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PATENTED OCT. 23, 1906.

T. VAN KANNEL.
ROTATABLE DELIVERY SHELF.

APPLICATION FILED NOV. 16, 1906.

3 SHEETS—SHEET 1.

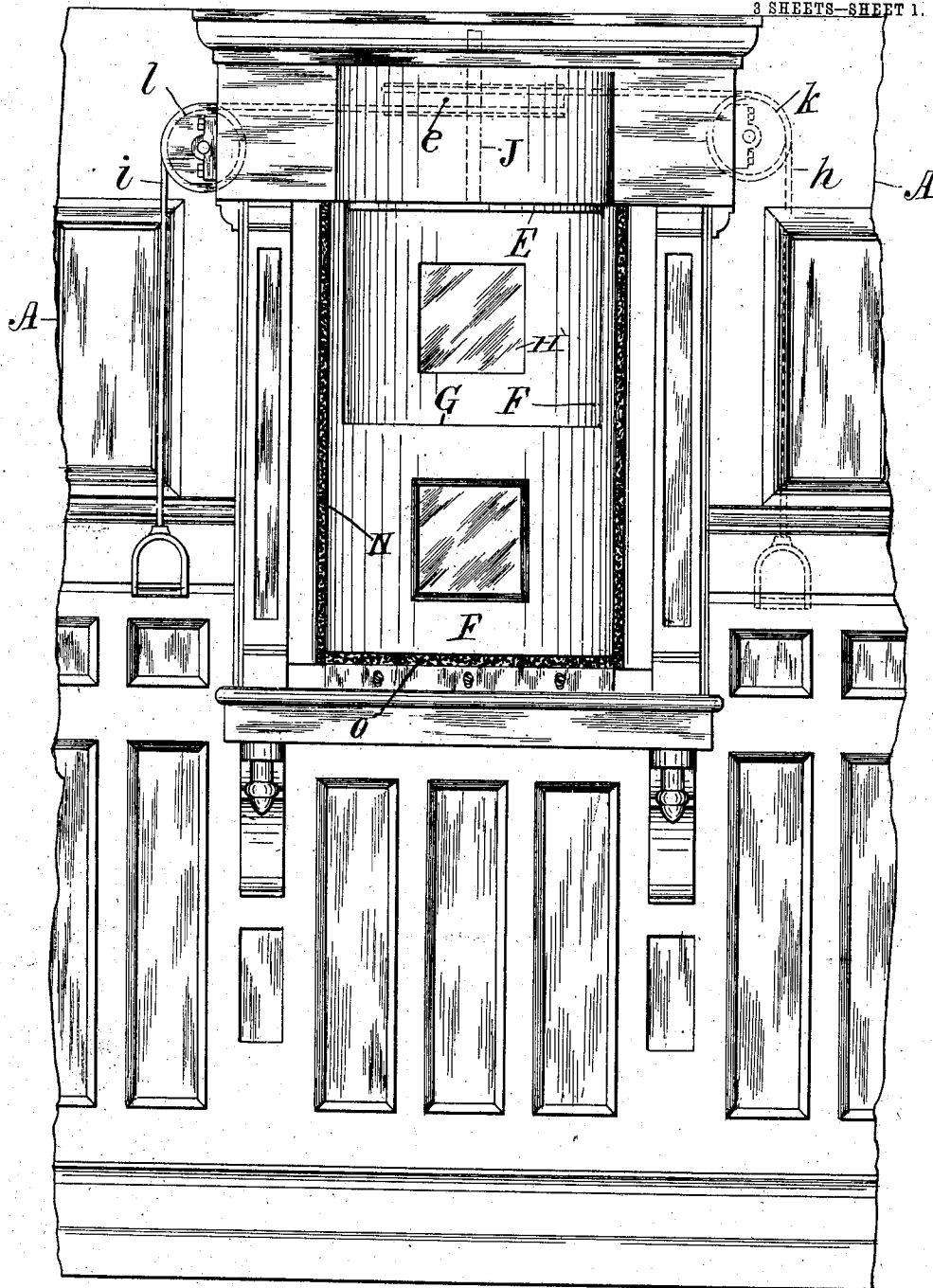


Fig. 1.

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Fig. 2.

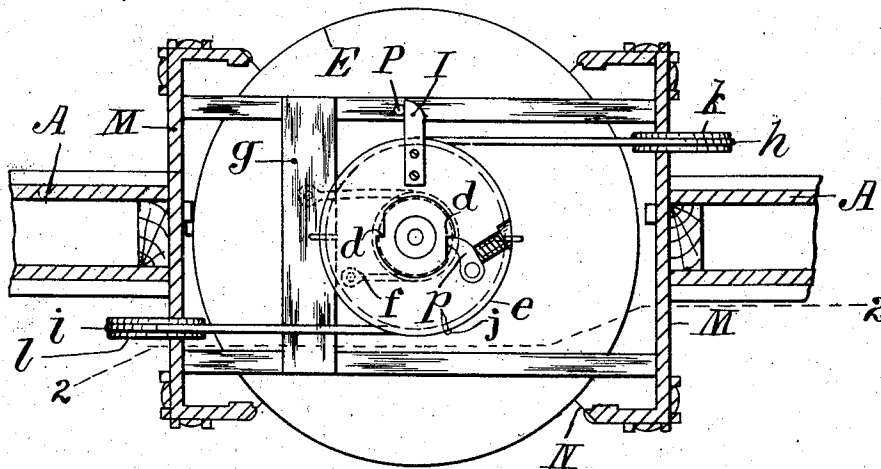
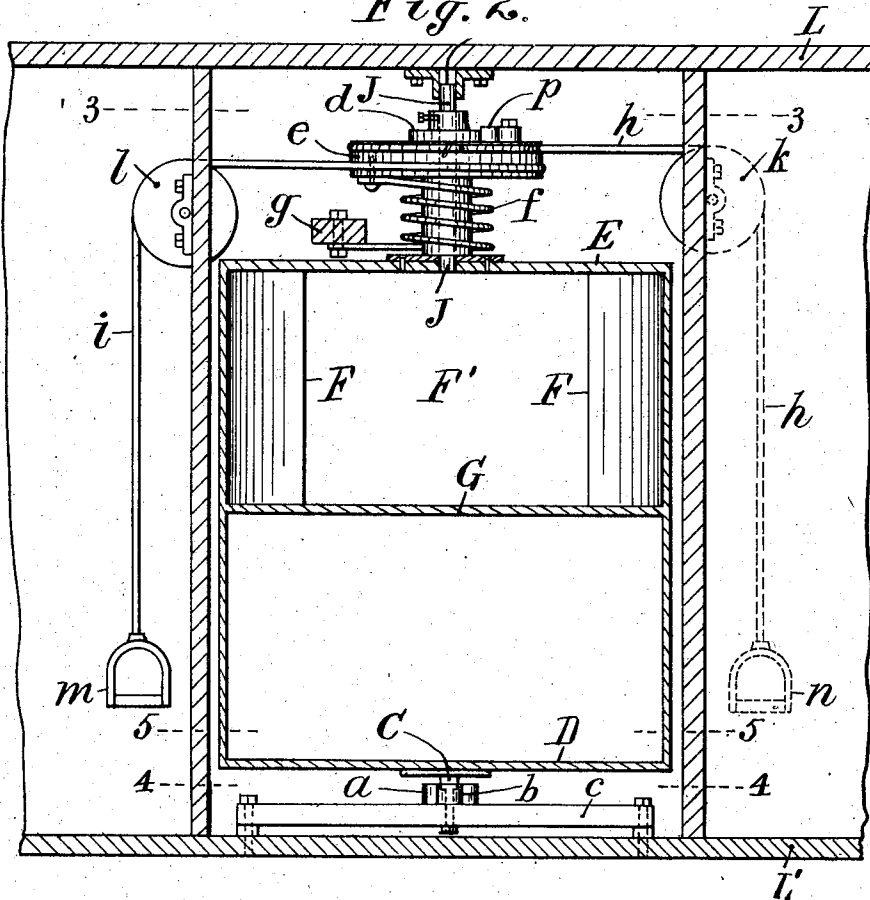


Fig. 3.

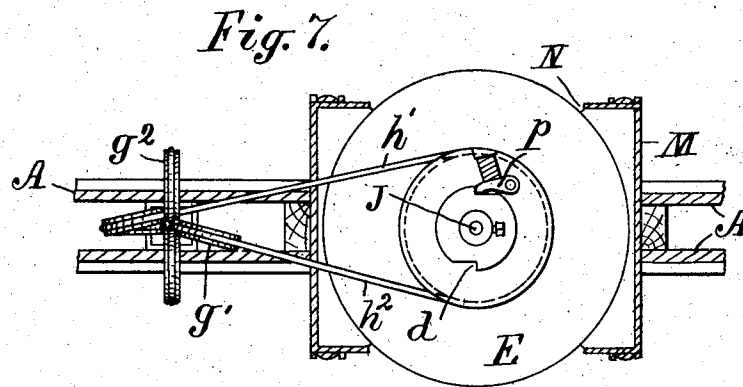
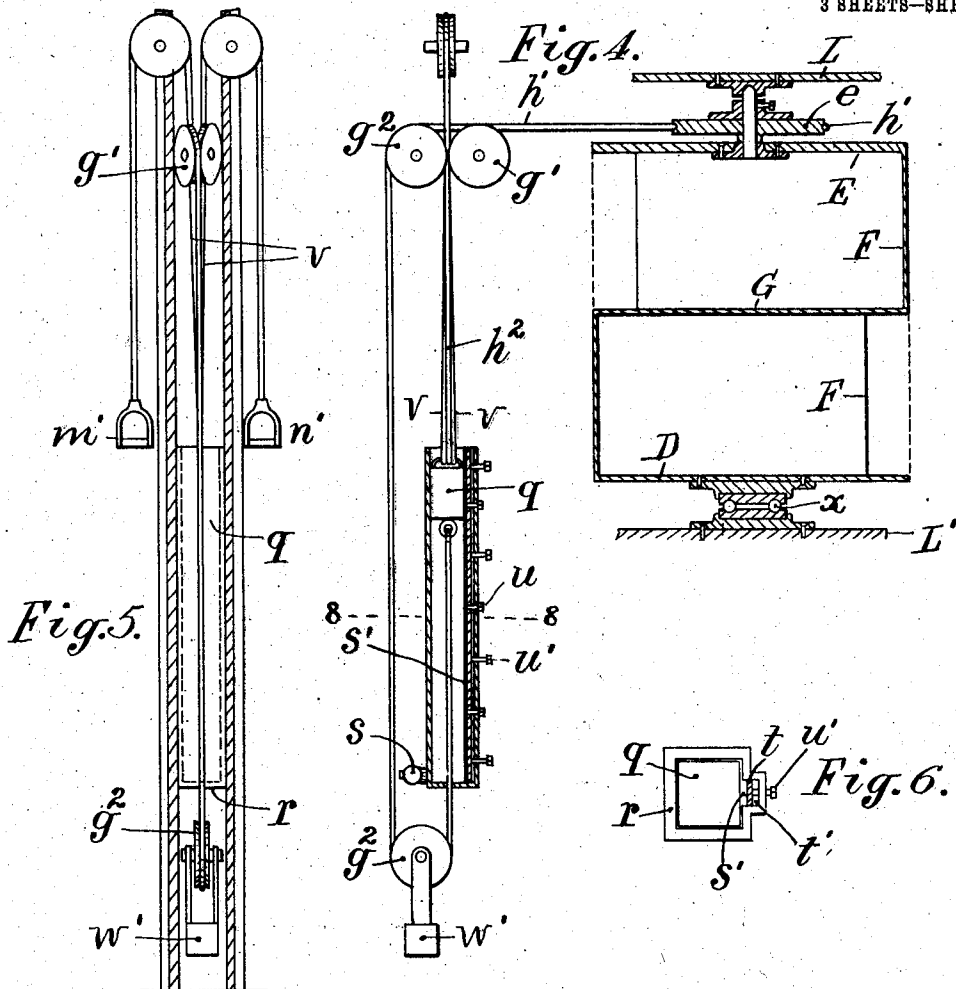
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

THEOPHILUS VAN KANNEL, OF NEW YORK, N. Y., ASSIGNOR TO VAN KANNEL
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ROTATABLE DELIVERY-SHELF.

No. 833,810.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Original application filed June 3, 1905, Serial No. 263,653. Divided and this application filed November 16, 1905. Serial No. 287,590.

To all whom it may concern:

Be it known that I, THEOPHILUS VAN KANNEL, a citizen of the United States, residing at No. 524 East One hundred and thirty-fourth street, New York, county of New York, and State of New York, have invented certain new and useful Improvements in Rotatable Delivery-Shelves, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This application in all essential particulars is a division of my application, Serial No. 263,653, filed June 3, 1905, for patent on rotatable partition-shelf, and relates particularly to the use of a suitable motor, as a spring or weight, for turning the shelf a part rotation within its casing, and to means operated by hand for energizing the motor or setting it in an operable condition and releasing it to actuate the shelf.

A person unfamiliar with the use of a rotating shelf would be liable to stop or start the shelf suddenly, and thus spill food from the dishes. By using a spring or weight of suitable proportions a motor can be obtained which will operate to turn the shelf with very little excess of force, and thus avoid the jarring of the shelf and its contents, which might otherwise occur. In combining the motor with the shelf a pulley is preferably fitted to turn loosely upon one of the shelf-pivots or spindles and the spring or weight connected with such pulley, to turn the same automatically when the spring is wound or the weight raised. The pulley is connected with the shelf or its spindle by a pawl and ratchet, and cords and handles are provided to turn the pulley sufficiently to wind the spring or raise the weight and simultaneously engage the pawl and ratchet, so that when the handles are released the motor may turn the shelf until arrested.

Both a spring and a weight are shown in the annexed drawings connected to turn the shelf when set in an operable condition, and such shelf is shown in the form of a cylindrical drum herein.

Figure 1 shows a front elevation of a partition with the shelf in its casing mounted therein. Figs. 2 and 3 show the use of a spring-motor, Fig. 2 being a vertical section

on line 2 2 in Fig. 3, which is a horizontal section on line 3 3 in Fig. 2. Figs. 4 to 7, inclusive, show in diagrammatic form the use of a weight as a motor. Fig. 4 shows a vertical section analogous to Fig. 2, the section being made in the plane of the partition. Fig. 5 is a cross-section of the partition adjacent to the weight and its hand connection. Fig. 6 is a cross-section on line 8 8 in Fig. 4, and Fig. 7 is a plan of the parts shown in Fig. 4 with the upper bearing for the drum-journal removed.

A designates the partition separating two rooms with which the pantry window or rotatable shelf communicates.

M is the casing, having open doorways at opposite sides of the partition and packings N and O' contacting with the drum to prevent the passage of vapors therethrough.

In Fig. 2, C designates a journal in the partition for the lower head D of the drum, with bearing on the bottom L' of the casing. J designates a journal for the upper head E of the drum, with bearing upon the top L of the casing. The drum is shown formed with segmental sides F, having a shelf G intermediate to the heads D and E, and a quadrantal window-panel H, fitted between the intermediate shelf and the upper head at one edge of the shelf, and a similar panel between the shelf and the lower head at the opposite edge of the shelf, thus leaving doorways F' between the sides F, which are open at opposite sides of the drum or opposite edges of the shelf, above and below the same. The pulley e has its hub fitted to turn upon the journal J, and a coil-spring f is wound around the hub of the pulley and has one end attached to the pulley, and the opposite end to a stationary support g. A ratchet-wheel with two teeth d is attached rigidly to the journal J, and the wheel e is provided with a spring-pawl p to engage such teeth. The pulley e is provided with two grooves and cords h and i, wrapped around the grooves and their ends secured by staple j. The cords are extended over guide-wheels k and l within reach of the operators at opposite sides of the partition, the ends being provided with handles m and n for turning the pulley. The cords are arranged so that the pulling of the handles turn the wheel e and

pulls the pawl backwardly from one tooth *d* to the next, which pull winds the spring *f* a half-rotation and gives it sufficient tension to turn the drum a half-rotation. A stop *I* is
 5 attached to the wheel *e* and is held normally by the weight or spring against an abutment *p* and is drawn back when the cord *h* or *i* is pulled. Such stop limits the return movement of the wheel *e* when the cords are re-
 10 leased, but does not positively control the movement of the drum. A cam *a* is shown in Fig. 2, combined with rolls *b*, attached to leaf-spring *c*, the same as shown in Fig. 5 of my copending application, Serial No. 263,653.
 15 Such cam is formed with recesses upon opposite sides, and the springs press the rollers normally into such recesses, which are arranged in relation to the doorways *F'* upon the drum so as to arrest the drum when the
 20 doorways coincide with the doorways of the casing. The stop *I* thus regulates the movement of the wheel *e*, while the cam *a* regulates the movement of the drum. The spring is thus set in an operable condition by
 25 the pulling of the handle *m* or *n*, and then operates thereafter automatically with a predetermined force to turn the drum the desired half-rotation.

The motor formed of a weight is shown in
 30 Figs. 6 to 9, inclusive, where the top of a weight *g*, instead of a spring, is connected with one side of the pulley *o* by cord *h'* and the bottom of the weight with the opposite side of the pulley by cord *h''*, carried over guide-
 35 wheels *q''*. The cord is kept taut by a weight *W'*. The weight is also connected by cords *v* with handles *m'* and *n'* upon opposite sides of the partition, and the weight is fitted to slide in a vertical box *r*, having a check-valve
 40 *s* to admit air freely during the raising of the weight and an adjustable vent which can be regulated to control the descent of the weight during its operation upon the drum. The handles *m'* and *n'* are shown in Fig. 7 in their
 45 depressed position. To form such vent, a strip *t* is fitted in a groove *t'* in one side of the box and adjusted by holding-bolts *u* and set-screws *u'*, so as to leave a vertical passage *s'* by the side of the weight as it descends in the
 50 box. The adjustment of the bolts and screws permits the strip *t* to be set at different distances from the weight in different parts of the box, so as to modify the area of the vent-passage *s'*, and thus afford the air a
 55 free vent when the weight is first descending and choke off the vent near the end of the descent when it is requisite to bring the movement of the drum gradually to rest.

In Fig. 9 the lower journal is replaced by
 60 antifriction-balls *x*, fitted to circular channels.

A weight has several advantages over a spring for shifting the drum in the manner described, as the weight produces a uniform pull upon the rope throughout its entire
 65 movement and can be arranged to rest upon

the bottom of its inclosing box at the end of its stroke, thus limiting the stroke without applying any strip to the pulley *e*.

Any other means of connecting the motor with the drum may be employed, as the es-
 70 sential feature of the invention is the connection with the motor of means operated by hand for setting the motor in an operable condition and releasing it to actuate the
 75 drum. With such an arrangement the force of the motor is expended at the end of each movement of the drum, and the setting of it "in an operable condition" consists in reën-
 80 ergizing the motor by lifting the weight or winding the spring to a degree just sufficient to shift the drum. Such mechanism always operates the rotating shelf uniformly and is
 85 thus more efficient and satisfactory in practice than any means for pulling the drum around directly by hand, as the operation of the weight upon the drum can be controlled
 90 to vary the movement of the drum. From the above description it will be understood that the invention embraces means for energizing the motor, which means (when oper-
 95 ated) simultaneously brings the motor into operative engagement with the shelf, such that when the means is released the motor will rotate the shelf to the desired extent.
 100 The engagement of the motor with the shelf may be operatively effected by any suitable means, the means shown consisting of the ratchet rigidly mounted upon one of the
 105 journals upon the shelf, a pawl movably mounted adjacent thereto, and manually-operated means for propelling the pawl into
 110 a suitable position to engage with the ratchet.

Having thus set forth the nature of the invention, what is claimed herein is—

1. A rotatable delivery-shelf, a motor, and
 105 means for energizing such motor, said means when operated simultaneously bringing said motor into operative engagement with the shelf, such that when the said means is re-
 110 leased the motor will rotate the shelf to the desired extent.

2. A delivery-shelf, journals attached thereto whereby the shelf is rotatably mounted on a suitable support, a ratchet rigidly
 115 mounted on one of the journals, a pawl movably mounted adjacent thereto, manually-operated means for propelling the pawl into a suitable position to engage with the ratchet, said means when operated simultaneously
 120 energizing a motor, whereby said motor when released after said engagement will automatically rotate the shelf.

3. A rotatable delivery-shelf, a cord and weight connected to the shelf for turning it, a box inclosing the weight movably and con-
 125 fining a cushion of air beneath the weight, and a groove in the side of the box having its wall adjustable to and from the weight to vary and control the escape of air beneath the weight when turning the shelf.
 130

4. A rotary delivery-shelf, a cord and weight connected to the shelf for automatically turning it, a box inclosing the weight movably and confining a cushion of air beneath the weight, a groove in the side of the box to permit the escape of air past the weight, and a gib fitted to the groove and adjustable at different points in its length, to control the escape of air diversely at different points during the descent of the weight. 15

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses. 20

THEOPHILUS VAN KANNEL.

Witnesses:

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