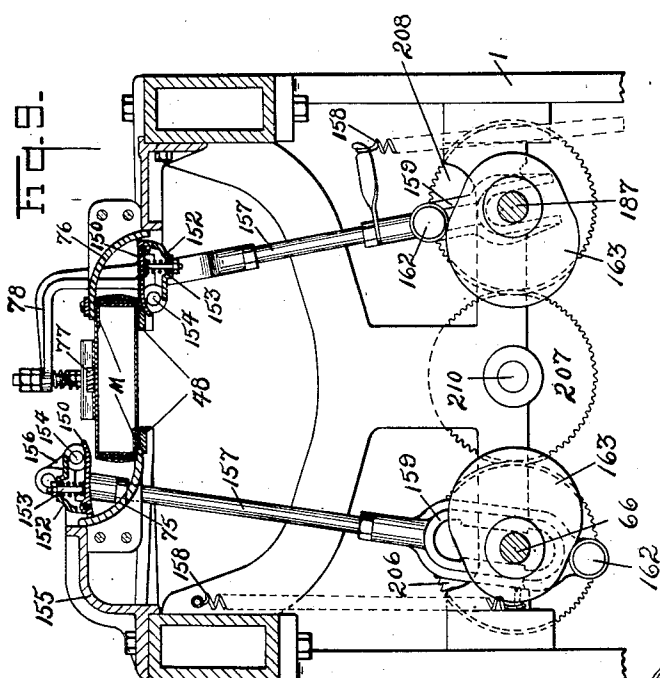
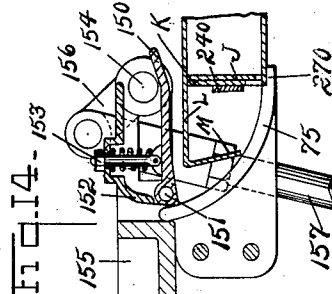
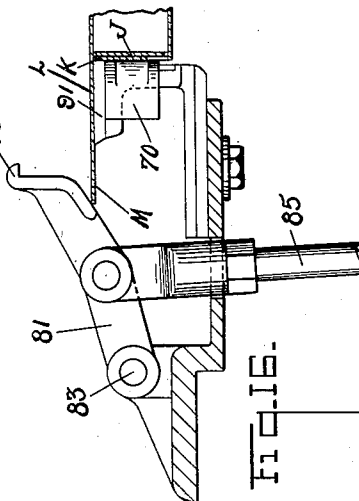
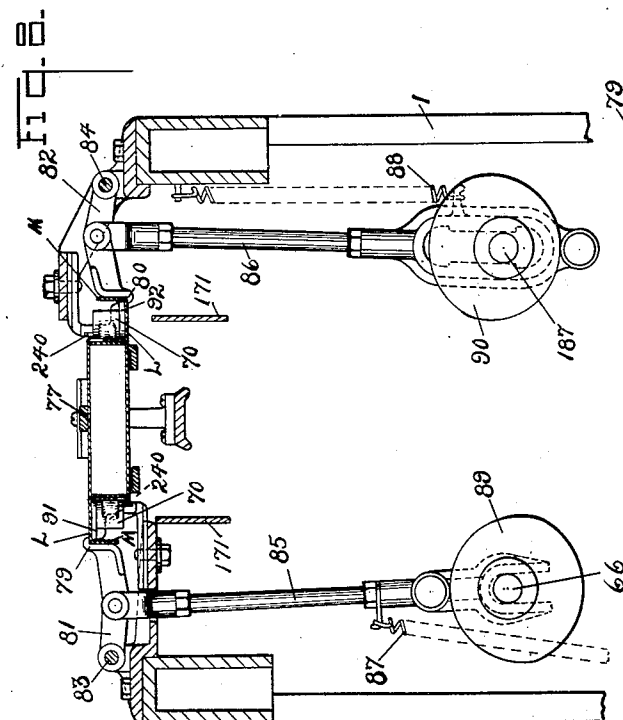
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J. P. ALDRICH ET AL  
PACKAGE WRAPPING MACHINE

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11 Sheets-Sheet 5



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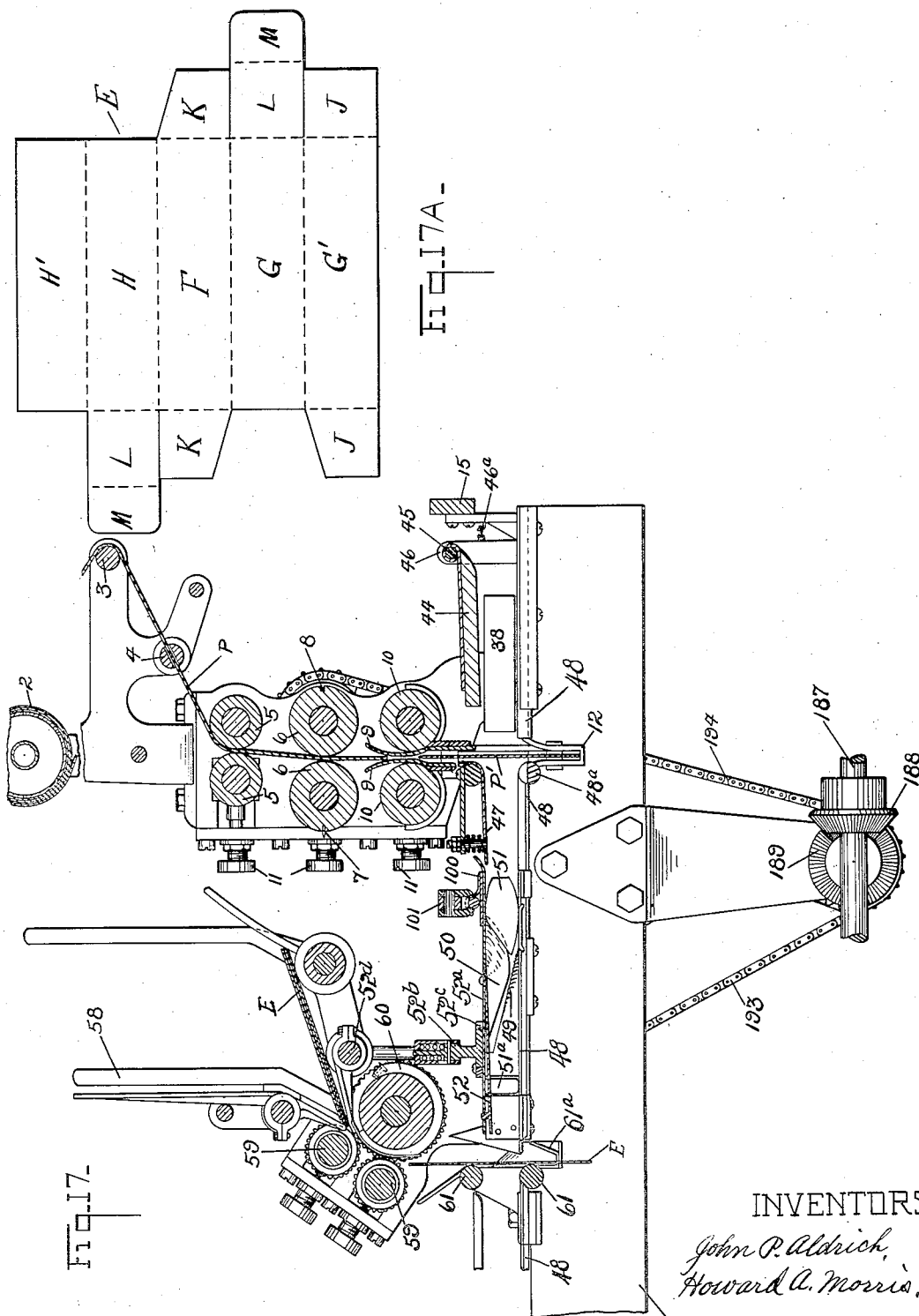
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PACKAGE WRAPPING MACHINE

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11 Sheets-Sheet 6



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PACKAGE WRAPPING MACHINE

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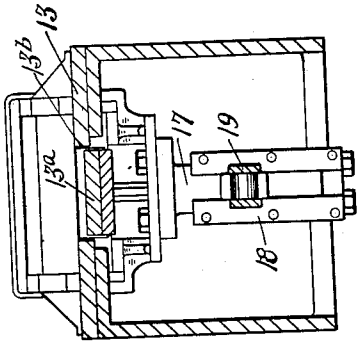


FIG. 18A-

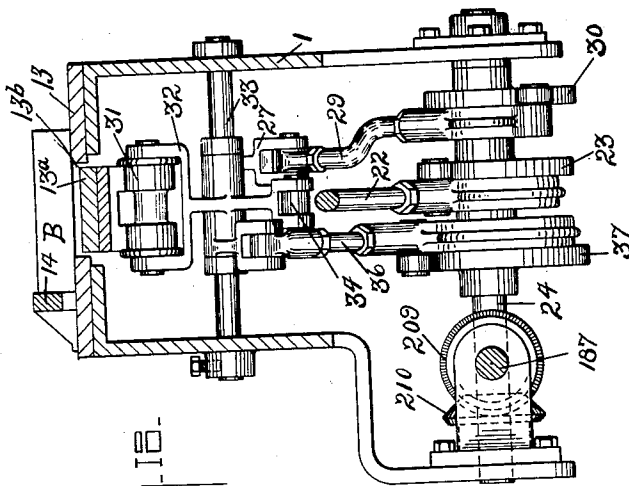


FIG. 18-

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FIG. 19.

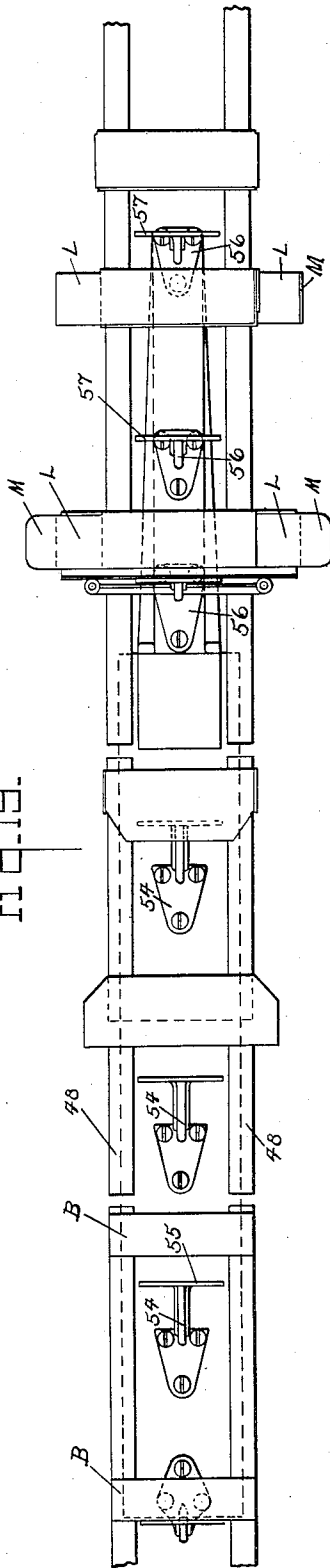
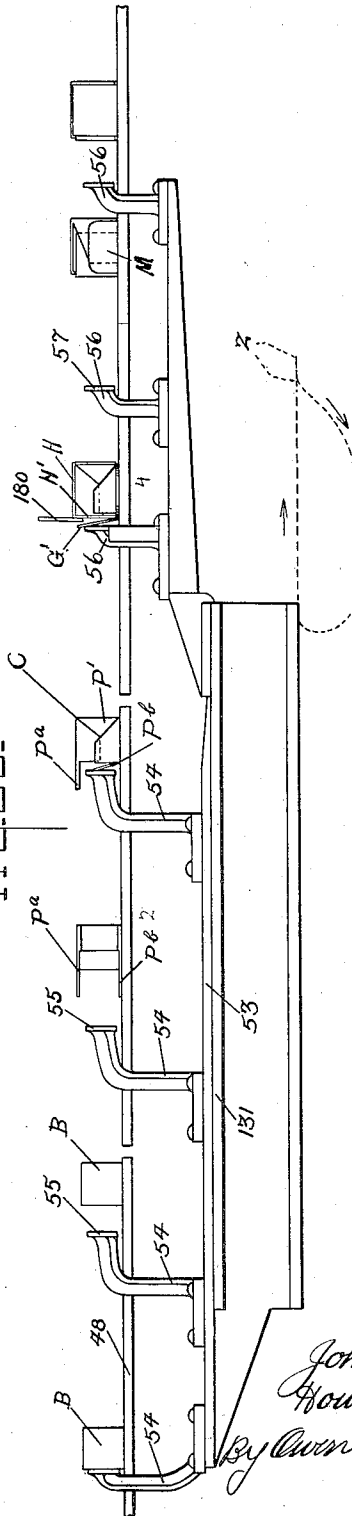


FIG. 20.



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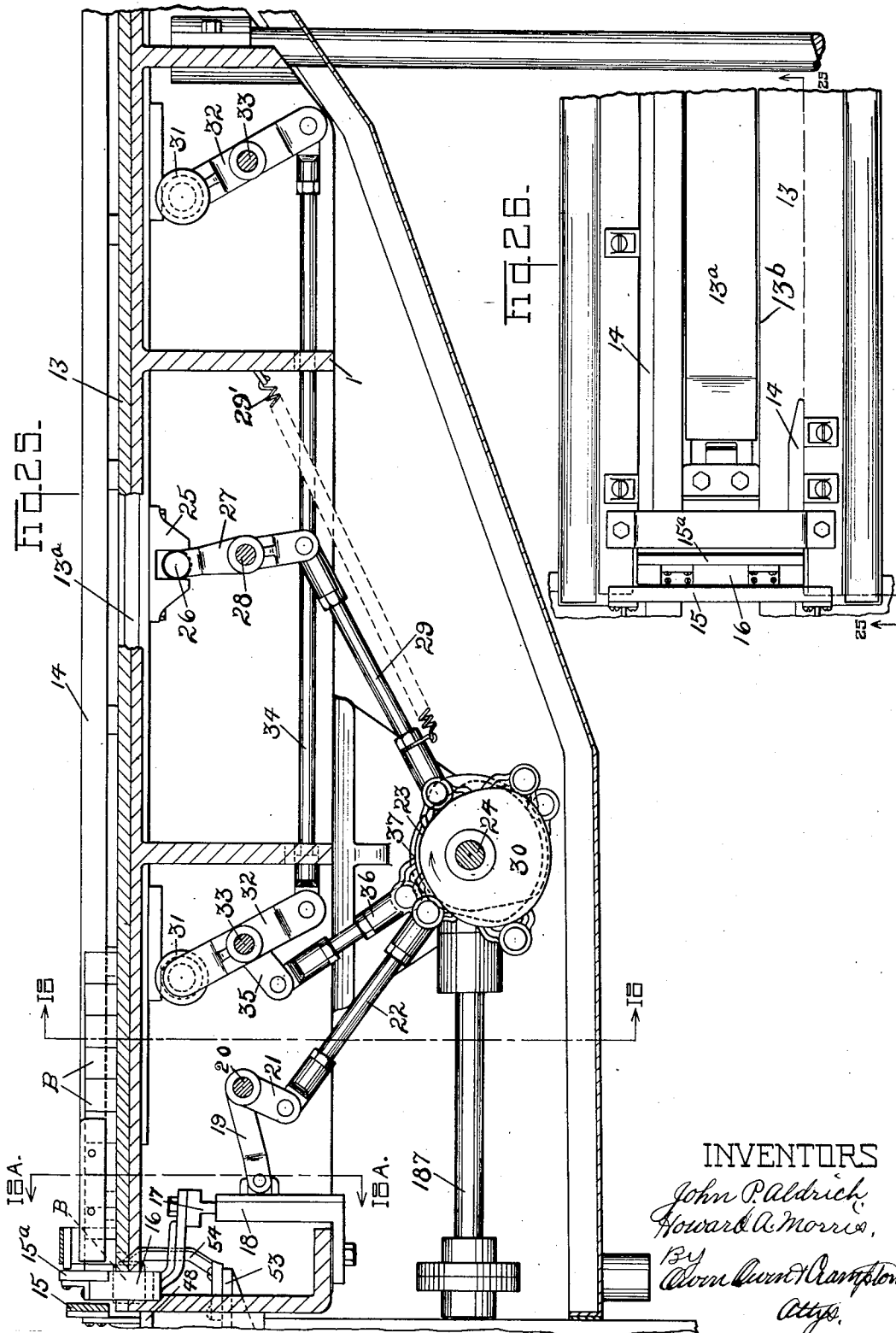
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J. P. ALDRICH ET AL  
PACKAGE WRAPPING MACHINE

**1,624,203**

Filed Nov. 22, 1923      11 Sheets-Sheet 9



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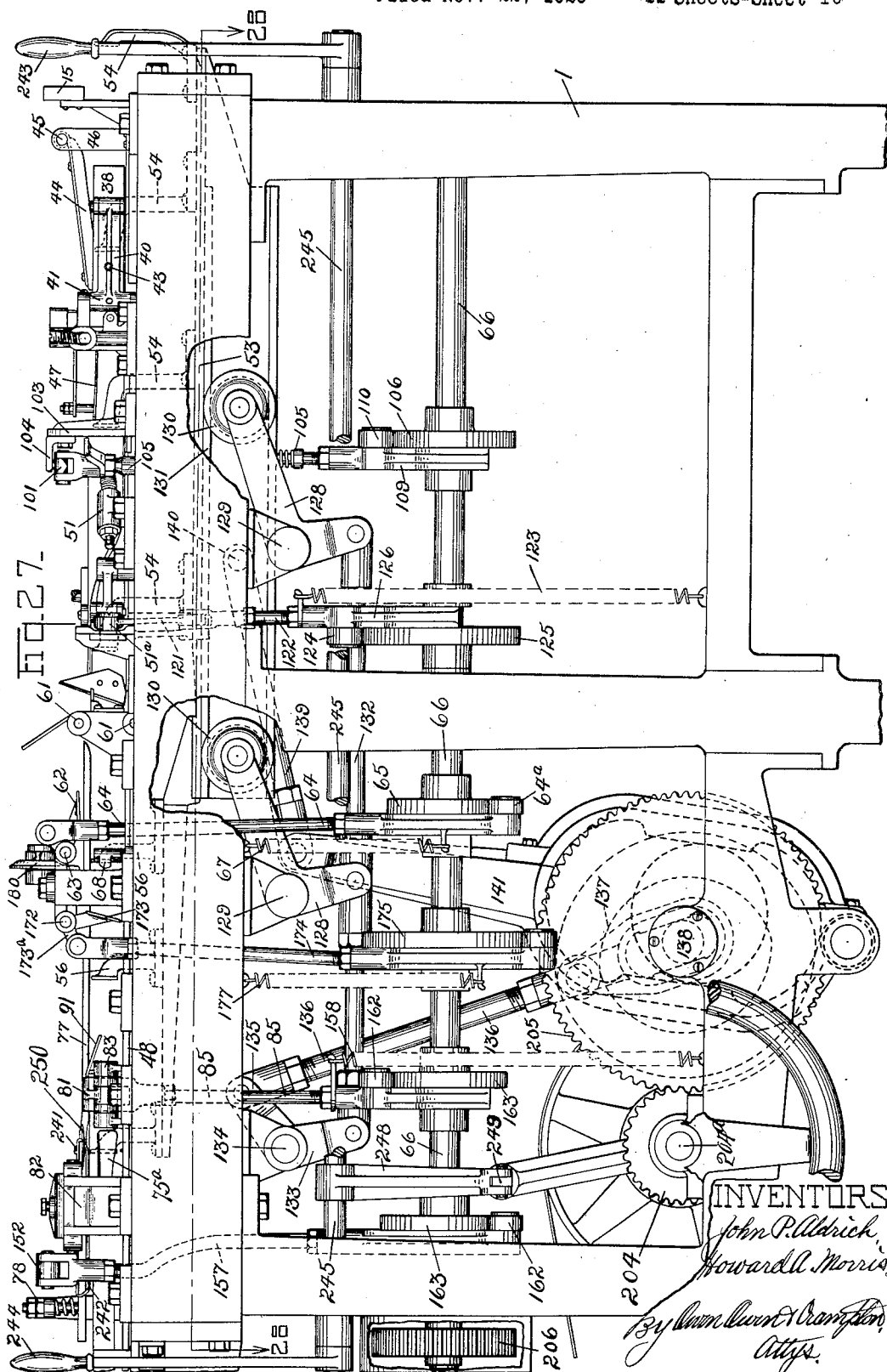
J. P. ALDRICH ET AL

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PACKAGE WRAPPING MACHINE

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April 12, 1927.

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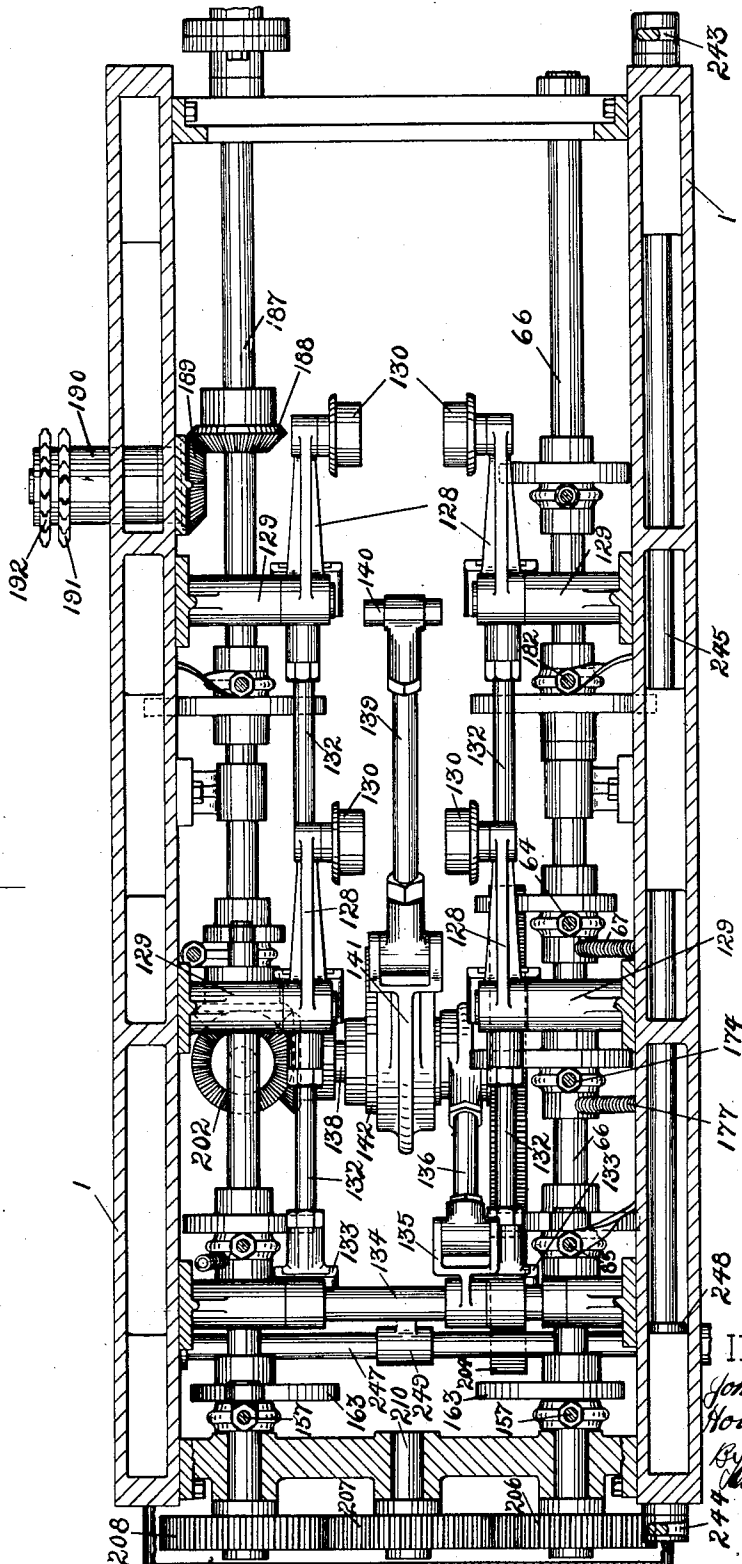
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PACKAGE WRAPPING MACHINE

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Fig. 28.



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## UNITED STATES PATENT OFFICE.

JOHN P. ALDRICH AND HOWARD A. MORRIS, OF TOLEDO, OHIO, ASSIGNORS TO THE AUTOMAT MOLDING & FOLDING COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

## PACKAGE-WRAPPING MACHINE.

Application filed November 22, 1923. Serial No. 676,231.

This invention relates to wrapping machines and more particularly pertains to a machine for wrapping butter.

The primary object of the invention is to provide a machine of this type wherein the butter is first wrapped in liquid-proofed paper and is subsequently packaged in a pasteboard carton, each of which operations are automatically and successively performed in a continuous operation of the machine.

A further object of the invention is to provide a novel feeding means for the butter bars.

Another object of the invention is to provide means, which receives the bars from the feeding means, and which then transfers the bars to the wrapping or packaging means.

A still further object of the invention is to provide novel means for advancing the butter to the various paper and carton folding means.

In the drawings:

Figure 1 is a side elevation;

Figure 2 is a fragmentary top plan view showing the paper wrapping and carton folding mechanisms;

Figure 3 is a section on line 3—3 of Figure 2;

Figure 4 is a section on line 4—4 of Figure 2;

Figure 5 is a section on line 5—5 of Figure 2;

Figure 6 is a section on line 6—6 of Figure 2;

Figure 7 is a section on line 7—7 of Figure 2;

Figure 8 is a section on line 8—8 of Figure 2;

Figure 9 is a section on line 9—9 of Figure 2;

Figure 10 is a detail view of one of the presser members;

Figure 11 is a detail view of one of the paper end folding tongues, partly broken away;

Figure 12 is a detail perspective view of a pair of the other paper end folding tongues;

Figure 13 is a detail view, partly broken away and in section of one of the paper end folding punches;

Figure 14 is a detail sectional view of one

of the devices at the inception of movement in inserting one of the carton tongues in final locked position;

Figure 15 is a view similar to Figure 14 showing the parts at the completion of the insertion operation;

Figure 16 is a detail section view of one of the carton tongue bending devices;

Figure 17 is a fragmentary vertical sectional view showing the carton and tissue paper feeding devices and associated parts;

Fig. 17<sup>A</sup> is a plan view of one of the carton blanks;

Figure 18 is a section on line 18—18 of Figure 25;

Figure 18<sup>A</sup> is a section on the line 18<sup>A</sup>—18<sup>A</sup> in Figure 25;

Figure 19 is a top plan view of the butter feeding means during wrapping and packaging thereof;

Figure 20 is a side elevation of Figure 19;

Figure 21 is a detail view of the folding means for the carton end flaps;

Figure 22 is a detail view of the finger for holding the side flap of the carton during insertion of the end locking tongues;

Figure 23 is a detail view in top plan of the carton during folding thereof;

Figure 24 is a front elevation of Figure 23;

Figure 25 is a fragmentary longitudinal sectional view of the butter bar feeding mechanism;

Figure 26 is an enlarged detail top plan view of the front or inner end portion of the feeding mechanism of Figure 25;

Figure 27 is a side elevation, partly broken away of the tissue or wrapping paper and the carton packaging mechanisms; and

Figure 28 is a section on line 28—28 of Figure 27.

In proceeding in accordance with the present invention a suitable frame 1 is employed upon the top of which is mounted a paper roll feeding and cutting device which includes a paper roll 2, (Figures 1 and 17). The paper P is fed downwardly from the roll 2 and passes over guides 3 and 4 and then downwardly between upper opposed feed rolls 5.

Co-operating cutter rolls 6 are located below rolls 5, one of which rolls 6 has a cutter 7 entering a groove 8 in the opposed roll so

as to cut the paper into pre-determined lengths. The paper sheets are, prior to cutting, received in between the guides 9 and also between lower segmental feed rolls

8 10. Screws 11 are employed to enable adjustment of the tension exerted by the several feed and cutter rolls on the paper. The cut sheet of paper P' is received and held in a pair of guides 12. The engagement of the sheets by the rolls 10 after cutting causes a slight speeding up of the movement of the cut sheets.

The butter which the machine is designed to wrap is of rectangular or bar form, as indicated at B (Figures 2, 19, 20 and 25), so as to be readily cut into blocks, or squares, for serving, as indicated in Figure 25.

The butter bars are initially placed on a horizontal table 13, provided at one end of the frame 1, and which has a side guide 14, preferably of maple wood, to engage the bars at one end. The butter bars are advanced step by step over the table 13 and successively moved into engagement with a stop 15 at the forward end of the table, which stop serves to arrest the movement of the foremost butter bar in properly aligned position within a vertically movable receiver 16, disposed at the forward end of the table. The receiver 16 is carried by a slide 17 which is movable vertically in a guide 18 and connected to a rocker arm 19 mounted on a shaft 20. This shaft has an arm 21 operated by a rod 22 which is connected to and actuated by a rotation of the cam 23 on the cam shaft 24. The receiver 16 has a stop 15<sup>a</sup> on the upper end portion of the rear side thereof, which stop serves to prevent a forward movement of the butter bars when the receiver is lowered from receiving position.

The means for imparting a step-by-step advancing movement to the butter bars over the table 13 includes a feed bar 13<sup>a</sup> which extends substantially throughout the length of the table 13 and operates through a longitudinally extending opening 13<sup>b</sup> in the table to engage the bottom sides of the butter bars mounted on the table.

50 The feed bar 13<sup>a</sup> has a slotted guide 25 on its under face, receiving therein a roller 26 carried by a forked arm 27, the latter mounted on a shaft 28 and being actuated by a rod 29, which latter in turn is actuated by a cam 30 on the cam shaft 24. The bar 13<sup>a</sup> is supported and guided for horizontal movements and given vertical movements by rollers 31 carried by forked arms 32 disposed at opposite sides of the arm 27; the arms 32 being pivotally mounted on respective shafts 33 and being pivotally connected by a rod 34 to cause them to have rocking movements in unison. The front arm 32 has a lug 35 pivoted to a rod 36, the latter being actuated by a cam 37 on the cam

shaft 24. A coiled tension spring 29' is connected to table 13 and to rod 29, and acts on said rod to take up lost motion.

The butter bars B, which are advanced over the table 13, are successively lowered 70 by the receiver 16 into alignment at their bottom sides with the top surfaces of a pair of guide and supporting bars 48 (Figures 2, 5, 17, 19, 20 and 27) which extend in horizontally spaced relation lengthwise of the frame 1, except that they are broken at points where the wrapper sheets P and the cartons E are fed into wrapping position, as hereinafter described.

Slightly in advance of the receiver 16 80 above and at the sides of the guide bars 48 are disposed side guides 38, preferably of maple, for engagement with the ends of the butter bars to assist in guiding the movements of the same as they are advanced over the bars 48. The guides 38 are pivoted at 39 to arms 40, the latter in turn being pivoted at 41 to the machine (Figure 2). Coiled springs 42 tension the guides 38, movement of the latter under the spring 90 action being restricted by limiting rods 43. A top guide 44, preferably of maple, is disposed between the guides 38 and is hingedly carried at its rear end by a shaft 45 mounted at its ends in standards 46 on the frame 1. 95 A spring 46<sup>a</sup> acts on the shaft 45 to cause the top guide 44 to exert a light downward pressure on the top of the butter bars as they pass thereunder.

Immediately in advance of the guides 38 100 and 44 are disposed the guides 12 for the cut paper sheets P', said guides extending down through the bottom guide bars 48 so that a sheet P' is disposed in the path of movement of the butter bars over the guide bars 48. The butter bars are progressively advanced to the machine by means hereinafter described, being first advanced, in the present instance, from the receiver 16 to a point where it is held by the guides 38 and 110 44 immediately at the rear of a cut paper sheet P' disposed in the guide 12. The next advancing movement of the butter causes it to pass over the guides 12 and to carry the sheet P', with it, the sheet being engaged midway between the top and bottom edges thereof. As the sheet is advanced with the butter bar the portion thereof above the butter bar is engaged by the curved end and bottom of a guide or presser member 49 (Figure 115 17) and folded rearwardly over the top of the butter bar, while the portion of the sheet projecting below the butter bar is engaged by a folding member 48<sup>a</sup> and folded rearwardly under the butter bar. During a continued advancing of the butter bar and sheet 120 over the guide bars 48, the end folding tongues 51, 50 and 49 engage the ends of the wrapper sheet and move the latter inwardly against the ends of the butter bar. 125 130

During the operation of the end folding tongues 51, a pressure foot 100 exerts a light downward pressure on top of the butter. The foot 100 is carried by a lever 101 (Figures 2 and 4) pivoted at 102 to a bracket 103, the latter having a stop 104 to limit the upward throw of the lever.

The lever is operated by a spring tension rod 105, the rod in turn being operated by a cam 106 on a shaft 66 disposed lengthwise in the lower portion of the frame 1. The lower end of the rod is forked at 109 and slidably straddles the shaft 66 and also carries a roller 110 engaging on the upper surface of the cam 106. The folding tongues 49 are mounted for yielding outward movements and such movements are resisted by springs 49<sup>a</sup> (Figure 2) acting against bell crank levers 49<sup>b</sup> fulcrumed in the frame 1 and having an arm connected to the respective tongues 49. The folding tongues 50 are also yieldingly held against the butter bar ends, being carried by rods 51<sup>b</sup> slidably mounted in bearings 51<sup>c</sup> on the frame 1, the rods being tensioned by springs 51<sup>d</sup> (Figure 2).

After a butter bar has passed the folding tongues 51, 50 and 49 it comes to rest immediately in advance of spring-tensioned end folding punches 51<sup>a</sup> (Figures 2, 5 and 17), and these punches are actuated to move the free ends of the paper wrapper parts, which are previously turned in by the tongues 51, 50 and 49, so as to lie against the rear vertical side of the butter bar. The punches 51<sup>a</sup> are horizontally slidable in guides 120 and are operated by bell-cranks 121, the latter being actuated by rods 122. The rods 122 are tensioned by springs 123 and are actuated by rollers 124 engaging cams 125, the lower ends of the rods 122 being forked at 126 and slidably straddling shafts 66 and 187 on which the cams are mounted. A tensioning plate 52 exerts a light downward pressure on the top of the butter bar while in and moving to the position where the wrapper is acted on by the punches 51<sup>a</sup>. The pressure plate 52 is carried by a top guide plate 52<sup>a</sup>. The plate 52<sup>a</sup> is removable to permit cleaning and is held in position by a yielding pressure foot 52<sup>b</sup> engaging in a slotted guide 52<sup>c</sup> on the plate top. The pressure foot is swingingly carried by a shaft 52<sup>d</sup>.

The means for advancing the butter through the paper wrapping and carton folding parts of the machine is shown in Figures 19 and 20 and includes a reciprocally movable bed 53 having a series of L-shaped pushers 54 projecting upwardly therefrom and formed with vertical faces 55 to engage the butter bars. The bed 53 further carries, at its forward end portion, a similar series of shorter pusher members 56 having vertical faces 57. The bed 53 has

horizontal as well as vertical reciprocatory movements, its path of movement being shown in dotted lines in Figure 20 of the drawings as being first forward in butter bar pushing position, then backwardly a short distance, then downwardly and rearwardly and then upwardly and again forwardly. The slight backward movement shown at Z in Figure 20 is to retract the pusher members from between the upper and lower folds P<sup>a</sup> and P<sup>b</sup> of the wrapper sheet before the downward movement of the bed. The means for operating the bed 53 is shown in Figures 27 and 28 and includes two pairs of bell cranks 128 pivoted at 129 to the frame of the machine and having rollers 130 which engage tracks 131 carried on the under face of the bed. The pairs of bell cranks 128 are connected by horizontal rods 132 to arms 133 of rock shaft 134. The shaft 134 has an arm 135 affixed thereto, and to which latter is pivoted a rod 136 driven from a cam 137 on a shaft 138. The bed, upon a rocking of the bell crank levers 128, is alternately raised and lowered, and in order to reciprocate same during the intervals of raising and lowering the rod 139 is employed and has a T-head 140 pivotally connected to the bed. The rod 139 is actuated by an arm 141 driven by a cam 142 on the shaft 138.

When the tissue sheet P has been wrapped, as shown at C (Figure 20) the upward movement of the adjacent pusher 54 folds the lower side flap P<sup>b</sup> upwardly. In this position of the wrapper the parts are ready to be placed in the pasteboard carton.

Referring, now, to Figures 1 and 17, the carton blanks E are placed in the hopper 58 and are fed downwardly by means of feed rolls 59 and 60 and into a guide 61<sup>a</sup> which extends down through the guide bars 48.

A carton E when in position in the guide 61<sup>a</sup> extends with its center panel F in the path of movement with the butter bars through the machine. When a butter bar is advanced from the position C by an adjacent pusher 54, it engages the center panel F of an aligned carton and causes a doubling of the upper panels H and H' and lower panels G and G' respectively over and under the butter bar, due to the forcing of the bar and carton forwardly between the rollers 61; the bar and carton being advanced by such movement to a point under the shaft 63. This shaft carries folding fingers 62 and is actuated by a movement of the rod 64 to rock the fingers 62 downwardly to fold the top edge flap H' down at the rear of the butter bar. The rod 64 has a roller 64<sup>a</sup>, which engages and is operated by a cam 65 on the shaft 66. As shown in Figure 6, the rod 64 has a yoke 66<sup>a</sup>, the latter tensioned by a spring 67 to exert an upward pull on

the rod and yoke. The next butter bar advancing movement of the bed 53 causes the first pusher 56 to engage the lower edge flap G' and fold it upwardly against the previously folded upper edge flap H' and at the same time the end flaps J are folded inwardly, as shown in Figure 21, by the action of folding fingers 68 carried at the upper ends of respective shafts 69, mounted vertically in respective end bearings in a cross-arm provided at the lower end portion of the first pusher 56.

The shafts 69 are provided at their lower ends with arms 70<sup>a</sup> carrying rollers 170 engaged by cams 171, rigidly fixed to the frame of the machine, the arms 70<sup>a</sup> being tensioned by a spring 171<sup>a</sup> to cause the rollers 170 to yieldingly bear outwardly against the cam faces. The cams 171 are adjustably supported by brackets 72, controlled by bolts 73 (Figure 2).

As the rollers 170 pass along the cams 171 during an advancing movement of the pusher 56, the folding fingers 68 are swung inwardly to cause a folding of the end flaps J against the end of the wrapper butter bar.

A shaft 172 (Figures 2, 7 and 27) is located slightly in advance of the shaft 63, and carries arresting or stop fingers 173 which extend in the path of movement of the butter bars and stop each butter bar as it moves into position to be acted on by the folding finger 62. The movement of the shafts 172 and 63 are so timed that the stop fingers 173 will act to stop a butter bar in position for the finger 62 to act on the carton flap H' thereof and to oppose such folding action, the stop fingers 173 and 62 being then raised to inoperative position at approximately the same time. The shaft 172 is connected by an arm 173<sup>a</sup> to a rod 174 which extends downwardly from the arm and has a yoke 175 at its lower end which straddles the shaft 66 and carries a roller 179 below the shaft in engagement with the periphery of a cam 178. A spring 177 acts on the rod 174 to normally retain the roller 179 in engagement with the cam.

After the folding of the top of flap H' by the fingers 62 and before the raising movement of such fingers, an L-shaped arm 180 (Figures 2 and 6) is swung down for its free end to engage the flap H' and hold it in folded position (see Figure 22) until the adjacent pusher 56 at the beginning of its next forward stroke has engaged the lower edge flap H'. The holding arm 180 then immediately raises so as not to interfere with the continued advancing movement of the pusher. The arm 180 is pivoted to a top member 77<sup>a</sup> of the frame at 181 and is connected at its inner end to a downwardly projecting rod 182 having a yoke 183 at its lower end which straddles the

shaft 187 and carries a roller 184 above the shaft for engagement with the periphery of a cam 186 on the shaft. A spring 185 acts on the rod 182 to normally retain the roller in engagement with the cam.

During the advancing movement of a butter bar and its wrapper parts from the position in which the edge flaps H' and G' were folded, the folding fingers 68 act on the end flaps J to hold them inwardly against the ends of the butter bar, as hereinbefore described, and when the butter bar is near the end of such advancing movement the end flaps K of the carton engage the stationary folding members 70 (Figures 2 and 9) and are folded inwardly thereby. At the same time, the left hand end flap L moves under a stationary folding anvil 92 (Figures 2 and 8). A presser member 77 is carried at its front end by the cross member 77<sup>a</sup> being connected at its front end to the bracket member 77<sup>a</sup> by a bolt 77<sup>b</sup> and at its forward end to a bracket 78 which is disposed at the forward end of the machine (Figure 2). This presser member exerts a yielding pressure on the top of the carton after the butter bar passes under the same during the remainder of its movement through the machine. The member 77 has a flat spring presser plate 242 secured thereto, the latter extending beyond the sides of the bar and having its ends 241 curved upward and toward each other over the bar which projects therethrough.

When the butter bar is in the position shown in Figure 8, with the end flaps L thereof respectively over and under the anvils 91 and 92, the tongues M of such flaps are bent downwardly and upwardly respectively at the side edges of the anvils by the folding fingers 79 and 80. These fingers are carried respectively by arms 81 and 82 which are pivoted at their outer ends at 83 and 84 respectively to the frame and are pivotally connected intermediate the ends to rods 85 and 86. These rods extend downward and have yokes at their lower ends which straddle the respective shafts 66 and 187, the rod 85 being provided with a roller which acts on the top of a cam 89 on the shaft 66, and the rod 86 having a roller which acts on the lower arc of a cam 90 on the shaft 187. The rods are respectively tensioned by springs 87 and 88 to hold the respective rollers in engagement with the cams. The action of the cams on the rods 85 and 86 is such that the folding arms 81 and 82 have respective downward and upward folding movements imparted simultaneously thereto to cause the free ends of the arms to engage and fold the tongues M downwardly and upwardly respectively at the sides of the anvils 91 and 92.

After the folding action of the carton tongues M, the carton is advanced by one

of the pushers 56 to the position shown in Figure 9 where the end flaps L are folded inward against the ends of the butter bar and the tongues M of such flaps inserted within the carton body to retain the carton in folding relation to the butter bar. As the carton is advanced to this folding position, the end edges of the tongues are engaged by respective curved guides 75 and 76 and guiding tongues 75<sup>a</sup> and 76<sup>a</sup> projecting therefrom, the left-hand guide extending outwardly and upwardly from the bottom of the carton and the right hand guide extending outwardly and downwardly from the top of the carton. The engagement of the tongues with the guides 75 and 76 causes a slight inward bending of the tongues, as illustrated in Figure 14. The end flaps L and tongues M when in this position are disposed under respective folders, each including a plate 150 pivoted at 151 to a casing part 152, the plate being tensioned relative to the casing part by a spring device 153, which latter also acts to limit the outward pivotal movements of the plates. The casings 152 are pivoted at 154 to brackets 155 carried by the frame and are operated by arms 156 connected to rods 157. The rods 157 are tensioned by coiled springs 158 and have forked, or slotted, lower ends 159 which slidably straddle respective shafts 66 and 187, and are provided with rollers 162, one above and one below, and in engagement with a respective cam 163 on the associated shaft.

It is thus evident that the rods 157 are simultaneously operated; one to impart an upward folding movement to the right hand folding plate 150 and the other to impart a downward folding movement to the left hand folding plate 150, to cause the respective end flaps L to be folded inwardly against the carton ends and the flaps M inserted into the carton one above the bottom panel G and the other below the top panel H. The inserting movements of the tongues M are guided by the plates 75 and 76, the inner surfaces of which register flush with the inner surfaces of the respective bottom and top panels G and H, by reason of the depressed seats 270 formed in their inner surfaces to receive the edge of the carton (see Fig. 14). This completes the folding operation, and the next advancing movement of the pusher means causes the last pusher member 56 to eject the carton and enclosed butter bar from the machine.

The shaft 187 drives a beveled gear 188 (Figures 17 and 28) which meshes with a similar gear 189 on a shaft 190, the latter carrying sprocket wheels 191, 192 over which sprocket chains 193 and 194 (Figures 1 and 17) are respectively trained. The sprocket chain 193 drives the feed roll 60 of the carton hopper, while the chain

194 drives the sprocket 195 of the paper feeding device, the sprocket 195 through gears 196, 197, 198, 199 and 200, effecting a driving of the paper feed and cutting rolls 5, 5, 6, 6, and 10, 10.

The shaft 187 is driven by intermeshed bevel gears 201 and 202 (Figure 1), the latter driven by the motor 203 by means of the gears 204 and 205 (Figure 27). The shaft 66 has a gear 206 (Figures 9 and 28) in mesh with a gear 207 on the shaft 210, the latter being in mesh with a gear 208 on the shaft 187, whereby the shafts 66 and 187 are driven in unison. The shaft 187 drives shaft 24 by gears 209 and 210 (Figure 18).

Control handles 243 and 244 are mounted on opposite ends of a clutch shifting shaft 245 which is journaled lengthwise of the frame and has a shifter arm 248 connected to a clutch shifting rod 249, whereby a clutch (not shown) on the shaft 204<sup>a</sup> may be operated.

In operation, a supply of butter bars B is placed on the table 13, and this supply is maintained during the running of the machine. To start the machine, the operator throws either handle 243, 244 of the clutch shaft 245 to place the associated clutch in operating position. A rotation is then communicated to the shaft 24 (Figure 25) whereupon the feed member 13<sup>a</sup> through the arms 32 and cam 37 is given vertical and horizontal reciprocatory movements to successively raise and advance the butter bars in step by step manner over the table. The butter moves forwardly with the forward movement of the feed member 13<sup>a</sup> and as soon as the receiver 16 has been synchronously raised by the slide 17 to align with the butter bars on the table 13, the foremost butter bar is moved into the receiver and stopped in proper position therein by engagement with the stationary stop 15. The receiver 16 is then lowered to place the butter bar disposed therein in the plane of the bed 48 and below the stop 15, such movement of the receiver placing the stop 15<sup>a</sup> carried thereby in register with the butter bars on the table 13 so as to prevent a forward movement thereof until the receiver has returned to elevated position. When the receiver is in lowered position, the pusher means 53 is actuated to cause the rear pusher member 54 thereof to rise at the rear of the receiver so that upon the forward movement of the pusher member the butter bar in the receiver is advanced therefrom along the bed 48 and between the end guides 38 and below the top presser plate 44, the butter stopping shortly to the rear of the tissue wrapper sheet P, which has been fed across the path of movement of the butter bar and rests in the support 12. The next advancing movement of the pusher means causes the next,

or second, pusher member 54 in order to engage and move the butter bar forward to a point adjacent to the end folding members 51. This movement of the butter bar causes it to engage the tissue sheet P and carry it forward therewith, the upper and lower edge portions of the sheet being folded over and under the butter bar by the folding members 47 and 48<sup>a</sup> (Figure 17). The next forward movement of the pusher member carries the butter bar forward to a point immediately to the rear of a carton E in the receiver 61<sup>a</sup>. The movement of the butter bar to this position causes the folders 50 and 49 to act on the upper and lower projecting end portions of the wrapper to fold them, one over the other, against the end portion of the wrapper which was turned rearwardly against the end of the butter bar by the folders 51. The end punches 51<sup>a</sup> then act on the end portions of the wrapper which project rearwardly beyond the butter bar to fold them inwardly against the rear side of the bar. The next pusher member 54 in order then moves upward and forward, causing a folding of the bottom rearwardly projecting edge portion of the wrapper against the rear side of the butter bar and forces the butter bar against the central panel F of the carton E, causing the folding member 61 to act against the upper and lower portions of the carton to fold them respectively over and under the butter bar. This movement of the pusher means forces the butter bar and embracing parts to the position shown in Figure 6, where it is stopped by an engagement with the stop fingers 173. The folding fingers 62 are then swung downwardly to fold the edge flap H' downwardly against the rear side of the butter bar, such folding movement carrying the rearwardly projecting upper edge portion of the wrapper sheet therewith. The arm 180 is then swung downward to the position shown in Figure 22 to hold the flap H', after which the folding fingers 62 are elevated and at approximately the same time the stop fingers 173 are elevated. The first pusher member 56 then moves upward and forward carrying the lower flap G' therewith to fold it against the upper flap H', and at approximately the same time the arm 180 raises from flap holding position. The forward movement of the said pusher member 56 causes the rolls 170 to act against the side cams 171 and impart an inward folding movement to the fingers 68 to fold the end flaps J forwardly against the ends of the butter bar, the butter bar being moved to the position shown in Figure 8. Just before reaching this position the end flaps K at the forward side of the butter bar are engaged by the stationary member 70 and folded inward against the end flaps J while the end flaps L move respectively over and under the

stationary anvils 91 and 92. The folding arms 81 and 82 are then actuated to break the tongues M over the anvil edges to place such tongues at right angles to the flaps L. The butter bar is then moved to the position shown in Figure 9, with the tongues M in engagement with the curved guides 75 and 76.

During the movement of the tongues M into engagement with these guides, the top surfaces of the left and the bottom surfaces of the right flap L are engaged by fingers 250 and 251 respectively, (Fig. 2) which hold the tongues against the guides. During the movement of the butter bar to this position, the end flaps J and K are held folded by the engagement of end guiding bars 240 thereagainst which bars retain such engagement until after the butter bar has moved from this position. The end-flap guiding or holding bars 240 are carried by, and constitute extensions from, the stationary folders 70. The folding plates 150 then act against the respective end flaps L and cause an inward folding of such flaps and an insertion of the tongues M into the respective ends of the carton.

The next movement of the bars which is actuated by the pusher means causes an ejection of the carton enclosed butter bar from the machine and moves such butter bars from engagement with the end bars 240.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is,—

1. In a packaging machine, a tubular guideway, article feeding means comprising a plurality of connected reciprocating pushers, and means for disposing a wrapper across the guideway whereby one pusher will push an article against a prearranged wrapper and continue to push the article with the wrapper into the guideway so that the latter will cause the wrapper to fold over and under the article and project rearwardly therefrom in upper and lower flaps, said specified pusher moving the article with its wrapper along the guideway to a point from which the following pusher will engage the article and feed it further along the guideway, said following pusher engaging and folding one of said flaps against the article as it moves into feeding engagement therewith.

2. In a packaging machine, a guideway, article feeding means comprising a plurality of spaced and connected article pushers, elevating means for intermittently moving said pushers up into and down from the guideway, means for reciprocating said pushers forwardly and rearwardly, said elevating means acting to lower said pushers immediately following the initiation of the rearward reciprocating movement of said pushers by said reciprocating means thereby to withdraw the

pushers from the articles before the lowering of the pushers, each pusher except the last advancing an article along the guideway to a position to be initially engaged by the  
 5 next succeeding pusher as it moves up into the guideway, and a plurality of wrapper folding means alternating with the pushers whereby each wrapper will be further applied to an article with each advancement  
 10 by the pushers.

3. In a packaging machine, a guideway, article pushing means for feeding an article therealong, said means having laterally spaced pivoted folders for acting on the ends  
 15 of an article, and cam tracks arranged on opposite sides of the guideway for respectively actuating the pivoted folders.

4. In a packaging machine, a guideway comprising spaced guide bars over which articles are advanced for being wrapped, means  
 20 for wrapping the articles advanced along said guideway, and means for advancing the articles along said guideway, said means consisting of a bed mounted beneath said guide bars  
 25 for reciprocatory movement, upright pushers on said bed having overhanging article-engaging ends beneath which portions of the wrappers extend, said pushers being projectable upwardly between said guide bars,  
 30 means for reciprocating the bed forwardly and rearwardly, and means for elevating the bed at the start of its forward stroke to dispose the pushers in the path of the articles for advancing them and for lowering the bed  
 35 after the start of its rearward stroke to remove the pushers from the path of the articles whereby the article-engaging ends of the pushers are withdrawn from over any underlying portions of the wrappers before being  
 40 lowered.

5. In a packaging machine a guideway, article-feeding means, means for folding a wrapper over the top, front and bottom  
 45 sides of a fed article, and end flaps of the wrapper extending beyond the ends of the article and the upper and lower side flaps of the wrapper extending rearwardly from the article for being folded thereagainst, end-flap folding means effecting a bending of the  
 50 end edge portions of the side flaps toward each other, opposing transversely movable punches for acting on the bent portions of the side flaps for folding said portions in between the latter, and means operable by  
 55 said feeding means for folding one of said side flaps.

6. In a packaging machine a guideway, article-feeding means, means for folding a wrapper over the top, front and bottom  
 60 sides of a fed article, the end flaps of the wrapper extending beyond the ends of the article and the upper and lower side flaps of the wrapper extending rearwardly from the article for being folded thereagainst, end-flap folding means effecting a bending of

the end edge portions of the side flaps toward each other, and opposing, transversely movable punches for acting on the bent portions of the side flaps for folding said portions in between the latter, said feeding  
 70 means embodying a part for folding one side flap against the article and imparting a feeding movement thereto.

7. In a packaging machine, a source of paper supply, a series of means for folding  
 75 the paper about the article, means including a series of independent pushers successively engageable with the article to advance the same step by step through the folding means, a part of said series also assisting in  
 80 the folding, and means to effect substantially elliptical movement to the pushers.

8. In a packaging machine, a source of paper supply, a series of means for folding  
 85 the paper about the article, means including a series of independent pushers successively engageable with the article to advance the same step by step through the folding means, a part of said series also assisting in the folding, a common carrier for each of the  
 90 pushers, and means to effect substantially elliptical movement to the carrier.

9. In a packaging machine, a source of paper supply, guiding means for the articles, a series of means for folding the paper about  
 95 the articles, a series of means successively engageable with the article to advance same step by step through the folding means, a part of said series also assisting in the folding, and means to effect movement of the  
 100 said series advancing means to cause same to engage the articles and move same in one direction and to then move out of engagement with the articles and thereafter to again engage the articles to continue said  
 105 movement thereof in said direction.

10. In a packaging machine, paper wrapping means, carton folding means, and means to advance the articles through the wrapping and folding means including a  
 110 series of article engaging means, and means to effect vertical and horizontal reciprocal movement of the advancing means.

11. In a packaging machine, means to supply carton blanks having locking tongues,  
 115 means to fold the blanks about the sides and ends of the articles, means to bend the tongues, and means to insert the bent ends to lie between the carton body and article and including an arcuate guide having a de-  
 120 pressed seat to receive the adjacent end of the carton body.

12. In a packaging machine, a guideway comprising spaced guide bars over which articles are advanced for being wrapped,  
 125 means for wrapping the articles advanced along said guideway, and means for advancing the articles along said guideway, said means consisting of a bed mounted beneath said guide bars for reciprocatory

movement, upright pushers on said bed and projectable thereby upwardly between said guide bars, said bed having channeled tracks opening outwardly on their opposite sides, rockable means having pairs of opposed rollers, said tracks being received between the opposed rollers of each pair with the rollers engaging in the outwardly opening channeled tracks to support the same for sliding movement and the bed for reciprocating movement, and means for rocking said rockable means to effect a lowering and elevating of the bed and for reciprocating the bed.

13. In a packaging machine, a guideway, article-feeding means, means for partially wrapping a carton about a fed article leaving the ends of the carton extended, article-arresting means in the guideway, and spaced means arranged to swing simultaneously against the opposite ends of an arrested article for effecting a folding of the ends of the carton.

14. In a butter wrapping machine, means to wrap the butter in paper, means to supply blanks in flat sheet form and having side flaps, end flaps and locking tongues to the wrapped butter, means to fold the carton side flaps about the front and top and bottom sides of the butter, means to fold the top carton flap downwardly, means to fold the lower carton flap upwardly against the top flap, means to fold the ends flaps against the ends of the butter and hold them folded, means to bend the locking tongues between their ends, and means to fold the tongues over the end flaps and their folding means and to insert the free ends of the locking tongues between the carton and butter.

15. In a packaging machine, a guideway, article-feeding means, means for partially wrapping an article in a carton leaving side flaps extending from the article, arresting means movable into the guideway to engage one side of an article and a swingingly mounted member movable against the opposite side of the article to fold a side flap against the arrested article.

16. In a packaging machine, paper supplying means, a series of means for folding the paper about the article, carton blank supplying means, a series of means for folding the blank about the paper enclosed article, means including a series of pushers successively engageable with the article to advance same step by step through all of the said folding means, and means to effect forward, downward, rearward, and upward movement of said advancing means.

17. In a packaging machine, wrapper supplying means, a series of means to fold the wrappers about the article, unitary means to successively move the articles to the various folding means and to engage and fold a flap of the wrapper up against one

side of the article, and means to effect forward, downward, rearward, upward and then again forward movement of the article moving means.

18. In a packaging machine, wrapper supplying means, a series of means to fold the wrappers about the article, unitary means to successively move the articles to the various folding means and engage a free flap of the wrapper and fold it up against the side of an article, including a series of spaced pushers, and means to effect forward, downward, rearward, upward and then again forward movement of the article moving means.

19. In a packaging machine, a guideway, article-feeding means, means for partially wrapping an article in a carton leaving side flaps extending from the article, an arresting member swingable against the forward side of a fed article, and a flap-folding member swingable against the rear side of the article in opposition to the arresting member to fold a side flap against the article.

20. In a packaging machine, a guideway, article-feeding means, means for partially wrapping an article in a carton leaving side flaps extending from the article, article-arresting means, means for folding one side flap against the arrested article and means included in the feeding means for folding another side flap against the first flap.

21. In a packaging machine, a guideway, article-feeding means, means for partially wrapping an article in a carton leaving side flaps extending from the article, article-arresting means, means for folding one side flap against the arrested article, means included in the feeding means for folding another flap against the first flap, and means for temporarily holding the first flap folded from the release of the first flap-folding means until the folding of the second flap.

22. In a packaging machine, a guideway, reciprocatory article-feeding means, means for partially folding a wrapper about an article leaving projecting end flaps, and relatively movable means carried in part by and operable by and during movement of the feeding means to fold the end flaps.

23. In a packaging machine, a guideway, reciprocatory article-feeding means, means for partially folding a wrapper about an article leaving projecting end flaps, relatively movable means, operable by and during movement of the feeding means for folding certain end flaps, and means operable during movement of the feeding means for completing the folding of the end flaps.

24. In a packaging machine, a guideway, reciprocatory article-feeding means, means for partially folding a wrapper about an article leaving projecting end flaps, flap-folding members swingably mounted on the feeding means, and cam means arranged

alongside of the guideway for actuating the folding members by movement of the feeding means.

5 25. In a packaging machine, a guideway, means for partially folding a wrapper about an article leaving projecting side and end flaps, a feeding member movable to fold a side flap, and means movably carried by the feeding member for folding the end flaps.

10 26. In a packaging machine, a guideway, article-feeding means, means for partially folding a wrapper about an article leaving projecting end flaps and locking tongues, means for folding the end flaps and holding  
15 them folded during the insertion of the locking tongue, and means for inserting the locking tongue.

20 27. In a packaging machine, a guideway, article-feeding means, means for partially folding a wrapper about an article leaving projecting end flaps and locking tongues,

means for folding the end flaps and holding them folded during the insertion of the locking tongue, means for bending the tongues, and a swingingly mounted inserter for the  
25 tongues having a yieldable, carton-engaging portion.

28. In a packaging machine, a guideway, article-feeding means, means for partially  
30 folding a wrapper about an article leaving projecting end flaps and locking tongues, means for folding the end flaps and holding them folded during the insertion of the locking tongue, and means for inserting the  
35 tongues including a pivotally mounted cushioned plate for engaging the tongue and yielding when contacting the carton.

In testimony whereof we have hereunto signed our name to this specification.

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