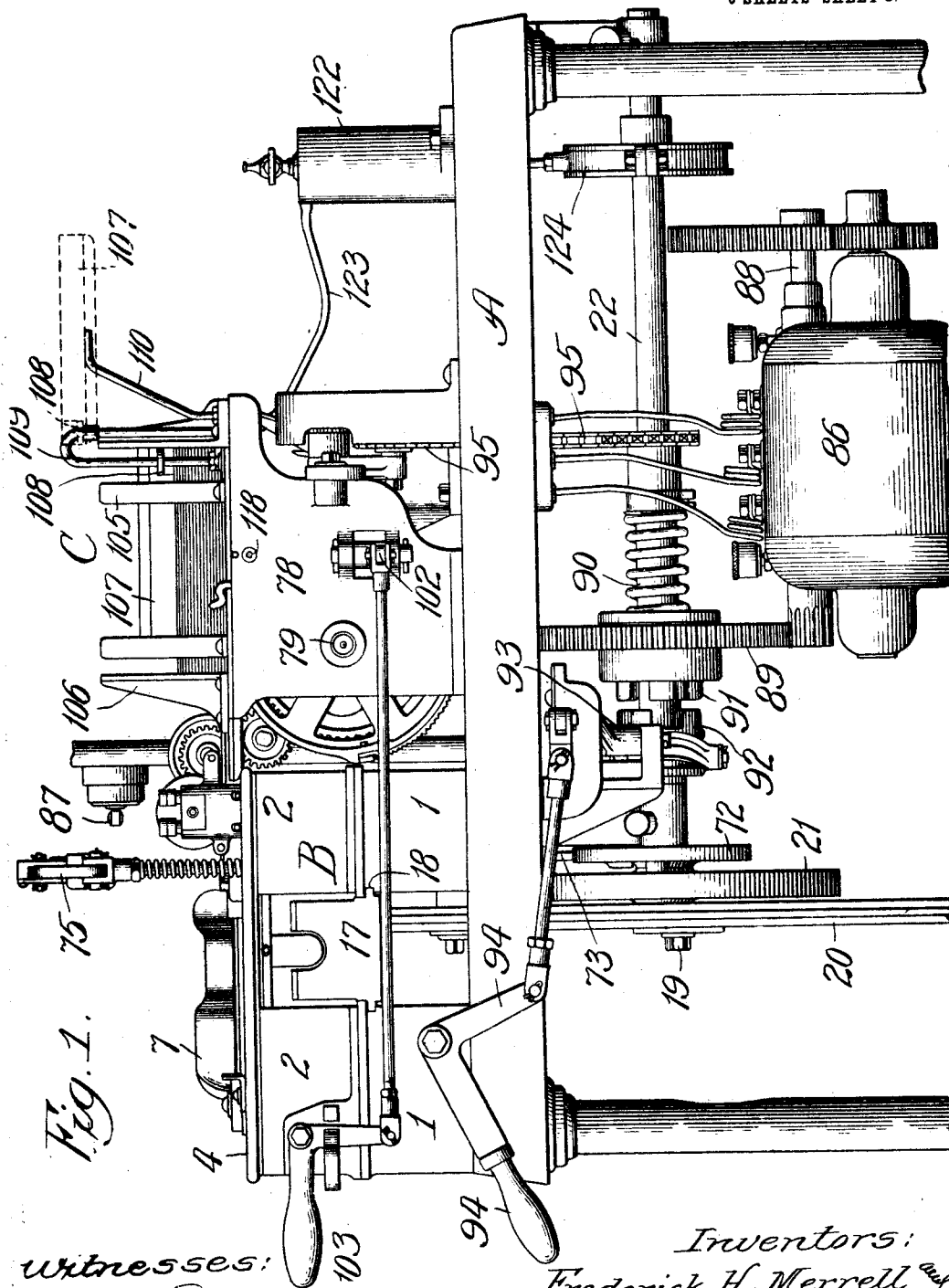


WRAPPING MACHINE.

Patented May 20, 1913.

6 SHEETS—SHEET 1.

1,062,410.



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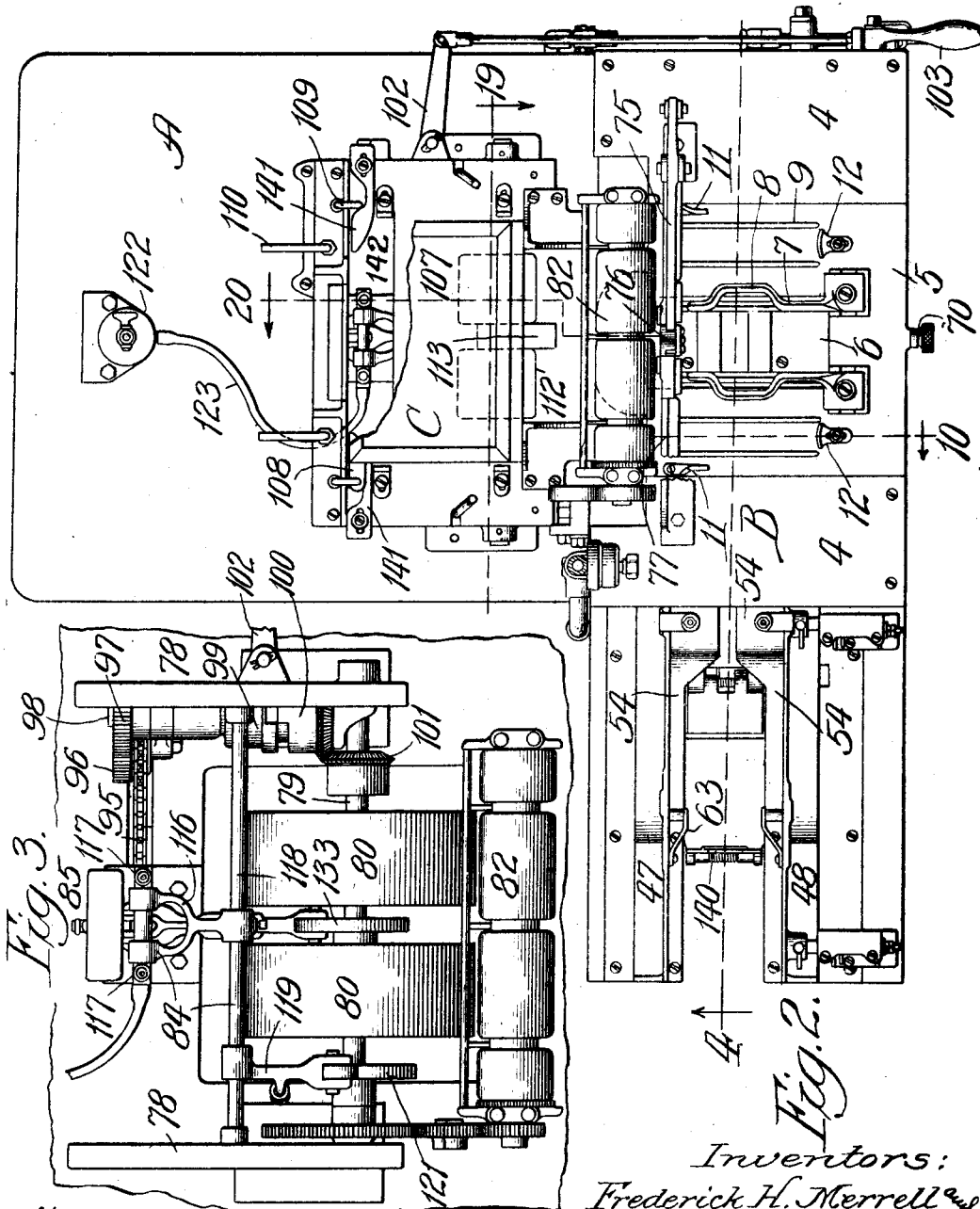
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Attys.

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WRAPPING MACHINE.
APPLICATION FILED JULY 17, 1911.

1,062,410.

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6 SHEETS-SHEET 2.

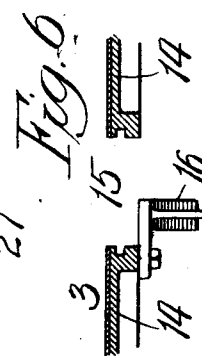


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6 SHEETS—SHEET 3.



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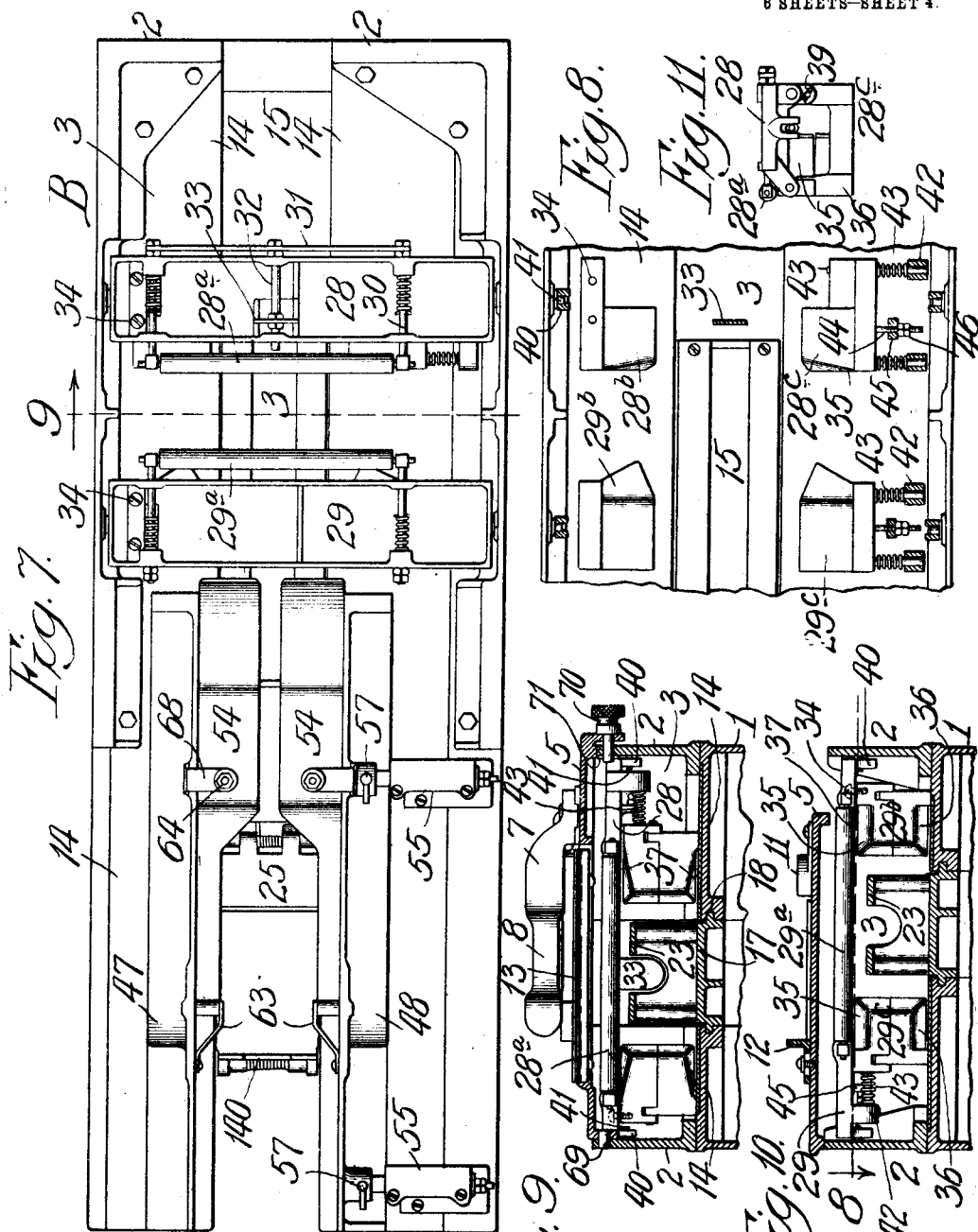
WRAPPING MACHINE.

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6 SHEETS—SHEET 4.



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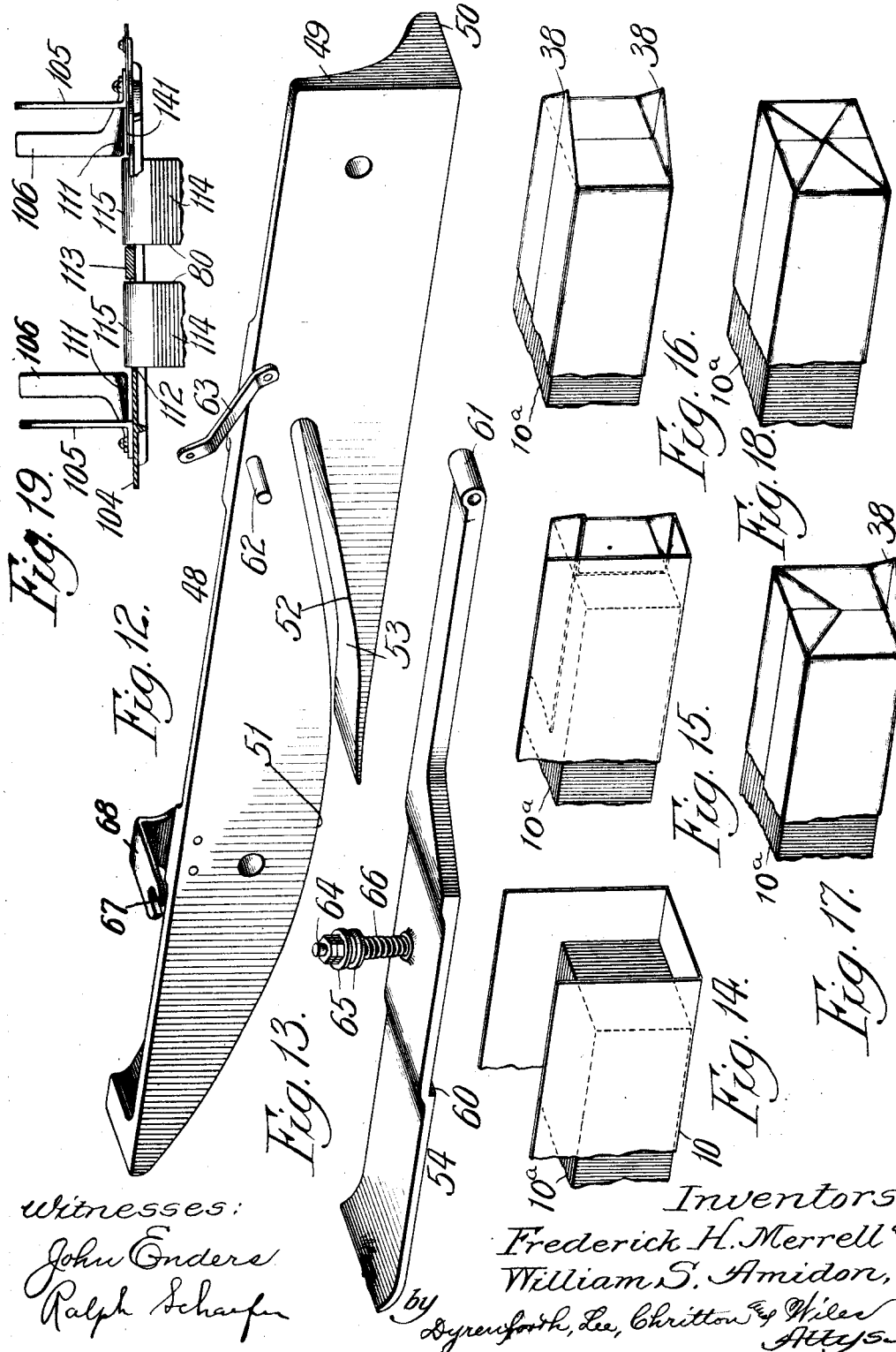
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F. H. MERRELL & W. S. AMIDON.
WRAPPING MACHINE.
APPLICATION FILED JULY 17, 1911.

1,062,410.

Patented May 20, 1913.

6 SHEETS—SHEET 5.



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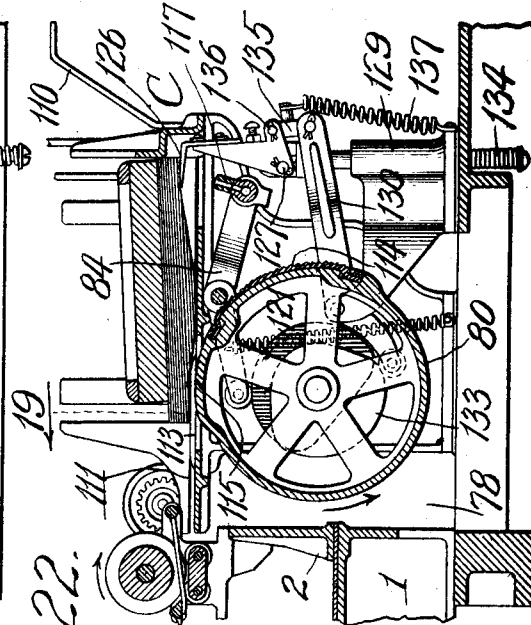
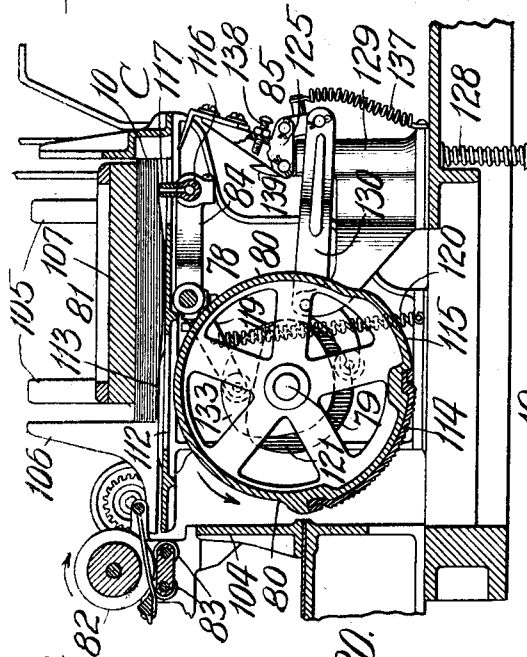
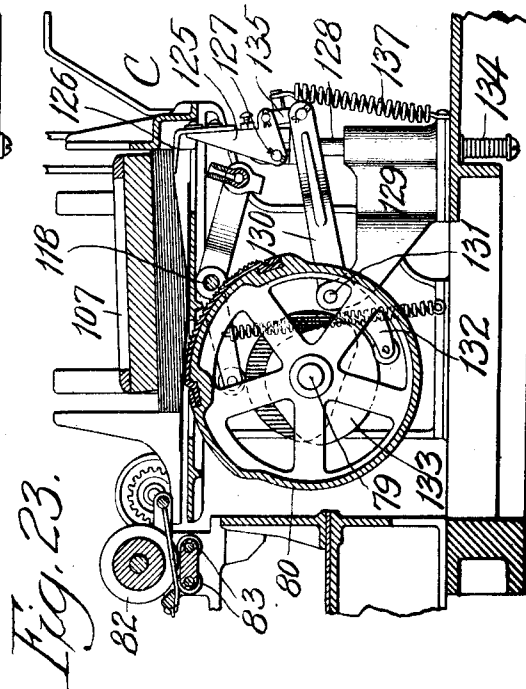
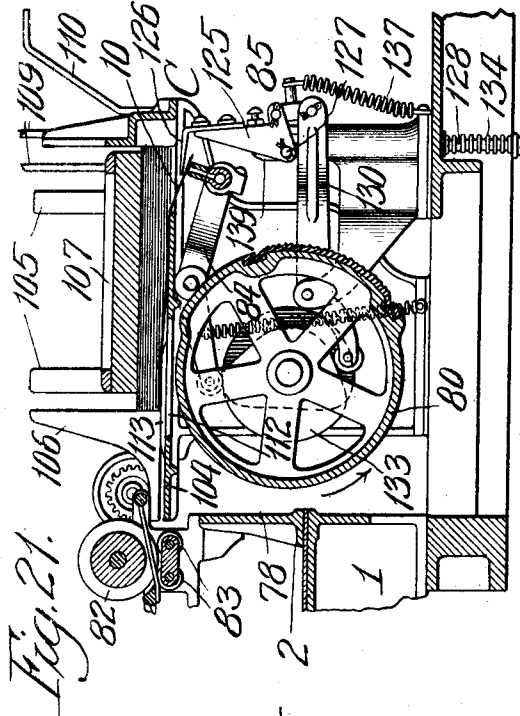
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WRAPPING MACHINE.
APPLICATION FILED JULY 17, 1911.

1,062,410.

Patented May 20, 1913.

6 SHEETS—SHEET 6.



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Fig. 20.

by

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Fig. 22.

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UNITED STATES PATENT OFFICE.

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WRAPPING-MACHINE.

1,062,410.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed July 17, 1911. Serial No. 638,873.

To all whom it may concern:

Be it known that we, FREDERICK H. MERRELL and WILLIAM S. AMIDON, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Wrapping-Machines, of which the following is a specification.

This invention relates particularly to wrapping machines of the type adapted to wrap rectangular bodies, such as bricks of butter, etc.; and the primary object is to provide a machine, which will feed thin wrappers with certainty and perform the wrapping operation with the greatest facility, the machine being of a construction adapted to be readily maintained in sanitary condition.

It may be stated preliminarily that in the operation of the improved machine, wrappers are intermittently fed forward from beneath a wrapper-pile, pass through feed-rolls, and are delivered upon a wrapper-supporting plate, having a well or opening therein. The operator then places a brick down and rests also upon an elevated part, or block, of a transversely reciprocating slide. When the block or support moves from beneath the brick, the latter settles into the well, thus making the two side-folds, shown in Figure 14; the slide then carries the brick to the right (viewing the machine in front), beneath a top-folder and between two end-folders, which leave the package as shown in Fig. 15—that is, with one top-flap folded and the corresponding projecting end-flaps folded, but leaving projecting fins at the ends; a reverse movement of the slide, or shuttle, carries the package toward the discharge-end of the wrapper-folding chute beneath another top-folder and pair of end-folders, leaving the package in the condition shown in Fig. 16. In the next cycle of operations, incident to the wrapping of another package, the slide moves again to the right, carrying a folding abutment, or gate, beneath the first package (which, in the meantime, is held by grippers), and in the next reverse movement of the slide, the first-mentioned package is forced through the discharge-chute, whose front and rear walls have curved slots therein adapted to receive the end-fins shown in

Fig. 16 and bend them successively to the form shown in Figs. 17 and 18. In the first instance, the package is moved to the right in the wrapper-folding chute by means of a cam-controlled abutment normally occupying a folded relation to the slide and having a cam-arm adapted to co-act with a cam carried by the frame of the machine.

The wrapper-feeding mechanism employed to fulfil the difficult function of feeding the thin wrappers employed in this class of work, comprises a suction device adapted to lower or bow downwardly the rear margin of the lowermost wrapper of the pile, or stack, a separator and lifter adapted to enter above the downwardly-bowed portion of the lower wrapper, by a rocking movement, and then move upwardly to lift the rear portion of the pile, and a stripper-roll, or rolls, having a raised frictional segment whose movement is timed with relation to the other devices and which is adapted to feed the lowermost sheet forwardly to the feed-rolls which deliver it to the wrapper-supporting plate located above the central portion of the transversely disposed wrapper-folding chute.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Fig. 1 represents a side elevational view of the improved machine; Fig. 2, a plan view of the same, the follower-plate, or weight, which rests upon the wrapper-pile being shown broken; Fig. 3, a broken plan view showing the stripper-rolls and attendant mechanism; Fig. 4, a transverse vertical section taken as indicated at line 4 of Fig. 2—that is, looking toward the rear of the machine; Fig. 5, a transverse section of the discharge-chute, taken as indicated at line 5 of Fig. 4; Fig. 6, a broken section taken as indicated at line 6 of Fig. 4 and showing the position of the stationary cam which controls the normally sheathed package-pusher mounted on the slide or shuttle; Fig. 7, a plan view of the wrapper-folding chute and devices removably mounted thereon; Fig. 8, a broken horizontal section taken as indicated at line 8 of Fig. 10 and showing end-folders which depend from the removable plates shown in Fig. 7; Fig. 9, a section taken as indicated at line 9 of Fig. 7; Fig. 10, a section taken at

line 10 of Fig. 2; Fig. 11, a view of the right-hand top-folder and associated end-folders shown in Fig. 7; Fig. 12, a perspective view of the detached front end-fin folder which forms the front wall of the discharge-chute; Fig. 13, a perspective view of the gripper normally carried by the member shown in Fig. 12; Fig. 14, a broken perspective view showing a cake of butter and the condition of the wrapper after the side-flaps have been folded upwardly in the operation of lowering the cake of butter into the well; Fig. 15, a perspective view showing the condition after the package has been shifted to the right in the wrapper-folding chute; Fig. 16, a perspective view showing the condition after the package has been shifted to the left in the wrapper-folding chute; Fig. 17, a broken perspective view showing the condition after the top end-fins have been folded in the passage through the discharge-chute; Fig. 18, a similar view showing the condition after the lower end-fins have been folded in the final portion of the movement through the discharge-chute; Fig. 19, a view partly in section and partly in elevation, showing the wrapper-pile support, or tray, and its relation to the stripper-rolls just prior to the stripping action, the section being taken as indicated at line 19 of Fig. 2; and Figs. 20 to 23 inclusive, sections taken as indicated at line 20 of Fig. 2, but illustrating the different steps in the wrapper-feeding operation.

The machine comprises a frame A; wrapper-folding mechanism B; and wrapper-feeding mechanism C.

The frame A has a flat top, across the front portion of which extends a housing-section 1 upon which is removably mounted a housing-section 2 in which the wrapper-folding chute 3 is formed. The housing 2 is topped by permanently secured plates 4 which flank the readily-detachable wrapper-supporting plate 5 which has therein an aperture or well 6 through which the package may be lowered to the wrapper-folding chute. Flanking the opening 6 and carried by the plate 5 are detachably-secured guide-members 7 between which the brick of butter (hereinafter termed brick) may be placed by the operator. The members 7 are bowed outwardly or recessed at the intermediate portions, as indicated at 8, to give room for the fingers of the operator in the feeding operation. The plate 5 has longitudinal ribs 9 on its upper surface on which the wrapper 10 may rest when fed into position to receive the print or cube 10* (Fig. 14) which is to be wrapped. The plate 5 is equipped near its rear corners on its upper surface with pivotally-secured lateral segmental guides 11 which may be adjusted to accommodate wrappers of different width; and is equipped near its front cor-

ners with forwardly and rearwardly adjustable stops 12 adapted to limit the forward feed of the wrapper. The plate 5 is equipped at the opening 6 with laterally-disposed adjustably-mounted side-folders 13 which serve to fold the side portions of the wrapper as the brick drops into the wrapper-folding chute. The wrapper-folding chute 3 has bottom plates 14 separated by a slot 15 beneath which is disposed the stationary cam 16 which serves to operate the normally sheathed pusher mounted on the reciprocatory slide 17 which moves in the guides 18 of the housing 1. The slide 17 is reciprocated by a crank 19 which engages a slot in a depending arm 20 with which the slide is equipped. The crank 19 is carried by a wheel 21 mounted on the main longitudinally-disposed shaft 22. The slide 17 carries an elevated portion, or block, 23 adapted to temporarily support the package after its initial dropping movement. As shown in Fig. 4, the elevated part 23 is beneath the opening through which the package descends to the folder-wrapping chute, and when the slide 17 moves to the right a sufficient distance, the package is permitted to drop upon the bottom of the slide and rest between the fixedly-carried abutment 24 and the normally-sheathed abutment, or pusher, 25, which is pivoted to the slide at 26 and has a cam-arm 27 adapted to ride on the cam 16 when the slide moves to the right, whereby the pusher 25 will be swung to the standing position and will serve to shove the package toward the right-hand end of the folder-wrapping chute.

Detachably mounted in the folder-wrapping chute are plates 28 and 29 which carry the top and end folders. Said plates respectively carry top-folders 28*, 29* and end-folders 28^b, 28^c and 29^b, 29^c. The top-folders are in the form of rollers carried by spring-projected stems 30 which slide in bearings with which the plates 28 and 29 are provided. When the first top-fold is made, (that is, during the movement of the package to the right in the folder-wrapping chute, during which movement the package is carried beneath the roll 28*), it is desirable to limit the distance that the roller may traverse the package so that the roller will not come in contact with the butter. To this end, the studs 30 are, in this instance, equipped at their rear ends with a transversely extending member 31 to which is secured a stud 32 carrying a package-engaging stop 33 against which the package will strike after it has moved a certain distance beneath the roller 28*, and thereafter the roller 28* will be retracted.

The end-folders 28^b and 29^b are fixedly secured to the plates 28 and 29 from which they depend, as by means of screws 34. Each end-folder comprises, as will be un-

derstood from Fig. 10, an upper section 35 and a lower section 36. The end-folders are in reality ironers and have their ends, against which the package moves in the folding operation, beveled. As shown in Fig. 10, the upper section 35 is separated from the corresponding top-plate (in this instance 29) by a space 37 adapted to receive the upper end-fin of the wrapper. The lower member 36 of the end-folder rests upon and co-acts with the upper surface of the bottom member 14 of the wrapper-folding chute 3, these bottom members 14 being provided with brass linings, as shown in Fig. 9. The lower members of the end-folders are similarly recessed at 37 to accommodate the lower end-fins 38 of the package. This will be understood by reference to Fig. 16, it being evident that there must be slots or spaces above and below the end-folders in which the end-fins 38 may project. The lower section 36 of each end-folder is pivotally connected with the upper section at 39, as shown in Fig. 11, by a joint which permits the lower section to rock downwardly a limited distance, so that the lower sections will always rest on the bottom members 14 of the chute 3, even though the plates 28 and 29 should be lifted by the passage of the package beneath them. The plates 28 and 29 are provided at their front and rear ends with slotted lugs 40 (Fig. 9) which engage inwardly projecting studs 41 carried by the housing-members 2, so that the plates may be readily removed after the removal of the plate 5. To accommodate packages of varying length, the end-folders 28 and 29 are slidably mounted with relation to the plates from which they depend, as shown in Figs. 8 and 10. Thus, the plate 29 carries at its front end depending lugs 42 equipped with inwardly-projecting fixedly-carried studs 43 which form guide-pins which enter freely horizontal perforations in the upper member 35 of the end-folder. Springs encircle the studs 43 and are confined between the lugs 42 and the member 35. The member 35 is equipped with a fixedly-secured stud 44 which extends through a depending lug 45 carried by the plate 29. The stud 44 is threaded and equipped with a nut 46, thus serving to prevent the end-folder from becoming dismounted from the guide-pins 43.

It will be understood from the description thus far that the package, when it enters the folder-wrapping chute, drops upon the bottom of the slide 17, after the slide has moved to the right from the position shown in Fig. 4, and the pusher 25, now in engagement with the cam 16, and in an upright position, serves to force the package to the right and beneath the plate 28. In the reverse movement of the slide, the folder 24 serves to push the package beneath the

plate 29 and to carry it within the range of the grippers, which will now be described.

The discharge-chute forms a continuation of the folder-wrapping chute and its walls are formed to afford end-fin folders. The rear end-fin folder is designated 47 and the front end-fin folder is designated 48. Each comprises a shoe (Figs. 4 and 12) somewhat in the form of a runner, having a vertical flange 49 and a horizontal flange 50, the horizontal flange being adapted to rest upon a projection or continuation of the bottom 14 of the wrapper-folding chute. Each of the members 47 and 48 is provided with a curved top-fin folding wall 51 and a curved bottom-fin folding wall 52. To form the walls 51, the lower front portions of the shoes are cut away; and to form the walls 52 the members are traversed by curved slots 53 adapted to receive the lower end-fins in the folding operation. The member 47 is fixedly secured to the bottom wall of the discharge-chute, and the member 48 is detachably mounted on the bottom wall of the discharge-chute. Each of said members carries a detachably-mounted package-gripper 54. Means for rendering the member 48 detachable, and at the same time self-adjustable to accommodate packages of varying lengths, will be understood from Figs. 5 and 7. Upon the bottom member 14 are mounted two supports, or chairs, 55 having guides therein for stems 56 which extend into perforations with which the member 48 is provided, and are movably secured therein by pins 57. The outer ends of the stems 56 are reduced and threaded and equipped with lock-nuts 58. Spring-held plungers 59 are mounted in the members 55 and have their inner ends bearing against the shoe 48. The stems 56 are freely movable in their guides in the members 55, so that the member 48 may be moved outwardly when encountered by a package of undue length. When desired, the locking-pins 57 may be removed, thus enabling the member 48 to be readily disconnected from the stems 56.

Each gripper 54 comprises a plate having an upwardly-curved inner end and having its lower surface provided with a shoulder 60 adapted to engage the package. The rear end of the member 54 is provided with a perforate lug or bearing 61 adapted to be mounted on a stud 62 which projects inwardly from the shoe, as shown in Fig. 12. A pivoted retainer 63 serves to retain the member in place. The member 54 is provided with an upwardly-projecting threaded stud 64 equipped with washers 65, beneath the lower one of which is confined a spring 66. The stud 64 is adapted to engage a slot 67 in a bracket 68 carried by the shoe or end-fin folder. The washers 65 are made convex on their adjacent sides so as readily to embrace the projecting end of the

bracket 68 between them. It will now be understood that the gripper-members 54 may be readily disconnected to enable them to be cleaned, and the end folder 49 may be disconnected to enable it to be cleaned, which gives ready access to the member 47.

It may be explained here that the removable plate 5 which surmounts the wrapper-folding chute is provided at its rear end with a stud 69 (Fig. 9) adapted to enter a perforation in the rear housing-member 2 when the plate is slid into position; and at its front edge the plate is equipped with a locking-bolt 70 having at its rear end a transverse pin 71 adapted to enter through a T-slot in the front housing-member 2 and to be locked when the member 70 is rotated.

The shaft 22 which serves to actuate the folder-slide 17 is equipped adjacent the wheel 21 with a cam 72 which co-acts with a cam-arm 73 joined by a connecting-rod 74 to a lever 75 which serves to actuate a vertically-sliding stop, or gate, 76 which moves in a guide carried by a bridge-member 77. The gate 76 serves as a rest for the rear-end of the brick, and moves down into the rear portion of the opening or well 6 when the brick is dropped into the folder-wrapping chute.

The wrapper-feeding mechanism C comprises housing-members 78 (Figs. 1, 3 and 19 to 23), a transversely-disposed shaft 79 journaled therein; stripper-rolls 80 secured to said shaft; a wrapper-pile holder or tray 81 disposed above the stripper-rolls 80 and adapted to contain a stack of wrappers 101 per downwardly; and a separator and wrap-off said tray; a suction device 84 adapted to bow the rear portion of the lowermost wrapper downwardly; and a separator and wrapper-pile elevating device 85, the stripper-rolls, suction device and separator operating in timed relation.

In the illustration given, power is supplied by an electric motor 86 controlled by a switch 87 located within convenient reach of the operator. The motor 86 operates a short countershaft 88 which drives the gear 89 which may be regarded as fixed on a sleeve 90 journaled on the main shaft 22. Thus, the sleeve 90 rotates continuously when the motor is in operation. The sleeve 90 is equipped with a clutch-member 91 which co-acts with a clutch-member 92 splined on the shaft 22 and controlled by a clutch-shifting yoke 93 linked to a controlling lever 94. Motion is communicated from the shaft 22, through the medium of a sprocket-chain 95 (Figs. 1 and 3), to a gear 96 which meshes with a gear 97 mounted on a shaft 98 which extends at right angles to the shaft 79 of the wrapper-feeding mechanism. Upon the shaft 98 is splined a clutch-member 99 adapted to engage the clutch-member 100 formed in the

hub of a bevel gear journaled on the shaft 98 and meshing with a bevel gear 101 fixed on the shaft 79. The clutch 99 is controlled by the yoke 102 linked to a controlling-lever 103 mounted on the front portion of the machine-frame. Thus, the paper-feeding mechanism may be thrown out of gear independently of the wrapping mechanism; or the whole operation may be stopped by withdrawing the clutch 99 through the medium of the lever 94. As a safety feature only, the gear 89 is frictionally connected with the sleeve 90 by friction disks under spring tension, so that the gear 89 may slip on the sleeve if any obstructing element gets into the machine.

The tray, or wrapper-pile support, comprises a plate or bottom member 104 (Fig. 19), equipped with upwardly-extending standards 105 and 106 adapted to engage the edges of the wrappers and maintain the wrappers in stacked relation; and a follower-plate, or weight, 107 adapted to rest upon the wrapper-pile and equipped at its rear corners with perforate ears 108 which engage U-shaped members 109, adapting the follower to be raised, overturned, and to rest upon supports 110. The front standards 106 of the tray are undercut or grooved at their base-portion, as indicated at 111 in Fig. 19, to form guides through which the lower wrapper may be fed to the feed-delivery rolls 82, 83. The plate 104 is cut away or provided with a wide slot 112 to accommodate the segments of the stripper-rolls. The slot is bridged by a center-piece 113, as shown in Fig. 19, the member 113 having a curved upper surface which rises somewhat above the upper surface of the plate 104, thus tending to hold the front portion of the wrapper-pile elevated slightly above the general surface of the plate 104. The stripper-rolls have raised roughened, or corrugated, friction segments 114, and in advance thereof (in the direction of rotation) slightly less raised anti-friction surfaces or segments 115, whose function is to elevate the front portion of the wrapper-pile slightly in advance of the engagement of the lowermost wrapper by the friction segments 114, as will be understood from Fig. 19.

The suction device 84 (Figs. 3 and 20) comprises a yoke 116 equipped with spaced suction-nipples 117; a rock-shaft 118 to which the yoke 116 is secured; a cam-arm 119 secured on the rock-shaft 118; a spring 120 which serves to hold the cam-arm in engagement with the cam 121 fixed on the shaft 79; and a pump 122 connected by a hose 123 with the suction-head which carries the nipples 117. The pump 122 is actuated by an eccentric 124 mounted on the main shaft 22. A cam might be employed, if desired. The action of the pump is timed to

create suction when the suction-head is elevated to the position shown in Fig. 20.

The separator and wrapper-pile lifter 85 comprises a knee or rock-member 125 which carries a separator-finger or plate 126 and has pivotal connection at 127 with the upper end of a plunger 128 which is vertically movable in a standard 129; a cam-arm 130 supported on a pivot 131 carried by the standard 129 and which has an arm 132 engaging a cam 133 fixedly mounted on the shaft 79; a relatively stiff spring 134 which serves to hold the plunger 128 depressed and its head resting on the upper end of the bearing in which the plunger moves; a link 135 connecting the rear end of the cam-arm 130 with the short arm 136 of the knee or bell-crank 125; and a spring 137 which serves to rock the member 125 rearwardly from the position shown in Fig. 20. The member 125 carries a set-screw, or stop, 138 which is adapted to engage a shoulder, or stop, 139 which projects upwardly from the head of the plunger.

The operation of the wrapper-feeding mechanism will be readily understood. The spring 120 operates to elevate the suction-device 84 intermittently, the cam 121 permitting such action at each revolution of the shaft 79. When the nipples 117 are pressed firmly into engagement with the rear portion of the lowermost wrapper, thus slightly elevating the wrappers as shown in Fig. 20, the pump operates to create suction, causing the rear margin of the lower sheet to adhere to the suction-nipples, so that as the suction-head rocks downwardly, the lower wrapper 10 will be drawn or bowed downwardly. Thereupon the cam 133 operates to elevate the rear end of the arm 130, thus causing the member 125 to rock forwardly about the pivot 127, thus thrusting the separator-plate 126 between the lower sheet and the wrapper-pile. Further movement of the cam-arm 130 causes the member 126 to be lifted vertically, thereby lifting the rear portion of the wrapper-pile to the position shown in Fig. 22. In the meantime, the raised parts 115 of the stripper-rolls advance to the position shown in Fig. 22, and the suction action of the pump being relieved, the friction segments 114 engage the front portion of the lower wrapper and feed the wrapper between the feed-delivery rolls 82 and 83, whence it is fed to the wrapper-supporting plate 5 of the wrapping mechanism. Fig. 23 shows the stripper-rolls in the operation of delivering the wrapper.

Briefly stated, the machine operates as follows: Assuming the clutches to be in engaging position, wrappers are intermittently fed forwardly from the lower side of the wrapper-pile, through the feed-delivery rolls 82, 83 and upon the plate 5. During the passage of the wrapper, the gate 76 is in

the elevated position, and after the feeding operation, the wrapper rests on the plate 5 and beneath the guards or guides 7. The operator places the brick on the wrapper with the rear end resting against the gate 76. The gate descends as the brick is depressed. The brick rests at first on the elevated part 23 of the slide 17, and when the slide has moved a sufficient distance to the right, drops upon the bottom of the slide, being engaged by the cam-controlled pusher 25. In the descent of the brick, the side folds are made, and as the brick is carried to the right by the shuttle, the first top-fold and the corresponding end-folds are made. In the reverse movement of the shuttle, the shoulder 24 forces the brick beneath the other top-folder and between the corresponding end-folders, thereby making the second top-fold and the corresponding end-folds, thus leaving the end-fins 38 projecting, as shown in Fig. 16. When the slide completes its movement to the left, as shown in Fig. 4, the package is brought within the range of the grippers 54, so as to be engaged by the shoulders 60. Here the package remains while the slide returns to perform the folding operation upon a second package. In this passage of the slide to the right, a suitable pusher or gate 140, which is normally held in standing position by a spring, but is capable of swinging in the direction shown by the arrow in Fig. 4, is carried beneath the first-wrapped package; and in the reverse movement of the slide the member 140, which in the meantime has righted itself on the other side of the package, serves to expel the package or deliver it into the final portion of the discharge-chute.

Experience has demonstrated that the improved machine is capable of rapidly performing, in a neat manner, the difficult operation of wrapping cakes of butter, and that the improved wrapper feeding-mechanism will serve efficiently and with certainty to deliver the thin wrappers as they are needed. Moreover, the construction of the parts of the wrapping mechanism is such as to enable them to be readily disconnected where necessary, thereby enabling the machine to be readily cleaned from time to time to keep it in sanitary condition and in good working order.

It remains to be mentioned that the bottom-plate 104 of the wrapper-pile holder is equipped on its upper surface at its rear corners with transversely adjustable wrapper-supporting fingers 141, which project slightly over a recess 142 in the rear portion of the plate, thus enabling the downward buckling of the rear portion of the lower wrapper to be controlled, according to the thinness of the paper, the members 141 being adjusted toward each other when very thin paper is to be used.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What we claim as new and desire to secure by Letters Patent is—

1. In a machine of the character set forth, the combination with a wrapper-folding chute and a reciprocatory package-pusher therein, of a wrapper-support above said chute with means enabling the package to be lowered into the chute, and a reciprocating gate adapted to serve as a guide in the lowering operation.

2. In combination with package-wrapping mechanism, including means for supporting a wrapper and enabling the package to be dropped therethrough, of a vertically-reciprocating gate adapted to engage the article to be wrapped, and means located in the rear thereof serving to feed wrappers intermittently beneath said gate and onto the wrapper-support during the intervals when the gate is raised.

3. In a wrapping-machine, a plate equipped with a top-folder and end-folders, the top-folder being spring-projected with relation to the plate, and a package-engaging stop connected with the top-folder and adapted to retract the same with relation to the plate.

4. In a wrapping-machine, the combination with a wrapper-folding chute having an opening, a removable wrapper-supporting plate mounted in said opening and having a well with side-folders thereat, a package-pusher reciprocable in said chute, wrapper-feeding mechanism, a bridge spanning the opening to said chute in front of the wrapper-feeding mechanism, and a vertically reciprocating gate having guide connections with said bridge.

5. In a wrapping-machine, the combination of a wrapper-folding chute equipped with wrapper-folding devices and a reciprocating package-pusher slide, of means for intermittently feeding wrappers to the wrapper-folding mechanism, and a vertically reciprocating gate located between the wrapper-feeding means and the wrapper-

folding mechanism and timed to descend after the feeding of each wrapper, said gate adapted to engage the article to be wrapped.

6. In a machine of the character set forth, wrapper-folding mechanism, including an end-fin folder, slides on which said end-fin folder is detachably mounted, and independent, spring-held plungers parallel with said slides and engaging said end-fin folder.

7. In a wrapping-machine, wrapper-folding mechanism, including a detachably mounted spring-held end-fin folder constituting the front wall of the discharge chute, and a package-gripper detachably mounted on the upper portion of said end-fin folder, substantially as described.

8. In a wrapping-machine, the improved package-grippers mounted on end-fin folders constituting the lateral walls of the discharge chute, one of said end-fin folders being detachably mounted and spring-held.

9. In a wrapping-machine, wrapper-folding mechanism, including a detachable plate associated with a wrapper-folding chute, said plate carrying a spring-held top-folder and carrying also depending end folders, each end folder comprising an upper section and a lower section pivotally connected therewith, said end folders having recessed upper and lower surfaces adapted to accommodate the end fins on the wrapper.

10. In a machine of the character set forth, the combination of folding-mechanism comprising a wrapper-folding chute, equipped with wrapper-folding devices and having a wrapper-supporting plate provided with a well, of a vertically reciprocating gate adapted to descend into the rear portion of the well, wrapper-feeding mechanism in the rear of said gate, and mechanism serving to operate said gate and wrapper-feeding mechanism in timed relation, whereby the wrappers will be fed beneath the gate when it is raised and the gate will descend with the wrapper and article being wrapped, for the purpose set forth.

FREDERICK H. MERRELL.

WILLIAM S. AMIDON.

In the presence of—

CHARLES E. HAMMERSLEY,

B. M. DEVINE.