Aug. 2, 1938. F. G. STEINER 2,125,754

UNIT DISPENSING DEVICE

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FIG. 1

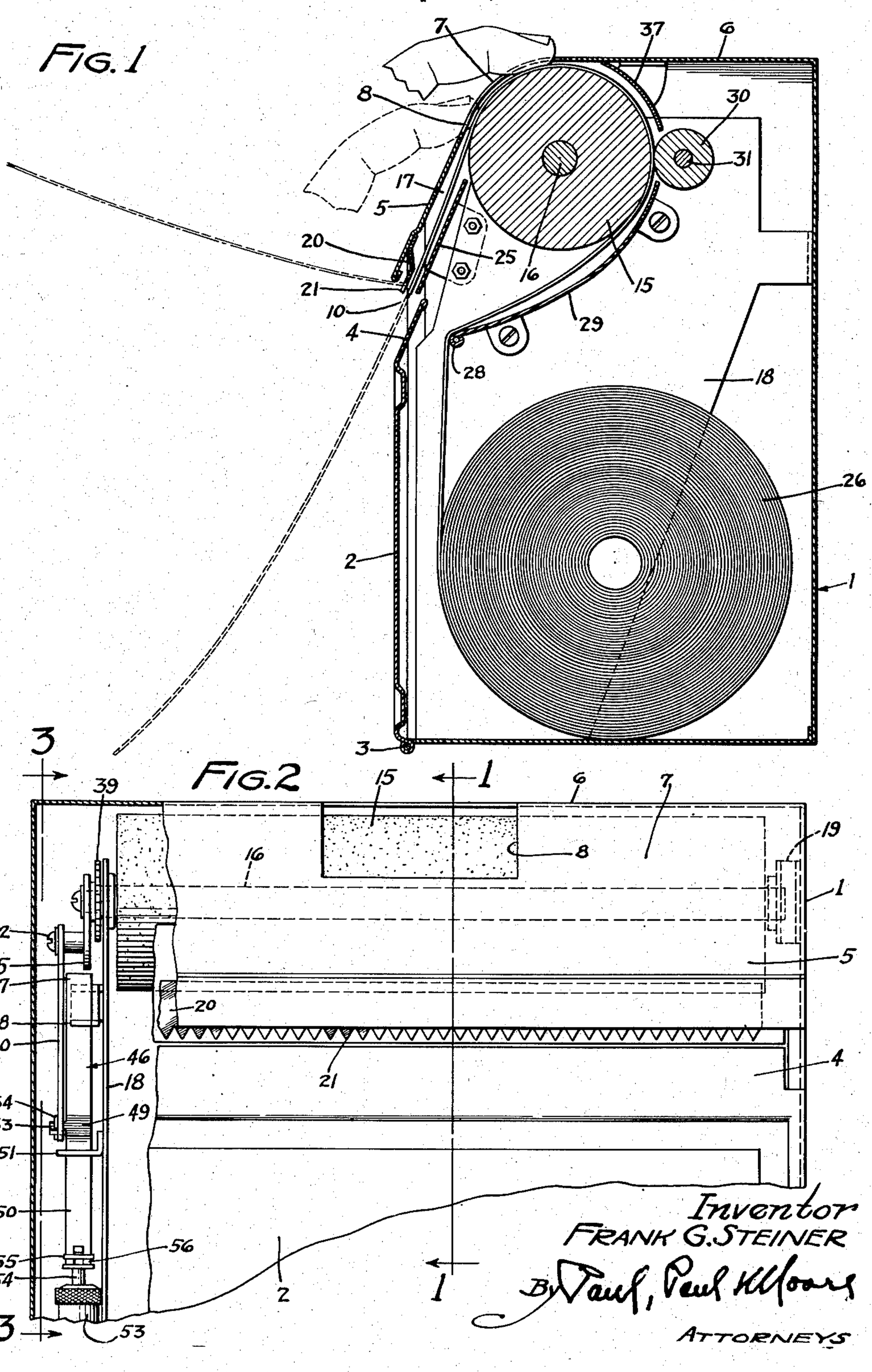

FIG. 2

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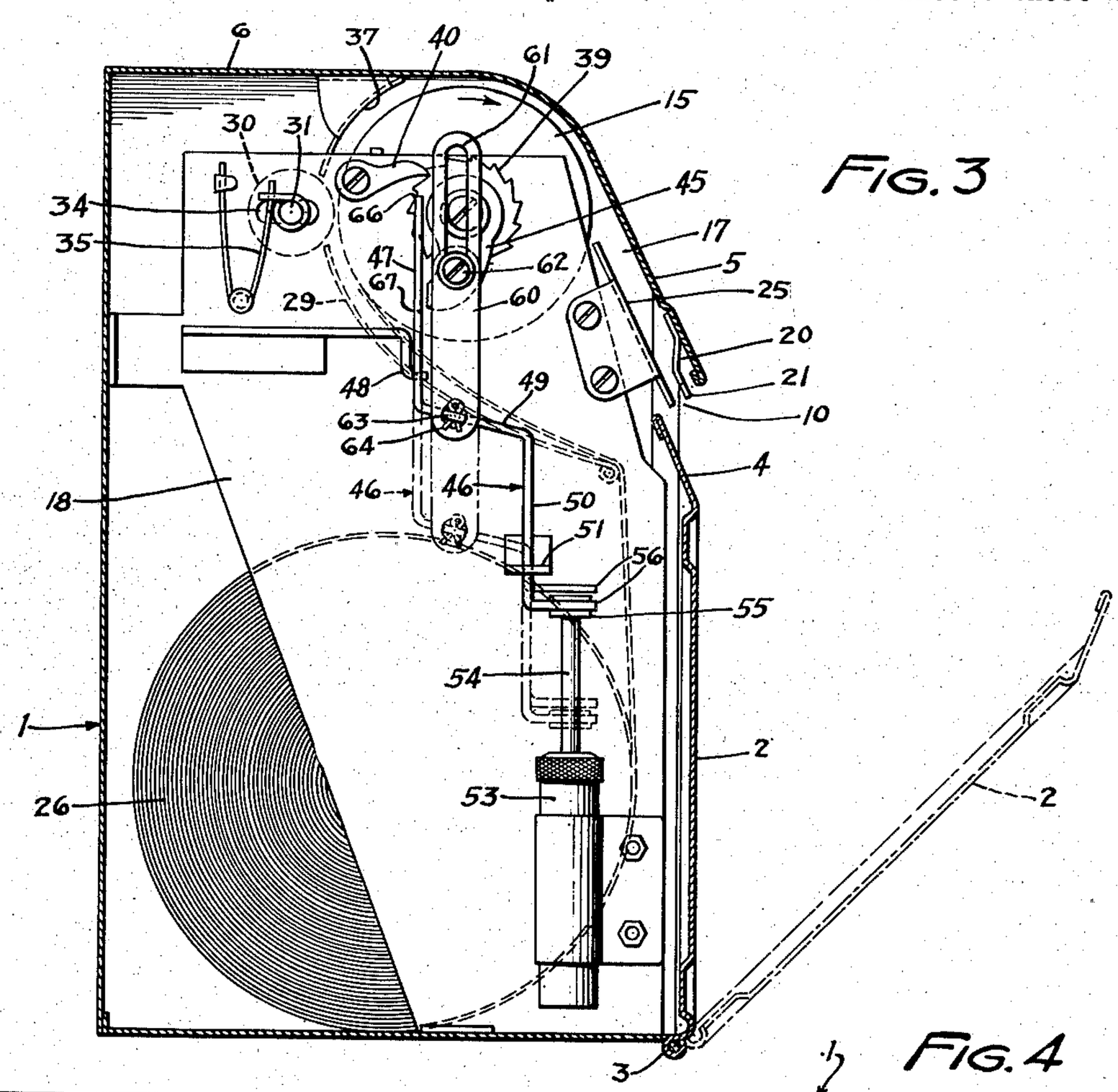

FIG. 3

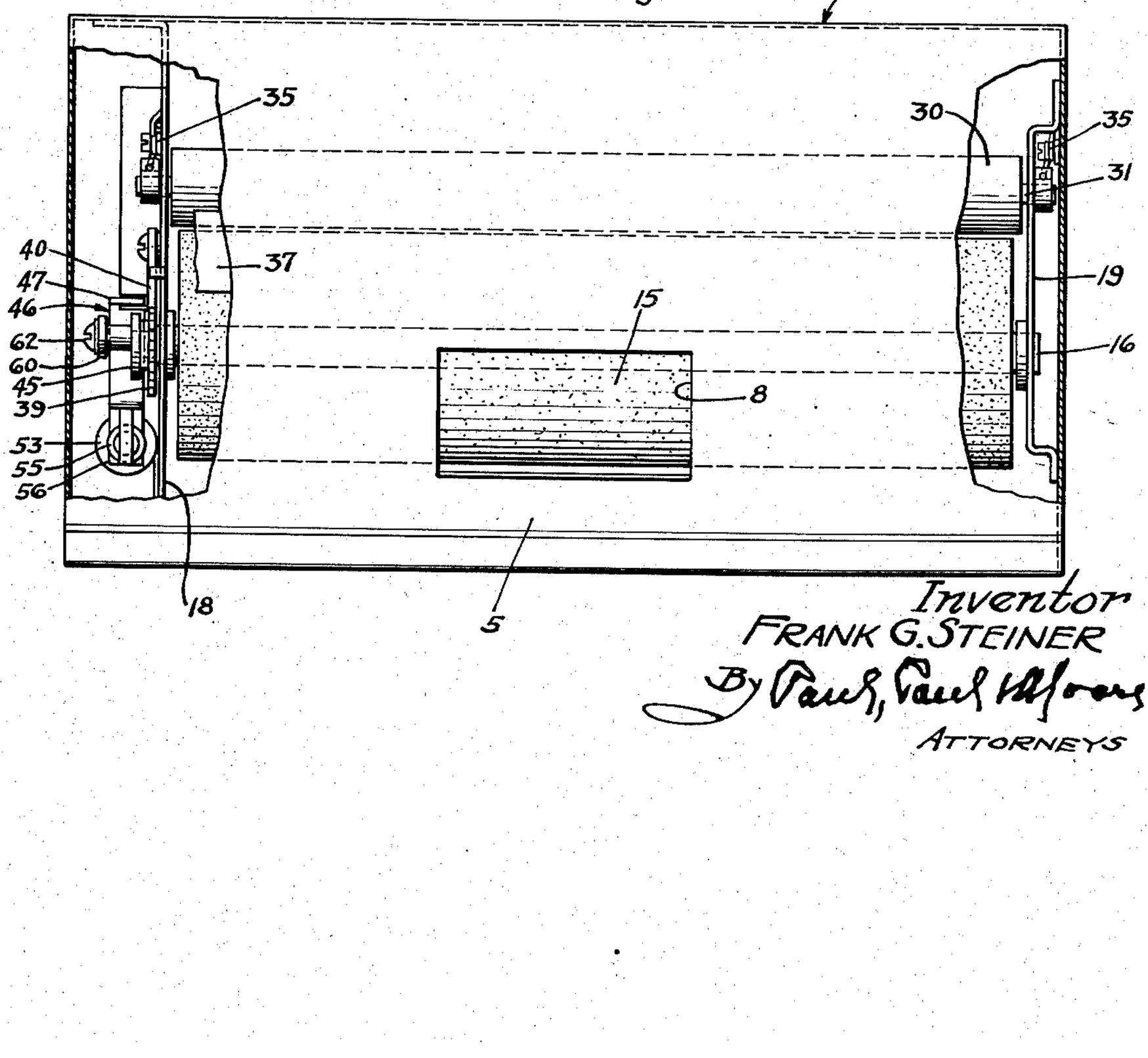

FIG. 4

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UNIT DISPENSING DEVICE

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Application September 21, 1935, Serial No. 41,608

10 Claims. (Cl. 164—84.5)

This invention relates generally to improvements in dispensing cabinets particularly adapted for dispensing paper units, including paper drying units.

An important feature of the invention relates in part and broadly to a type of apparatus in which feeding is accomplished by means of the finger, acting frictionally on the paper, and in part and more specifically to downstroke finger feed, in combination with severing by pulling on a length of paper which has been brought to an accessible position by the finger-stroking-feed action.

An important object of the invention is to combine with the finger-feed type of apparatus, means by which a pull on an accessible length of paper, including for example paper toweling, will sever the same, along with means for preventing delivery of paper, or paper toweling for a predetermined time period following each feeding operation.

Features of the invention include: finger-feed of the paper to an accessible position and severing by pulling; down-stroke finger feeding and up-pull severing; finger-feeding at the top of the cabinet; finger-feeding and severing by pulling, with timing, to prevent waste; finger-feeding of the paper with guide means formed in part by the severing means; finger down-stroke feeding of the paper to an accessible position spaced from the front of the cabinet; a simple relatively inexpensive device having all the advantages desired in a device of this type, and all details of construction, along with the broader ideas of means inherent in the disclosure.

Objects, features, and advantages of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings—

Figure 1 is a vertical transverse section taken approximately on line 1—1 of Figure 2;

Figure 2 is a front view of the cabinet with parts broken away;

Figure 3 is a vertical transverse section taken approximately on line 3—3 of Figure 2, with the timing mechanism set as at the beginning of timing; and

Figure 4 is a top plan view partly in section.

In the drawings, numeral 1 generally designates the outer casing of a cabinet having a front door 2 hinged at the bottom as at 3 and forming part of the front of the cabinet, the upper portion of the door being inwardly upwardly slanted as at 4. The remainder of the front of the cabinet is formed by an upwardly inwardly slanting portion 5 connecting with the top 6 of the cabinet by a curved portion 7 which has therein a slot or opening 8 through which the finger can be introduced for friction-feeding the paper. The slanting portions are disposed as shown to form a delivery orifice and guide, the arrangement being such that the door 2 can, in this embodiment, be swung outwardly and downwardly. The upper edge of the door and the lower edge of the element 5 define the delivery orifice 10.

A feed roll is indicated at 15 and has a shaft 16 suitably journaled (see Figure 4) at one end in a partition plate 18, and at the opposite end in a plate or bracket 19. The upper periphery of this roll is arranged close to the curved part 7 of the front wall of the cabinet and the paper passes between the roll and this curved part. Suitable means is provided to guide the paper downwardly toward the delivery orifice 10. From Figure 1 it will be clear that the finger can engage the paper on the roll to move the roll to feed the paper.

Figure 2 shows that the slot 8 is long enough in direction axially of the roll to permit three or four fingers to be introduced to engage the paper and operate the roll. The paper ordinarily used is known as "wet strength" paper of a quality which will not tear when wet fingers act upon it for feeding.

Means is carried by the upper slanting part of the cabinet by which the paper can be severed by a pull thereon after passage through the orifice, in this embodiment by an up-pull, although the invention is not entirely limited to the direction of pull. The means in this instance comprises a plate 20 having a downwardly directed toothed edge 21, the plate being secured to the portion 5 and forming part of the paper guiding means, another part being an inclined plate 25. This plate lies intermediately of and substantially parallel with the slanting portions 4 and 5 respectively of the door and the upper front wall of the cabinet, and its lower end lies between the severing means and the slanting portion 4 of the door.

The paper supply roll is indicated at 26, and the paper is passed upwardly from the front of the roll around an edge 28 of a curved plate 29 suitably secured to the partition plate 18. The upper end of this plate leads toward the meeting point of the feed roll 15, and a presser roll 30. This roll 30 has a shaft 31, see Figure 3, journaled in slots 34 respectively carried in plates 18 and 19. Suitable springs 35 urge the shaft and its roll toward the feed roll 15. As shown,

the paper passes between the rolls, thence upwardly and over or around the roll 15 and then downwardly into the guide throat 17 past the severing device 20 and outwardly through orifice 18 to a downwardly and outwardly slanting position spaced from the front of the cabinet, so that it can easily be grasped. A short guide 37 is placed above and spaced from the rolls as shown. There is no intention to limit the invention to the placement of the plate 29 and indeed it may be in some instances dispensed with to reduce friction. To prevent the feed roll 15 from being rotated in the wrong direction, a ratchet wheel 39 is secured to the shaft 16, see Figures 3 and 4. A pawl 40 engages with the ratchet, as shown

Another feature of the invention, in combination with finger feed and severing by pulling; or in combination with down-stroke finger feed and up-pull severing, is means for preventing feed for a predetermined time period following each feeding operation, including means for obtaining feed of only a predetermined amount or length of toweling.

Referring to Figure 3: The time-stop means which is only claimed herein in combination, comprises an arm 45 fixed to feed roll shaft 16, and disposed at the outer side of partition plate 18, and a slide generally indicated at 46. This slide has an upper vertical stop portion 47 suitably slidably held in a guide 48, an angularly related nearly horizontal portion 49, and a lower vertical portion 50 slidable in a guide 51. The barrel of a well-known dashpot type of timer is indicated at 53. The piston of the timer is indicated at 54 and the piston has a head 55 operably engaged by a forked extension 56 of the vertical portion 50 of the slide. A slotted link 60 constitutes means by which the arm 45 positively operates the slide. For this purpose, the slide is longitudinally slotted as at 61 and the fastening device 62 passes through the slot and into the arm 45. The opposite end of the link is pivotally connected to an outstanding projection 63 of the angled portion 49 of the slide and a split pin 64 secures the link. In Figure 3, the mechanism is shown as in stop position in which no further movement of the feed roll in direction of the arrow can take place until after a predetermined time interval during which the top 66 of the stop 47 travels to point 67 or to a point outside the rotative path of the arm 45. The dot-and-dash line position of the slide and timer stem and head is also shown in this figure.

Operation

In loading the cabinet, the door 2 is swung downwardly, the roll is placed in the cabinet, the paper is brought from the forward side of the roll, upwardly over the edge 28, thence upwardly between the rolls 15 and 30 over the roll 15, and downwardly through the throat 17 past the knife to a position shown in dotted lines in Figure 1 after which the paper is torn off.

In using the device, the paper may be finger-fed sufficiently to bring it into view and to a position accessible for grasping and then the accessible portion may be grasped and pulled to the limit as determined by the stop mechanism, or feeding out of the entire predetermined length can be accomplished by finger feeding.

Preferably, the user passes his finger or fingers through a slot 8 and strokes downwardly to bring a sufficient length of paper into view for grasping. He then grasps the paper and pulls it to the limit of feed, after which he brings the paper upwardly to the dotted line position in Figure 1, and tears off along the toothed edge 21 by an up-pulling motion. No more paper can now be fed until the timer has pulled the stop 47 downwardly to point 67.

Another advantage of the present device is that no preliminary perforation of the paper supply is necessary. The paper is simply fed to accessible position, pulled out, and then torn off.

Various combinations and sub-combinations of the parts are claimed, along with the broader ideas of means inherent in the disclosure.

I claim as my invention:

1. A paper dispensing apparatus comprising, a cabinet having a delivery orifice, feeding means including a roll around which the paper passes before reaching the delivery orifice, an opening through which a finger can engage the paper on the roll for moving the roll to feed the paper, severing means arranged intermediately of the roll and orifice, means acting with said severing means to direct the paper to and through the orifice in a downward and outward direction, said severing means being so arranged that after the paper passes through the orifice the same can be engaged with said severing means by an upward movement to procure severing.

2. A paper dispensing apparatus comprising, a cabinet having a delivery orifice, feeding means including a roll with which the paper engages before reaching the delivery orifice, an opening through which a finger can engage the paper on the roll for moving the roll to feed the paper, a plate arranged intermediately of the roll and orifice and having a downwardly directed severing edge, means acting with said plate to guide the paper to and outwardly through the orifice whereby thereafter the paper can be engaged with the severing edge by an upward movement to procure severing.

3. A paper dispensing apparatus comprising a cabinet having a door forming part of the front of the cabinet, the upper portion of the door being upwardly inwardly slanted, the remainder of the front of said cabinet being formed by an upwardly inwardly slanting portion connecting with the top of the cabinet, the said slanting portions being disposed to form a delivery orifice, a feed roll adjacent the top of the cabinet, said cabinet having in its upper slanting front portion an opening through which a finger can engage paper on the roll to move the roll to feed the paper, means carried by the upper slanting part of the cabinet by which paper can be severed by an up-pull thereon after passage through the orifice, and means including said last mentioned means for guiding the paper from the roll to and outwardly through said orifice.

4. A paper dispensing apparatus comprising a cabinet having a door forming part of the front of the cabinet, the upper portion of the door being upwardly inwardly slanted, the remainder of the front of said cabinet being formed by an upwardly inwardly slanting portion connecting with the top of the cabinet, the said slanting portions being disposed to form a delivery orifice, a feed roll adjacent the top of the cabinet, said cabinet having in its upper slanting front portion an opening through which a finger can engage paper on the roll to move the roll to feed the paper, means carried by the upper slanting part of the cabinet by which paper can be severed by an up-pull thereon after passage through the orifice, and means includ-

ing said last mentioned means for guiding the paper from the roll to and outwardly through said orifice, and also including a plate lying intermediately of the slanting portions of the front of the cabinet and between the severing means and the slanting portion of the door.

5. A paper dispensing apparatus comprising a cabinet having an outwardly downwardly slanting wall portion forming one side of a delivery opening, a measuring roll which delivers against said slanting wall portion, in a manner to guide the paper to a point spaced from the front of the cabinet, a supply roll below said measuring roll, with the paper leading from its front upwardly and around said measuring roll thence forwardly, and an opening in said wall through which the paper is contacted by the operator and pressed against the roll to operate said roll to feed the paper.

6. A paper dispensing apparatus comprising a cabinet having a delivery orifice, a measuring roll above the level of the orifice, means cooperative with and spaced from the roll and acting to guide the paper from a point below the roll upwardly to the rear of the roll around and over the roll thence downwardly through the orifice, said cabinet having an opening above said orifice through which the paper is contacted by the operator and pressed against the roll to operate the roll to feed the paper through the orifice.

7. A paper dispensing apparatus comprising a cabinet having a delivery orifice, a measuring roll at the top above the level of the orifice, means cooperative with and spaced from the roll and acting to guide the paper from a point below the roll upwardly to the rear of the roll around and over the roll thence downwardly through the orifice, a part of said guiding means being formed by a front wall of the cabinet and said wall having an opening above said orifice through which the paper is contacted by the operator and pressed against the roll to operate the roll to feed the paper through the orifice.

8. A paper dispensing apparatus comprising a cabinet having a delivery orifice, a measuring roll above the level of the orifice, means cooperative with and spaced from the roll and acting to guide the paper from a point below the roll upwardly to the rear of the roll around and over the roll thence downwardly through the orifice, a part of said guiding means being formed by a front wall of the cabinet and said wall having an opening above said orifice through which the paper is contacted by the operator and pressed against the roll to operate said roll to feed the paper through the orifice, said guide means including a part having a smoothing edge over which the paper drags on the way to said roll.

9. A paper dispensing apparatus comprising a cabinet having a delivery orifice, a measuring roll, means cooperative with and spaced from the roll and acting to guide the paper from a point below the roll upwardly to the rear of the roll around and over the roll thence downwardly through the orifice, said cabinet part of said guiding means having an opening through which the paper is contacted by the operator and pressed against the roll to operate the roll to feed the paper through the orifice.

10. A paper dispensing apparatus comprising a cabinet having a delivery orifice, a measuring roll at the top above the level of the orifice, means cooperative with and spaced from the roll and acting to guide the paper from a point below the roll upwardly and to the rear of the roll around and over the roll thence downwardly through the orifice, a part of said guiding means being formed by a front wall of the cabinet and said wall having an opening through which the paper is contacted by the operator and pressed against the roll to operate the roll to feed the paper through the orifice, and a tear-off knife attached to a part of said guiding means at said orifice and also acting to guide the paper and so arranged that after the paper is passed through the orifice it can be engaged with said knife by upward movement.

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