

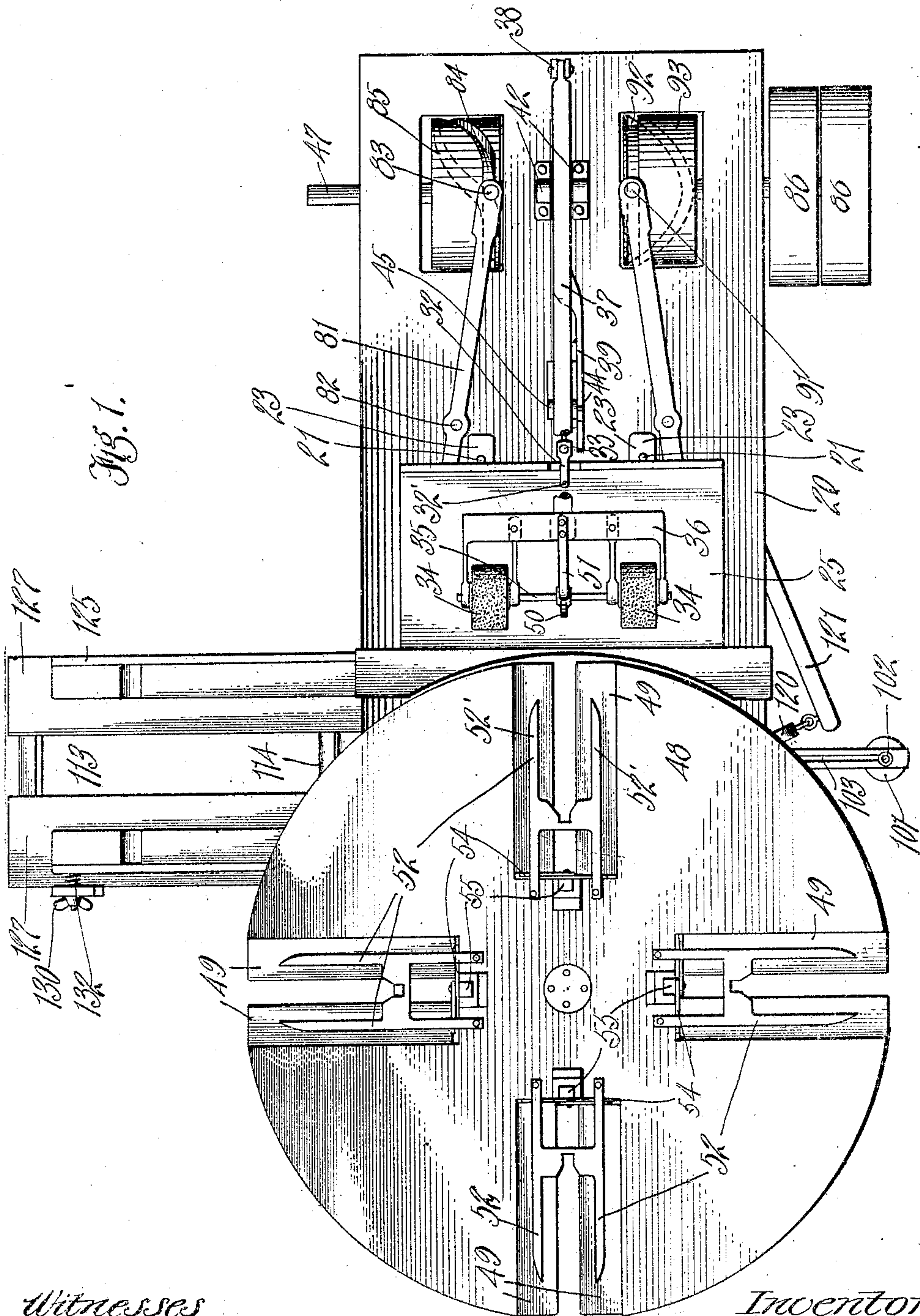
No. 869,388.

PATENTED OCT. 29, 1907.

J. M. PATTERSON.
WRAPPING MACHINE.

APPLICATION FILED MAY 23, 1906.

7 SHEETS—SHEET 1.



Witnesses
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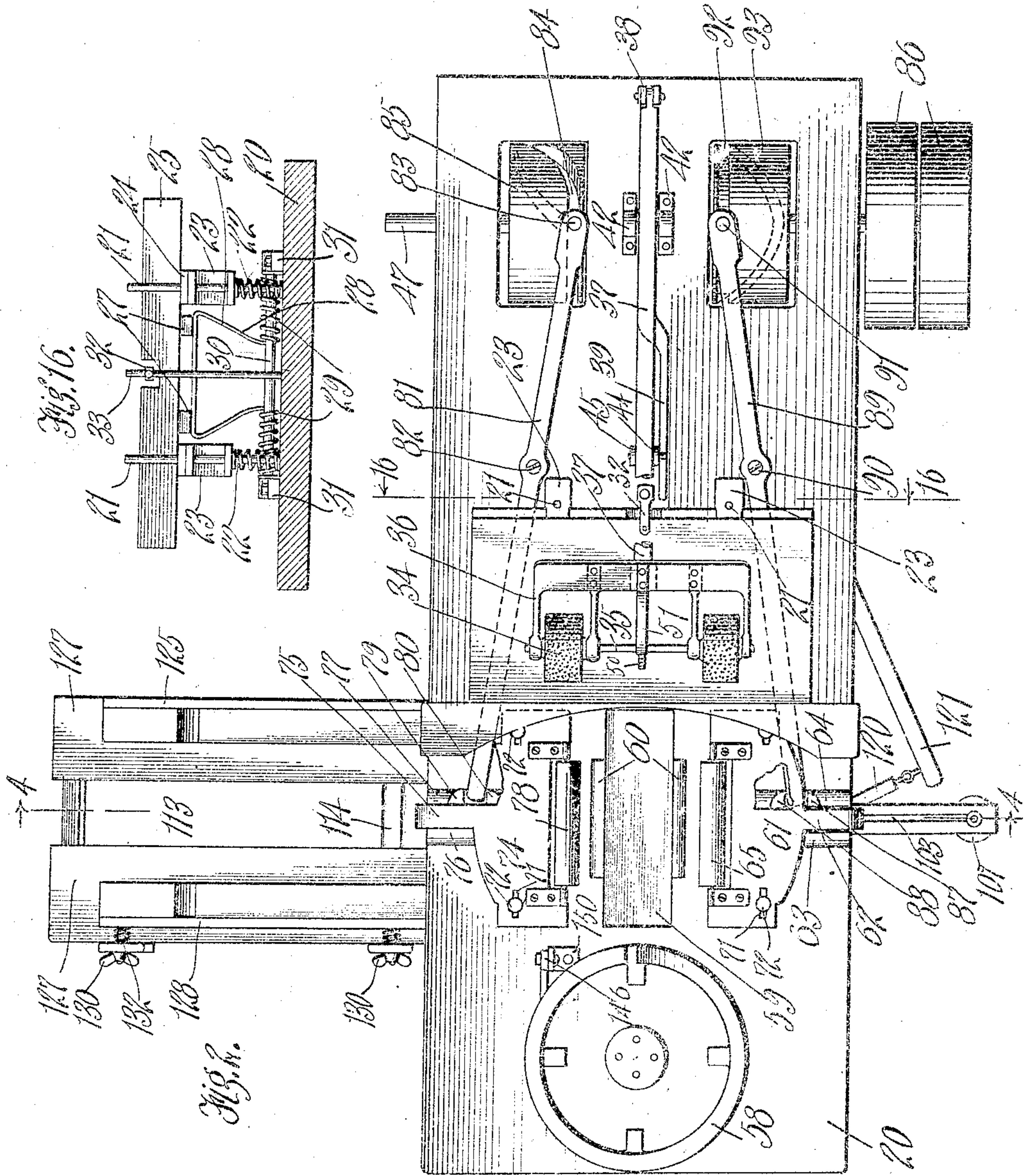
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7 SHEETS—SHEET 2.



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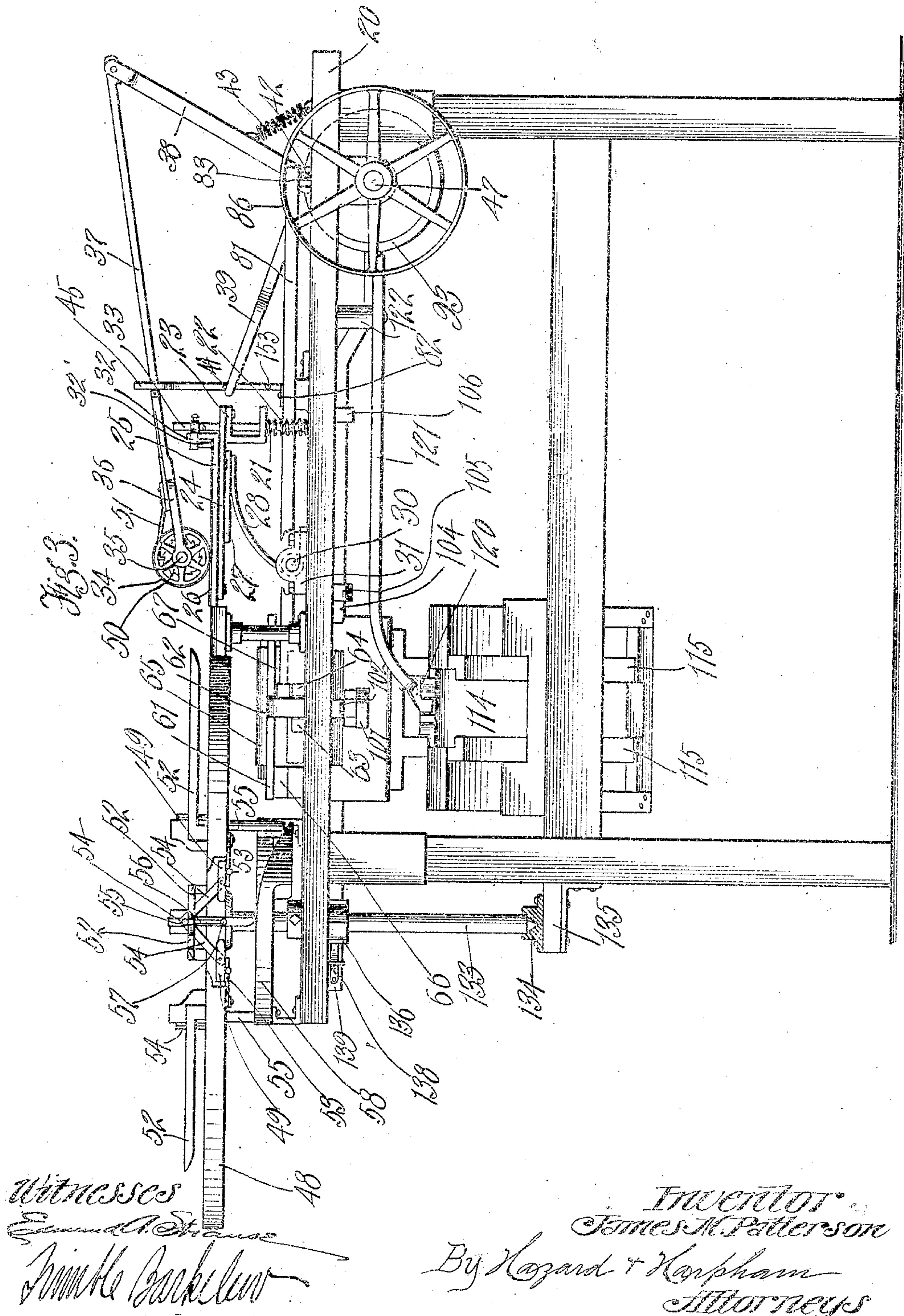
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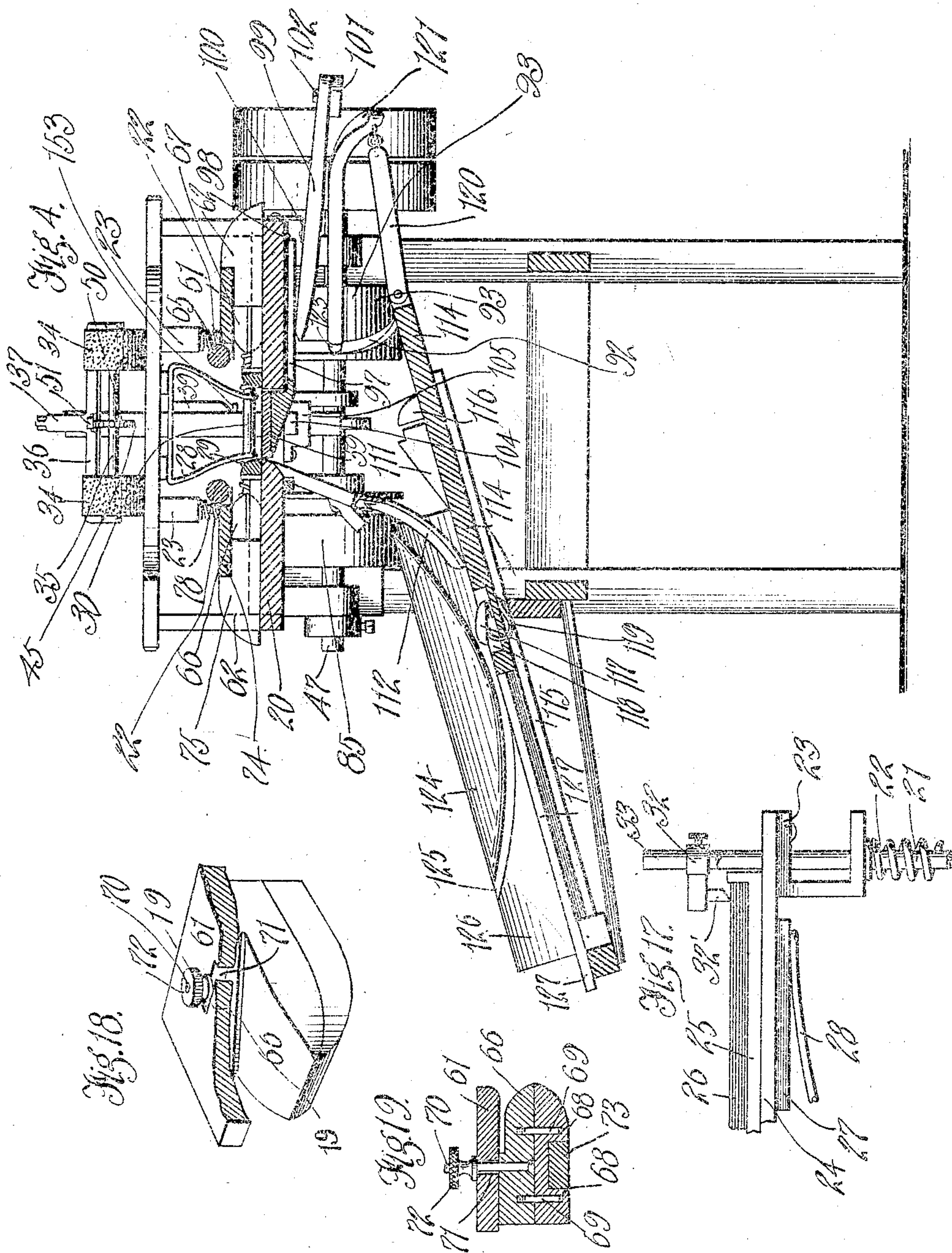
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7 SHEETS—SHEET 4.



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7 SHEETS—SHEET 5.

Fig. 5.

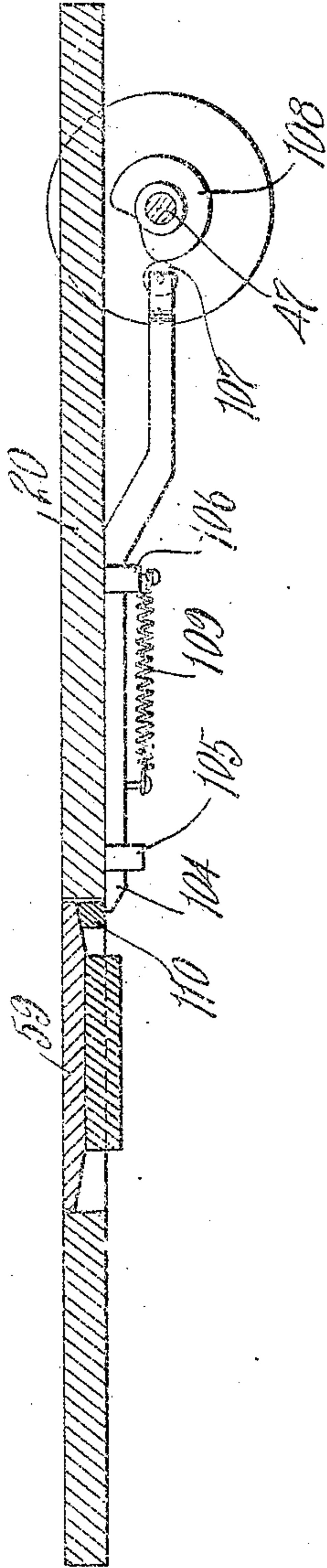
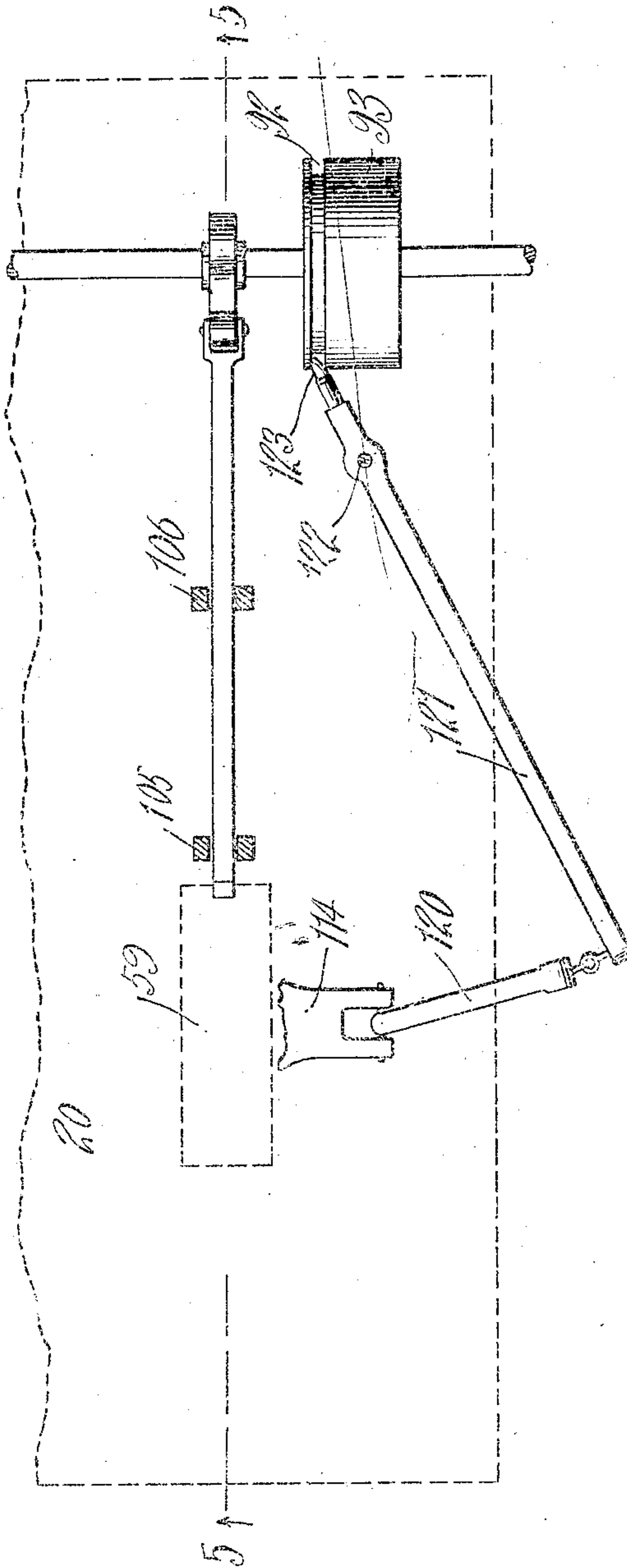


Fig. 6.



Witnesses

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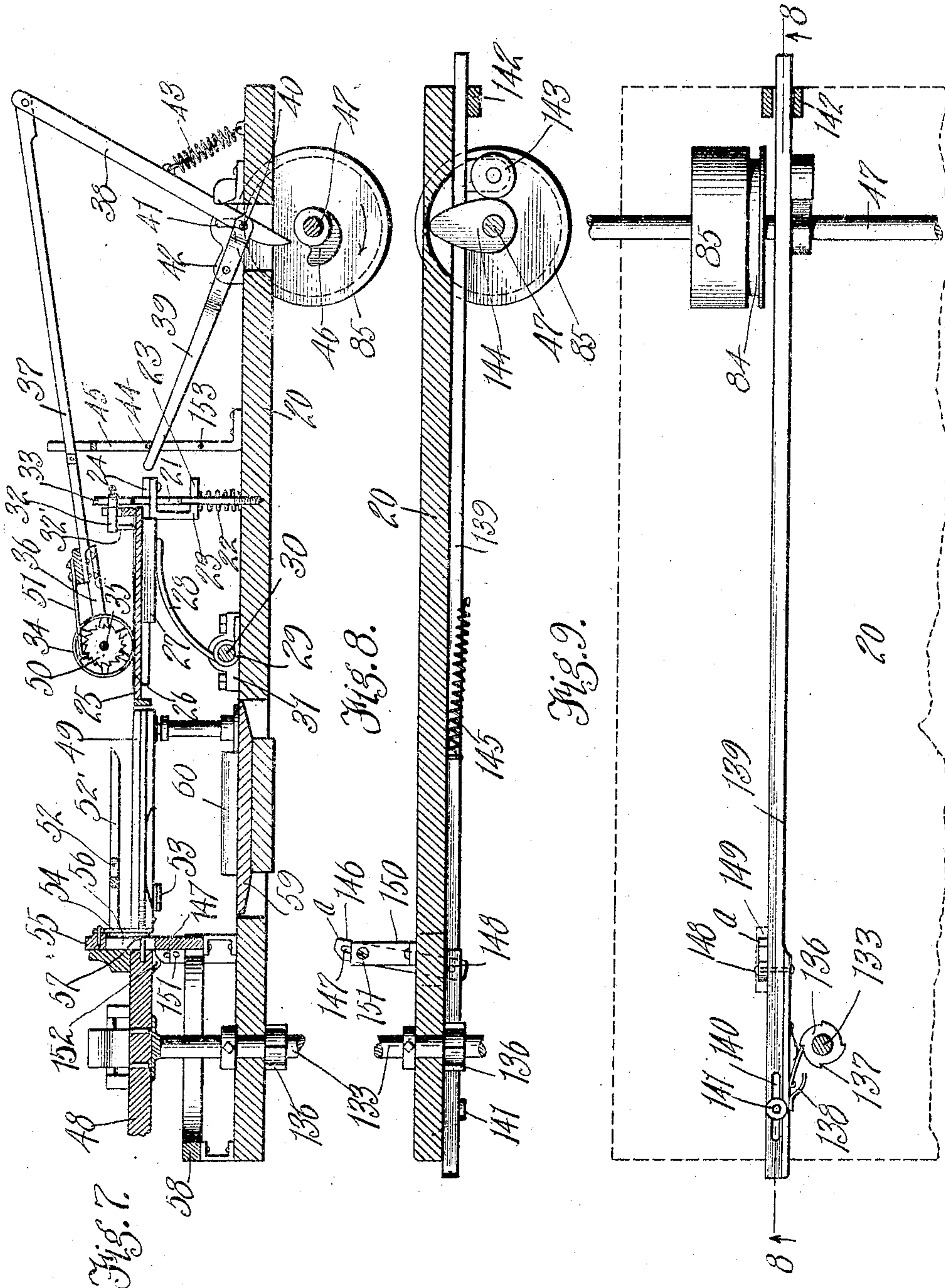
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APPLICATION FILED MAY 23, 1906.

7 SHEETS—SHEET 6.



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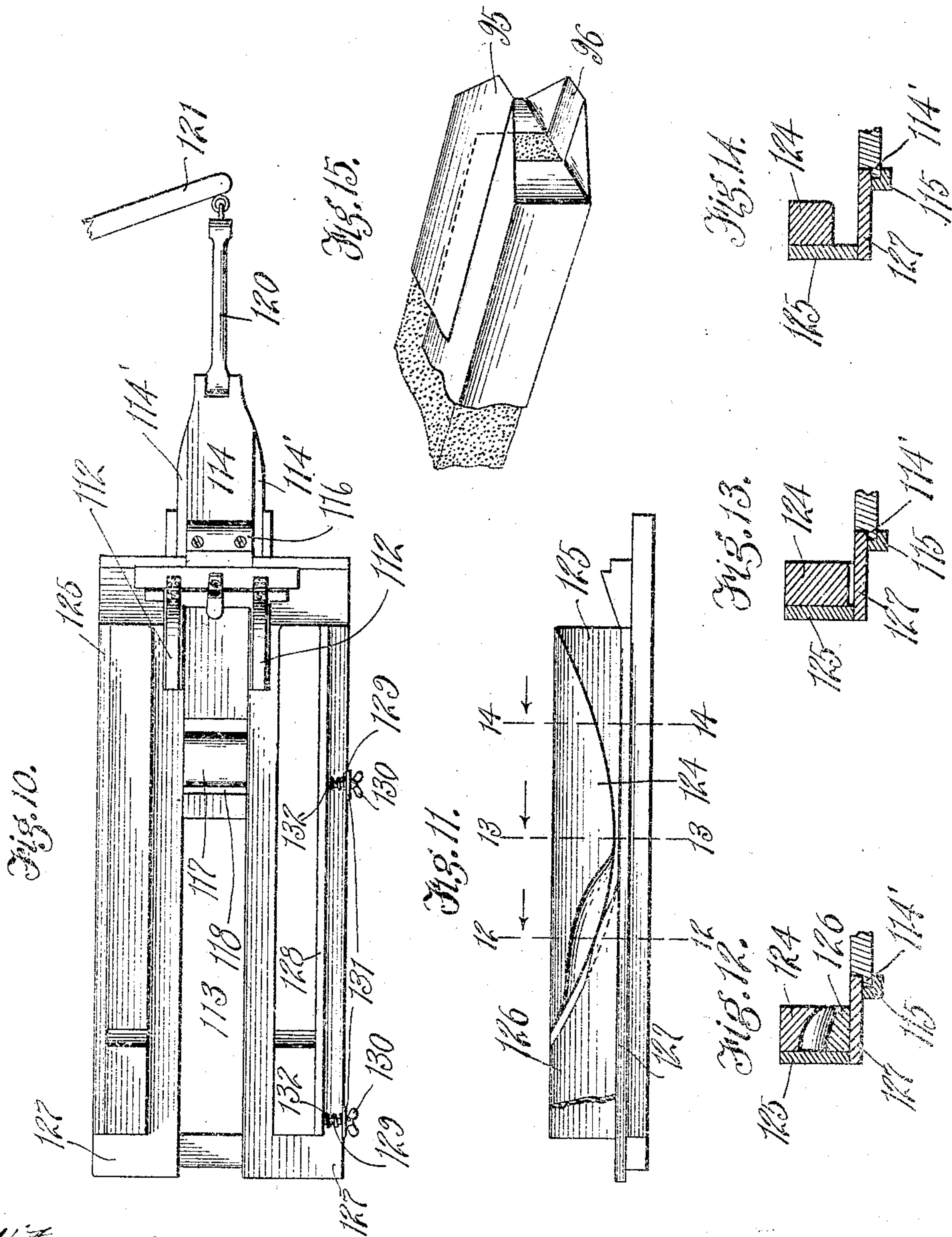
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PATENTED OCT. 29, 1907.

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APPLICATION FILED MAY 23, 1906.

7 SHEETS—SHEET 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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WRAPPING-MACHINE.

No. 869,388.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed May 23, 1906. Serial No. 318,430.

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 view of the machine. Fig. 2— is a plan of the machine with the carrier table removed. Fig. 3— is a side elevation. Fig. 4— is a section taken on line 4—4 of Fig. 2. Fig. 5— is a section taken on line 5—5 of Fig. 6. Fig. 6— is a plan view of the package ejecting mechanism and of the trap door locking mechanism. Fig. 7— is a central longitudinal section of a portion of the machine with the wrapper feeding mechanism in side elevation. Fig. 8— is a section taken on line 8—8 of Fig. 9. Fig. 9— is a plan view of the carrier table operating mechanism. Fig. 10— is a plan of the discharge chute. Fig. 11— is a side elevation of one of the sides of the discharge chute. Figs. 12, 13 and 14— are sections on the lines 12, 13 and 14 respectively of Fig. 11, with a fragment of the ejector slide. Fig. 15— is a perspective view of the end of a slab of butter partly wrapped. Fig. 16— is a rear view of the paper holding tray and guiding mechanism. Fig. 17— is a side elevation enlarged of a fragment of the paper holding tray and guiding mechanism. Fig. 18— is a perspective view partly broken away of a portion of one of the top folding plates and of one of the edge-end-folding runners. Fig. 19— is a section on the line 19—19 of Fig. 18.

Projecting upwardly from the central portion of the main table 20 are guide rods 21 around the lower portions of which are coiled springs 22, one end of which bears against the table and the other bears against guide yokes 23 to which are secured bars 24, which bars are fastened to the wrapper holding tray 25 on which the wrappers 26 are placed preparatory to the operation of the machine. Bearing blocks 27 are secured to the under side of the paper holding tray and are engaged by the upper end of a U-shaped spring 28, the lower ends of which are bent into coils 29 through which pass a rod 30, which rod is mounted in bearings 31 secured to the table. A stop bar 32 is adjustably mounted upon the top of rod 33 and has a downwardly projecting lug 32' which has a chisel point and penetrates the rear end of the top wrappers on the tray near the rear edge and prevents the wrappers and tray from being forced any further upwardly by springs 22 and 28 and holds all except the top wrapper from movement. Resting upon

the wrappers in the tray are a pair of wrapper carrying rollers 34 which are rigidly secured upon shaft 35, which shaft is revolubly mounted in frame 36, which frame is secured to the rearwardly extending bar 37 which is pivotally attached to the operating lever 38. This operating lever is pivotally connected to shifting lever 39 by pin 40, which pin passes through slot 41 in bearing 42 secured to the table. This bearing passes around and back of lever 38 and limits the rearward movement thereof, and is U-shaped having the same kind of a slot as slot 41 in the other side thereof through which pin 40 also passes, the pin as shown in Fig. 7 being in the bottom of the slot.

A spring 43 secured to the table and to lever 38 normally holds the lever in the position shown in Fig. 7 contacting with the rear portion of the bearing. A pin 44 in guide bar 45 holds the free end of the shifting lever against upward movement. The top of this bar is bifurcated and through these furcations bar 37 passes and is held thereby from lateral movement. A cam 46 mounted on shaft 47 is adapted to engage the lower end of the operating lever as the shaft is rotated and to throw the upper end forward thereby causing the wrapper carrying rollers to move the top wrapper upon the carrier table 48, over one of the pairs of trap doors 49, of which there may be as many as desired. I have shown four pairs as I have found in practice that this number is a very convenient number and as many as are required. In the forward movement of the carrying rollers they are prevented from rotating by a ratchet wheel 50 rigidly secured upon shaft 35, which ratchet wheel is engaged by spring dog 51 secured to frame 36. The length of the cam and the operating lever are so arranged that as soon as the rear edge of the wrapper has reached the end of the trap doors furthest from the center of the carrier table the cam disengages from the operating lever, whereupon spring 43 retracts the operating lever thereby bringing the carrying rollers back upon the wrappers upon the tray. In this backward movement the paper carrying rollers rotate, thereby preventing any disarrangement of the wrappers on the tray. The surfaces of these rollers are preferably of rough material, like sand-paper, so that they will engage the top wrapper and carry it forward as the rollers are moved toward the carrier table. Secured to the carrier table and projecting over the trap doors are the package guides 52 which are so arranged that when the package is placed within the arms thereof that it will occupy a central position on the wrapper. These trap doors are secured to the carrier table by hinges 53 best shown in Fig. 3 and to the rear end thereof, that is the end nearest the center of the carrier table, are pivotally secured link bars 54. These link bars are pivotally secured to the trip bar 55 which has a slot 56 therein through which projects pin 57, which pin is secured in the carrier table as best shown

in Fig. 7. The lower end of trip bar 55 engages track 58 except at the point which is centrally located opposite the center of the wrapper carrying rollers. At this point there is a break in the track which permits the trip bar to drop, thereby permitting the trap doors to swing downwardly and away from each other. From this point the track slopes upwardly as best shown in Fig. 3, so that before the carrier table has made a quarter of turn, the trap doors are locked against opening downwardly, as the track prevents the trip bar from moving downwardly except at this point.

The article to be wrapped is placed by the operator upon the wrapper within the package guide, and as the carrier table is intermittently rotated, when the package reaches a point opposite the wrapper carrying rollers as before explained the trap doors open and the package and wrapper drop through the carrier table upon a trap door 59 in the top of the main table as best shown in Figs. 2 and 7. After the package and wrapper have dropped through the carrier table the wrapper carrying rollers move forward and deposit another wrapper upon the carrier table. It will be observed that these wrapper carrying rollers are spaced far enough apart so that they straddle the trap doors and that it is not necessary to have these doors closed in order to place a wrapper in proper position upon the carrier table. At each side of trap door 59, which for convenience of designation I will call the main trap door, are ledges 60 which project upwardly from the face of the table at each side of the trap door and are adjusted at a distance apart equal to the width of the package and thickness of the wrapper, so that as the package falls upon the trap door between these ledges the edges of the wrapper will be turned upwardly and will be brought in contact with the edges of the package.

Resting upon the table at each side of the main trap door are the top and end-edge-folding mechanism. Each side of the top of the wrapper and each edge of the end thereof is turned by mechanism of the same construction, but operating one side after the other, and this mechanism consists of the following parts operated in the following manner. The top plate 61 is provided with a downwardly and rearwardly projecting tongue 62 which rests upon the top of the table between guide bars 63 and 64, which guide the tongue so that the movement of the top plate shall be in a straight line directly across the main trap door. In the edge of the top plate adjacent the trap door is revolubly mounted a roller 65 which engages the upturned side of the paper wrapper at that side of the package as the plate is moved toward the center of the trap door.

If desired the edges of the top-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. At each end and adjustably secured to the under side of the top-folding plate 61 are the edge-end-folding runners 66 and 67 which are composed of two parts longitudinally and horizontally divided as best shown in Fig. 19. As these edge-end-folding runners are all of the same construction and operation I will mark the one shown in Fig. 19 as 66 and describe it without describing the others in detail. These runners are preferably constructed of wood and the ends thereof adjacent the main trap door come to a point at

the dividing line between the upper and lower sections, and the points adjacent to each other are curved away from each other. The lower section is preferably provided with sockets 68 in which are received pins 69, which pins are secured in the upper section. The upper sections are provided with small bolts 70 which pass through slots 71 in the top plate so that the runners may be adjusted in the top plate closer together or further apart to adjust the same to packages of different lengths. A knurled nut 72 on the top of bolt 70 secures the top section securely in place. The lower section if desired may be provided with a metal weight 73 so that it may have greater power in folding the portion of the wrapper which it contacts with. On the other side of the main trap door is a top folding plate 74 which is provided with a downwardly and rearwardly projecting tongue 75 which rests upon the top of the table between guide bars 76 and 77, which guide the tongue so that the movement of the top plate shall be in a straight line directly across the trap door.

In the edge of the top plate 74 adjacent to the trap door is revolubly mounted a roller 78 which engages the upturned side of the paper wrapper at that side of the package as the plate is moved toward the center of the trap door. Tongue 75 is provided with side lugs 79 and 80 between which is received the end of the slide operating lever 81 which is pivotally mounted on the top of the table by bolt 82. The other end of this lever is provided with a downwardly projecting pin 83 which enters a groove 84 in cam wheel 85, which cam wheel is rigidly secured upon shaft 47 on the outer end of which are pulleys 86, one of which is fast and the other loose, upon which are received a belt, not shown, to drive the shaft. Groove 84 is irregular in shape, one-half of the groove lying in a plane passing through the axle at right angles thereto and the other portion curving outwardly or away from said plane and then inwardly and back to said plane. When the cam wheel is rotating and the pin 83 is in that portion of the groove which lies in the plane which passes through the axle at right angles thereto, the lever has no movement; but when the curved portion of the groove reaches the pin the lever is moved to carry the top-folding plate over the main trap door so that the roller reaches to a point directly, or approximately over the center of the trap door, and is then caused to move backwardly to the position it occupies when the pin is in the other part of the groove. Tongue 62 is provided with lugs 87 and 88 between which is received the end of the other slide operating lever 89 which is pivotally mounted on the top of the table by bolt 90. The other end of this last lever is provided with a downwardly projecting pin 91 which enters a groove 92 in a cam wheel 93, which cam wheel is rigidly secured upon shaft 47. Groove 92 is similar in shape to groove 84 and cam wheels 85 and 93 are so mounted on shaft 47 that the curved portion of the groove of one wheel is set on the quarter as to the curved portion of the other cam wheel, so that after one top-folding plate has been moved to carry its roller over the center of the main trap door, as it begins to move backwardly the other top-folding plate begins to move toward the center of the main trap door. The movement of these top-folding plates carrying the edge-end-folding runners folds the wrapper on the package so that it assumes the position shown in Fig. 15, with what I will

term top end flaps 95 and bottom end flaps 96 projecting from the ends of the package. The main trap door 59 has secured to the under side a supporting bar 97 (see Fig. 4) which is secured to the under side of the table by a hinge 98. A lever 99 hinged to the table by a hinge 5 has one end bearing against the supporting bar 97 and the other end of this lever carries a weight 101 which is movable upon the lever, being secured thereto by a lag bolt 102 which passes through a slot 103 where- 10 by the weight of the trap door may be evenly balanced. During the movement of the top-folding plates as before described the main trap door is held locked by the locking bar 104 which is mounted in bearings 105 and 106 secured to the bottom of the table. The outer end 15 of this locking bar is bifurcated, and in the furcations thereof is a roller 107 which bears against a cam 108 rigidly secured upon shaft 47. The movement of this cam is so timed that as soon as the top-folding plates come to rest the cam permits spring 109 to withdraw the 20 locking bar from beneath lug 110, which lug is secured to the under side of the trap door. As soon as the locking bar is withdrawn from supporting the trap door the weight of the package depresses the trap door until it contacts with and rests upon the upper end 111 of the 25 discharge chute. This upper end has a greater inclination than the remaining portion of the chute and the package slides off the trap door and onto the chute when the weight on the end of arm 99 returns the trap door to its normal position when the further 30 movement of cam 108 pushes the locking bar back to the position shown in Fig. 5, again locking the trap door. As the package slides toward the outer end of the discharge chute it engages a swinging leaf 112 which retards the movement of the package.

35 The discharge chute is provided with a central longitudinal slot 113, best shown in Fig. 10, in which is movable the ejector slide 114, which has at each side thereof at the lower edges an off set 114', which off set projects into a guide way formed by lugs 115 secured 40 to the bottom of the discharge chute. The ejector slide at the inner end is provided with an upwardly projecting lug 116, which as the slide is moved toward the outer end of the discharge chute, engages the package and pushes it along toward the outer end of the discharge chute. The ejector slide is also provided at its 45 outer end with a folding lug 117 which is adapted to fold into a recess 118 whenever a package rests upon the same. A spring 119 secured to the under side of the ejector slides holds the free end of lug 117 elevated 50 so that it will engage a package in the discharge chute as the ejector slide moves toward the discharge end thereof, thereby moving the package further on in the discharge chute. To the inner end of the ejector slide is pivotally secured a link bar 120 which is pivotally 55 secured to the outer end of the ejector slide operating lever 121, which is pivotally mounted by a bolt 122 to the under side of the table. The inner end of this lever is provided with a pin 123 which projects into groove 92 of cam wheel 93. These parts are so arranged 60 that after a package is delivered into the discharge chute as before described the curved portion of groove 92 of cam wheel 93 causes the movement of the ejector slide toward the outer end of the discharge chute and moves the package a distance somewhat greater than 65 the width thereof, and then returns the ejector slide

back to its stationary position, best shown in Fig. 4, with lug 116 back of the inner end of the discharge chute. As the package is moved through the discharge chute the top end-flaps engage the front top-overhanging ledges 124 which are secured to the sides 125 of the 70 discharge chute. These ledges begin at the inner end and at the top of the side walls and slope downwardly and rearwardly, thereby folding the top end flaps downwardly against the end of the package. These front ledges then preferably slope upwardly and rear- 75 wardly on a double curve as best shown in Fig. 11. At a point a little to the rear of the point where the top ledges begin to slope upwardly and rearwardly, the bottom ledges 126 begin. These bottom ledges are secured to the bottom 127 and are as wide as the over- 80 hanging top-ledges, as best shown in Fig. 12, and slope upwardly and rearwardly, and as the package is moved along in the discharge chute these bottom ledges engage the bottom end-flaps and turn the same up against the end of the package. 85

If desired one of the sides of the discharge chute may be adjustable as shown in Fig. 10. When this is done the side 128 is provided with bolts 129 which have on the outer ends thereof wing nuts 130. These bolts pass through bearings 131 secured to the bottom so that 90 side 128 may be adjusted toward or from the other side. Springs 132 are coiled around said bolts to hold said side in yielding engagement, so that if a package is a little large the side will give outwardly and permit it to pass through. This yielding pressure makes the 95 turn of the end flaps very perfect. The carrier table is rigidly secured to shaft 133 which is revolvably mounted in a bearing 134 secured to a bracket 135, which bracket is secured to the frame of the machine. This shaft passes through the table and just below the 100 table has secured thereto a four toothed ratchet wheel 136 which is engaged by dogs 137 and 138. These dogs are carried by operating bar 139 which has a slot 140 in one end thereof through which projects a lag bolt 141 which holds the bar to the table and permits it to 105 reciprocate. The other end of the bar passes through a guide lug 142 secured to the lower side of the table. A roller 143 is mounted in bearings secured to the operating bar and is held in contact with cam 144 by a spring 145, one end of which is secured to the bar and 110 the other to the table as best shown in Fig. 8. Cam wheel 144 is rigidly secured upon shaft 47 and each time said shaft revolves the carrier table will make a quarter of a revolution. A stop bar 146 having a slot 147 in the upper end thereof is pivotally secured by 115 bolt 148 and passes upwardly through a slot 149 in the table. A bearing 150 is secured to the upper side of the table and a pin 151 secured in the top thereof passes through the slot in the stop bar 146. Adjacent to each trap door in the carrier table and on the lower side 120 thereof are lugs 152, one of which is clearly shown in Fig. 7, which are adapted to engage stop bar 146 when the operating bar is moved by cam 144, to stop the carrier table when it has made a quarter turn and when the trap door of the carrier table is central over the 125 main trap door, so that the package on the carrier table may drop centrally upon the main trap door in the main table. When it is desired to render the wrapper feeding mechanism inoperative lever 39 is drawn down below pin 153 in bar 45, which holds it against 130

upward movement thereby throwing lever 38 out of the path of movement of cam 46. It is desirable to do this just before stopping the use of the machine, as in practice there will usually be three packages on the carrier table that must be wrapped after the feeding mechanism is stopped.

The front overhanging ledges of the discharge chute may terminate abruptly just before the commencement of the bottom ledges if desired but I prefer the construction shown as the top-end-flap will be positively held while the bottom-end-flap is being turned.

The operating bar 139 may be held at both ends by guide lugs.

Having described my invention what I claim is:—

1. In a wrapping machine, a main table, a revoluble carrier table, trap-doors in said carrier table, a wrapper holding tray mounted on said main table, and mechanism for removing a wrapper from said tray and carrying it to and over the trap-doors in said carrier table.
2. In a wrapping machine, a frame having a top forming a main table; a revoluble carrier table revolving in a plane parallel with the top of said main table; trap doors in said carrier table; 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 trap doors in said carrier table.
3. In a wrapping machine, a main table; a carrier table a paper wrapper tray yieldingly mounted upon said main table; mechanism to hold said wrapper tray in position to hold a wrapper thereon in the plane of the top of the carrier table; wrapper carrying mechanism for moving the top wrapper from said tray to said carrier table; and mechanism for intermittently actuating said wrapper carrying mechanism.
4. In a wrapping machine, a main table; a wrapper holding tray mounted thereon; a carrier table revolubly mounted; mechanism to transfer wrappers from the tray to the carrier a plurality of trap doors in said carrier table; and mechanism to hold said trap doors locked except at a point opposite the wrapper holding tray.
5. In a wrapping machine, a main table; a wrapper holding tray mounted thereon; a carrier table revolubly mounted to revolve in a plane above and parallel to said main table; mechanism to transfer wrappers from the tray to the carrier a plurality of trap doors in said carrier table; and mechanism to hold said trap doors locked except at a point opposite the wrapper holding tray.
6. In a wrapping machine, a main table; a trap door in said main table; top-folding plates slidably mounted on said table, one on each side of said trap door; edge end folding runners connected with said plates and mechanism

for moving said top-folding plates toward and from said trap door.

7. In a wrapping machine, a main 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 runners adjustably secured to and movable with said top-folding plates; and mechanism for reciprocating said top-folding plates, first one, then the other.

8. In a wrapping machine, a main table; a trap door in said table; ledges on each side of said trap door; top-folding plates slidably mounted on said table, one on each side of said trap door; edge-end-folding runners adjustably secured to and movable with said top-folding plates; and mechanism for intermittently reciprocating said top-folding plates, first one, then the other.

9. In a wrapping machine, a main table; a trap door in said table; ledges on each side of said trap door; top-folding plates slidably mounted on said table, one on each side of said trap door; edge-end-folding runners adjustably secured to and movable with said top-folding plates; shafts 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 the straight portion, the curved portion of the groove of one cam being staggered as to the curved portion of the groove of the other cam; and two levers pivotally secured upon the top of said table, the ends of said levers being operatively connected to said top folding plates and having pins on the other end thereof projecting into the grooves in said cam.

10. In a wrapping machine, a main table; a trap door in said table pivotally connected thereto; counter-balancing means operatively connected to said trap door; and mechanism for locking and unlocking said trap door.

11. In a wrapping machine, a top folding plate, edge-end-folding runners having the front ends thereof pointed and the adjacent portions of the pointed ends curving away from each other means for adjusting said runners with respect to said top folding plate; and mechanism to intermittently reciprocate said runners.

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

In witness that I claim the foregoing I have hereunto subscribed my name this 16th day of May, 1906.

JAMES M. PATTERSON.

Witnesses:

G. E. HARPHAM,

EDMUND A. STRAUSE.