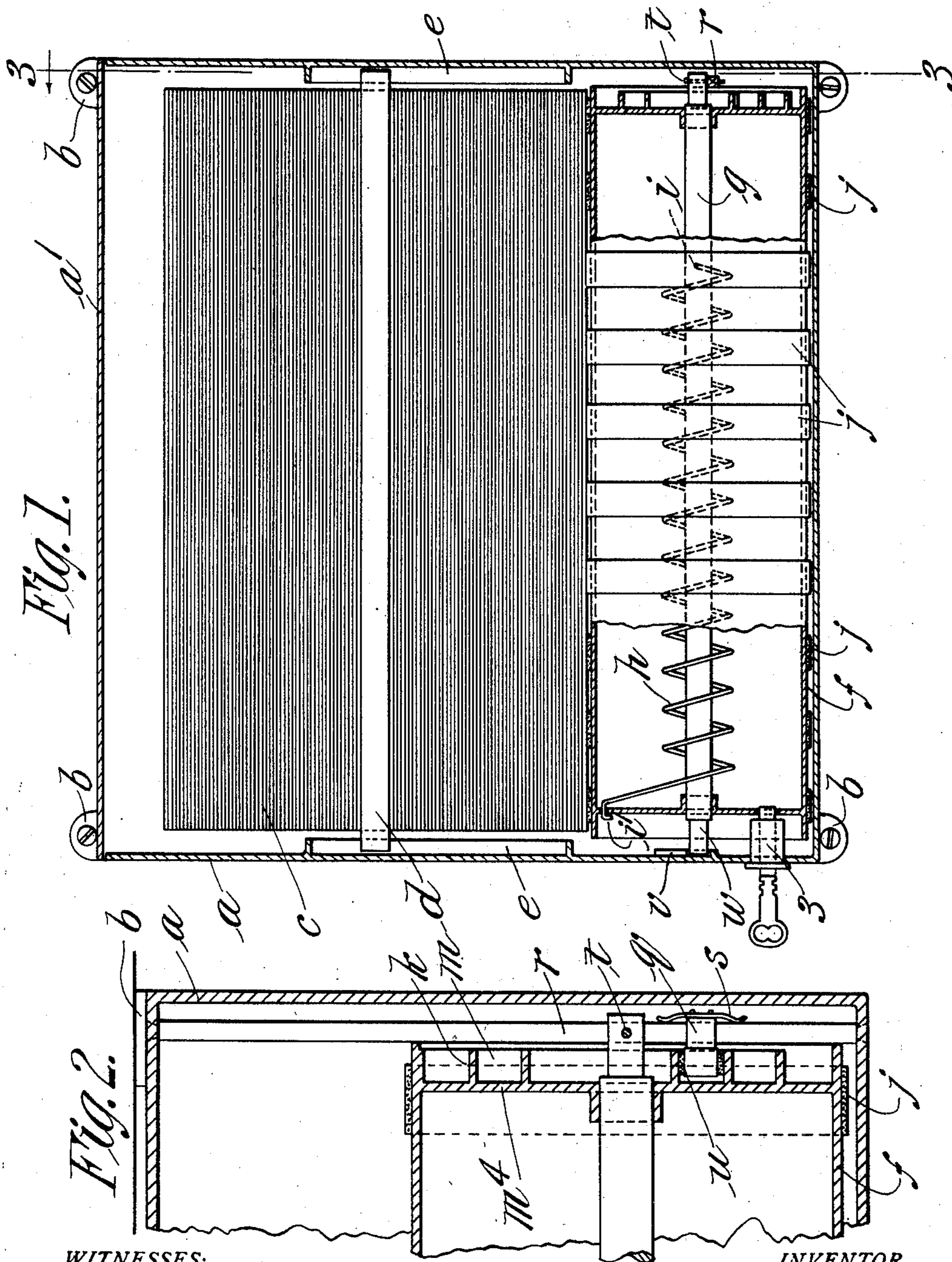


J. HALL, JR.  
SERVING APPARATUS.  
APPLICATION FILED OCT. 28, 1910.

998,289.

Patented July 18, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

*H. L. Sprague*  
*Harry W. Bowen*

INVENTOR,  
*John Hall Jr.*

BY

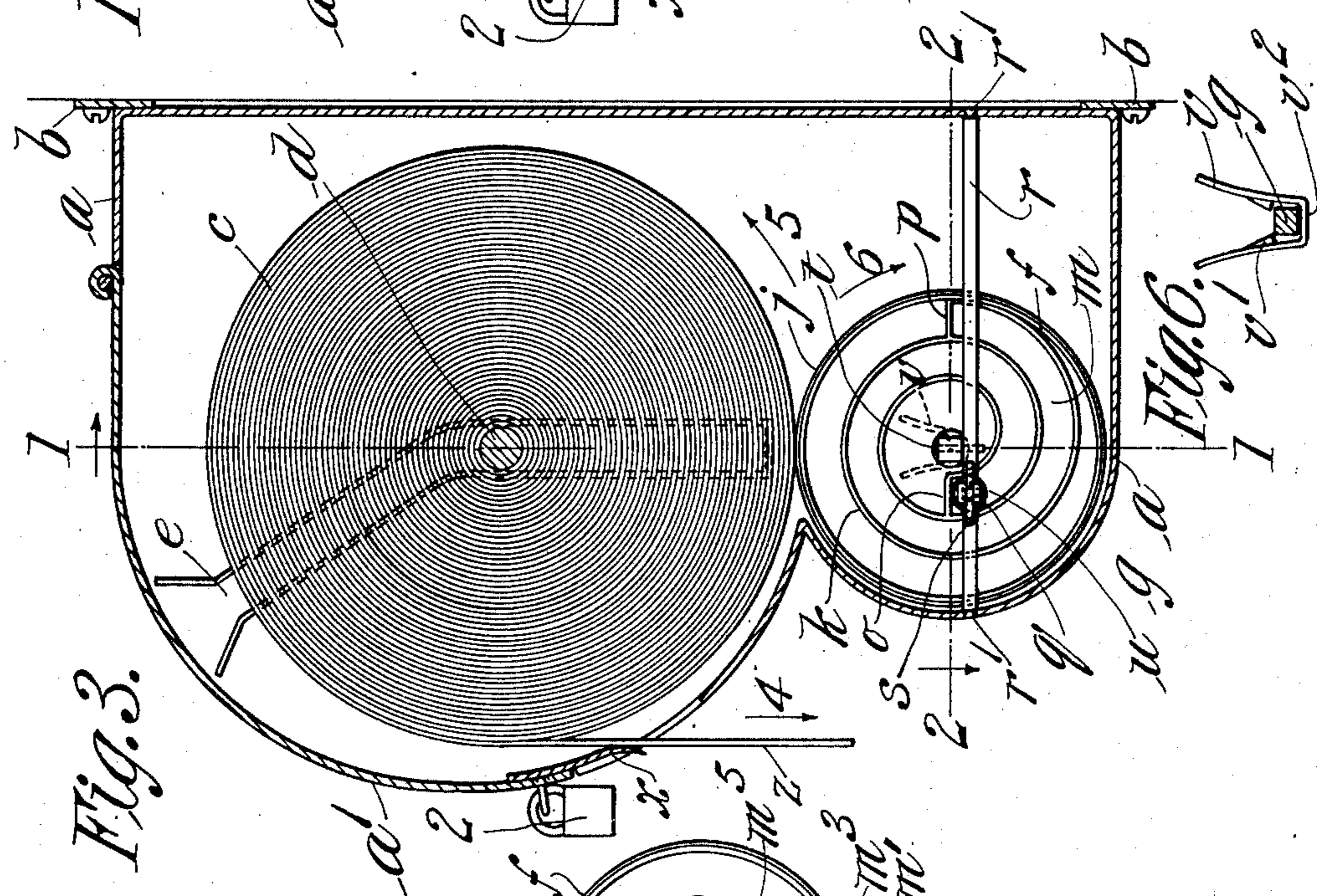
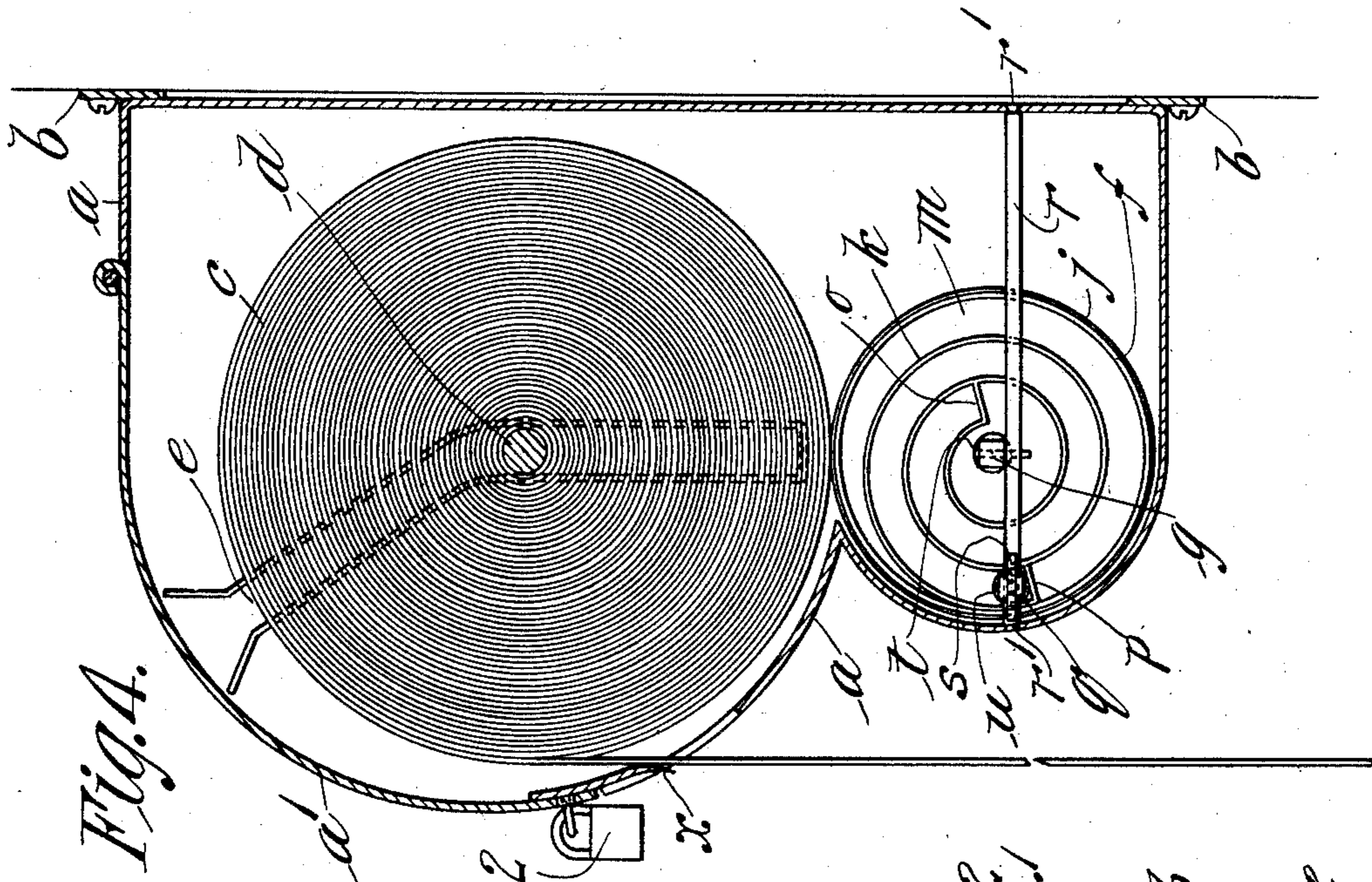
*Chapin & Co.*  
ATTORNEY.

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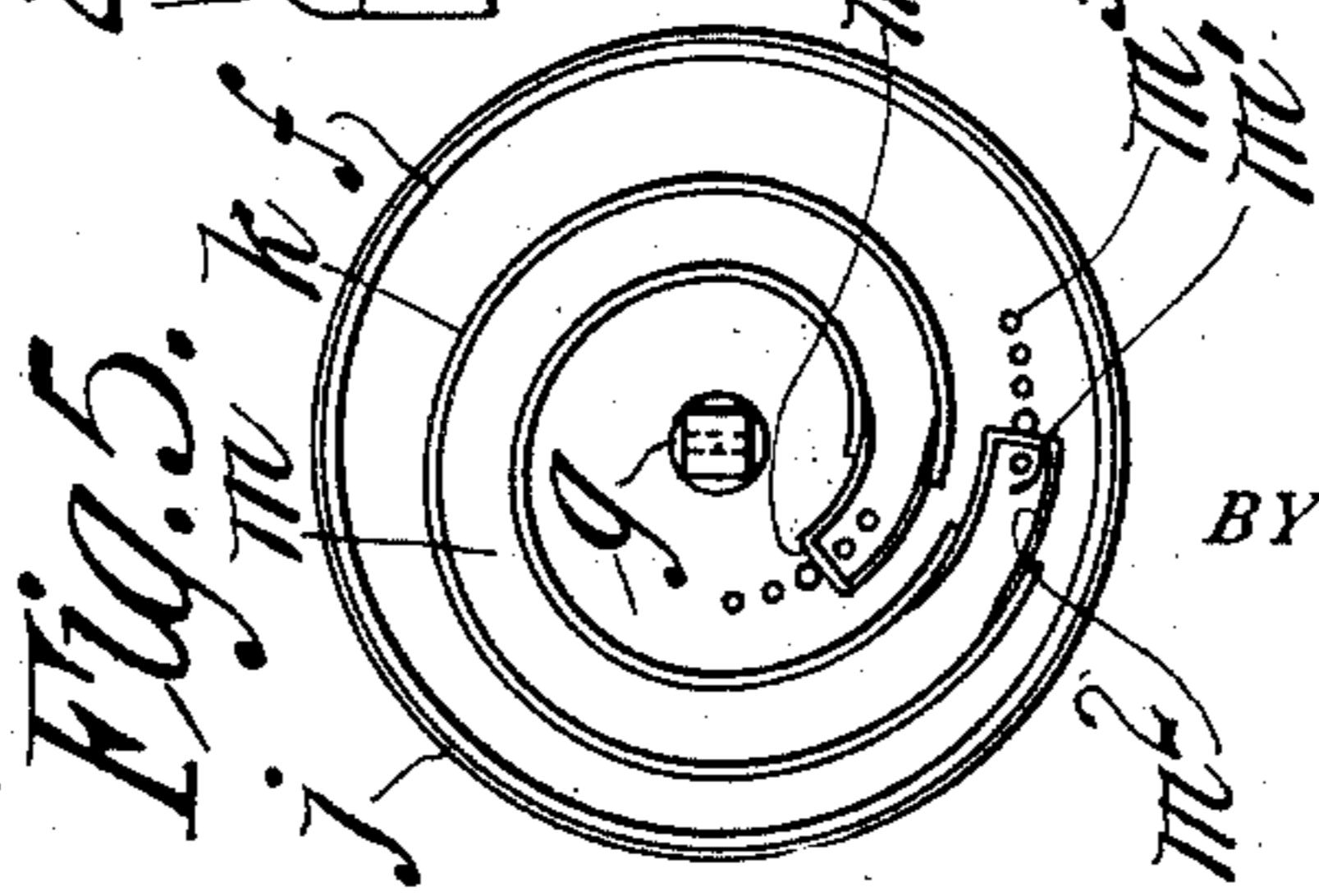
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*John Hall Jr.,*

BY  
*Chapman & Co.,*  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

JOHN HALL, JR., OF WEST SPRINGFIELD, MASSACHUSETTS.

## SERVING APPARATUS.

998,289.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed October 28, 1910. Serial No. 589,582.

*To all whom it may concern:*

Be it known that I, JOHN HALL, Jr., a citizen of the United States of America, residing at West Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Serving Apparatus, of which the following is a specification.

This invention relates to improvements in serving apparatus in which a cabinet or inclosing case is employed to contain a roll from which suitable lengths of paper or other material may be drawn, and associated with the roll is an apparatus or device for accurately determining the length of each piece of paper, etc., that is detached from the roll.

The invention is particularly adapted for use as a sanitary towel-delivering device in which a roll of paper is employed and made in a suitable manner for readily absorbing moisture. The construction or make up of the roll, however, does not form any part of the present invention.

Broadly, the invention consists in rotatably mounting a roll of paper, or other material, so that its periphery is always in engagement with a cylindrical or measuring roll which is provided with means whereby, when the measuring roll is operated by pulling on the free or pendent end of the roll of paper, a definite length thereof may be withdrawn; and means for reversely and simultaneously rotating the measuring roll and the roll of paper so that the free end will always depend from the roll of paper in order to permit the operator to detach successive sheets of definite lengths.

In the drawings forming part of this application,—Figure 1 is a vertical, sectional view on the line 1—1 of Fig. 3 showing the roll of paper and the measuring roll in contact. Fig. 2 is an enlarged sectional detail end view of the measuring roll showing the spiral grooves in the end thereof and the transverse bar on which the traveler is slidably mounted, the section being taken on line 2—2 of Fig. 3. Fig. 3 is a sectional, end view looking at the end of the roll of paper and the end of the measuring roll, the section being taken on the line 3—3, Fig. 1, and illustrating the manner in which the roll of paper is mounted and also the spiral grooves in the measuring roll and the traveler therein. Fig. 4 is a view similar to Fig. 3 but showing the definite length of paper

withdrawn from the roll and the measuring roll at the end of its travel after the definite length of paper has been withdrawn from the roll and before its reverse operations. Fig. 5 is a detail view of the spiral end of the measuring roll for varying the length of paper to be withdrawn from the roll. Fig. 6 is a detail view of the holding means for one end of the measuring roll shaft.

Referring to the drawings in detail, *a* designates a suitable casing or cabinet the upper portion of which is made larger than the lower portion. This cabinet is provided with suitable means, as perforated ears *b*, for supporting it in a vertical position on a wall or other support. Located in the upper part of the cabinet is the roll *c* of absorbent paper, suitable for towel purposes, which is supported on a rotatable shaft *d* the ends of which engage the grooves or guide-ways *e*. Located in the lower portion of the casing *a* is a roll *f* (which I term a measuring roll) supported on a stationary shaft *g* that is held against rotation as will be described. Encircling the shaft *g* is a coiled spring *h* which is under initial stress, one end of which spring is secured to the shaft *g* at the point *i* and the other end to the roll *f* at *i*<sup>1</sup> so that when the roll is rotated in one direction the spring will be placed under a greater stress and cause the roll to rotate in the opposite direction to its initial position, when the winding force is removed.

The measuring roll *f* is encircled by a plurality of rubber bands *j* on which the roll *c* of paper, or other material, rests, as clearly shown in Fig. 1, the purpose of which bands is to secure a frictional contact between the roll of paper and the measuring roll *f*. The end of the measuring roll, as shown in Figs. 3 and 4, is provided with a spiral rib *k* forming a spiral groove *m*, the inner and outer ends of which are provided with abutments *o* and *p*. Located within said groove is a traveler *q* which is adapted to reciprocate or have opposite transverse movements on the bar *r*. This traveler is provided with oppositely located spring-arms *s* which engage the outer side of the bar *r*, as shown in Fig. 2, in order to prevent the traveler from binding on the bar when the measuring roll *f* is operated. This bar *r* is suitably and removably supported in the lower part of the casing, as by means of the screws *r*<sup>1</sup>, one end of the shaft *g* being secured to this bar by means of a pin *t*.

The traveler  $q$  is provided on its opposite faces with rubber buffers  $u$  in order to lessen the noise or blow when the traveler comes to the end of the spiral and engages the abutments  $o$  and  $p$ .

It will be seen from the construction of the spiral  $m$ , the bar  $r$ , and traveler  $q$  that the roll  $f$  may be rotated a definite distance in one direction and a definite distance in the opposite direction, or until the traveler  $q$  engages either one of the abutments  $o$  and  $p$ . In order to remove the shaft  $g$  from the casing, its left-hand end is placed in the socket  $v$  so that the squared portion  $w$  will prevent the shaft from rotating. The socket  $v$  is provided with spurs  $v^1$  to prevent the accidental removal of the shaft  $g$ .

By loosening the connections of the bar  $r$  with the casing, the measuring roll  $f$  and its shaft  $g$  may be readily removed. The socket  $v$  is secured to the casing  $a$  at the bottom portion  $v^2$  so that the upper portion may be sprung back to permit the removal of the bar  $g$ .

The roll  $c$  of paper after being placed in the cabinet, drops down the guide-ways  $e$ , until the lower portion of its periphery engages the rubber bands  $j$  of the roller  $f$ , and no matter what the size of the paper roll may be it always engages the measuring roll  $f$ . The casing  $a$  is provided with a cutter  $x$  against which the pendant end  $z$  of the roll  $c$  is adapted to be cut off.

2 designates a suitable locking device for the cover  $a^1$  of the cabinet in order to prevent the removal of the roll of paper by unauthorized persons, and the measuring roll  $f$  is also provided with a locking device 3 in order to prevent the operation of the roll by different people.

Should it be desired to vary the length of the severed portion of the paper, I provide means for varying the length of the spiral groove  $m$  which consists, as shown in Fig. 5, of a U-shaped member  $m^1$  which is provided with the elastic arms  $m^2$  that engage the rib  $k$ .

$m^3$  designates a series of holes in the head  $m^4$  of the measuring roll  $f$ , whereby pins may be inserted to vary the position of the abutments  $m^5$  of the U-shaped member  $m^1$ .

Referring now to the operation of the apparatus, and first to Fig. 3, in which the pendant end  $z$  of the roll hangs a short distance below the cutter: When the operator pulls downward on this pendant end, in the direction of the arrow 4, the roll  $c$  will be rotated in the direction of the arrow 5, and by reason of its frictional engagement with the rubber bands  $j$ , the measuring roll  $f$  will be rotated in the direction of the arrow 6 causing the traveler  $q$  to leave the abutment  $o$ , and as long as the operator continues to pull downward on the end  $z$  the measuring roll  $f$ , will be operated until the

traveler has traversed the spiral groove  $m$  and brings up against the outer stop  $p$  which, it will be noticed, is a little more than one and one-half revolution. At this point in the operation, the operator severs the paper by means of the cutter  $x$ , thus releasing the tension on the roller  $c$  and measuring roll  $f$ , (see Fig. 4). The coiled spring  $h$ , which is now under stress, unwinds and rotates the measuring roll  $f$  in the opposite direction, causing the roll  $c$  to also rotate reversely, and this operation will continue until the traveler  $q$  brings up against the inner abutment  $o$  of the spiral  $m$ , with the position of the parts as shown in Fig. 3, leaving a pendant end  $z$  on the roll  $c$ .

It should be particularly noticed that the apparatus comes to rest with the parts as shown in Fig. 3, and always with a pendant end  $z$  below the cutter  $x$ . The reason for this is that when the operator pulls downward on the pendant end, the traveler follows the path of the spiral which has the greatest radius and brings up against the outer abutment  $p$ ; but on the reverse movement, the traveler moves in the part of the spiral which has the shortest radius bringing up against the inner stop  $o$ ; or in other words, the roll  $c$  and measuring roll  $f$  do not, on the reverse movement, travel through as great a peripheral distance as in the unwinding operation. The traveler  $q$ , during this operation, it will be understood, reciprocates on the bar  $r$ .

In order that the measuring roll  $f$  may operate to turn the roll  $c$  of paper backward, it should be stated that the coiled spring  $h$  is placed under an initial stress, as in the ordinary window shade roller.

While my above described apparatus is particularly adapted for delivering sanitary paper towels, it, of course, is not limited to such particular use, nor do I so limit myself.

What I claim, is:—

1. In a serving apparatus, the combination with a roll of material from which a definite length is to be severed, a measuring roll engaged by the roll of material, means on the measuring roll for permitting the roll of material to be unwound through a definite arc irrespective of the diameter of the roll of material, and means to permit the roll of material to rotate in a reverse direction through a less arc, whereby a free pendant end from the roll of material is provided at the end of the reverse operation.

2. A serving apparatus comprising a roll of the material to be delivered, a measuring roll for determining a definite length to be detached and supporting the roll of material, the measuring roll being adapted to be rotated when the roll of material is rotated, the measuring roll being provided with a spiral device having abutments at the ends,

a traveler engaging the abutments, and a tension device for reversely rotating the two rolls.

3. In a serving apparatus, the combination with a roll of material, a measuring roll, a severing device for detaching the material from the roll, means associated with the measuring roll to permit the roll of material to be unwound a definite length and to rotate in a reverse direction so that a free pendant end will project from the roll of material beyond the severing device.

4. In a serving apparatus, the combination with a cabinet provided with guide-ways for receiving the shaft of a roll of material, of a measuring roll supported in the cabinet, the guide-ways being of such length to permit the roll of material to always engage the measuring roll, friction devices between the rolls, and means associated with the measuring roll to permit a definite length to be withdrawn from the

roll of material, and a resetting device for the rolls.

5. A serving apparatus for a roll of material, a measuring roll engaged by the roll of material and provided with a spiral groove, said groove having abutments therein, a traveler in the groove for engaging the abutments whereby definite lengths of material may be withdrawn from the roll of material.

6. In a serving apparatus, the combination with a roll of material, a measuring roll for determining the length of material to be withdrawn from said roll, the measuring roll being provided with a groove, and adjustable abutments in the ends of the groove to vary the length of material to be withdrawn from the rolls of material.

JOHN HALL, JR.

Witnesses:

K. I. CLEMONS,  
HARRY W. BOWEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."