

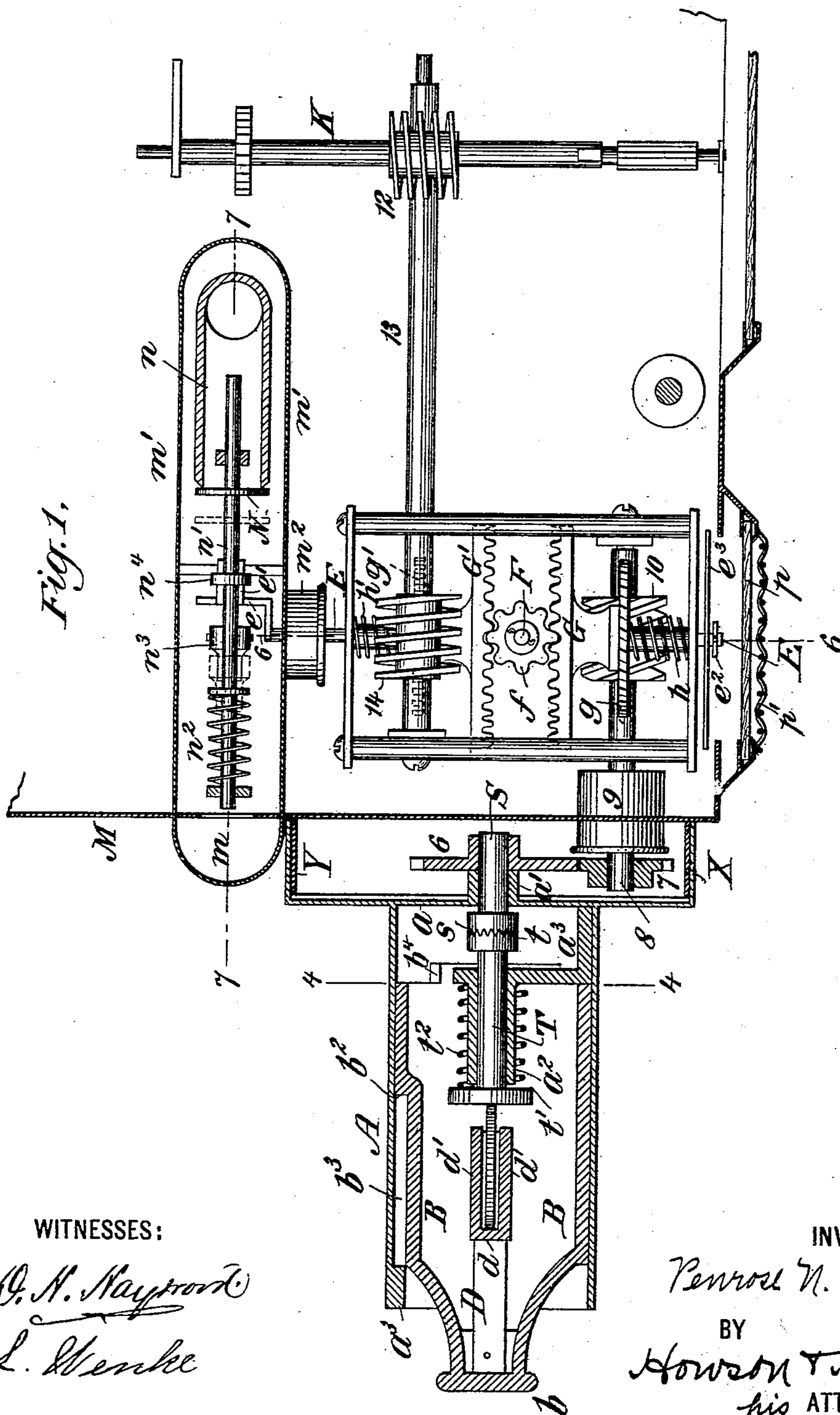
(No Model.)

3 Sheets—Sheet 1.

P. N. MILSTED.
PREPAYMENT APPLIANCE.

No. 563,198.

Patented June 30, 1896.



WITNESSES:

R. H. Maybrook
L. Menke

INVENTOR

Penrose N. Milsted

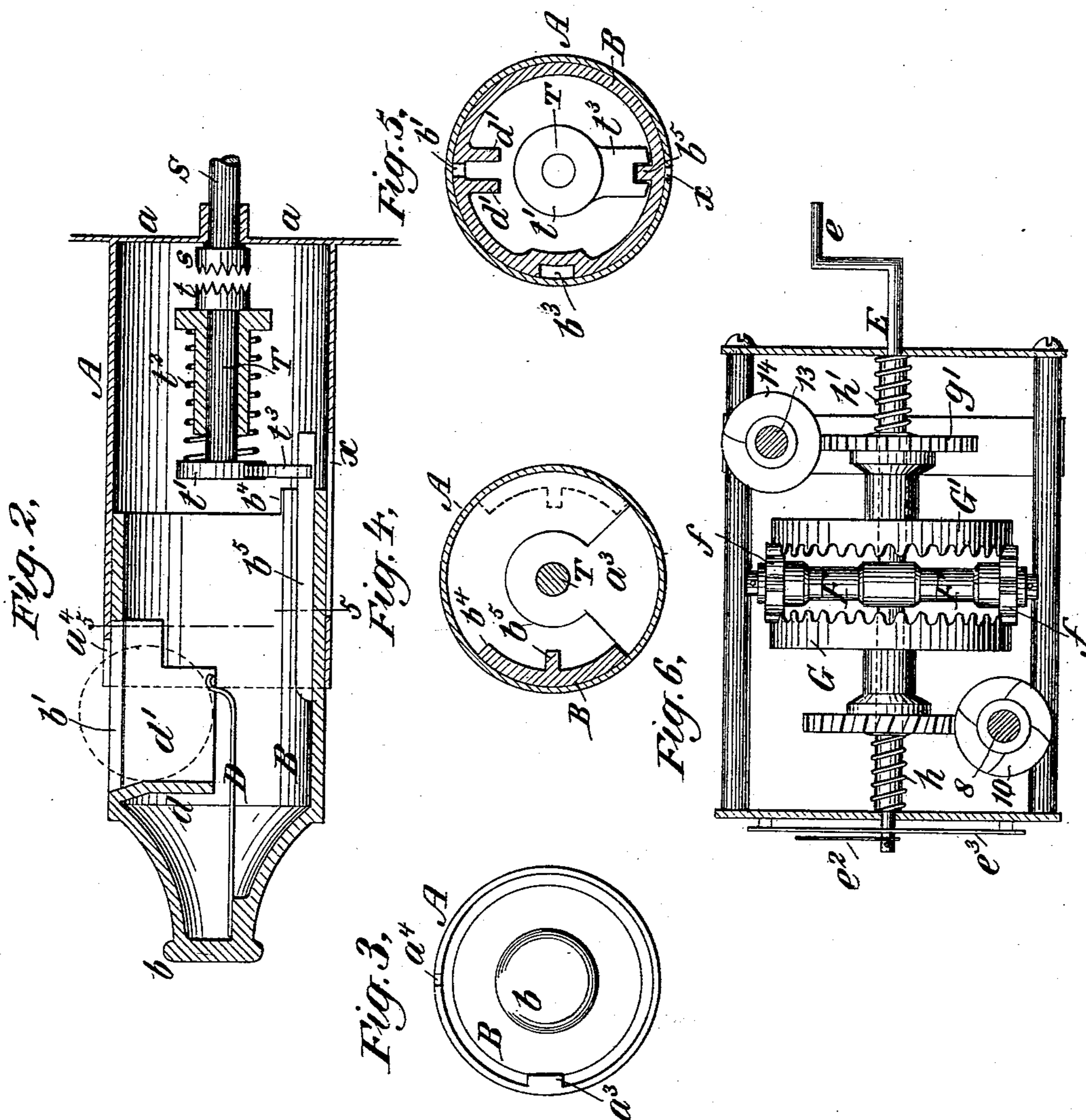
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3 Sheets—Sheet 2.

No. 563,198.

Patented June 30, 1896.



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(No Model.)

3 Sheets—Sheet 3.

P. N. MILSTED.
PREPAYMENT APPLIANCE.

No. 563,198.

Patented June 30, 1896.

Fig. 8.

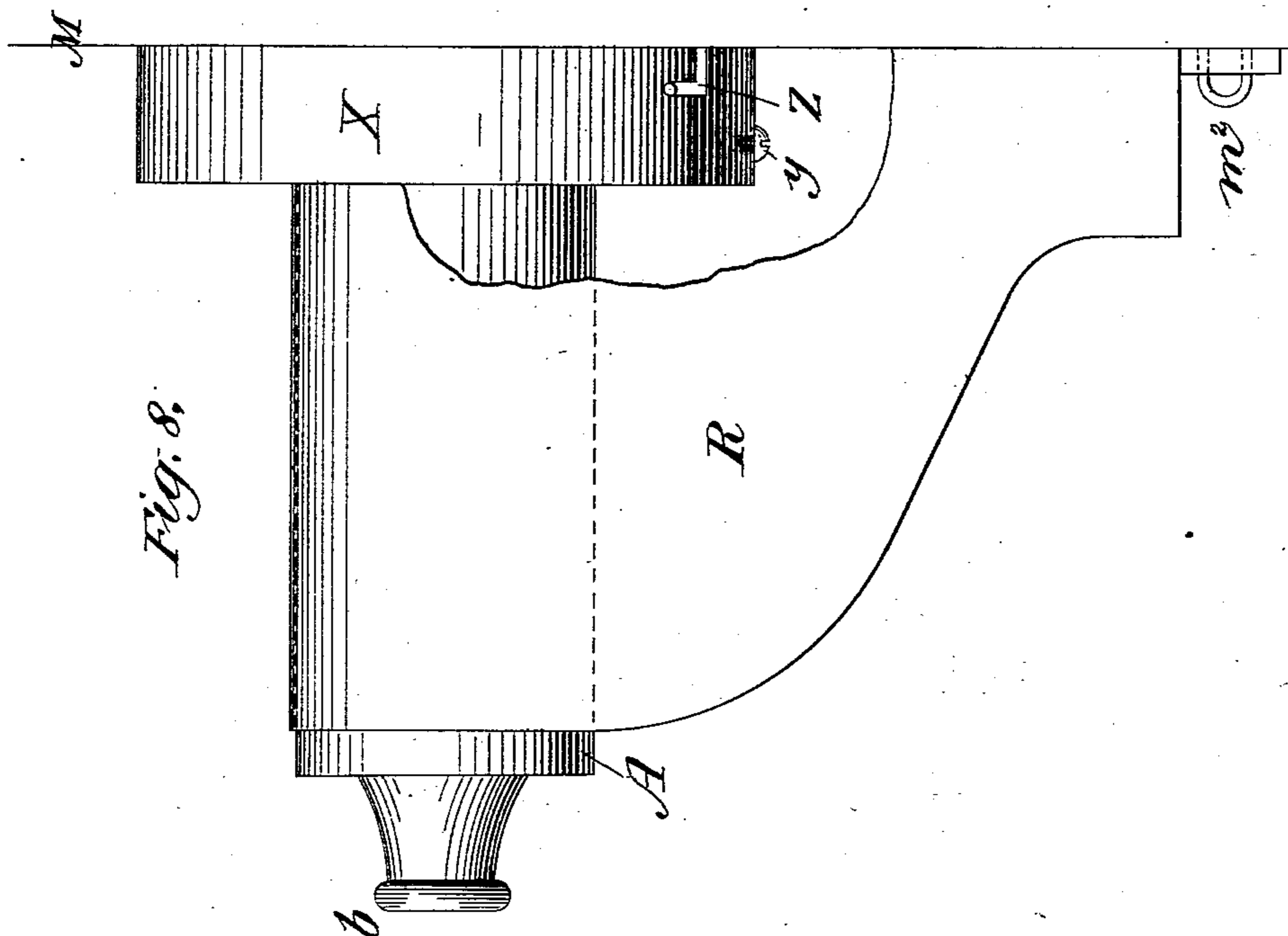
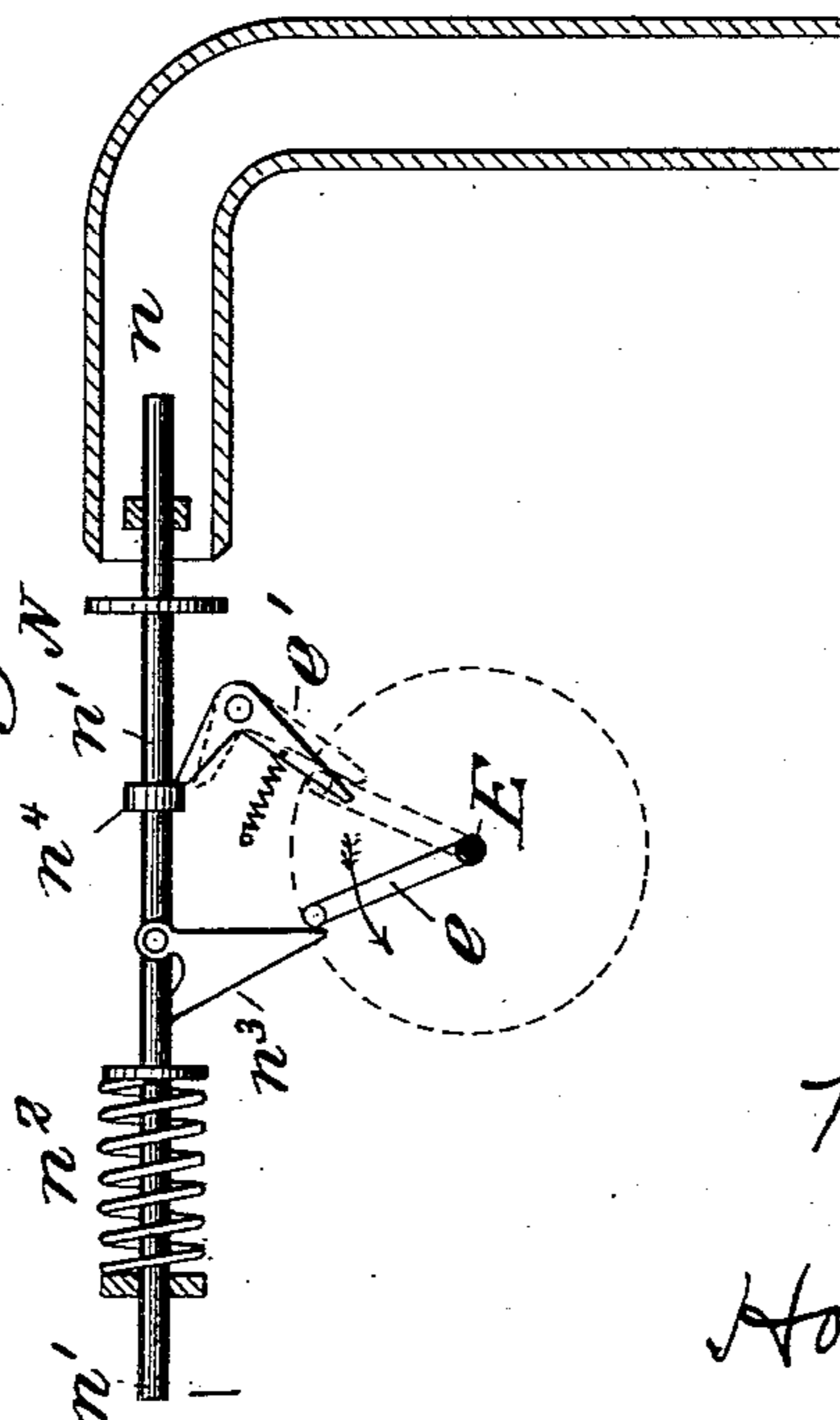


Fig. 7.



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UNITED STATES PATENT OFFICE.

PENROSE NEVE MILSTED, OF EAST ORANGE, NEW JERSEY.

PREPAYMENT APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 563,198, dated June 30, 1896.

Application filed February 3, 1896. Serial No. 577,868. (No model.)

To all whom it may concern:

Be it known that I, PENROSE NEVE MILSTED, of East Orange, Essex county, State of New Jersey, have invented Improvements in Prepayment Appliances, of which the following is a specification.

My invention consists of improvements in the construction of prepayment vending appliances, and has more particular reference to prepayment gas-meters, although certain features of my invention are applicable to prepayment appliances generally.

In the accompanying drawings, Figure 1 is a sectional plan of a part of a gas-meter provided with my invention. Fig. 2 is a vertical section of the coin-box, showing the coin-carrier in the drawn-out position. Fig. 3 is an end view of the coin-box. Fig. 4 is a sectional view on the line 4 4, Fig. 1. Fig. 5 is a sectional view on the line 5 5, Fig. 2. Fig. 6 is a view on the line 6 6, Fig. 1. Fig. 7 is a sectional view on the line 7 7, Fig. 1; and Fig. 8 is an outside view of the coin-box and coin-receptacle, part of the latter being broken away.

I will first describe the coin-box or prepayment device proper. I have shown the outer casing A as in the form of a hollow cylinder closed at its inner end a and having there a bearing a' for the passage of what I may term the "transmission-spindle" S, since through it motion is imparted to the moving parts of the vending appliance to be operated. The inner end of this transmission-spindle S, within the casing A, is provided with a suitable toothed or clutch face s , opposite which is a corresponding toothed or clutch face t on the end of a longitudinally-moving locking-spindle T, mounted in a bearing a^2 , carried by the casing A. A spring t^2 , operating against a shoulder on the bearing a^2 at one end and against a shoulder t' on the shaft T, tends to keep the two clutch-faces t and s normally out of contact with each other.

Mounted within the cylindrical outer casing A, and free to have a limited rotary and longitudinal sliding movement within the casing, is a cylindrical coin-carrier B, suitably shaped at its outer end into a knob or handle b , by which it may be manipulated.

In the casing A is a longitudinal lug or projection a^3 , Fig. 1, and in the exterior of the

coin-carrier B is a longitudinal slot or groove b^3 for the reception of the lug or projection a^3 , so that when the carrier B is partially or wholly drawn out, Fig. 2, it cannot be rotated on its axis. A shoulder b^2 at the inner end of the groove b^3 limits the outward sliding movement of the coin-carrier. When, however, the coin-carrier has been moved to its most inward position, as illustrated in Fig. 1, the lug or projection a^3 will be out of the groove b^3 and the coin-carrier B can then be turned on its axis. While it is being turned the carrier cannot be slid outward, owing to the projection a^3 being then out of line with the groove b^3 .

When the coin-carrier is drawn out to its full extent, there is exposed a longitudinal slot b' in the carrier for the insertion of a coin, and I prefer to cut a notch a^4 in the front edge of the casing A to register with the slot b' in the carrier for the insertion of the coin. The projection a^3 and slot or groove b^3 are so arranged that the carrier can be drawn out only when the coin-slot b' is in the same plane with the notch a^4 . Within the coin-carrier there are provided a shoulder d and inwardly-projecting flanges d' to hold the coin, and there is also a spring D opposite the slot b' , tending to push the coin out of the slot.

The extent of rotary motion of the coin-carrier within the casing A may vary, but for convenience I have shown the device as constructed to allow of a semirevolution of the coin-carrier after it has been pushed all the way in, as illustrated in Fig. 1. Stops determining this extent of movement may be constructed in any suitable way. In this instance, the inner end of the cylindrical coin-carrier B has a segmental projection b^4 , while the bracket a^3 , which carries the bearing a^2 , is correspondingly made of such width as to form stops against which the opposite edges of the projection b^4 will strike at the opposite extremities of the semirotation of the coin-carrier.

The locking-spindle T is caused by any suitable means to so engage with the coin-carrier B that the two must rotate together, but one be wholly free to move longitudinally independently of the other. For this purpose I have shown on the drawings the collar t' on the spindle T as provided with a forked arm t^3 ,

engaging with a longitudinal rib b^5 in the coin-carrier B.

If the machine illustrated in the drawings be taken as one adapted to be operated by a twenty-five-cent piece, it may be observed that the length of the teeth in the clutch t s should be less than the difference between the diameters of a five-cent piece and a quarter. In the lower part of the cylindrical outer casing A there is provided a slot x , such that when the coin-carrier has been turned to the full extent allowed the coin-slot b' will be opposite the slot x , so that the spring D will then eject the coin into the coin-receptacle below.

The described coin-controlling mechanism may be detachably applied to the casing M of a gas-meter or other apparatus to which it is to be applied by providing the casing of the coin-controlling mechanism with a flange X to fit over the flange Y on the said casing M, and there may be a bayonet-joint connection, such as illustrated at Z in Fig. 8, and a pin y may be put through the flanges X Y when the two parts are locked together by the bayonet-joint, so that they cannot be detached without taking out this pin y . I prefer to put this pin, and preferably also the bayonet-joint Z, in such a position that they will be covered up by the coin-receptacle R, whose upper part will be put over the casing A and be secured by a padlock or otherwise at m^2 to the casing M.

In applying my invention to a gas-meter I provide within the upper part of the meter a controller spindle or shaft E, which controls the opening and closing of a valve in the gas-passage. For this purpose one of the said pipes m opens into a closed passage m' in the upper part of the meter. Within this passage is an open-ended elbow-pipe n , the passage to which may be opened and closed by a valve N on a guided rod n' . A weight or spring, but preferably a spring n^2 , tends to close the valve to its seat. Suspended from the valve-rod n' is a latch n^3 , which, when the shaft E turns in the direction of the arrow, Fig. 7, draws the valve-rod and valve back to the position indicated in that figure, by means of the crank e on the spindle or shaft E, which passes through a stuffing-box m^2 in the casing m' , Fig. 1. A spring-pressed pawl or catch e' , pivoted to the casing, will, when the valve-rod is drawn back to its full extent to open the valve, engage with a shoulder n^4 on the valve-rod and hold the valve full open, until, on the return movement of the shaft or spindle E, its crank e strikes the pendent arm of the catch e' and disengages the latter from the valve-rod. Then the spring n^2 instantly closes the valve N to its seat to shut off the supply of gas the moment the customer has consumed the amount paid for. Until the full supply paid for has been consumed, however, the customer has had it all at full pressure. This shaft E is to be acted on in one direction by the moving parts of the meter, and in the other direction by the coin-controlled mechanism hereinbefore described, and for

this purpose I employ between the two motive powers, and in connection with the shaft E, a mechanical movement which is sometimes termed "epicyclic gearing." I secure to the shaft E, so as to turn therewith, an arm or arms F, carrying pinions f , free to turn on the arms F. These pinions mesh with the crown or face gears G G', which are mounted so as to turn loosely on the shaft E. Springs $h h'$ upon the shaft E, Figs. 1 and 6, may be employed to keep the gears G G' in the closest possible contact with the pinions f to prevent lost motion. The gear G is to be driven from the transmission shaft S of the coin-controlling mechanism through suitable gearing. In the present instance I have shown a gear-wheel 6 on the inner end of the shaft S, meshing into a pinion 7 on the end of a short shaft 8, which passes through a stuffing-box 9 in the casing of the meter and carries a worm 10, which meshes into a worm-wheel g , carried by the gear G.

The gear G' may be driven from the index-spindle K, usually termed the "horizontal axle" of the meter, through the medium of wheel and worm-wheel gearing 12, shaft 13, worm 14, and worm-wheel g' , carried by the gear G'.

The opposite end of the shaft E to that which immediately controls the valve N for the flow of gas may be provided with a pointer e^2 and dial e^3 , constituting a sales-index independent of the ordinary meter-index and showing through a glazed front p . A protective grating p' may be arranged over this glazed front.

I will now describe the operation of the device. The coin-carrier B is drawn out to the position shown in Fig. 2 and a coin inserted. The carrier is then pushed in longitudinally until it reaches the limit of its inward movement. It is then turned (to the right in this instance) if the coin of the proper denomination or size has been introduced. That coin will, when the carrier is moved to its inward position, Fig. 1, move the spindle T forward against the action of its spring t^2 and cause the clutches t s to engage with each other. When the coin-carrier B is then turned, the spindle T will turn with it, and, as this spindle is the means of locking the carrier to the shaft S, the latter will be turned with the carrier until the coin is ejected through the slot x into the coin-receptacle below. Then the spindle T, under the action of the spring t^2 , will at once be disengaged again from the spindle S, and the coin-carrier can be turned back and drawn out to its initial position for the insertion of another coin, if desired. The movement imparted to the shaft S will turn the gear G, and, inasmuch as the gear G' is then stationary, or practically so, even if the meter be in operation, a rotary movement will be imparted to the shaft or spindle E through the pinions f on the arms F. This movement, in the present instance, will be such as to turn the crank-arm e from the position indi-

cated by the dotted lines to the position indicated by the full lines in Fig. 7, and the catch e' will engage the shoulder on the valve-spindle and hold the valve wide open. The pointer e^2 will correspondingly indicate on the sales-index the amount of gas paid for. As thereafter rotary motion in the opposite direction is imparted by moving parts of the meter to the gear G' , and then the gear G is stationary, the shaft E will be slowly turned back until the crank-arm e reaches the position indicated by the dotted lines in Fig. 7, when the catch e' will be disengaged from the shoulder on the valve-spindle and the gas-valve will be closed.

I claim as my invention—

1. A prepayment vending appliance having a transmission-spindle and a coin-carrier adapted to have a longitudinal sliding motion and a partial rotary motion, substantially as described.

2. A prepayment vending appliance having a transmission-spindle and a coin-carrier having a sliding motion outward to receive the coin, and a sliding motion inward to then engage with the transmission-spindle through the introduced coin and also a partial rotary motion to turn the engaged spindle and discharge the coin, substantially as described.

3. A prepayment vending appliance, having a cylindrical outer casing, a transmission-spindle and a cylindrical coin-carrier adapted to slide longitudinally within the casing and to also turn when in its most inward position with means for locking the carrier to the spindle through the coin, substantially as described.

4. A prepayment vending appliance, having a cylindrical outer casing, a transmission-spindle, and a locking-spindle, mounted in bearings in the casing with a coin-carrier having a slot to receive the coin, and free to slide longitudinally within the casing and through the coin to engage the locking-spindle to the transmission-spindle at the end of its inward movement, the carrier then being

free to turn in the casing and turn the said spindles with it, all substantially as described.

5. A prepayment vending appliance, having a transmission-spindle, and a locking-spindle to be engaged therewith through the medium of the coin, in combination with a sliding coin-carrier adapted to be rotated when in its most inward position and means engaging the locking-spindle with the coin-carrier, whereby the two must rotate together, but one is free to move longitudinally independently of the other, substantially as described.

6. A prepayment vending appliance, having a sliding coin-carrier, adapted to be rotated when in its most inward position, in combination with a transmission-spindle, a locking-spindle to engage with the transmission-spindle and means for normally maintaining the locking-spindle out of engagement with the transmission-spindle, substantially as described.

7. A prepayment vending appliance, having a cylindrical outer casing, and a transmission-spindle with a rotating and sliding coin-carrier adapted to be engaged with the transmission-spindle through the coin, and a projection and slot connection between the casing and carrier, whereby the latter can be drawn out only when in one position and turned only when in its inward position, all substantially as described.

8. A prepayment gas-meter having a valve and a catch to hold the valve open in combination with a coin-controlled shaft to open the valve and subsequently to act on the catch to release it, and means to close the valve instantly on release of the catch, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PENROSE NEVE MILSTED.

Witnesses:

EDWIN SEGER,
HUBERT HOWSON.