

No. 869,389

PATENTED OCT. 29, 1907.

J. M. PATTERSON.
WRAPPING MACHINE.
APPLICATION FILED NOV. 5, 1906.

3 SHEETS—SHEET 1.

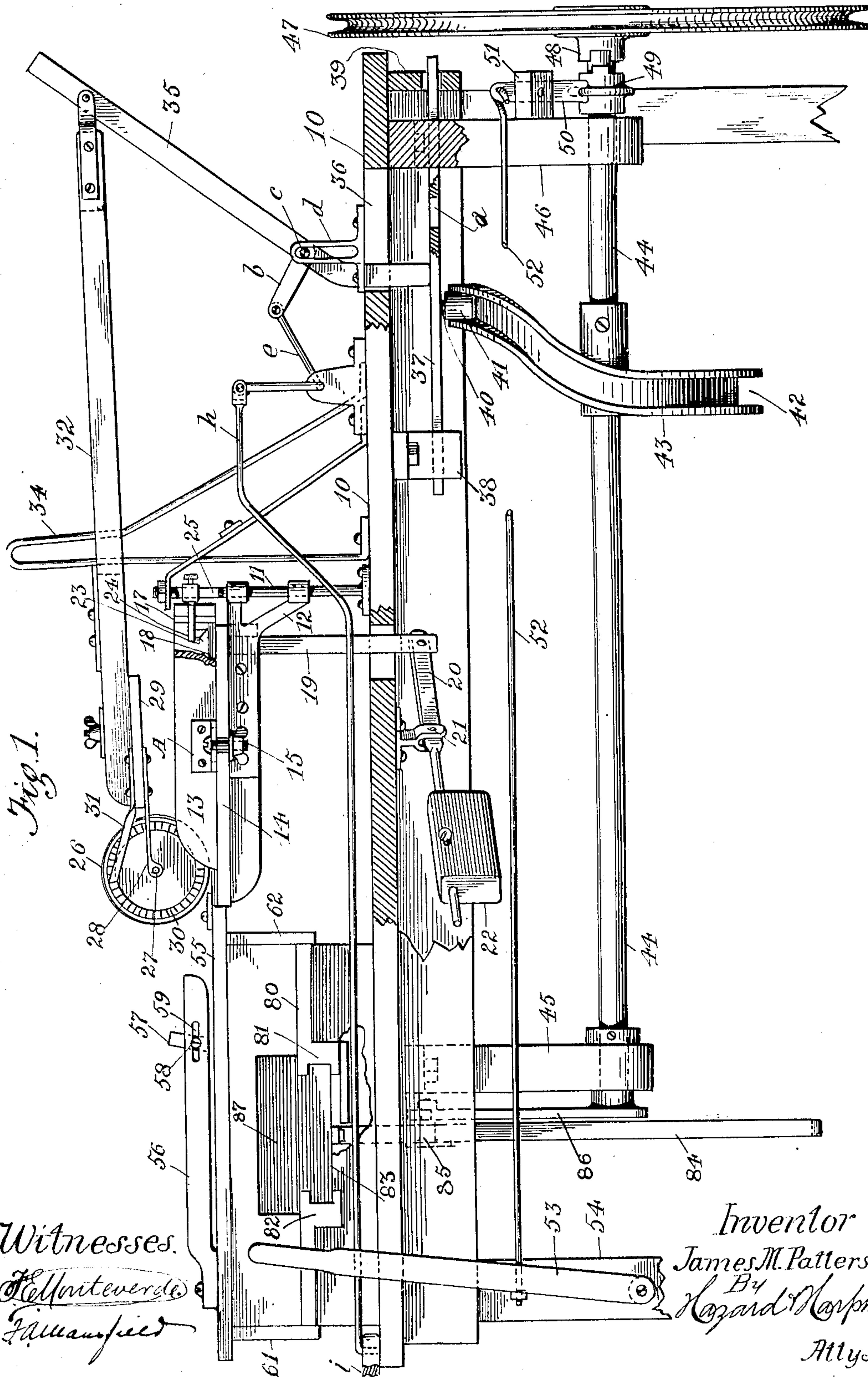


Fig. 1.

Witnesses.

W. Monteverde
J. A. Campfield

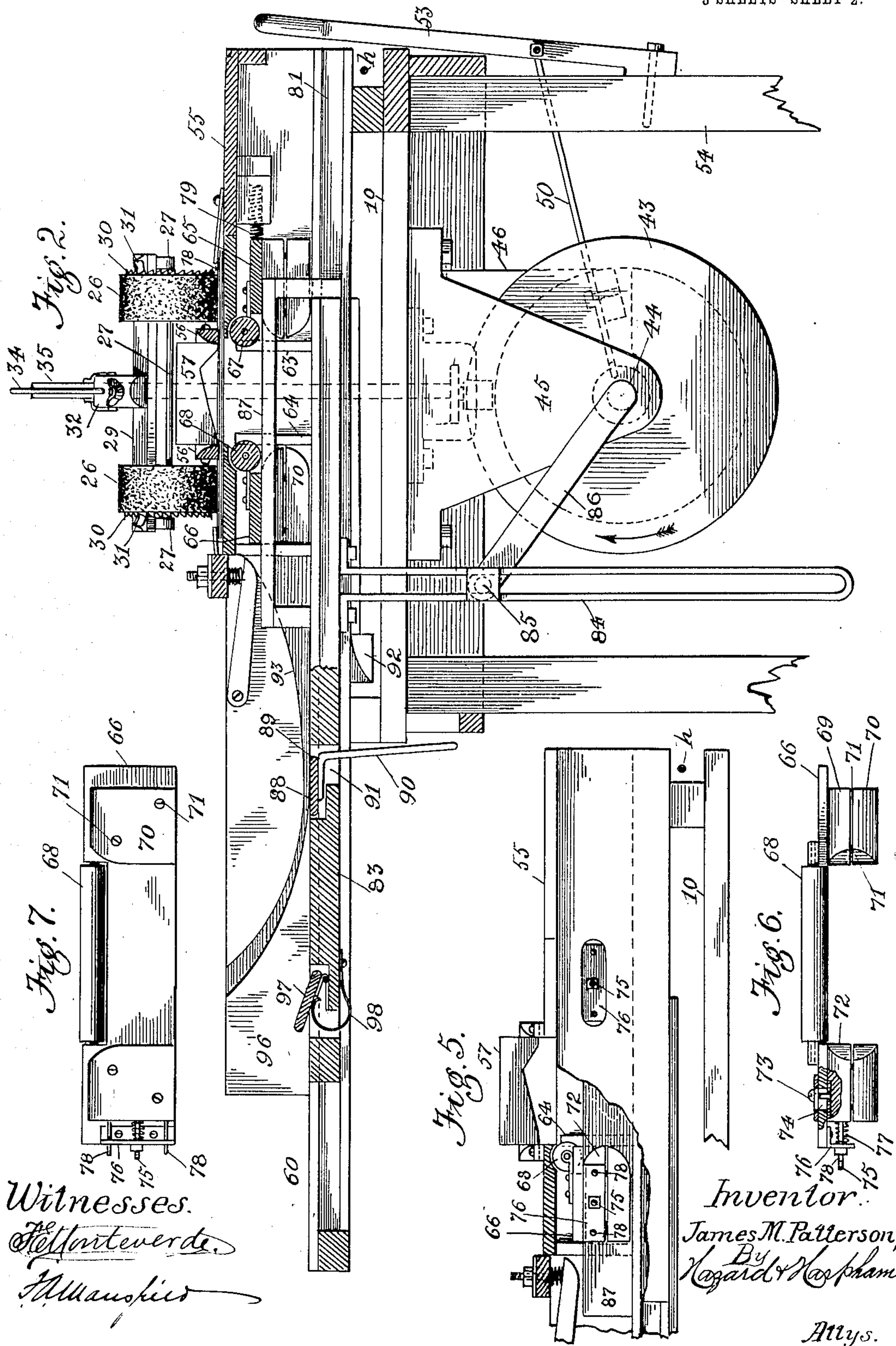
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3 SHEETS—SHEET 2.



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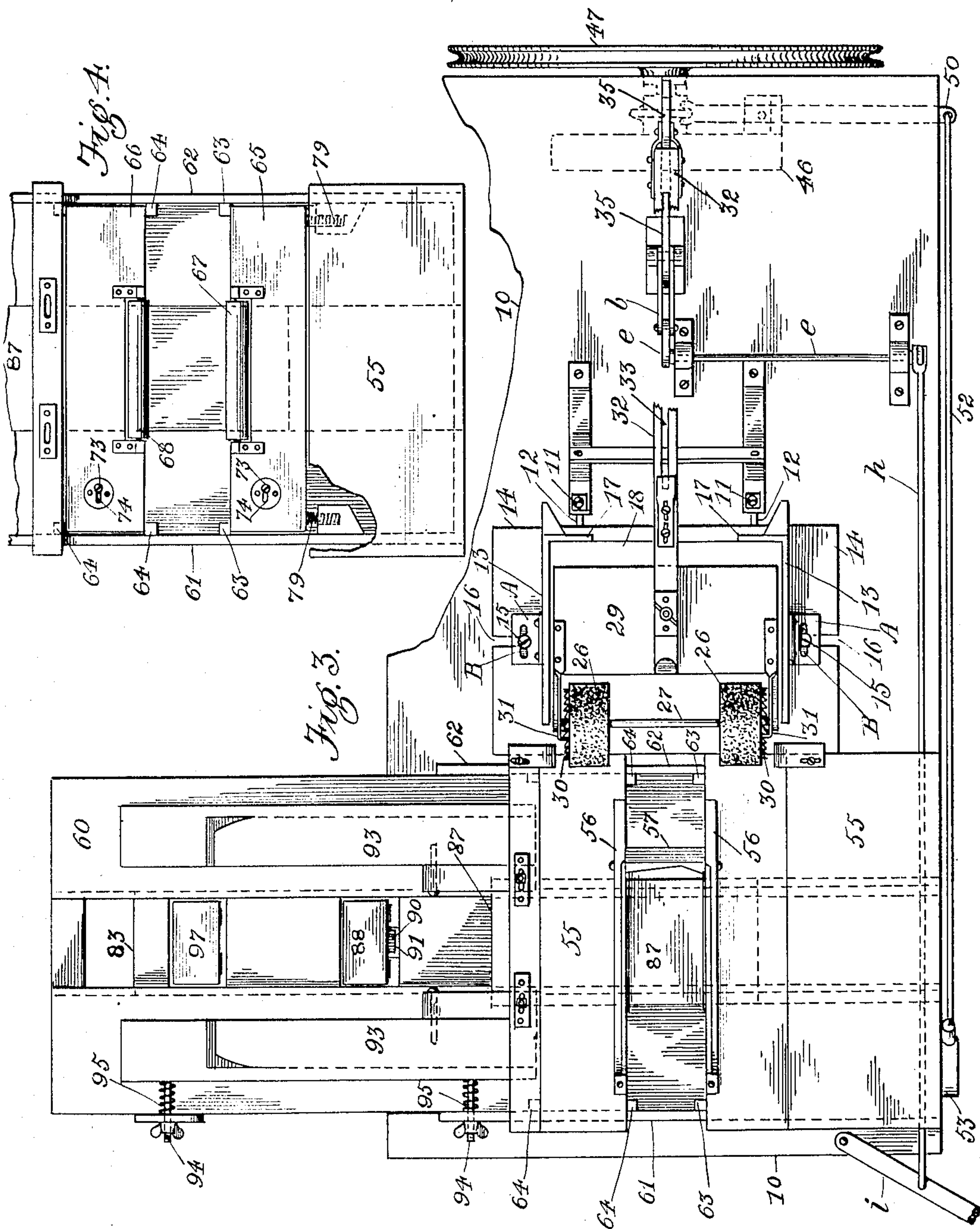
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3 SHEETS—SHEET 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES M. PATTERSON, OF LOS ANGELES, CALIFORNIA.

WRAPPING-MACHINE.

No. 869,389.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed November 5, 1906. Serial No. 342,005.

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 machines for wrapping packages whether the goods are inclosed in boxes or cans or not inclosed, such as cakes of soap or cakes of butter.

In the drawings forming a part of this application I have illustrated my machine as employed for wrapping cakes of butter and will describe it as applied to such purpose, although it may be employed equally well for wrapping other kinds of goods or packages; and the object of my invention is to produce a machine that will quickly wrap a paper around a cake or package of goods. I accomplish this object by the mechanism described herein and illustrated in the accompanying drawings in which:—

Figure 1— is a side elevation partly in section. Fig. 2— is a front elevation partly in section. Fig. 3— is a plan with parts broken away for clearness of illustration. Fig. 4— is a detail plan of a portion of the wrapping mechanism. Fig. 5— is a side elevation partly in section and with parts broken away of a portion of the wrapping mechanism. Fig. 6— is a detail front elevation of a portion of the wrapper folding mechanism. Fig. 7— is a bottom plan of the mechanism shown in Fig. 6.

Projecting upwardly from the top of the main table 10 are guide rods 11 on which are slidably mounted brackets 12, to which brackets are secured the wrapper holding tray whose sides 13 are adjustably secured to the bottom 14 by means of bolts 15, slots 16 in the bottom being provided for that purpose, so that the sides may be widened out to provide for wrappers of different widths. To these sides are secured lugs A which have longitudinal slots B therein through which pass bolts 15 so that the sides and ends may be adjusted for wrappers of different lengths. Secured to the sides 13 at the rear end thereof and movable therewith are end pieces 17 which do not extend across the entire back of the tray, but merely provide stops for the rear end of the wrappers 18 which rest upon the bottom of the tray between the sides. To the bottom of the tray and at the center of the rear portion thereof is pivotally secured a link 19, the other end of which is secured to one end of lever 20 which is pivoted in bearings 21 secured to the bottom of the table. On the other end of the lever 20 is a weight 22 which is slidable thereon so that the tray may be held in a position to keep the topmost wrapper in the tray in engagement with a chisel-shaped lug 23, which lug is secured to the bottom of stop bar 24, which bar is adjustable longitudinally through a bearing upon standard 25, which standard is secured to the table to keep the lug at a certain distance from the rear of the

wrapper when the ends are adjusted. The point of lug 23 penetrates the rear end of the top wrapper on the tray near the rear edge and prevents the wrapper and tray from being forced any further upwardly by weight 22 and connecting mechanisms and holds all of the wrappers from movement out of the tray except the top wrapper as explained later. Resting upon the wrappers in the tray are a pair of wrapper carrying rollers 26 which are rigidly secured upon shaft 27. Shaft 27 is revolvably mounted in arms 28 which are secured to the cross board 29. On the outer sides of the rollers 26 are ratchet teeth 30 which are engaged by springs 31, which springs are secured to the cross board 29. These springs and the ratchet teeth are so arranged that when the rollers are moved to the left or toward the front of the machine they prevent the rollers from rotating, but when moved in the reverse direction or toward the rear of the machine the rollers can freely rotate. To the center of cross board 29 and extending rearwardly therefrom is secured the operating arm 32 which has a slot 33 therein through which projects the guide rod 34 which is secured to the table and is substantially V-shaped in form to prevent the operating arm from twisting and to guide it in its reciprocation in a straight course. The rear end of the operating bar is pivotally connected to the shifting lever 35, the lower end of which projects through a slot 36 in the top of the table and is secured to a sliding bar 37 by passing through a slot *a* when it is desired to operate the lever.

In Fig. 1 the end of the shifting lever is shown as out of engagement with the bar. This is accomplished as follows; an arm *b* is secured to the shifting lever at the bolt *c* which passes through the lever and into the slotted bearings *d* on each side thereof, which bearings are secured to the table. A crank *e* is mounted in bearings secured to the table and one arm is secured to the arm *b* and the other arm is secured to a rod *h* which is connected to a lever *i* which is held by the operator as long as it is desired to render inoperative the wrapper feeding mechanism which is never but a moment. When the lever *i* is released the weight of the parts causes the lower end of the shifting lever to enter the slot in bar 37 when it registers with the lower end thereof. Bar 37 is slidably mounted in brackets 38 and 39 secured to the under side of the table. Revolvably mounted on a pin 40 secured to the under side of the slide bar is a roller 41 that moves in the groove 42 of the irregular shaped cam-wheel 43 which is mounted upon operating shaft 44, which shaft is mounted in bearings 45 and 46 secured to the table. The groove in this cam wheel is of such shape that for half the revolution thereof the slide bar 37 will remain quiescent and during the other half revolution it will cause the slide bar to first move rearwardly, thereby through connecting mechanism causing the movement of the wrapper carrying rollers toward the front of the machine and then causing their re-

turn back to the wrapper carrying tray upon the wrappers therein, where they rest during the other portion of the movement of the cam. On the rear end of the operating shaft is mounted a grooved pulley 47 for the reception of a rope belt to drive the same. The front end of the hub 48 of this pulley forms one of the members of a clutch, the other member 49 being slidable on the operating shaft, but revolving therewith, whereby when it is desired, the clutch members may be engaged to drive the operating shaft or released from engagement to stop the revolution thereof while the pulley 47 is rotating. Clutch member 49 is shifted into or out of engagement by lever 50 which is pivoted to a bearing 51 secured to bearing 46. A rod 52 is connected to the opposite end of lever 50 and to shifting lever 53 which is pivotally connected to one of the legs 54 of the table.

In front of the wrapper holding tray is a wrapper holding table 55 which has an aperture in the top thereof, which preferably extends the whole length of the top and is as wide as the widest package that is to be wrapped in the machine and is in front of the center of the wrapper tray. This wrapper holding table is secured to the main table at an elevation above the same and is provided with wrapper guiding arms 56 on each side of the aperture therein, the forward ends of which are secured thereto and the main portion of the arms are slightly elevated above the table as best shown in Fig. 1 to guide and hold a wrapper upon the table. Adjustably secured in the rear end of the wrapper guiding arms is a stop bar 57 against which the rear end of the package is placed as hereinafter explained. Screws 58 pass through slots 59 and into the stop bar 57 and thereby provide means to adjust the position of the same within the limit of the slot as desired.

Immediately below the wrapper holding table is the wrapper turning or folding and package ejecting mechanism which is composed of the following parts; a wrapper folding and discharge chute 60 extends at right angles to the aperture in the wrapper holding table. This chute is provided with side walls 61 and 62 to which are secured by means of screws (not shown), whereby the position of the same may be changed, pairs of vertical cleats 63 on one side of the opening in the table and pairs of cleats 64 on the other side of the opening. These cleats form guide ways for holding removably secured the mechanism for turning down upon the top of the package that portion of the wrapper which bears upon the same and also for turning the end-edge portions of the wrapper upon the package and consists of the following parts; plates 65 and 66 extend across the chute just below the top of the wrapper holding table and the ends thereof project between the cleats secured to the side walls of the chute (as best shown in Fig. 4). In the adjacent edges of these plates are mounted rollers 67 and 68 which are as long as the package which is to be wrapped and project a little over or beyond the edges of the plate and are preferably mounted on the top side of the plates which are partly cut away for that purpose. The edges of these plates could be beveled and the rollers dispensed with. At each end of these plates are the edge-end-folding members which are composed of two parts longitudinally and horizontally divided as best shown in Figs. 5, 6 and 7. As these members are all of the same construction the description of one set of members will describe all. These runners are preferably

constructed of wood and the halves of each member longitudinally are like old fashioned sled runners turned together as shown in Fig. 5. At one side the upper half 69 is secured to the plate 66 and the lower half 70 is adjustably secured to the upper half by pins 71 so that if the width of the package is increased the lower member drops by its weight to the required size. On the other side the top member 72 is held slidably secured to plate 66 by a screw 73 which passes through a slot 74 in plate 66. An adjusting bolt 75 is secured to this member and passes through a bracket 76 secured to the plate 66 and surrounding the bolt between the bracket and the member is a spring 77 which yieldingly holds this member in place. Guide pins 78 secured to the member pass through the bracket and guide the member in its movement endwise. The other set of members are of similar construction, but on one side thereof are held spring pressed by springs 79 toward the other member so that they may yield in case the package is a little wide. These bottom 80 (see Fig. 1) has a longitudinal opening extending therethrough and at each side of this opening are lugs 81 and 82 which form a guide way in which is mounted a pusher plate 83. To the bottom of the pusher plate is secured a U-shaped operating yoke 84 in which is received a crank pin 85 secured to crank 86, which crank is secured to the operating shaft 44, which when motion is imparted thereto causes the pusher plate to reciprocate in the guide way. Upon the rear end of the pusher plate is a supporting and pushing block 87 which is of a width to pass between the edge-end-folding members.

In the operation of my machine the rotation of the operating shaft through the mechanism hereinbefore described will cause the wrapper carrying rollers to move the top wrapper over the aperture in the wrapper holding table. It will be observed that the outer surface of the wrapper carrying rollers is a rough surface like sand paper so that the frictional engagement between the rollers and the top wrapper is sufficient to cause the wrapper to be torn from under the lug of the stop bar and to be carried across to the proper position upon the top of the wrapper holding table, which is with the center of the wrapper over the center of said aperture. In this forward movement of the wrapper carrying rollers they are held against rotation, but on the rearward travel thereof they rotate upon the wrapper and therefore do not affect its position upon the supporting table. As soon as the rollers pass backwardly the operator seizes a package which is to be wrapped and places the same in the proper position on the wrapper which is indicated by the wrapper guiding arms and the stop bar, the package being placed centrally between the guiding arms and against the stop bar. At this time the supporting block 87 is below the aperture and the weight of the package on the wrapper causes the wrapper to be drawn downwardly and pass with the package between the rollers on either side of the aperture and to rest upon the supporting block. These rollers and supporting block are best shown in Fig. 2. The operating shaft is rotated in the direction of the arrow in Fig. 2 and its motion through connecting parts will cause the pusher plate to be reciprocated toward the rear of the machine or to the right. As soon as the supporting plate passes from beneath the package it will drop to the

pusher plate and rest thereon, thereby causing the wrapper to be folded against the edges of the package. At a distance a little greater than the width of the package the pusher plate is provided with a pusher gate 88, the upper surface of which normally lies in a plane parallel with the upper surface of the pusher plate. This gate lies in a recess in the pusher plate and is pivotally secured at 89 at each side to the pusher plate. To this pusher gate is secured an operating arm 90 which extends through a slot 91 in the pusher plate and as the pusher plate is moved to the rear the operating arm engages a lug 92 on the side of the guide way and the pusher gate assumes an upright position and contacts with the package lying on the pusher plate and the further reciprocation of the pusher plate carries the package between the pair of edge-end-folding members adjacent to the rear end of the machine or to the right of the opening in the wrapper holding table as shown in Fig. 2. As soon as the package has reached in its travel a sufficient distance to have the end-edge-folds on that side of the package folded against the end of the package crank 86 has finished the extreme movement of the pusher plate toward the right and the further movement of the crank causes the plate to travel to the front of the machine or to the left. As the package is being moved to the left it engages with the edge-end-folding members at the left of the opening in the wrapper holding table which fold the edges of the end of that side. The further travel of the pusher plate brings the top end flap into engagement with an overhanging ledge 93 which curves downwardly and then upwardly as best shown in Fig. 2. There are two of these ledges, one on each side and they are secured to the sides of the delivery chute and the distance between their faces is just equal to the length of the package being wrapped. One of these sides however, to provide for the variation in length of the packages, is yieldingly secured to the sides by adjusting bolts 94 around which are coiled springs 95. After the top end flap has been thus turned down the bottom end flap engages lower ledges 96 which turns them up against the end of the package, thereby completing the folding of the wrapper. A further pusher gate 97 hinged to the pusher plate and having the free end thereof held normally elevated by a spring 98 is provided for finishing ejecting the packages, the power of the spring being such as to cause the gate to offer but little resistance when the pusher plate passes to the right, and to cause its engagement with the package when traveling to the left.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a wrapping machine, a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; side-edge and edge-end-folding mechanism secured to the under side of said wrapper holding table adjacent to the aperture therein; and mechanism for moving a package and wrapper into and out of contact with said side-edge and edge-end-folding mechanism.

2. In a wrapping machine, a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; side-edge and edge-end-folding mechanism secured to the under side of said wrapper holding table adjacent to the aperture therein, the side-edge and edge-end-folding mechanism at one side and end being yieldingly held in position; and

mechanism for moving a package and wrapper into and out of contact with said side-edge and edge-end-folding mechanism.

3. In a wrapping machine, a frame having a top forming a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; guide arms adjustably secured to said wrapper holding table at each side of the aperture therein; a stop bar adjustably secured to said guide arms; a wrapper holding tray mounted upon said main table; and mechanism for removing a wrapper from said tray and carrying it to and over the aperture in the wrapper holding table.

4. In a wrapping machine, the combination of side-edge and edge-end-folding mechanism with mechanism for moving a package and wrapper into and out of contact with said side-edge and edge-end-folding mechanism.

5. In a wrapping machine, a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; side-edge and edge-end-folding mechanism secured to the under side of said wrapper holding table adjacent to the aperture therein; a pusher plate slidably mounted upon said main table; a supporting block upon one end of said pusher plate; a pusher gate pivotally mounted in said pusher plate between the end thereof and the supporting block; and mechanism to cause the reciprocation of said pusher plate to bring a wrapper on a package on the pusher plate between the supporting block and pusher gate into and out of engagement with the side-edge and edge-end-folding mechanism.

6. In a wrapping machine, a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; side-edge and edge-end-folding mechanism secured to the under side of said wrapper holding table adjacent to the aperture therein, the side-edge and edge-end-folding mechanism at one side and end being yieldingly held in position; a pusher plate slidably mounted upon said main table below said wrapper holding table; a supporting block upon one end of said pusher plate; a pusher gate pivotally mounted in said pusher plate between the end thereof and the supporting block; and mechanism to cause the reciprocation of said pusher plate to bring a wrapper on a package on the pusher plate between the supporting block and pusher gate into and out of engagement with the side-edge and edge-end-folding mechanism.

7. In a wrapping machine, the combination of a pusher plate slidably mounted therein; a supporting block upon one end of said pusher plate which receives the package during the first wrapping operation; pusher gates pivotally mounted in said pusher plate; with end wrapping mechanism having front overhanging top ledges and rear upwardly extending bottom ledges.

8. In a wrapping machine, the combination of a pusher plate slidably mounted therein; a supporting block upon one end of said pusher plate which receives the package during the first wrapping operation; pusher gates pivotally mounted in said pusher plate; with end wrapping mechanism having front overhanging top ledges and rear upwardly extending bottom ledges at each side thereof, the front and rear ledges at one side being yieldingly supported to permit of transverse movement.

9. In a wrapping machine, a delivery chute having vertical sides, one of which is movable transversely; overhanging ledges secured to the front portions of said vertical sides, the front ends of which curve downwardly and rearwardly; rear ledges having the top surfaces thereof sloping upwardly and rearwardly and commencing at a point to leave a channel between said ledges; and mechanism to hold one of the sides of the delivery chute yieldingly supported transversely.

10. In a wrapping machine, a main table; a wrapper holding table mounted upon and above said main table, said wrapper holding table having an aperture therein; side-edge and edge-end-folding mechanism secured to the under side of said wrapper holding table adjacent to the aperture therein, the side-edge and edge-end-folding mechanism at one side and end being yieldingly held in position; a pusher plate slidably mounted upon said main table below said wrapper holding table; a supporting block

- upon one end of said pusher plate; a pusher gate pivotally mounted in said pusher plate between the end thereof and the supporting block; mechanism to cause the reciprocation of said pusher plate to bring a wrapper on a package
- 5 on the pusher plate between the supporting block and pusher gate into and out of engagement with the side-edge and edge-end-folding mechanism; a wrapper holding tray mounted on said main table; wrapper moving rollers mounted on said tray, said rollers being mounted to re-
- 10 volve when moved in one direction and being non-revoluble when moved in the other direction; an operating bar secured to said rollers and extending rearwardly therefrom; a shifting lever secured to the rear end of said operating bar, said shifting lever being in removable engagement at its other end with a sliding bar; a reciprocating sliding bar; mechanism to hold said shifting lever out of engagement with said sliding bar; and mechanism to intermittently operate said sliding bar.
11. In a wrapping machine, the combination with a
- 20 main frame, a wrapper holding table having an aperture therein, a wrapper holding tray and means for automatically placing a wrapper over the aperture, of means immediately below the aperture between which the package drops by gravity whereby the sides of the wrapper are
- 25 folded against the package, and mechanism for subsequently passing the top surface of the package successively against said means for folding the wrapper over the top of the package.
12. In a wrapping machine, the combination with a
- 30 main frame, a wrapper holding table having an aperture therein, a wrapper holding tray and means for automatically placing a wrapper over the aperture, of means immediately below the aperture between which the package drops by gravity, whereby the sides of the wrapper are
- 35 folded against the package, mechanism for subsequently passing the top surface of the package successively against said means for folding the wrapper over the top of the package, and end wrapping mechanism located at opposite ends of the package for successively folding the edge ends.
- 40 13. In a wrapping machine, the combination with a main frame, a wrapper holding table having an aperture therein, a wrapper holding tray and means for automatically placing a wrapper over the aperture, of means immediately below the aperture between which the package
- 45 drops by gravity whereby the sides of the wrapper are folded against the package, mechanism for subsequently passing the top surface of the package successively against

said means for folding the wrapper over the top of the package, end wrapping mechanism located at opposite ends of the package for successively folding the edge ends, and means at one side of the machine for successively folding the top end of the wrapper downwardly and the bottom end of the wrapper upwardly, a pushing block being provided for automatically causing these successive operations.

14. In a wrapping machine, the combination with a table having an aperture therein over which a wrapper is placed, of rollers immediately below the aperture between which the package descends whereby the wrapper is placed upon the opposite sides of the package, and a pushing block for carrying the package first beneath one roller and then back beneath the other, whereby the wrapper is folded on top of the package.

15. In a wrapping machine, the combination with a table having an aperture therein over which a wrapper is placed, of rollers immediately below the aperture between which the package descends whereby the wrapper is placed upon the opposite sides of the package, a pushing block for carrying the package first beneath one roller and then back beneath the other, whereby the wrapper is folded on top of the package, and means in position to first fold the edge ends at one side while the package is passed beneath one roller and then the edge ends at the other side when passed beneath the other roller.

16. In a wrapping machine, the combination with a table having an aperture therein over which a wrapper is placed, of rollers immediately below the aperture between which the package descends whereby the wrapper is placed upon the opposite sides of the package, a pushing block for carrying the package first beneath one roller and then back beneath the other, whereby the wrapper is folded on top of the package, means in position to first fold the edge ends at one side while the package is passed beneath one roller and then the edge ends at the other side when passed beneath the other roller and end wrapping mechanism for folding the top and bottom ends of the wrapper around the package.

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

JAMES M. PATTERSON.

Witnesses:

G. E. HARPHAM,
EDMUND A. STRAUSE.