

Aug. 2, 1938.

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2,125,605

TOWEL DISPENSING CABINET

Filed March 23, 1936

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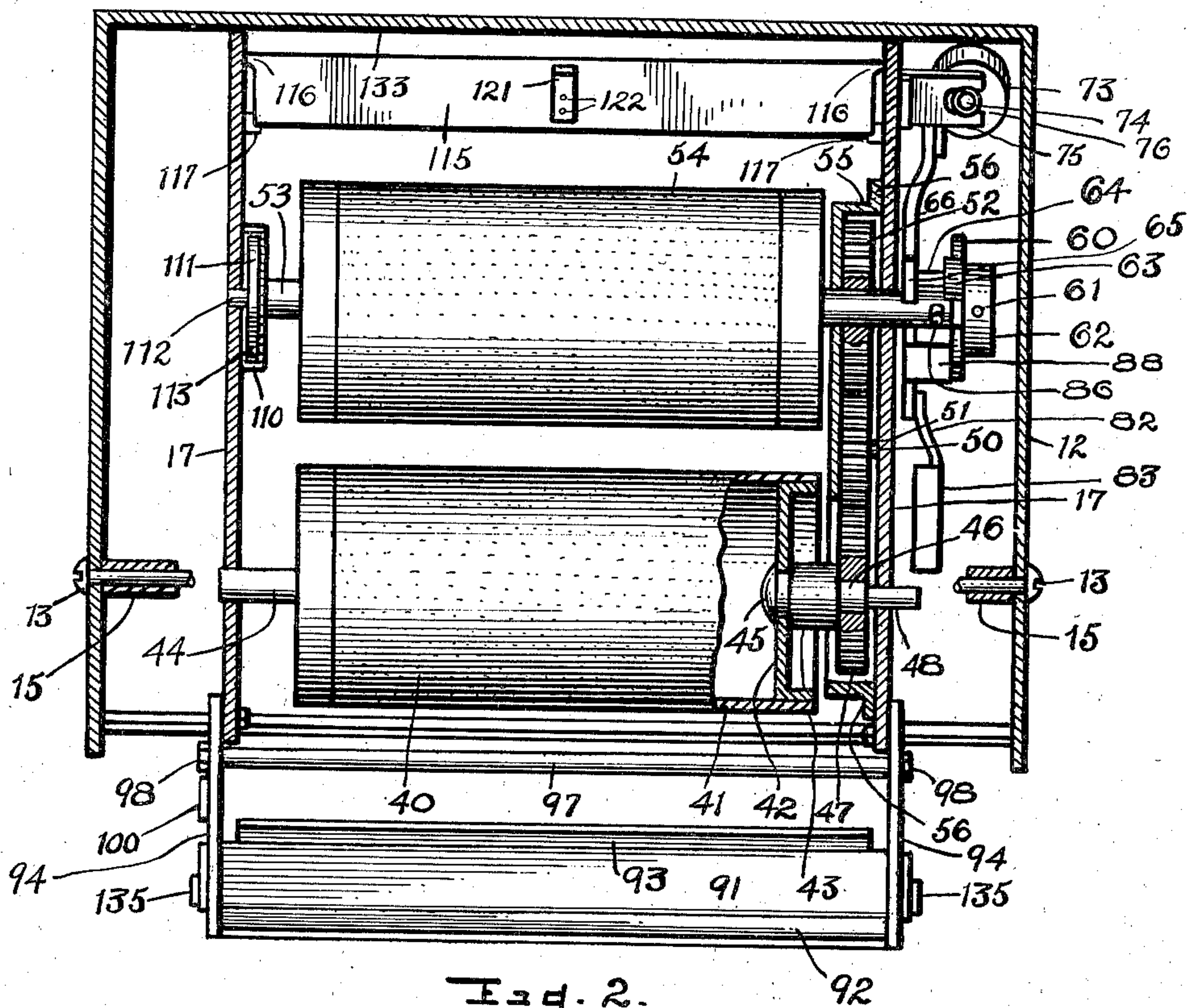


Fig. 2.

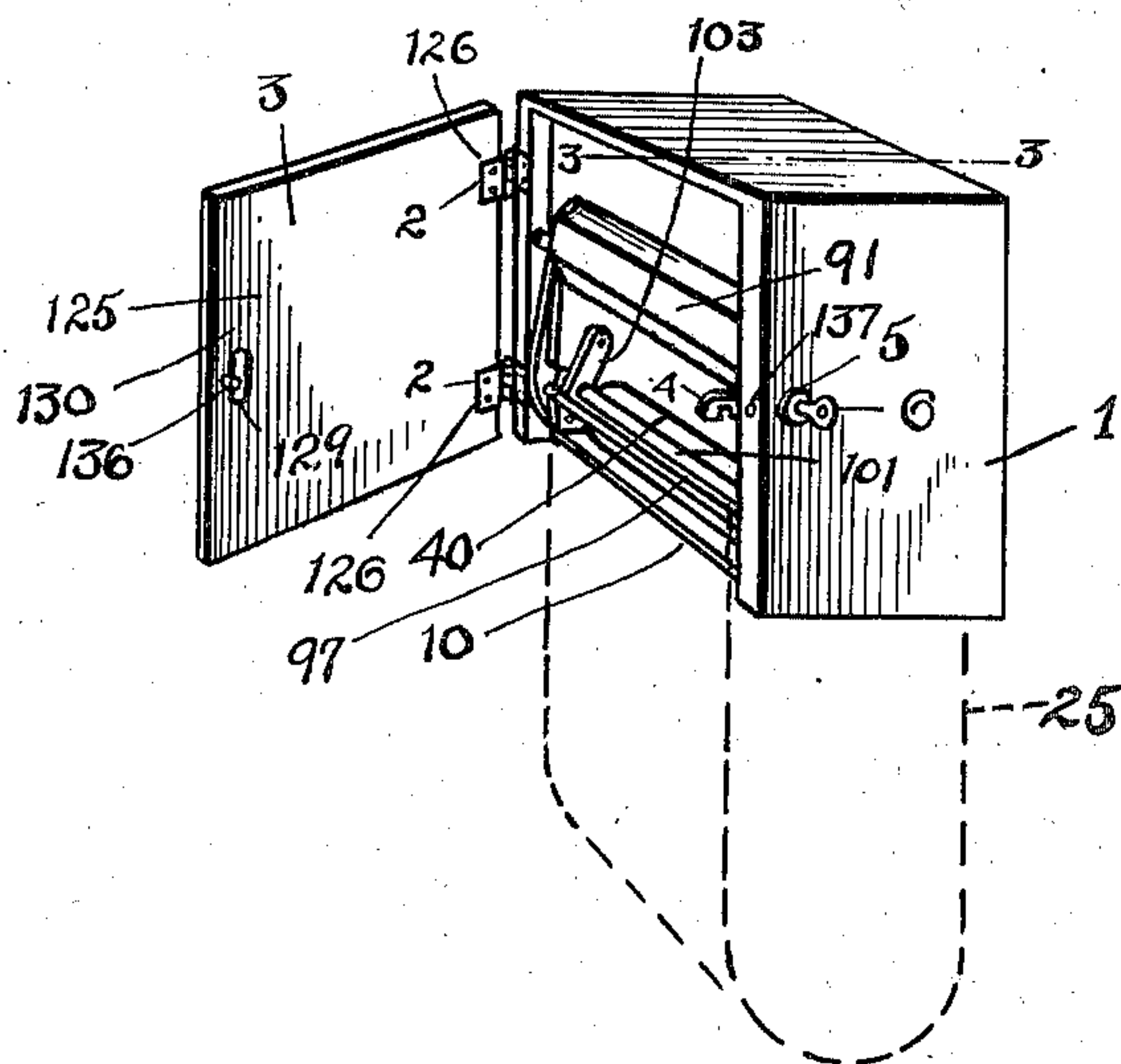


Fig. 1

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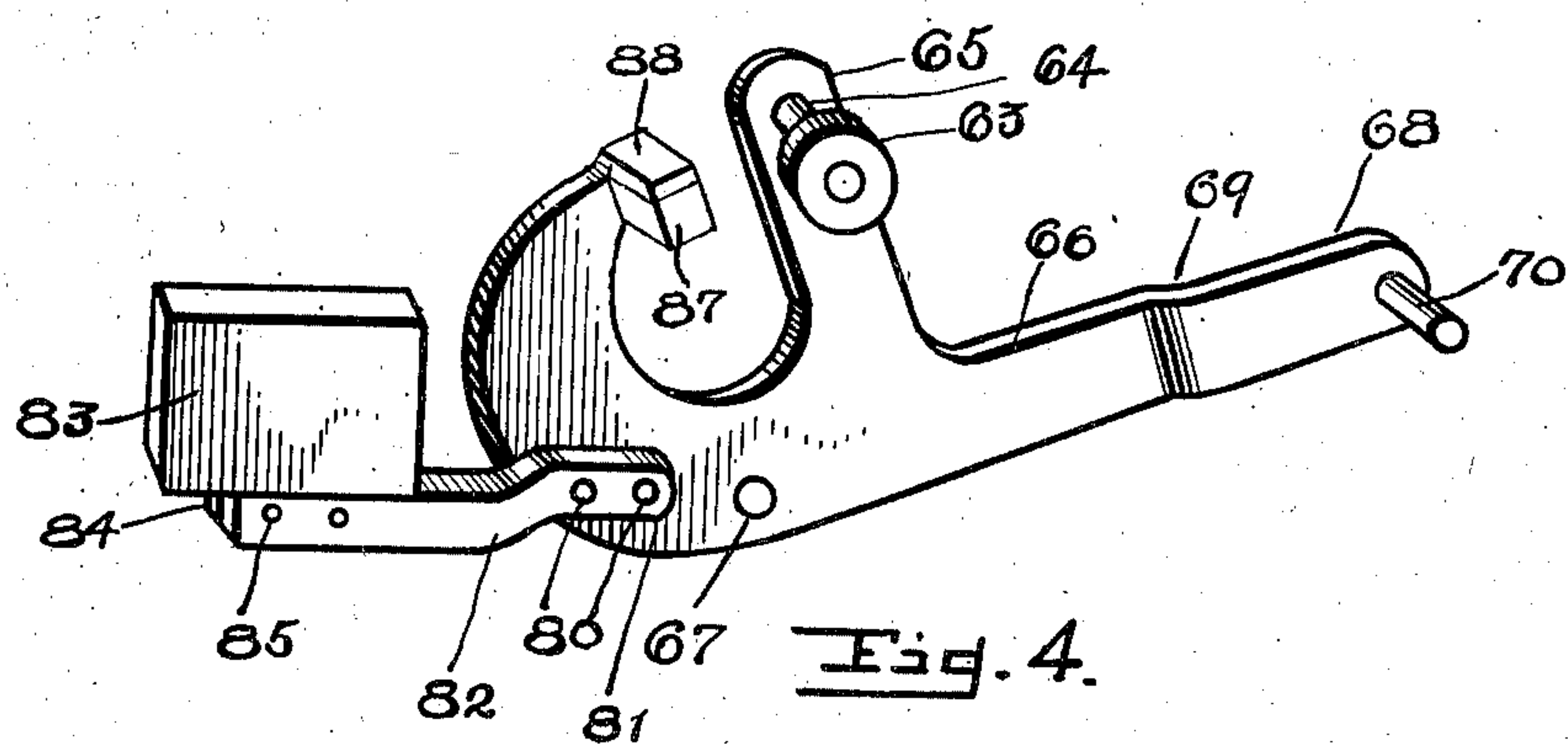
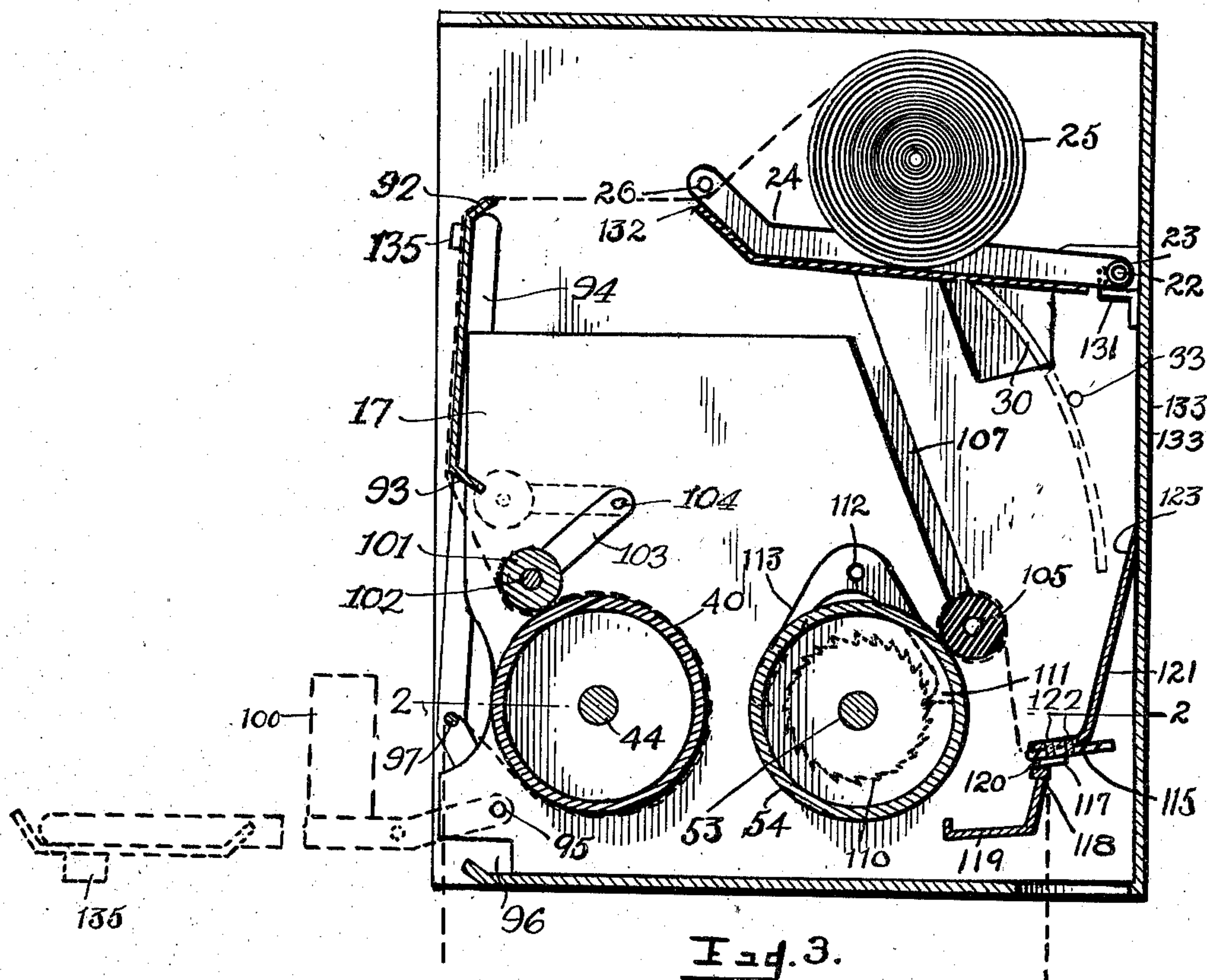
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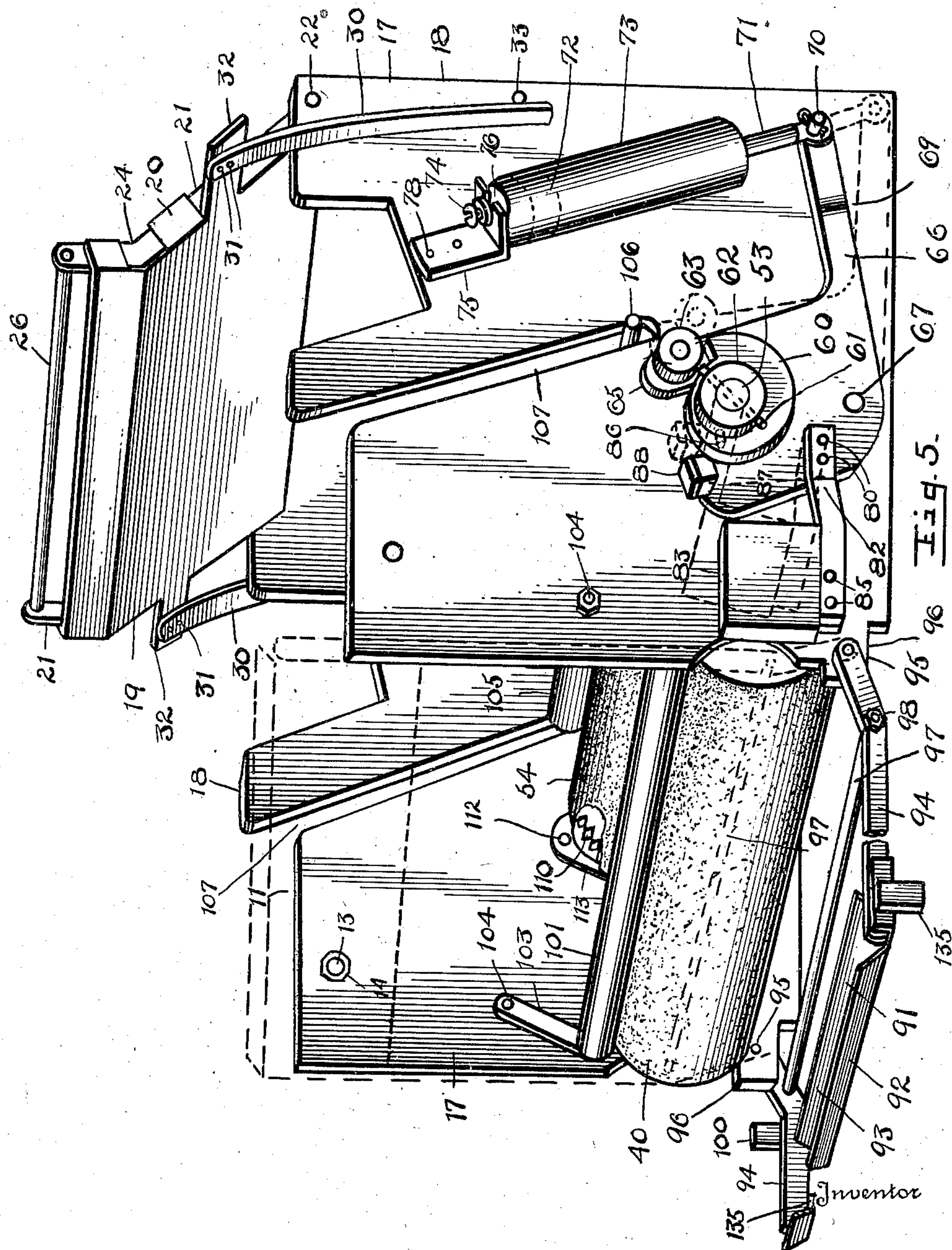
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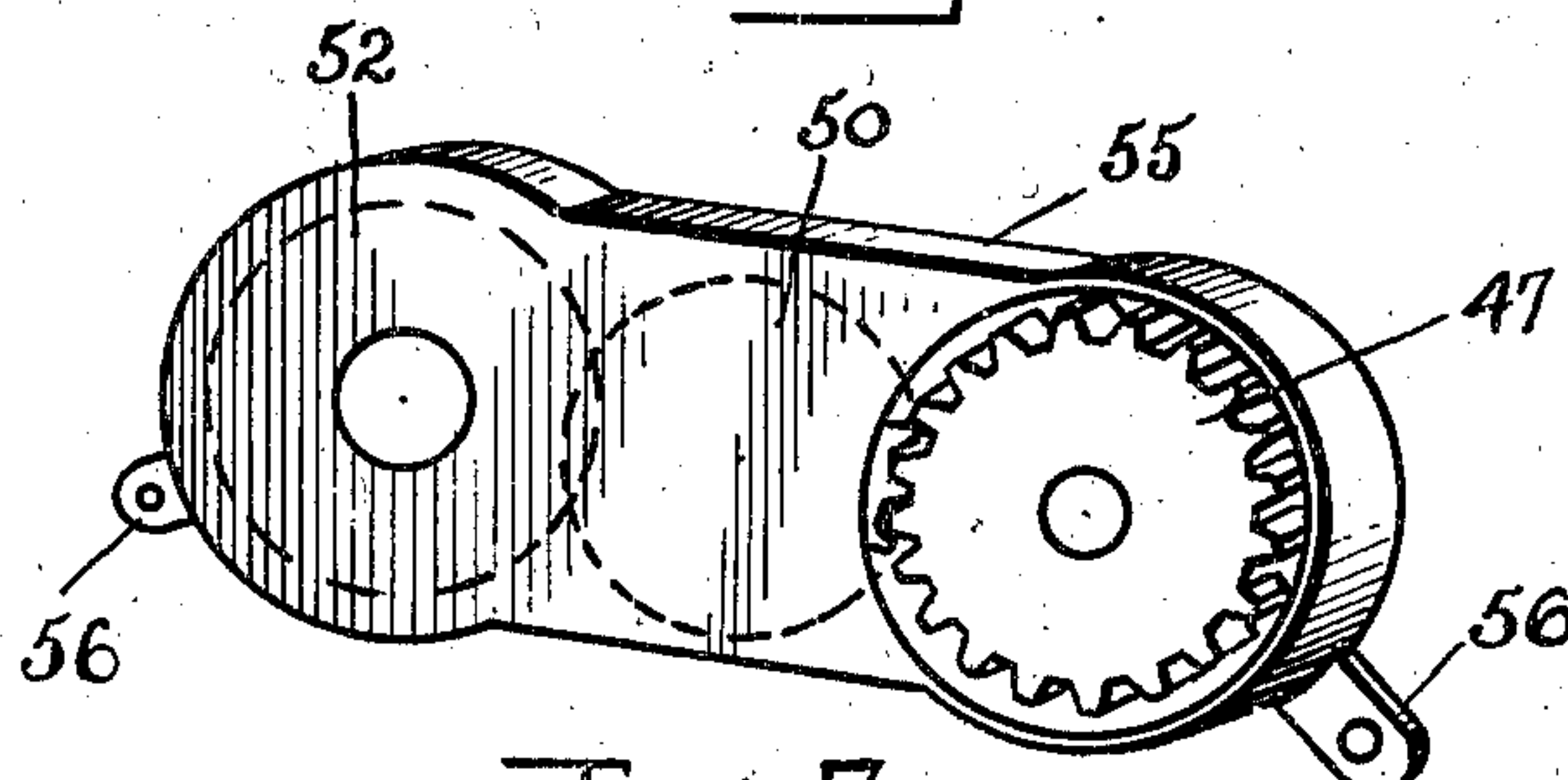
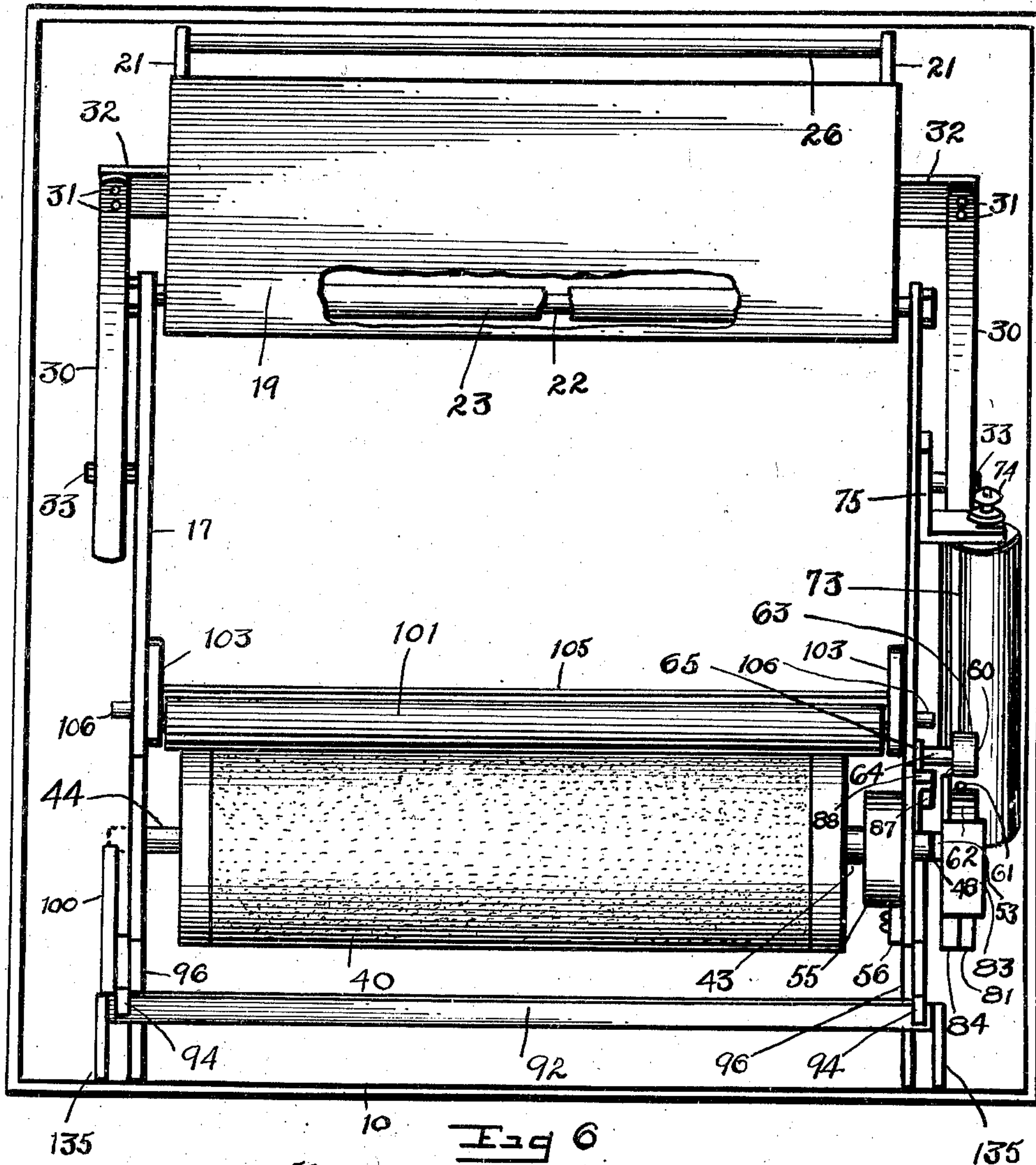
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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TOWEL DISPENSING CABINET

Joseph Darman, Utica, N. Y.

Application March 23, 1936, Serial No. 70,242

3 Claims. (Cl. 312—38)

My invention relates to a towel dispensing cabinet and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout the specification.

The object of my invention is to provide a towel cabinet that can be hung on the wall and will occupy less wall space and hold a larger supply of toweling than has been possible heretofore. Furthermore, the object is to provide a towel timing control mechanism for said cabinet that will work normally under any and all conditions. More particularly it will not be affected by the temperature of the room in which it is located nor will the dust accumulating thereon in any way interfere with the normal operation or function of the several parts of the mechanism.

The cabinet as above stated occupies the minimum wall space, is simple in construction, and will operate under any and all conditions.

In a towel dispensing cabinet of the above nature it is desirable to limit the amount of toweling that can be drawn from the cabinet upon a single given pull. The above cabinet anticipates this desirable feature by providing a timing mechanism, whereby a predetermined amount of time must intervene between one pull and the successive pull on the towel.

The object will be understood from the drawings in which

Fig. 1 is a perspective view of the towel cabinet.

Fig. 2 is a horizontal sectional view taken on the line 2—2 of Fig. 3, parts being in full lines.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a detailed view somewhat enlarged showing a perspective of a rock lever and immediate parts employed, enlarged.

Fig. 5 is a detailed view showing a perspective of towel actuating frame and its immediate parts employed.

Fig. 6 is a front elevation.

Fig. 7 is a detail view showing a perspective of a casing for housing certain gears employed.

Referring more particularly to the drawings, the device embodies a casing 1 having hinged thereto at 2, a door 3, latch member 4 that is controlled by a lock 5 operated by key 6. The turning of key 6 will actuate latch 4 to locked or unlocked position.

Cabinet 1 has a bottom portion 10 that sup-

ports the towel actuation mechanism 11, hereinafter described. Furthermore, mechanism 11 is also secured to the lateral sides 12, 12 of cabinet 1 by bolts 13, nuts 14 and spacing sleeves 15. The sides 17, 17 of the towel actuating frame 18 support a rock shelf 19. Shelf 19 is made preferably of metal. It has its sides turned up at 20 and welded to the contiguous surfaces of side bars 21, 21. Bars 21, 21 are fulcrumed upon stationary shaft 22. Shaft 22 has bearings at either end in sides 17, 17 of the towel actuating frame 18. A spacing sleeve 23 is mounted on stationary shaft 22 between the contiguous surface of bars 21, 21, whereby to aid in holding said bars 21, 21 in given spaced relation to each other. The outer or free ends of bars 21, 21 are bent at an angle at 24 to form a ledge, whereby to prevent the towel roll 25 from rolling therefrom. Furthermore, a bar 26 having reduced ends is mounted to the extreme outer or free ends of bars 21, 21, whereby to hold them in spaced relation at that location.

Shelf 19 is normally rocked upwards on its fulcrum shaft 22 by means of flat springs 30, 30. Springs 30, 30 are secured by rivets 31 or otherwise to laterally projecting shelves 32 made integral or operatively connected with bars 21, 21. The lower ends of said springs 30 rest in front of laterally projecting studs 33 mounted to sides 17, 17 of frame 18. This spring actuation of shelf 19 permits said shelf to rock upwards as the supply roll of towel 25 diminishes in size, whereby to allow space therebeneath for the gradually increasing diameter of the soiled towel roll. Said springs 30, 30 are sufficiently strong to prevent shelf 19 from rocking below a horizontal position under the weight of supply roll of towel 25. As rock shelf 19 moves downward the free ends of springs 30, 30 will press harder against laterally projecting pins 33, 33.

The means for locking the towel actuating mechanism for intermittent periods of time embodies roller 40. Roller 40 is made preferably of a hollow cylinder 41 having end discs 42, 42 welded thereto. End discs 42, 42 provide hubs for mounting axles 43, 44. Axles 43 and 44 are riveted at 45 to end discs 42, 42 in each instance. Axle 43, however, is reduced at 46 for mounting spur gear 47 that is keyed or forced thereon by a drive fit, whereby to turn therewith and again reduced at 48 to slide on its bearing on sides 17, 17 of the towel actuating frame.

This sliding or longitudinal movement of roller 40 and axle 43 to which spur gear 47 is fixed will allow said spur gear 47 to move in and out of

mesh with idle or middle spur gear 50 that has a loose bearing, whereby to turn thereon on inwardly projecting stud 51. Idler spur gear 50 is in mesh also with a third spur gear 52 mounted to turn on an axle 53 that is fixed to the end of roller 54 much in the same manner that axle 43 is mounted to one of the end discs 42 of roller 40.

Spur gear 47, idler 50, and spur gear 52 are encased in a casing 55 that has one side open, the one that is disposed adjacent the inner wall of side 17. Casing 55 is equipped with apertured extensions 56, 56, whereby it can be screw bolted to the inner surface of side 17. Spur gear 47 connected to roller 40, idler spur gear 50, and spur gear 52 connected to roller 54, will cause said rollers 40 and 54 to revolve in the same direction.

Axle 53 of roller 54 projects through one of the sides 17 of frame 18 and extends laterally therefrom. A cam or eccentric 60 is mounted to turn with axle 53. It is fixed to axle 53 by pin 61 extending through boss 62 of cam 60 and engaging axle 53. When cam 60 turns it engages roller 63 mounted to revolve on lateral projecting stud 64 having a tight fitting bearing in arm 65 of rock lever 66. Rock lever 66 is pivoted at 67 to a laterally projecting stud mounted in one of the sides 17 of mechanism 11. The extreme outer end 68 of lever 66 is offset at 69 and has mounted thereto a laterally projecting pin 70. Pin 70 extends laterally through a loose aperture on the lower or free end of piston rod 71. The upper end of rod 71 is connected to a piston 72 in cylinder 73. A set screw 74 mounted in the upper end of cylinder 73 controls the amount of air admitted to the upper end of cylinder 73, whereby to govern the velocity with which piston 72 ascends in cylinder 73. Cylinder 73 is mounted to one of the sides 17 of mechanism 11 by a right angled bracket 75 having a bifurcated end 76 which straddles screw 74 mounted in the upper end of cylinder 73. Bracket 75 is attached by bolts or rivets 78, 78 to one of the sides 17 of frame 18.

The opposite end of rock lever 66 has attached by rivets 80, 80 a bracket 81 offset at 82. A weight 83 is formed on depending portion 84 that lies in parallel relation to the adjacent surface of bracket 81 and attached thereto by rivets 85, 85. Weight 83 will tend to rock lever 66 into the full line position indicated in Fig. 5, whereby piston 72 will be in its uppermost position in cylinder 73.

The means for locking roller 40 temporarily against rotation embodies a pin 86 mounted and projecting laterally from axle 53. When lever 66 is in dotted line position shown in Fig. 5, pin 86 will be below the overhanging member 87 securely fixed to the upper part of 88 of rock lever 66. When rock lever 66 is moved to full line position shown in Fig. 5 pin 86 will be uncovered and rollers 40 and 54 can be again turned through one revolution or until cam 60 rocks lever 66 into dotted line position shown in Fig. 5.

The means for temporarily holding towel roll 25 when loading the cabinet, embodies a shelf 91 preferably made of metal. It comprises upstanding end ridges 92, 93 and is attached to rock arms 94, 94 pivoted at 95, 95 to the forward lower extensions 96, 96 of sides 17, 17 of frame 18. A cross or spacing bar 97 having reduced ends that project through corresponding apertures in arms 94, 94 is held in place by nuts 98, 98. It is located near the pivots 95, 95.

One of said rock arms 94 has attached an upstanding plate 100 which will be opposite the end

of axle 44 when rock arms 94, 94 are swung upward in full line position illustrated in Figs. 1 and 3. Moreover, this is the position said arms 94, 94 will occupy when the cabinet is in use.

The means for holding toweling 25 against the surface of roller 40, which is covered with sand paper or other suitable friction producing material embodies a weighted roller 101 supported to revolve upon an axle 102 carried in swinging arms 103, 103 that are pivoted at 104, 104 to sides 17, 17 of frame 18.

The soiled toweling 25 is accumulated upon weighted roller 105 having arbors 106, 106 that extend into open slots 107, 107 formed in sides 17, 17 of frame 11, whereby said roller 105 can move upward as toweling 25 is wound thereon. When free from toweling 25, roller 105 will rest at its lower level upon the adjacent surface of roller 54, whereby said roller 54 which is covered on its outer surface with sand paper, will cause accumulating roller 105 to revolve therewith and wind the soiled toweling 25 thereon.

The means for limiting the rotation of roller 54 in a clockwise direction embodies a ratchet 110 fixed to turn with shaft 53 of roller 54 and a pawl 111 pivoted at 112 to one of the sides 17 of frame 11. Pawl 111 has a counterweighted arm 113. It will allow the teeth of ratchet 110 to pass in a clockwise direction but not in a counterclockwise direction. This clockwise rotation of roller 54 assures a counterclockwise rotation and not otherwise of accumulating roller 105, whereby to wind soiled toweling 25 thereon.

The means for automatically closing the opening where soiled toweling 25 re-enters the cabinet contemplates a rock lid 115 having trunnions formed at 116, 116 which project into suitable bearings formed in sides 17, 17 of frame 11. The free end of lid 115 rests when closed upon clips 117, 117 attached to the upstanding edge 118 adjacent sides 17 of a partial casing 119 disposed between sides 17, 17, whereby to leave an elongated opening at 120 for the passage of towel 25. A flat spring 121 is fastened by screw bolts 122, 122 to the top of lid 115. Its free upstanding part 123 will bear against the inner back surface 124 of cabinet 1, whereby to hold lid 115 normally closed or against the upper surface of clips 117, 117 on upstanding edge 118 of casing 119.

Cabinet 1 is provided with a door 125 mounted on hinges 126, 126 fastened to a front edge of casing 1. Latch 4 heretofore mentioned engages an edge 129 formed by making an elongated aperture in casing 130 of door 125, whereby to hold said door 125 closed and locked.

Frame 18 is supported in cabinet 1 not only by the bolts 13 mentioned above but also by a ledge 131 welded or otherwise secured to back wall 133.

When loading toweling 25, door 125 will be opened and loading shelf 91 swung down into full line position illustrated in Fig. 5. The towel roll 25 will be placed upon rock shelf 91. The free end of toweling 25 will be led down between bar 26 and the free edge 132 of rock shelf 91, then over the far side or under surface of shelf 91, then down in front of weighted roller 101 thence thereunder partially around the back of actuating roller 40 up over the rod 97 which will be located above the lower circumference of roller 40 when arms 94, 94 are swung upwards into dotted line position shown in Fig. 3. Toweling 25 passes then down below cabinet 1 with a long loop, whereby it can be used for drying the face and hands of the person using the same. From the loop it passes upwards through the opening

120 formed between the free end of lid 115 and the adjacent edge 118 of partial casing 119, lid 115 being opened against the tension of spring 121. It is wound once or twice around accumulating roller 105 which rests against actuating roller 54. As toweling 25 accumulates on weighted accumulating roller 105 said roller 105 will rise up in open slots 107, 107.

Furthermore, as the supply towel roll 25 decreases in diameter, shelf 19 will rock upward under tension of springs 30, 30 automatically and thereby leave more room below for the gradually increasing diameter of toweling 25 on accumulating roller 105.

When a pull is exerted on that portion of toweling 25 that lies in front of the cabinet, actuating roller 40 will be revolved and thereby turn the train of gears 47, 50 and 52, whereby to cause rear actuating roller 54 to revolve in the same direction and at the same speed. This actuation of roller 54 will turn accumulating roller 105, whereby toweling 25 will wind thereon.

Should it be desirable to spin roller 40 or to pull the towel freely from roll 25, the operator will move roller 40 longitudinally to the left, whereby to withdraw gear 47 on one end of roller 40 from meshing with idler gear 50.

When gear 47 is in mesh with gear 50 which in turn is in mesh with gear 52 tight to axle 53, the turning of axle 53 will rotate cam or eccentric 60 which will engage roller 63 mounted to rock with lever 66 on its fulcrum 67.

This rocking of lever 66 will elevate weight 83 and lower piston 72 in its cylinder 73. Overhanging member 87 on lever 66 will be brought in the path of pin 86 on axle 53 and thereby temporarily arrest the further turning of rollers 40 and 54 until piston 72 has ascended in cylinder 73 and lever 66 under the weight of 83 has rocked back to normal or original position. The time between pulls on towel 25 can be governed by regulating set screw 74 which controls the admission of air to cylinder 73. Each pull on towel 25 allows for one complete revolution of rollers 40 and 54 before arresting the motion, as above described.

It will be observed that auxiliary shelf 91 heretofore mentioned for temporarily holding towel roll 25 when loading the machine is a swinging shelf, whereby it serves not only for the purpose of a temporary shelf but also when in closed position as illustrated in Figs. 1 and 3. It serves also as a front partition.

Furthermore, members 135, 135 welded or otherwise secured to outer sides adjacent the free ends of arms 94, 94, function as guides for the clean toweling as it moves downward therebetween when said shelf is in closed position.

The means for holding door 3 in correct position with reference to cabinet 1 embodies a projection 136 on door 3 and a recess 137 on the front edge of cabinet 1.

When auxiliary swinging shelf 91 is in dotted line position shown in Fig. 5 or full line position shown in Fig. 1 blade 100 will lie opposite shaft 44, whereby to prevent the roller 40 from moving longitudinally to disengage spur gear 47 from idler 50. This will prevent spinning the towel when the cabinet is closed.

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

1. In a towel dispensing cabinet, a towel supply, a rock shelf for supporting said towel, a roller for accumulating said towel thereon, open bearings for supporting said accumulating roller, other rollers mounted in said cabinet for rotating said accumulating roller, a shaft for supporting one of said actuating rollers, a pin mounted in said shaft, a lever for engaging said pin, whereby to arrest rotation of said actuating rollers, a piston rod connected with said lever, a piston connected with said piston rod, a dash pot in which said piston moves, whereby to control the movement of said lever and a cam member mounted on said shaft, whereby to rock said lever to locking position.

2. In a towel dispensing cabinet, a towel supply, a rock shelf for supporting said towel supply, a removable roller for accumulating said towel thereon, rollers for actuating said accumulating roller, gears connecting said actuating rollers, a shaft for supporting one of its actuating rollers, a pin extending from said shaft, a lever having an overhang for engaging said pin, whereby to arrest the rotation of said actuating rollers, a weight for rocking said lever in counterclockwise direction, and a piston for timing the rocking of said lever in said clockwise direction.

3. In a towel dispensing cabinet, a towel supply, a rock shelf for supporting said towel supply, a roller for accumulating said towel thereon, another roller for actuating said accumulating roller, a shaft for supporting said actuating roller, a pin carried on said shaft, a lever having an overhang for engaging said pin, whereby to arrest the rotation of said actuating roller, a cam carried on said shaft, whereby to rock said lever into said pin engaging position, a weight carried by said lever, whereby to rock it into releasing position and a piston connected with said lever for controlling the velocity of rocking of said lever.

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