No. 874,620. PATENTED DEC. 24, 1907.

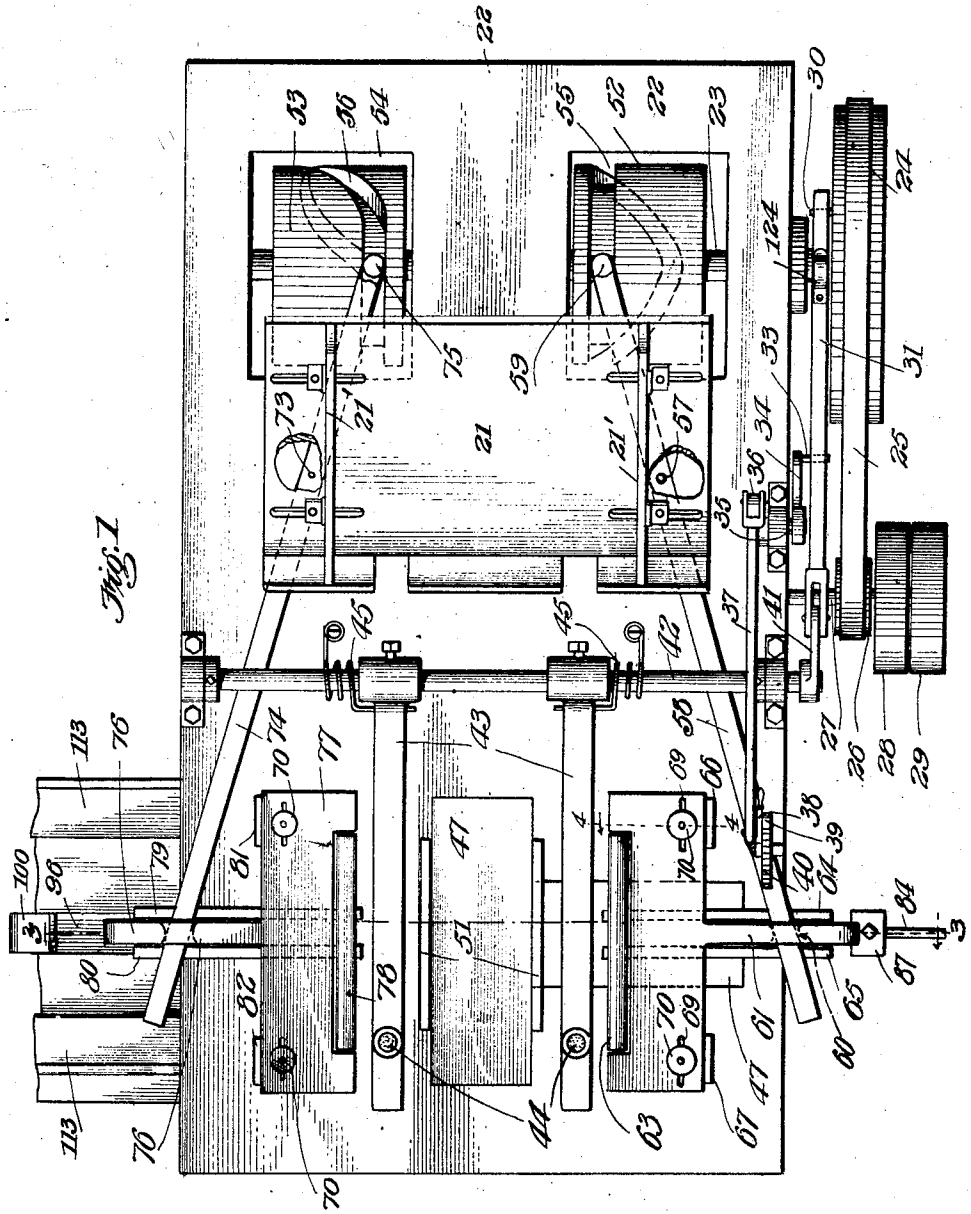
J. M. PATTERSON.

WRAPPING MACHINE.

APPLICATION FILED MAR. 2, 1906.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Edmund A. Strauss
R. M. Wilkinson

Inventor
James M. Patterson
By Hazard & Kaufman
Attorneys.

No. 874,620. PATENTED DEC. 24, 1907.

J. M. PATTERSON.

WRAPPING MACHINE.

APPLICATION FILED MAR. 2, 1906.

5 SHEETS—SHEET 2.

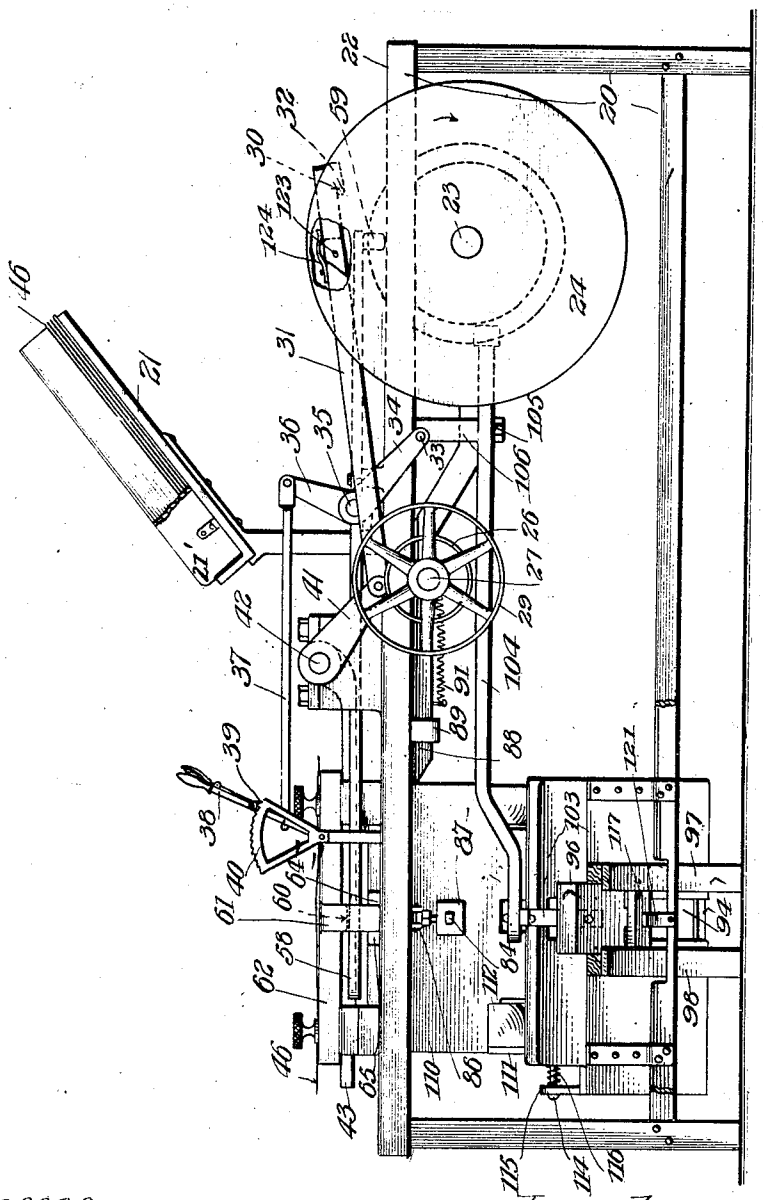


Fig. 2

Witnesses
Edmund A. Stevens
B. M. Wilkinson

Inventor
James M. Patterson
By Hazard & Kapham
Attorneys.

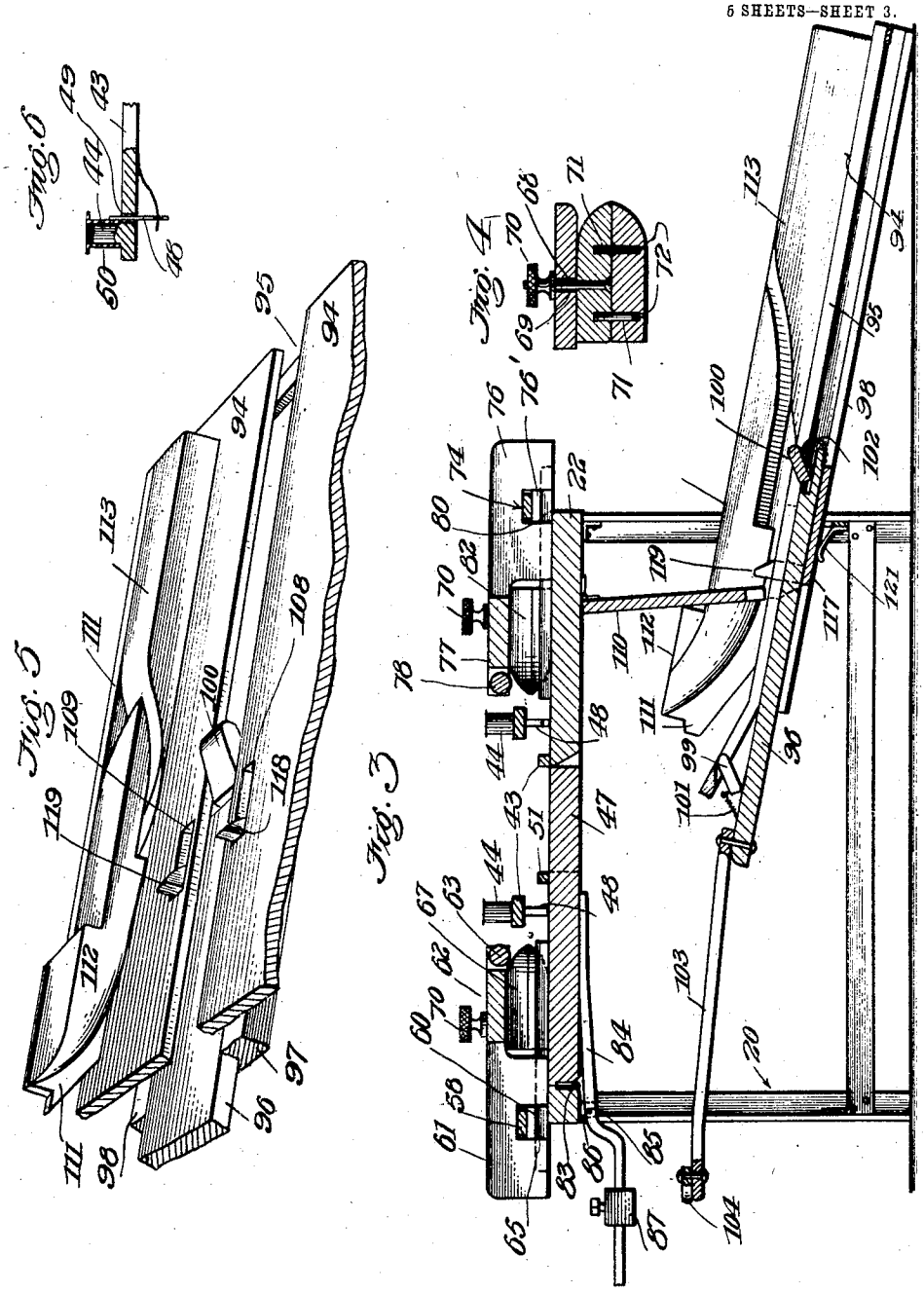
No. 874,620. PATENTED DEC. 24, 1907.

J. M. PATTERSON.

WRAPPING MACHINE.

APPLICATION FILED MAR. 2, 1906.

6 SHEETS—SHEET 3.



Witnesses
Emma A. Stanley
B. M. Wilkinson

Inventor
James M. Patterson
By Hazard & Kerkham
Attorneys.

No. 874,620. PATENTED DEC. 24, 1907.

J. M. PATTERSON.

WRAPPING MACHINE.

APPLICATION FILED MAR. 2, 1906.

5 SHEETS—SHEET 4.

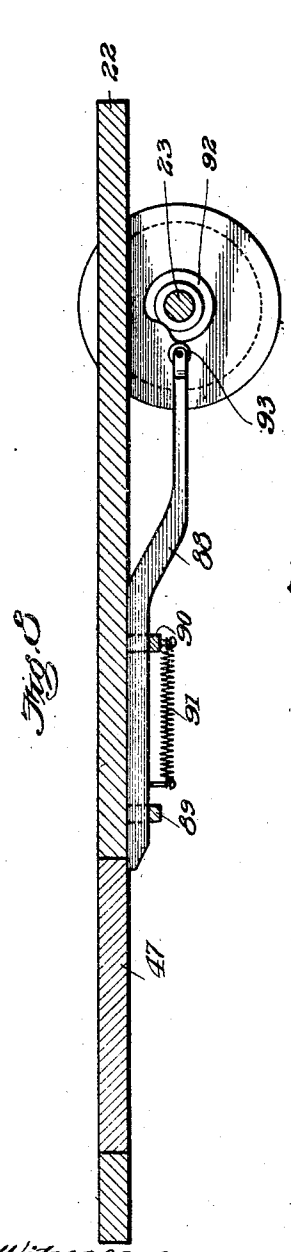


Fig. 8

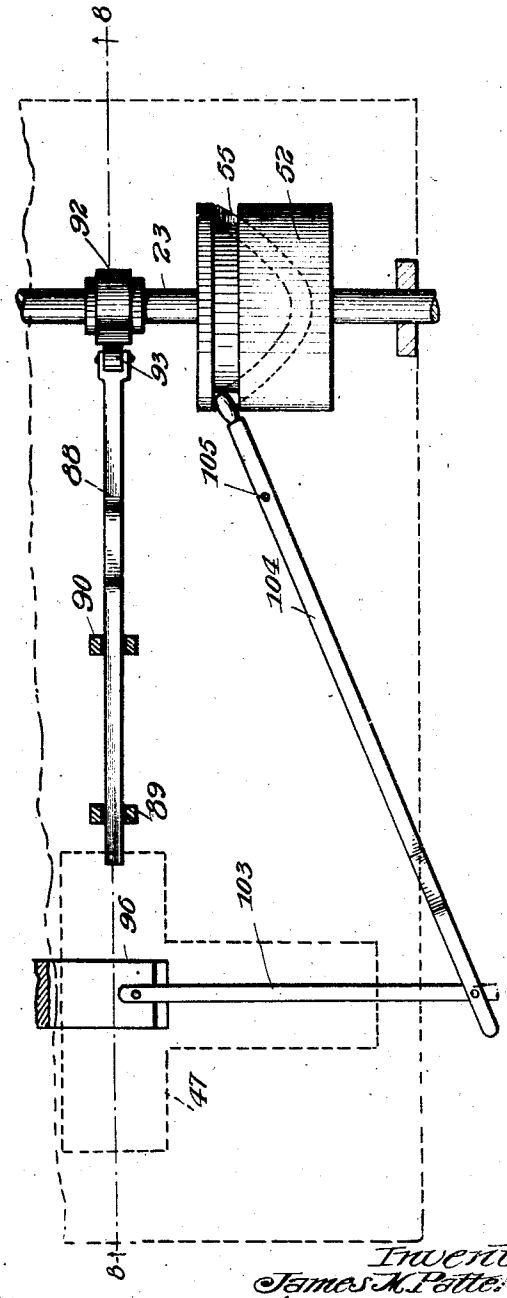


Fig. 7

Witnesses
Emma A. Thomas.
B. M. Wilkinson

Inventor
James M. Patterson
By Hazard & Hapham
Attorneys.

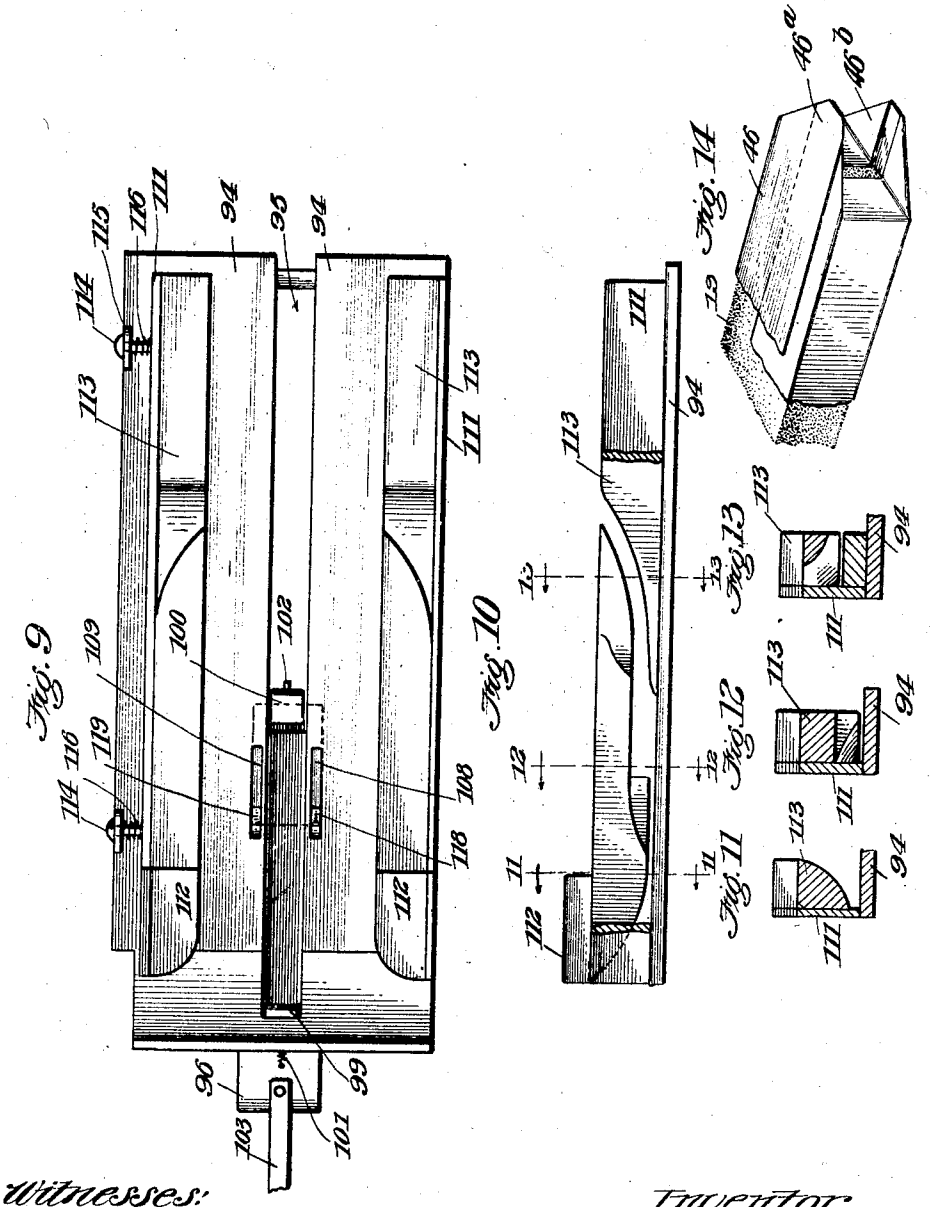
No. 874,620. PATENTED DEC. 24, 1907.

J. M. PATTERSON.

WRAPPING MACHINE.

APPLICATION FILED MAR. 2, 1906.

5 SHEETS—SHEET 5.



Witnesses:
E. A. Stone
S. M. Wilkinson

Inventor
James M. Patterson
By Hazard & Kapham
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES M. PATTERSON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO NATIONAL WRAPPING MACHINE CO., OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

WRAPPING-MACHINE.

No. 874,620. Specification of Letters Patent. Patented Dec. 24, 1907.

Application filed March 2, 1906. Serial No. 303,802.

To all whom it may concern:

Be it known that I, JAMES M. PATTERSON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Wrapping-Machines, of which the following is a specification.

My invention relates to a machine for wrapping rectangular quadrilateral packages such as cakes of butter, soap, raisins or other packages of like nature; and the object thereof is to produce a machine that will quickly wrap a paper around such package. I accomplish this object by the mechanism described herein and illustrated in the accompanying drawings in which:—

Figure 1.—is a plan of my machine with a portion of the end wrapping mechanism broken away. Fig. 2.—is a side elevation of my machine with parts broken away for clearness of illustration. Fig. 3.—is a section on the line 3—3 of Fig. 1. Fig. 4.—is a section on the line 4—4 of Fig. 1. Fig. 5.—is a perspective view of one side of the end wrapping mechanism and a portion of the bottom of the delivery chute. Fig. 6.—is a sectional detail of a portion of the wrapper moving mechanism. Fig. 7.—is a detail of a portion of the mechanism for moving the package while the top and bottoms of the ends of the wrapper are being turned and for ejecting the package from the machine. Fig. 8.—is a section on the line 8—8 of Fig. 7. Fig. 9.—is a plan of the end wrapping mechanism. Fig. 10—is a side elevation of one of the sides of the end wrapping mechanism. Figs. 11—12 and 13—are sections on the lines 11—12 and 13 respectively of Fig. 10. Fig. 14—is a perspective view of the end of a slab of butter partly wrapped.

Mounted upon the frame 20 of the machine is the paper wrapper tray 21 which holds the paper wrappers 46 which are to be wrapped around the packages. This tray is held at an elevation above the table or platform 22 as best shown in Fig. 2 of the drawings. Mounted upon shaft 23 is a pulley 24 which is driven by belt 25 which passes around a pulley 26 on the power shaft 27, which shaft is provided with the fast and loose pulleys 28 and 29 of usual construction. On the side of pulley 24 is a pin 30 which during a portion of the revolution of the wheel engages bar 31 at notch 32, shown in dotted lines in Fig. 2 and carries the bar backwardly until the pin is disengaged from the notch, the wheel 24 rotating in the direction of the arrow. The downward movement of bar 31 is stopped by a pin 33 mounted in the end of the crank arm 34 which is secured upon shaft 35; which last shaft has an arm 36 to which is pivotally connected a rod 37 whose other end is pivotally connected to the operating lever 38 provided with dog 39, which dog engages the toothed rack 40, so that when desired bar 31 can be held out of engagement with pin 32. Bar 31 is pivotally connected to arm 41 which last arm is rigidly secured to shaft 42. On shaft 42 are adjustably mounted the wrapper moving arms 43 which carry on their outer ends the paper picking studs 44 whose outer ends or face is coated with some slightly adhesive substance which will cause the paper to stick to the studs.

As best shown in Fig. 2 it will be seen that the rotation of wheel 24 causes pin 30 to engage with bar 31 at notch 32 and carry the wrapper moving arms 43 to the position shown in Fig. 2, that is parallel to and almost in contact with table 22. The further movement of the wheel causes the disengagement of pin 30 from the bar 31, whereupon springs 45 which are coiled around shaft 42 and have one end secured to the table and the other end bearing against the under side of the wrapper moving arms, will carry said arms up to the paper holding tray, when the paper picking studs will come in contact with and slightly adhere to the first wrapper in the tray. It will be seen that this movement of the wrapper moving arms will carry bar 31 toward the front part of the table and into a position for pin 30 to engage notch 32 in the bar and carry the wrapper moving arms back to the position shown in Figs. 1 and 2. By this last movement a paper wrapper 46 is removed from the tray and placed over a trap door 47 in the top of the table, the position of the wrapper being shown in dotted lines in Fig. 1. Just before the wrapper moving arms come to rest in their outward movement, or movement toward the front of the table, a stud 48 strikes the top of the table and is caused to move through an aper-

ture 49 in the end of the arm. This stud carries a sleeve 50 which surrounds the paper picking stud and the upward movement of this sleeve releases the paper wrapper from the paper picking studs. The operator then places a slab of butter 19 or other package that is to be wrapped upon the paper upon the center of the trap door. The weight of the article carries the paper downwardly between ledges 51 which are placed on the top of the table at each side of the trap door as best shown in Figs. 1 and 3.

On shaft 23 are rigidly mounted cam wheels 52 and 53 the tops of which project through apertures 54 in the top of the table. These cam wheels are provided on the face thereof with irregular shaped grooves 55 and 56, the grooves in each wheel being of the same shape, and the wheels are so mounted on the shaft that the curved portion of the groove of one wheel is set on the quarter as to the grooved portion of the other cam wheel. Pivotally mounted at 57 is a lever 58, the rear end of which carries a pin 59, shown in dotted lines in Figs. 1 and 2, which pin enters groove 55 of cam wheel 52, whereby upon the rotation of the cam wheel, when the pin enters the curved portion of the groove the forward end of the lever is first moved toward the center of the table and then moved back from the center of the table to the position shown in Fig. 1 and while the pin is in the straight portion of the groove the lever has no motion whatever. The front end of lever 58 passes through a slot 60 in the tongue 61 which is secured to one of the top folding plates 62. In the edge of this top plate opposite the tongue is mounted roller 63 which engages the upturned side of the paper wrapper as the top folding plate 62 is moved toward the center of the table and turns it down upon the package being wrapped. If desired the edge of the top of the folding plate could be rounded and the roller dispensed with, but I prefer the roller as it gives a rolling contact instead of a sliding contact between the folding plate and the paper wrapper. Tongue 61 is guided in its movement by the bars 64 and 65 between which it moves.

At each end and adjustably secured to the under side of top plate 62 are the edge-end turning slides 66 and 67 which are longitudinally and horizontally divided into upper and lower halves as best shown in Fig. 4. The upper halves are held to the plate by screws 68 which pass through slots 69, which slots permit the slides to be adjusted toward or from each other to provide for different length packages. A knurled nut 70 on the screw 68 provides means for holding the slide in its adjusted position. The upper half of the slide is provided with pins 71 which project downwardly into sockets 72 in the lower half, so that the lower half can separate from the upper half in case the thickness of the package being wrapped exceeds the width of the two halves of the slide, thereby permitting the lower half to press the lower part of the end flap flat upon the table. The ends of these slides adjacent to the slides on the other side of the table are pointed and the sides of the slides 66 and 67 adjacent to each other are likewise curved away from each other at the pointed end so that the first contact with the paper will be at the center and at a little distance from the end of the package, so that the paper may be evenly folded against the end of the package with an equal fold above and below. The rotation of cam wheel 52 causes pin 59 of lever 58 to enter the groove at a point which will first cause the forward end of the lever to move toward the center of the table thereby causing the side of the wrapper on that side of the package to be folded down on the top and the edge at each end to be folded in against the end of the package and to be pressed flat upwardly and downwardly as shown in Fig. 14. Upon the other side of the table and pivotally connected thereto at 73 is a lever 74 having a pin 75 which projects downwardly into groove 56 of cam wheel 53. The front end of lever 74 passes through a slot 76′ in a tongue 76 which is secured to the other top folding plate 77. In the edge of this top plate opposite the tongue is mounted roller 78 which engages the upturned side of the paper wrapper on that side of the package as the top folding plate 77 is moved toward the center of the table and turns it down upon the package being wrapped. Tongue 76 is guided in its movement by the bars 79 and 80 between which it moves. At each end and adjustably secured to the under side of the top plate 77 are the edge-end turning slides 81 and 82 which are constructed and operate the same as slides 66 and 67. The movement of lever 74 is preferably so timed that it begins to move to carry the top plate toward the other top plate just as the other top plate has reached the extreme inward limit of its movement toward the center of the table. Trap door 47 is T-shaped and is pivotally connected to the top of the table by hinge 83 (see Fig. 3). A counter-balancing bar 84 is pivoted at 85 to a bearing 86 which is secured to the table. The front end of bar 84 projects inwardly and lies beneath the trap door and the other end carries a counter-balance weight 87 which is adjustably secured upon the bar. A locking bar 88 slidable through bearings 89 and 90 holds the trap door in its locked position during the time the paper wrapper is being placed over the trap door and during the movement of the top plates as before described. A spring 91 is secured to bearing 90 and the other end is secured to the locking bar near bearing 89 so as to withdraw the end of the locking bar from beneath the

trap door and unlock the same whenever cam 92, which is mounted on shaft 23, will permit the backward movement of the locking bar. This cam is engaged by roller 93 which is carried by the rear end of the locking bar as best shown in Figs. 7 and 8, and it will be seen by an inspection of Fig. 8 that the locking bar will only be withdrawn from under the end of the trap door a very short time. The movement of this cam is so timed that the trap door is unlocked as soon as the last top folding plate has folded the top and edges of the wrapper on its side. As soon as the trap door is unlocked the weight of the package thereon causes the same to sink until the package thereon slides off the trap door upon the bottom of the end wrapping mechanism, the rear end of which slants upwardly as shown in Fig. 3.

In practice I find that the package will slip off the trap door by the time the trap door reaches the plane of the upturned end of the bottom of the end wrapping mechanism. As soon as the package slips off the trap door the counter-weight immediately brings the door back to its horizontal position in which it forms a part of the table top, and that this movement occurs in ample time for the door to be locked by the holding bar being forced back under it by cam 92. In the bottom 94 of the end wrapping mechanism is a slot 95, and below this slot is an ejector slide 96 which is held in position and supported by bearing plates 97 and 98 which abut against the edges and project partly under the ejector slide and are secured to the bottom of the end wrapping mechanism. The ejector slide is provided at the ends thereof with carrying lugs 99 and 100 which project upwardly in the slot in the bottom of the end wrapping mechanism. These carrying lugs are united to the ejector slide by hinges which permit the lugs to turn downwardly in the direction of the outer end of the end wrapping mechanism and can turn in the other direction so as to stand at right angles to the face of the slide. Lug 99 is caused to assume a position at right angles to the face of the slide by spring 101 one end of which is secured to the lug and the other to the slide upon the back thereof. Lug 100 is caused to project upwardly in the slot by a curved spring 102 secured to the slide, the free end of which bears against the front side of the lug. To the ejector slide is pivotally connected a link bar 103, the other end of which, is pivotally connected to the ejector operating lever 104. This lever is pivoted at 105 to a bearing 106 which is secured to the bottom of the table, as shown in Fig. 2. The end of lever 104 is rounded as shown in Fig. 7 and projects into groove 55 of the cam wheel 52 and as said cam wheel is rotated, when the rounded end enters the curved portion of the groove, the lever is moved to cause the ejector slide to travel nearly to the end of the end wrapping mechanism. Hinged to the outer end of the ejector slide on the under side thereof is a stop leaf 117 which is provided with lugs 118 and 119, which when the ejector slide is in the position shown in Fig. 3, the same being its extreme limit of inward motion, project through apertures 108 and 109 in the bottom of the end wrapping mechanism and act as a stop to prevent the package from sliding further down the end wrapping mechanism before the ejector slide begins to move. A leaf 110 is also hinged to the under side of the top and is engaged by the package as it passes through the end wrapping mechanism which better insures the holding of the wrapper upon the package.

As before stated the paper wrapper which incloses the package has been folded longitudinally with the edges of the end turned in as shown in Fig. 14 and the wrapper is in this position when the package slides off the trap door upon the bottom of the delivery chute. The sides of the end wrapping mechanism are of a configuration to properly fold the projecting ends 46^a and 46^b as the package travels through the end wrapping mechanism. In the first place the vertical height of the sides 111 of the end wrapping mechanism is a little in excess of the thickness of the package. To the vertical wall 111 is secured an over-hanging front ledge 112, the front portion of which, is curved longitudinally and transversely on the under side and the front corners of the ledges adjacent to each other are rounded. The object of this configuration is to cause the projecting end 46^a of the wrapper to strike this double curved surface and to be borne downwardly thereby and by the time these curves run out the projecting end 46^a is pressed down in tight contact with the end of the package and is held in place by the vertical inner edge of the ledge. As the package passes along the lower projecting end flap 46^b engages a bottom ledge 113 which has its front edge sharpened and curved the curve commencing at the vertical wall and sloping toward the rear end and upwardly as best shown in Figs. 3, 5, and 10. The top and bottom ledges are separated leaving a channel between them, and the rear end of the top ledge on the lower side curves longitudinally and transversely, but the curve commences at the vertical wall curving upwardly and backwardly so that the flap 46^b may be turned upwardly by the bottom ledge as the package passes along. After the package has reached the rear end of the slot between the ledges the projecting flaps at the ends are folded neatly upon the ends of the package. The movement of the ejector slide is sufficient to carry a package far enough in the end wrapping

mechanism to have the end flaps neatly folded, and when it travels backwardly the lug at the rear end thereof folds down and passes under the package and after it passes the package the spring throws it upwardly a sufficient height that upon the movement of the ejector slide toward the end of the end wrapping mechanism it engages the package and forces it out of the end wrapping mechanism. One of the sides of the end wrapping mechanism is slidably mounted upon the bottom and is held thereon by pins 114 which pass through bearings 115 secured to the bottom. Between these bearings and the vertical wall of the side are springs 116 which are coiled around the pins. By using these springs a pressure may be placed upon the end flaps as they are being turned and also gives an adjustability to different lengthed packages within the limit of the movement of the spring. The curved portions of the grooves of cam wheels 52 and 53 can be off set differently from the quarter if desired, but I prefer the quarter as one plate commences to move back from the trap door as the other moves toward it by this arrangement, thus keeping the top of the wrapper held down.

Stop leaf 117 on its movement toward the rear end of the end wrapping mechanism swings down until the lugs engage the forward end of the slots. On the movement toward the other end of the end wrapping mechanism it engages the slanting guide bar 121 which causes the free end of the leaf to move upwardly to carry the lugs so they will project up through the slots. The sides 21′ of the paper holding tray are adjustable to adapt the tray for use with paper of different widths. Arm 31 is composed of two parts hinged together at 123 and the forward portion is held in alinement with the other part by a spring 124 which permits the forward part to break upwardly to release it from pin 30.

Having described my invention what I claim is:—

1. A wrapping machine, comprising a frame having a top forming a table; a trap door in said table; top-folding plates slidably mounted on said table, one on each side of said trap door; edge-end folding slides secured to said top-folding plates; and mechanism for reciprocating said plates.

2. In a wrapping machine, a frame having a top forming a table; a trap door in said table; ledges at the sides of said trap door; top-folding plates slidably mounted on said table, one on each side of said trap door; edge-end folding slides secured to said top-folding plates; a shaft mounted below said table; two cam wheels having irregular grooves in the faces thereof mounted on said shaft, a portion of said grooves being on a straight line around the circumference thereof and the other portion curving away from the straight portion and then back to straight portion, the curved portion of the groove of one cam being offset as to the curved portion of the groove of the other cam; two levers pivotally secured upon said table top, the ends of said levers being operatively connected with said top-folding plates and said cams.

3. In a wrapping machine, a frame having a top forming a table; a trap door in said table, said trap door being pivotally connected to said table; and means for locking and unlocking said trap door.

4. In a wrapping machine, a frame having a top forming a table; a trap door in said table, said trap door being pivotally connected to said table; counter-balancing means operatively connected to said trap door; and means for locking and unlocking said trap door.

5. In a wrapping machine, edge-end folding slides having pointed front ends and having the adjacent portions of the pointed ends curving away from each other, said slides being longitudinally and horizontally and centrally divided and being adjustably secured together; and mechanism for reciprocating said slides.

6. In a wrapping machine, a frame having a top forming a table; a trap door in aid table; ledges at the side of said trap door; mechanism for locking and unlocking said door; mechanism upon said table for folding the edges, top and end edges upon the package; and mechanism below the top of the table for folding upon the package the projecting end flaps at the top and bottom thereof.

7. A wrapping machine, comprising an end wrapping mechanism having vertical sides, front and rear ledges secured to the vertical sides and projecting inwardly therefrom, the front ledges having their lower surfaces curved, and the rear ledges having their upper surfaces curved, whereby the top and bottom end flaps of the package are folded against the package.

8. A wrapping machine, comprising an end wrapping mechanism having vertical sides, ledges secured to the vertical sides and adapted to project inwardly therefrom, and means for adjusting the vertical sides for different size packages.

9. A wrapping machine, comprising a table, top-folding plates mounted on the table, edge-end folding slides secured thereto, and means for reciprocating the slides whereby one of the plates will have reached its inward movement before the other plate begins its inward movement, and the first named plate is withdrawn at the beginning of the inward movement of the last named plate.

10. In a wrapping machine, a frame having a top forming a table; said table having

apertures therein; a shaft mounted below said table; two cam wheels having irregular shaped grooves in the face thereof mounted on said shaft, said cam wheels projecting through the apertures in said table; pivoted levers mounted upon said table and having the ends projecting into the grooves in said cam; wrapper turning slides mounted upon said table and operatively connected to said pivoted levers whereby upon the movement of said levers said wrapper turning slides are reciprocated.

In witness that I claim the foregoing I have hereunto subscribed my name this 23rd day of February, 1906.

JAMES M. PATTERSON.

Witnesses:
G. E. HARPHAM,
HENRY T. HAZARD.