

(No Model.)

2 Sheets—Sheet 1.

L. DEGUENANT.
TIME STOCK FEEDER.

No. 354,308.

Patented Dec. 14, 1886.

Fig. 1.

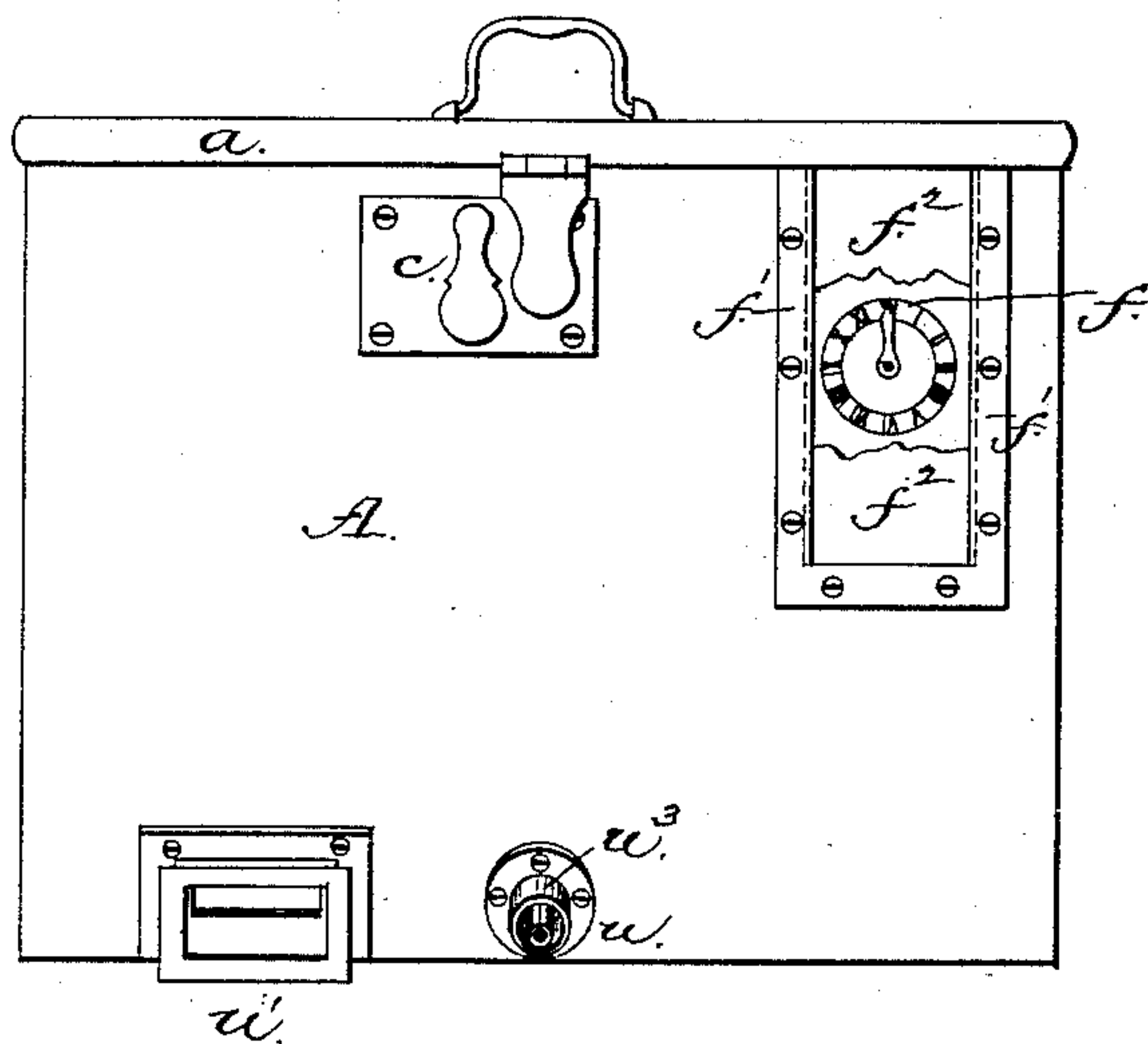


Fig. 2.

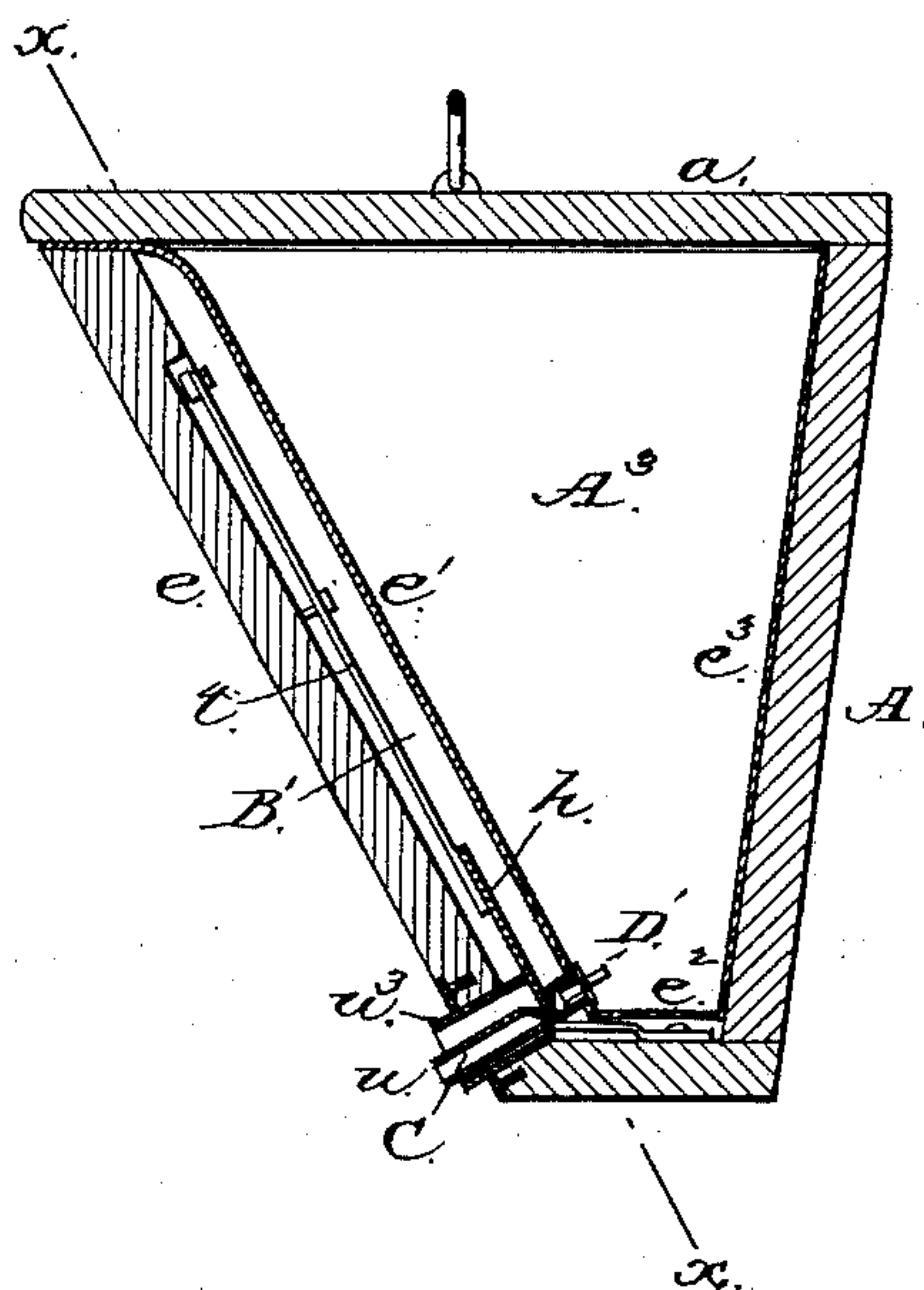


Fig. 3.

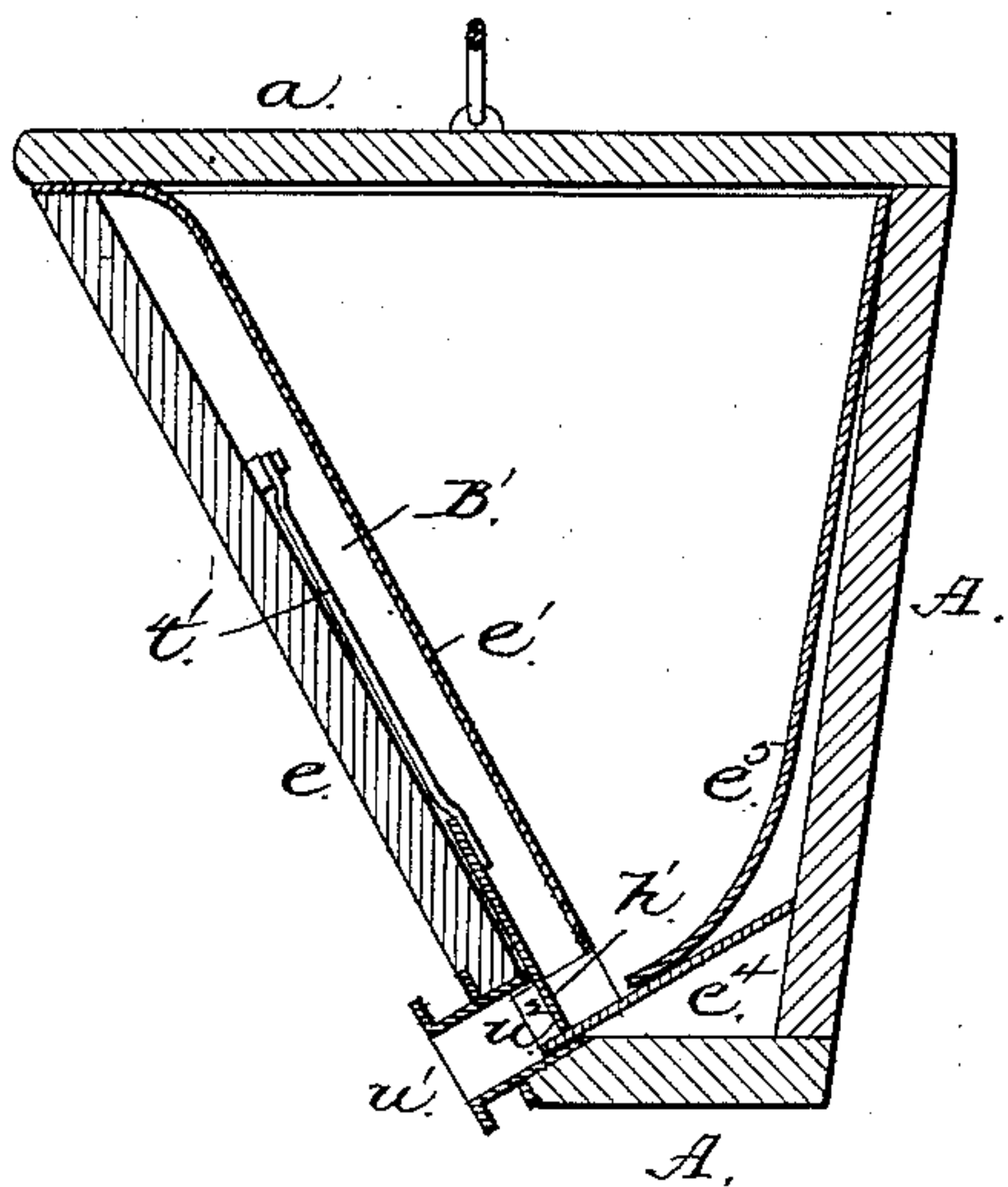


Fig. 4.

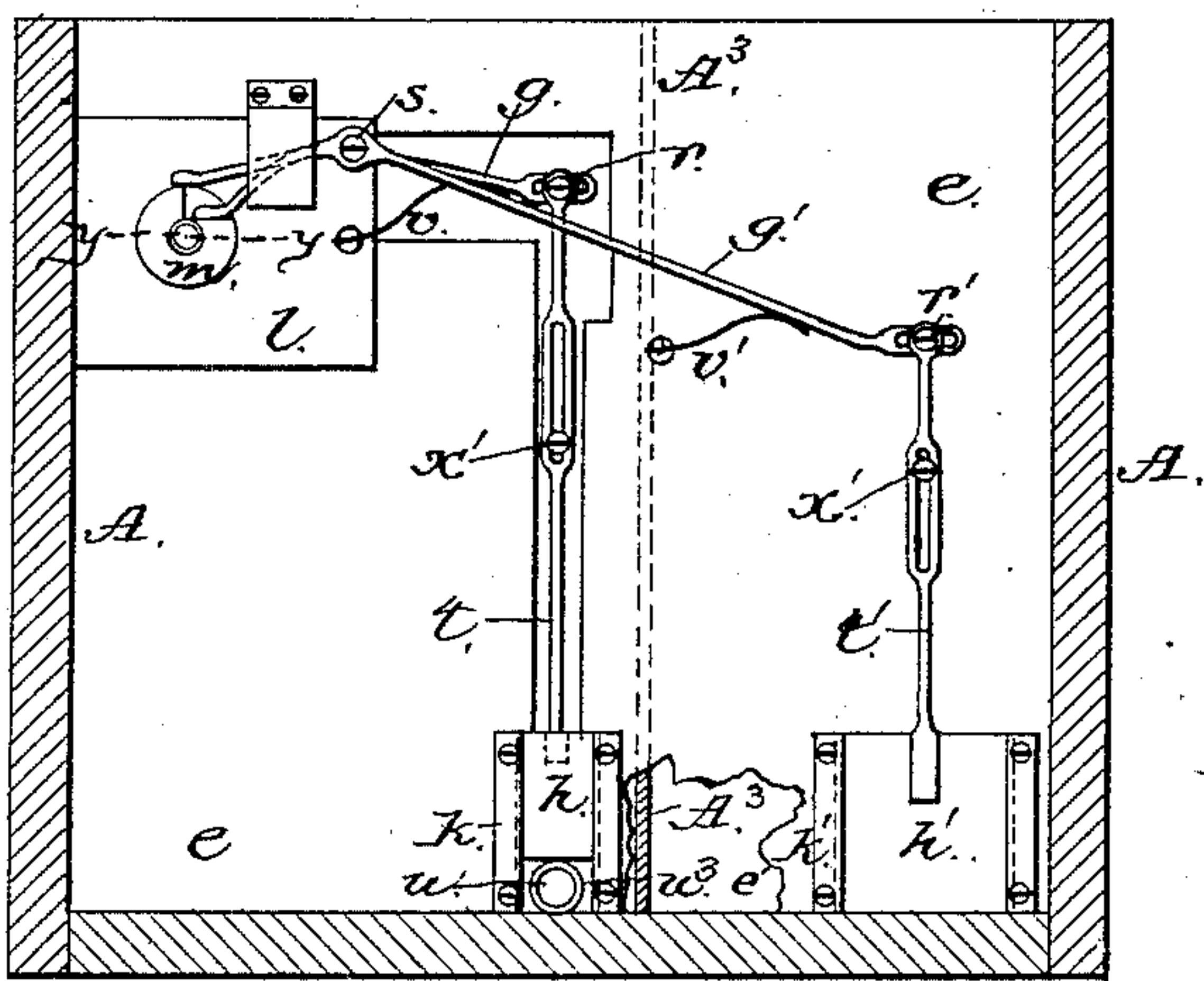
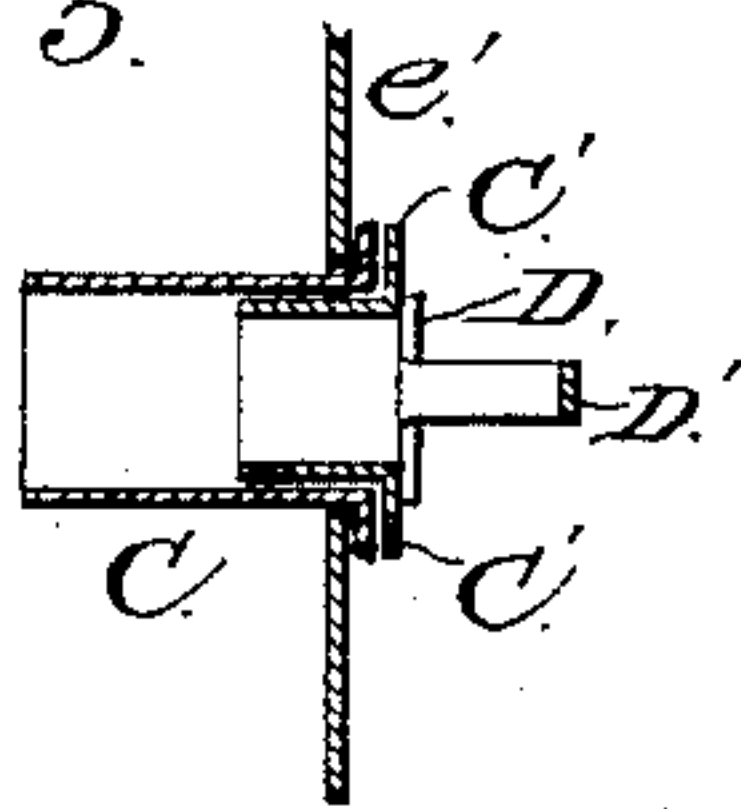


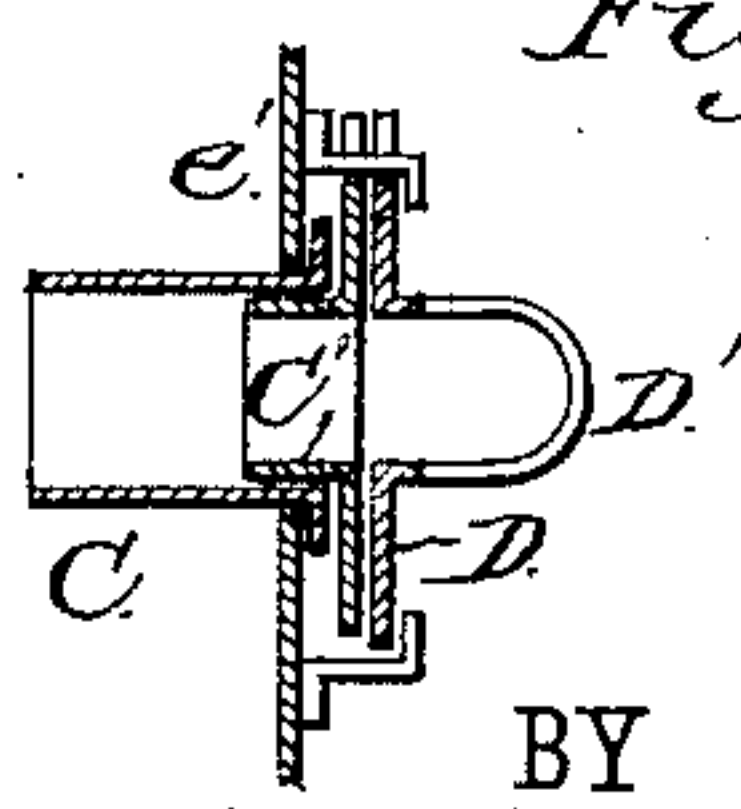
Fig. 5.



WITNESSES:

John A. Ellis.
C. Sedgwick

Fig. 6.



INVENTOR:

L. Deguenant
BY Munn & Co.

ATTORNEYS.

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2 Sheets—Sheet 2.

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Fig. 8.

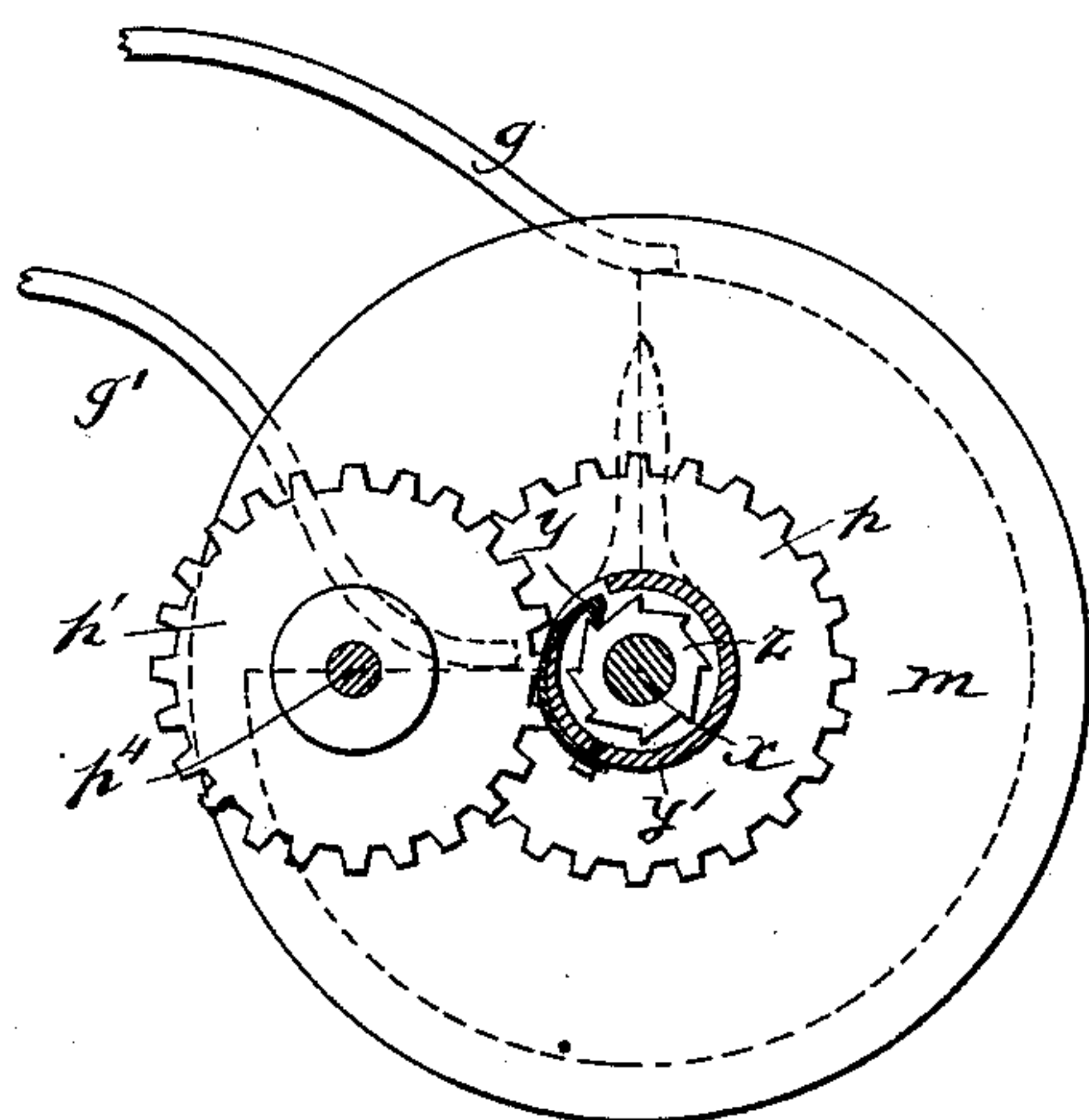
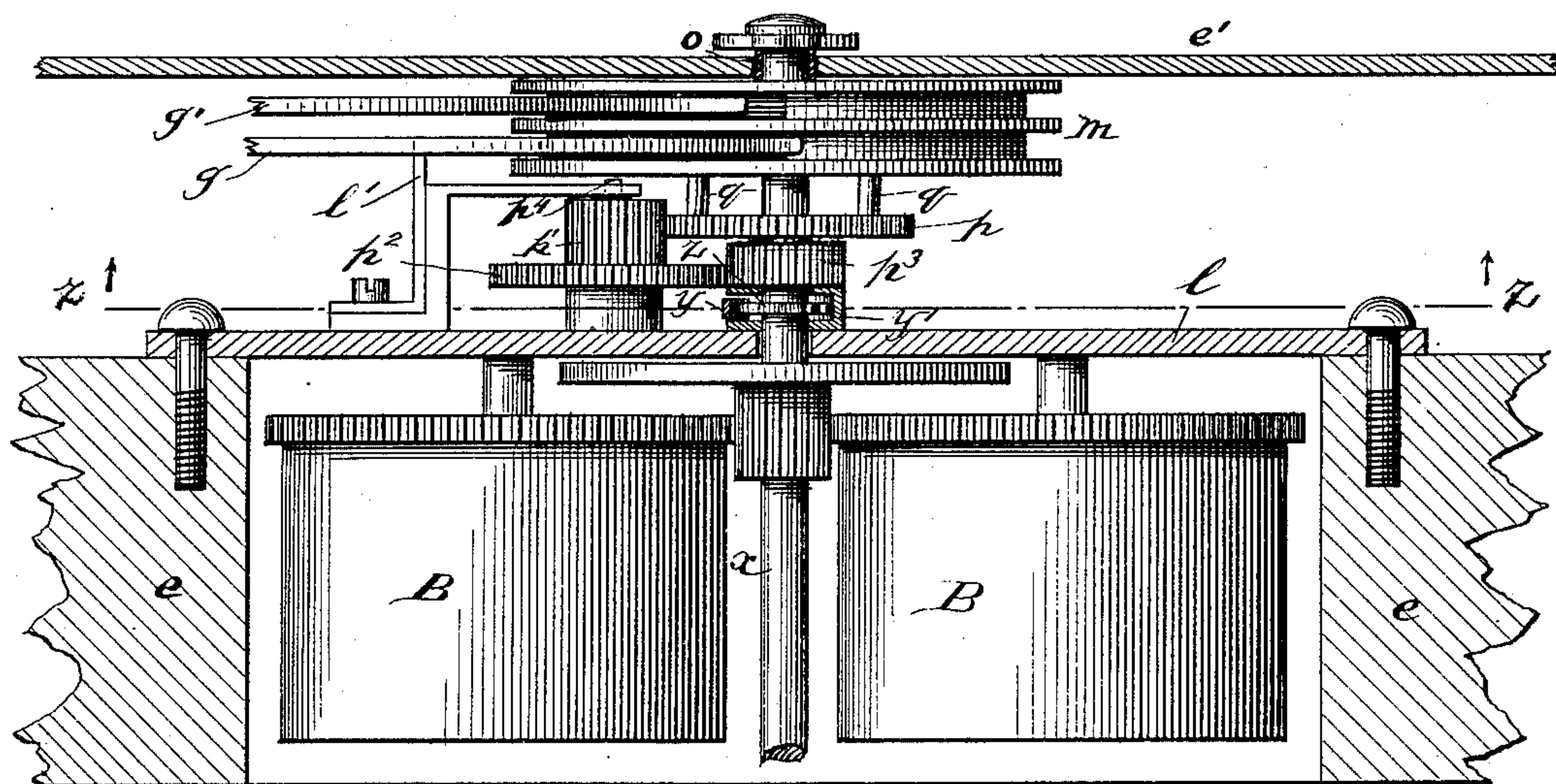


Fig. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS DEGUENANT, OF COUR-CHEVERNY, FRANCE.

TIME STOCK-FEEDER.

SPECIFICATION forming part of Letters Patent No. 354,308, dated December 14, 1886.

Application filed November 19, 1885. Serial No. 183,281. (No model.) Patented in France September 1, 1883, No. 157,324; in Belgium March 25, 1884, No. 64,624; in Germany March 28, 1884, No. 29,140, and in England March 28, 1884, No. 5,622.

To all whom it may concern:

Be it known that I, LOUIS DEGUENANT, of the city of Cour-Cheverny, France, have invented new and useful Time Stock-Feeders, (for which Letters Patent have been granted by the following countries, viz: France, No. 157,324, September 1, 1883; Belgium, No. 64,624, March 25, 1884; Great Britain, No. 5,622, March 28, 1884; Germany, No. 29,140, March 28, 1884,) of which the following is a full, clear, and exact description.

My invention has for its object to provide a portable box or receptacle for substances used in feeding horses and other animals with a device by means of which the feed, water, &c., are automatically distributed to the stock at the proper time, thus obviating the trouble entailed in the distribution as heretofore practiced.

The invention consists in a box or feed-receptacle divided into one or more compartments having discharge-vents and gates or valves therefor, and provided with mechanism actuated by clock-work for operating said gates or valves at predetermined times.

The invention also consists in the construction and combination of parts and details, as hereinafter fully described, and pointed out more particularly in the claims.

In order to illustrate my invention I have shown in the accompanying drawings, forming a part of this specification, a portable box divided into two compartments, in which, for instance, oats and water are to be contained and distributed at proper intervals, as hereinafter set forth.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

Figure 1 is a front elevation of my improved stock-feeder. Fig. 2 is a vertical cross-section of the same, taken through the water-discharge vent. Fig. 3 is a vertical cross section taken through the oats or feed discharge vent. Fig. 4 is a transverse sectional elevation on the line $x x$, Fig. 2, showing the valve or gate operating mechanism. Figs. 5 and 6 are detail sectional views illustrating the arrangement of the water-discharge tube. Fig. 7 is a plan view, partly in section, of the gate or valve operating mechanism, the box and com-

partment walls being shown in section on the line $y y$, Fig. 4, and parts being broken away. Fig. 8 is a sectional elevation of the same on the line $z z$, Fig. 7.

The box A may be of any convenient size and shape—in this case prismatic—and adapted to fit into the feed-rack of the stable with its lower feed and water vents, $u' u$, in position to discharge into the manger. The box is divided into a suitable number of compartments—as shown, two—by a partition, A^3 , and is provided with a hinged or other removable cover, a , having a lock, c , and a handle, d , by which the apparatus may be carried. A metallic or other suitable lining is provided for the sides and bottom of each compartment, and the front lining-plate, e' , of each is arranged at a short distance from the front wall, e , of the box, so as to form an inclosure, B' , for the discharge-regulating mechanism, to be hereinafter described.

The discharge-vent u' of the feed-compartment is of rectangular cross-section, and an extension-tube, u^2 , is formed or provided on the bottom lining-plate, e^4 , of that compartment, is inclined downward, and leads into the vent u' . The rear lining-plate, e^5 , is curved inward at its lower part, so as to guide the oats or feed easily upon the plate e^5 and through the vent u' . The vent is closed by a gate or valve, h' , sliding in suitable guides, k' , on the inner side of the front wall, e , of the box and within the inclosure B' , and cutting off the tube u^2 .

The discharge-vent u of the water-compartment consists of a cylindrical tube, u^3 , of metal or other suitable material, inserted in the wall e of the box, and through which is passed a rubber or other compressible tube, C , the inner end of which is held in an opening in the metallic lining-plate e' by means of an annular disk, C' , pressing the outturned edges of the tube against the edges of the opening.

The disk C' is supported in place by any suitable means—as, for instance, by two side pieces, D , held against opposite sides of the disk by suitable keepers on the plate e' , and connected rigidly by a bowed rib, D' .

The tube C is compressed for closing the vent u by means of a gate or valve, h , sliding in suitable guides, k , within the inclosure B' .

The gates h and h' are operated by clock-work in the following manner: To each is attached one end of a connecting-rod, $t t'$, sliding within the inclosure B' , and guided by a screw or stud, x' , projecting from the wall e , and entering a longitudinal slot in the rod. The upper end of each rod $t t'$ is provided with a pin or stud, $r r'$, received in a slot formed in the end of each of two levers, $g g'$, pivoted on the same stud, s , and pressed normally upward to raise the gates $h h'$ by means of springs $v v'$, attached to the wall e , or to a plate, l , secured thereto, from which projects the stud s . The other ends of the levers $g g'$ are received in the peripheral grooves of a rotary cam-disk, m . The grooves of the disk are cut away in quadrantal shape, so that when such recesses are presented to the cam-arms of the levers $g g'$ said arms will fall, allowing the gates $h h'$ to be raised by means of the springs $v v'$. The disk m is mounted rigidly on the end of a sleeve, o , rotating loosely on a shaft, x , projecting through the plate l into a recess formed in the wall e of the box. An angled arm, l' , entering a groove of the disk m , serves as a guide for the same in its rotation. A spur-wheel, p , is mounted loosely on the shaft x , adjacent to the disk m , and is connected rigidly to the same by means of a suitable sleeve or by pins q , as shown. The spur-wheel p engages with a pinion, p' , mounted on a spindle, p^4 , revolving in suitable fixed bearings, and to which pinion is attached a spur-wheel, p^2 , which is in gear with a second pinion, p^3 , also rotating loosely on the shaft x . To the pinion p^3 is attached, or there is formed integrally therewith, a chambered collar or sleeve, y' , in a slot in the periphery of which is secured a spring-pawl, y , which engages with a ratchet disk or wheel, z , fixed on the shaft x . The shaft x , within the recess in the wall e , carries a pinion which is revolved by the spur-wheels on the mainspring-barrels of the clock-work B in the usual manner, the clock-work being of any ordinary or approved construction.

With this construction the cam-disk m can be turned to any extent in one direction, the spring-pawl y sliding over the teeth of the ratchet-wheel z , thus allowing the disk to be set for any time without interfering with the clock-movement.

With the clock-work mechanism is connected detachably a dial, f , mounted on the outside of the front wall, e , of the box, and provided with the usual clock-hands actuated by the movement.

For removing the dial at will, I mount it to slide within a guide-frame, f' , attached to the face of the wall e , and open at its top, allowing the dial to be slid out of its guides when desired.

The operation is as follows: The cam-disk m being revolved by the clock-work mechanism through the engagement of the spring-pawl y and ratchet z and the connecting-gearing, as shown, the gates $h h'$ are maintained in a closed position during three-quarters of

the revolution of the cam disk or wheel by the action of the body of the disk on the levers $g g'$. When said levers enter the recess of the disk, the springs $v v'$ are allowed to set and open the gates $h h'$, as before described, the gates being held open until the levers are engaged by the succeeding side of the recess, when the gates are again closed. The times of the distribution of the different substances in the several compartments can be exactly adjusted by properly proportioning the levers $g g'$ or the cam-disk m , so that the different substances—feed, water, &c.—can be delivered to the manger simultaneously at proper intervals or in suitable succession. The amount of discharge-opening can also be regulated in a similar manner, and the duration of discharge is also susceptible of easy variation.

As the box is portable, it may be easily carried by hand or in a vehicle and readily placed in the stable-rack.

The arrangement of the valve-operating mechanism will evidently greatly vary with the number and arrangement of the compartments.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A stock-feeder provided with clock-work mechanism for releasing the discharge-valve of the feed-receptacle, allowing the valve to be opened automatically, and for closing said valve positively at a suitable interval, substantially as and for the purpose set forth.

2. The combination, with the feed-receptacle having a discharge-vent and a gate or valve for regulating the same, of means for opening said gate or valve automatically when released, a cam for closing the gate or valve, and clock-work mechanism for actuating the cam, substantially as specified.

3. The combination, with the feed-containing receptacle having a discharge-vent and a valve or gate for the same, of a spring for opening the gate or valve automatically, clock-work mechanism for releasing the valve and for returning the same to a closed position, substantially as specified.

4. In an automatic stock-feeder, the combination, with the portable box A , divided into feed and water compartments and provided with the lining e' , of clock-work mechanism for regulating the discharge-vents of the feed and water compartments, and inclosed between the lining e' and the wall of the box A , substantially as specified.

5. In a time stock-feeder, the combination, with a water-containing receptacle and a compressible tube leading from the same, of a movable gate or valve for compressing the tube and clock-work mechanism for operating said gate or valve, substantially as set forth.

6. In a time stock-feeder, the combination, with the sliding gate h , for regulating the discharge-vent, of the slotted connecting-rod t , the guide stud or pin x' , the spring-acted pivoted lever g , the cam-wheel m , acting thereon;

and the clock-movement B, actuating the same through ratchet-and-pawl connection, substantially as shown and described.

5 7. In a stock-feeder, the combination, with the lining-plate *e'* of the water-receptacle, of the compressible tube C, passed through an opening in said plate *e'*, the annular sustaining-disk C', the connected supporting-pieces D, and their engaging keepers, substantially
10 as shown and described.

The foregoing specification of my "portable box for automatically distributing food to horses and other animals" signed by me this 24th day of October, 1885.

LOUIS DEGUENANT.

Witnesses:

EDWARD P. MACLEAN,
ALBERT MOREAU.