

(No Model.)

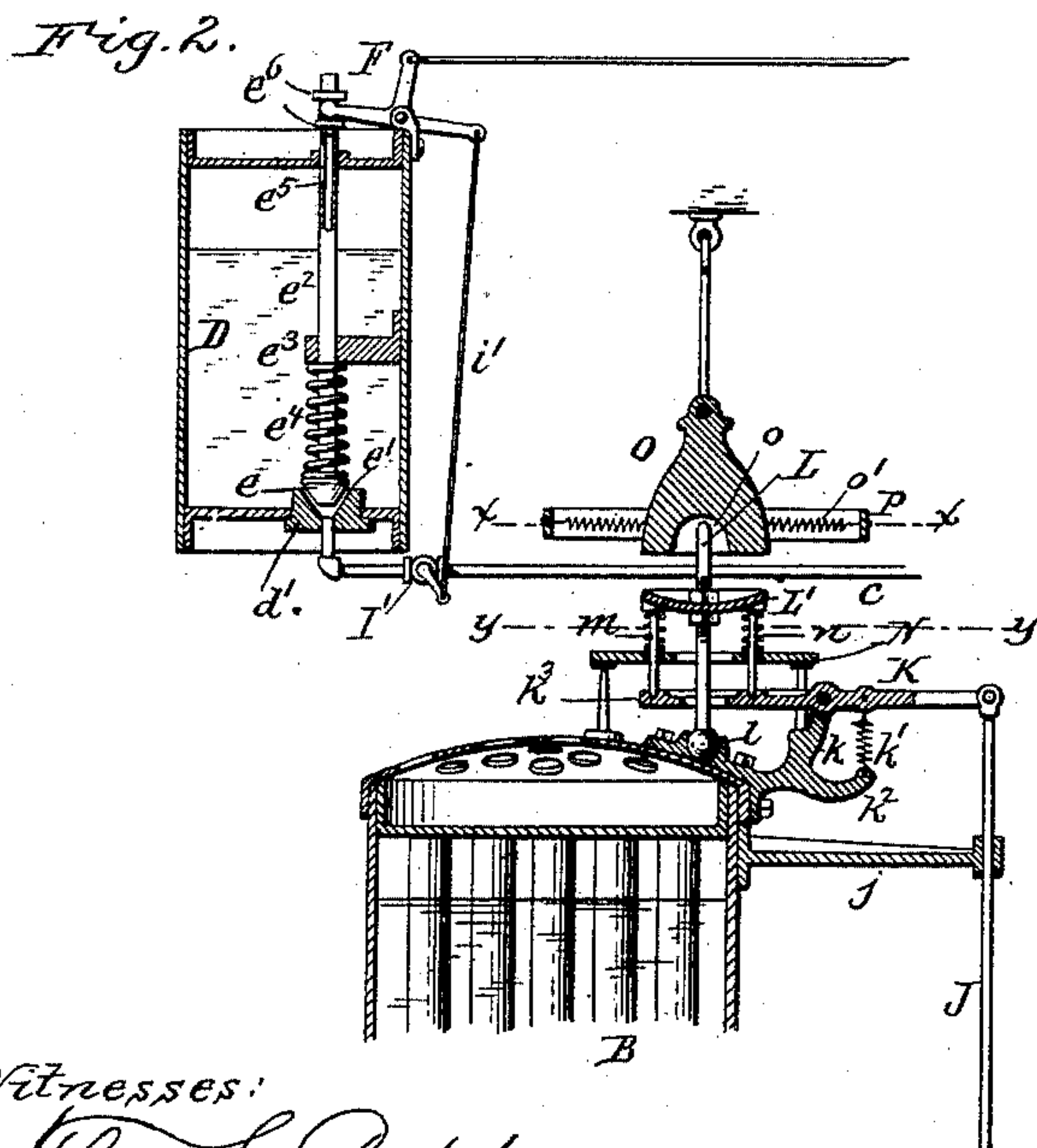
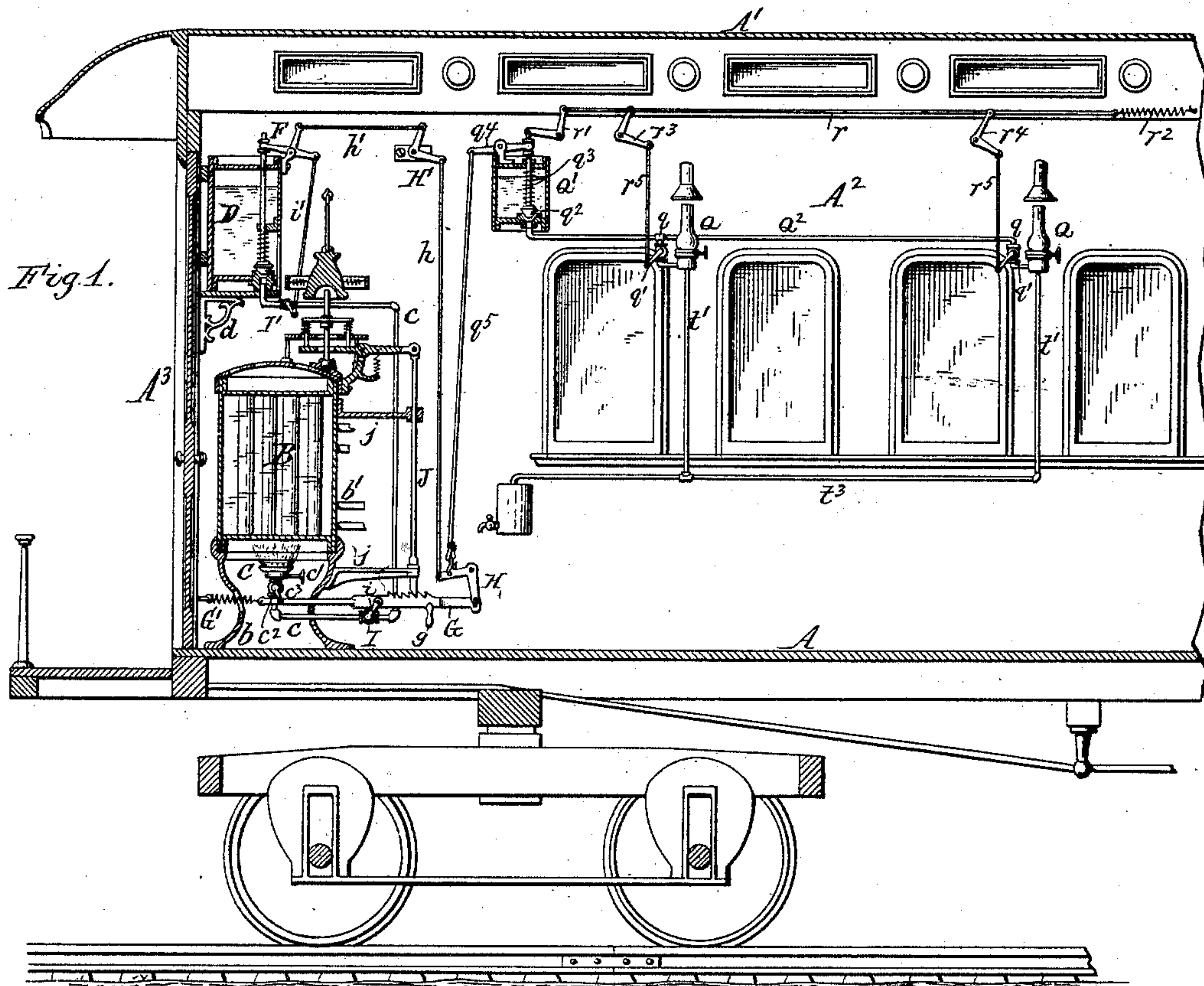
2 Sheets—Sheet 1.

W. WILSON.

APPARATUS FOR HEATING AND LIGHTING RAILROAD CARS.

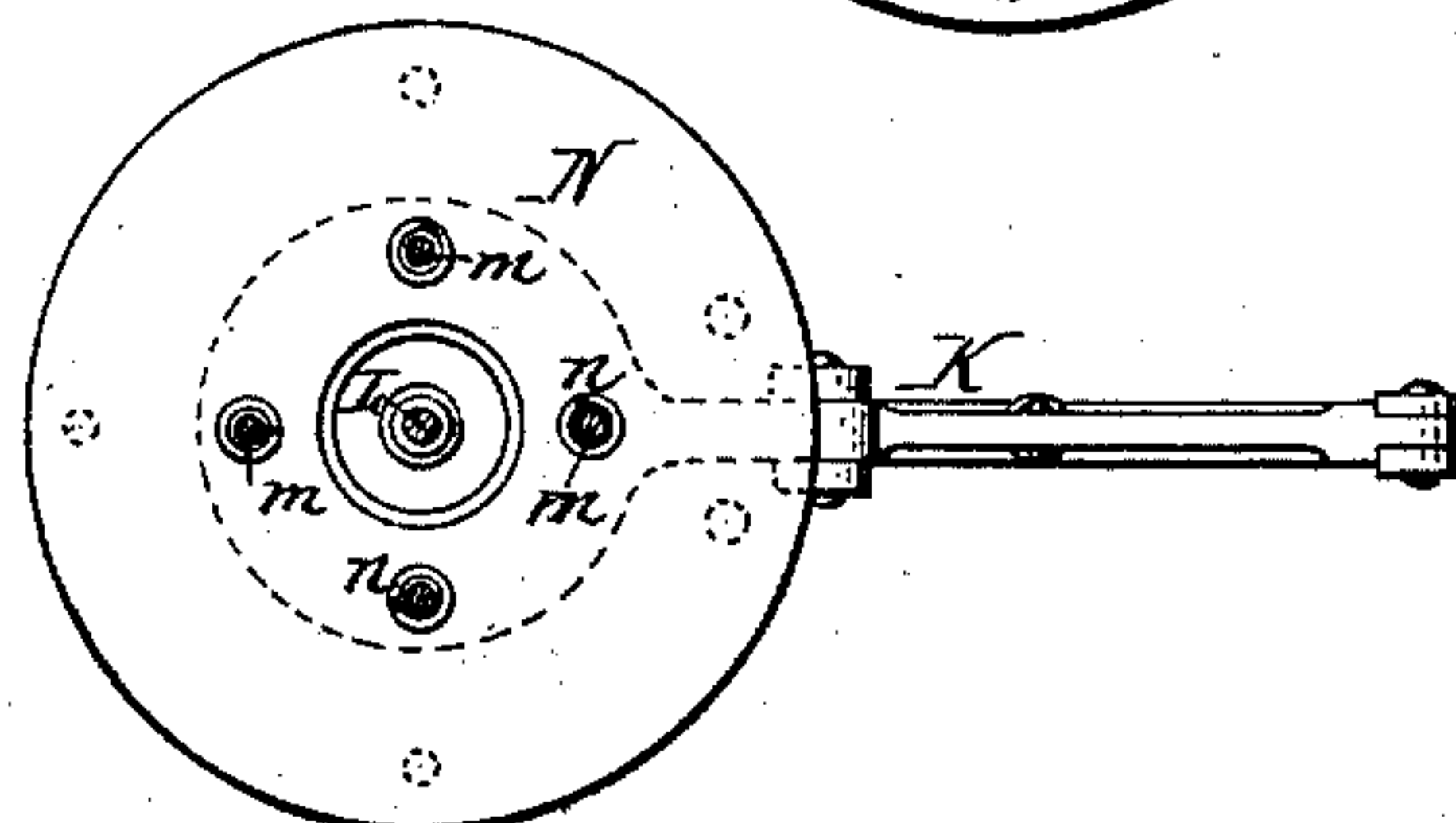
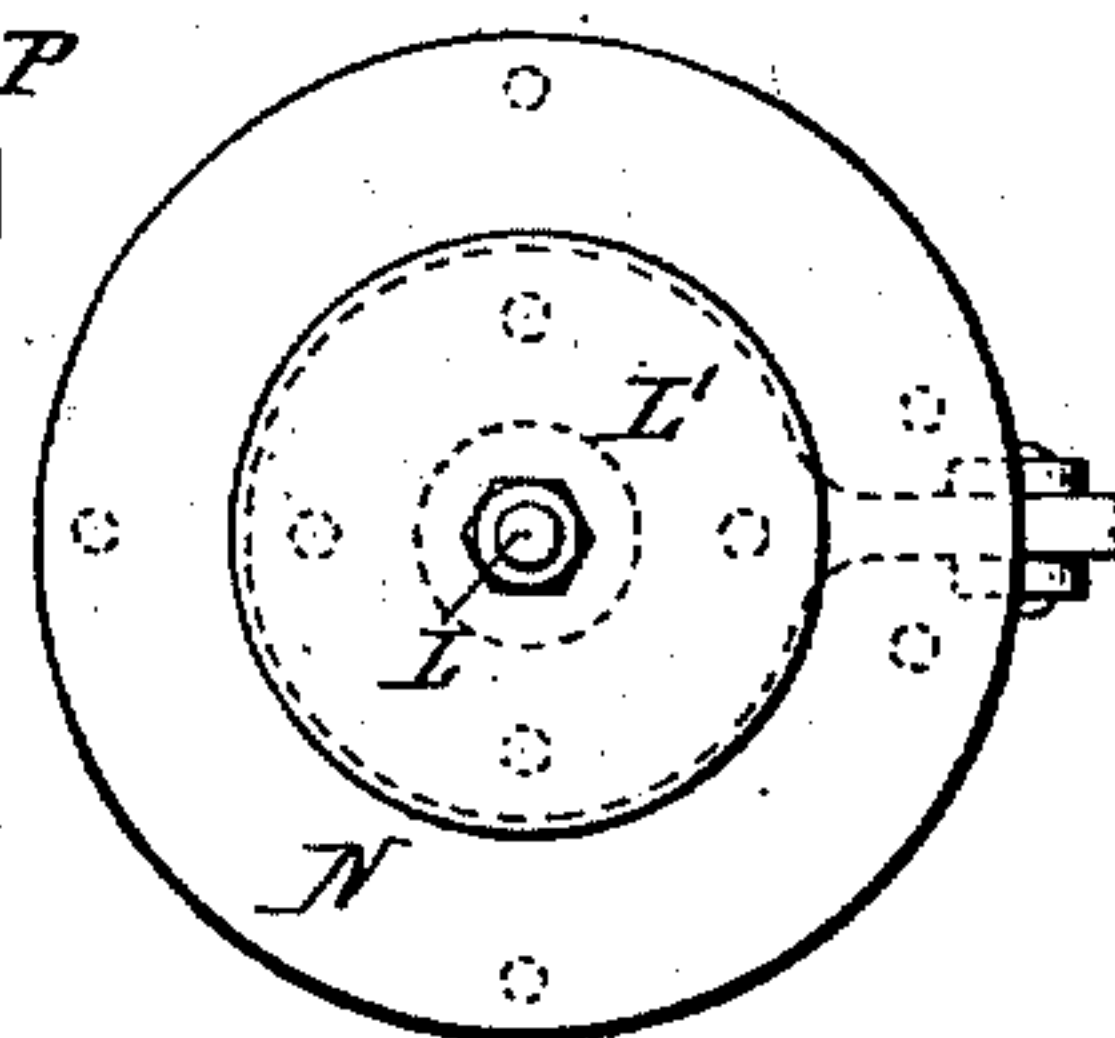
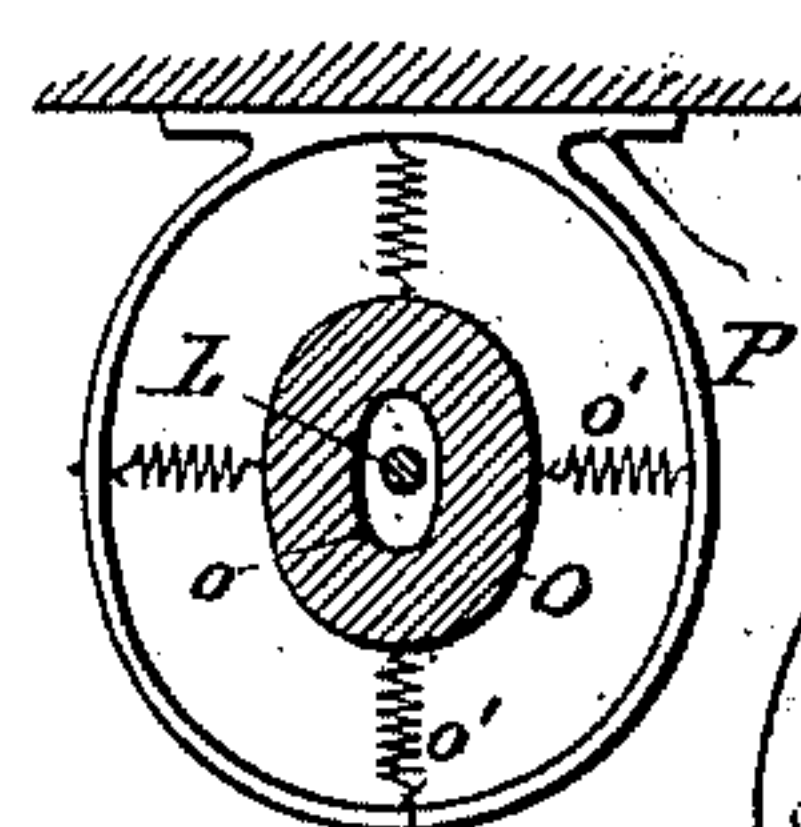
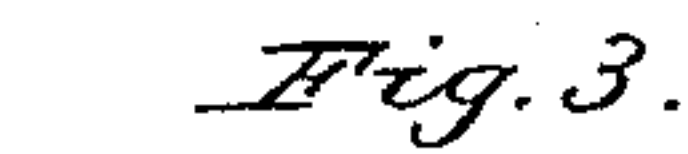
No. 393,599.

Patented Nov. 27, 1888.



Witnesses:

Theo. L. Popp.
Geo. J. Buchheit Jr. }



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

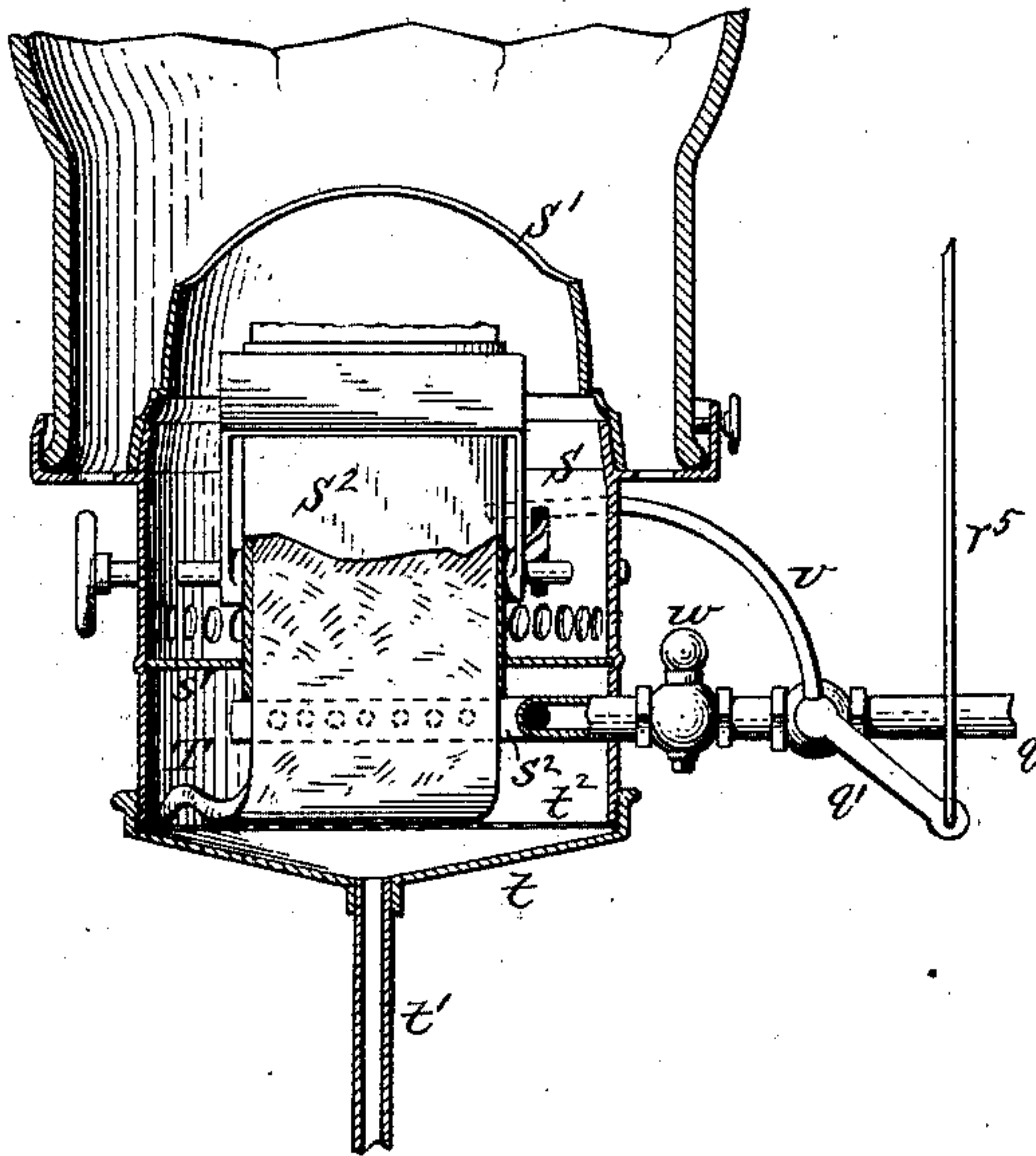


Fig. 7.

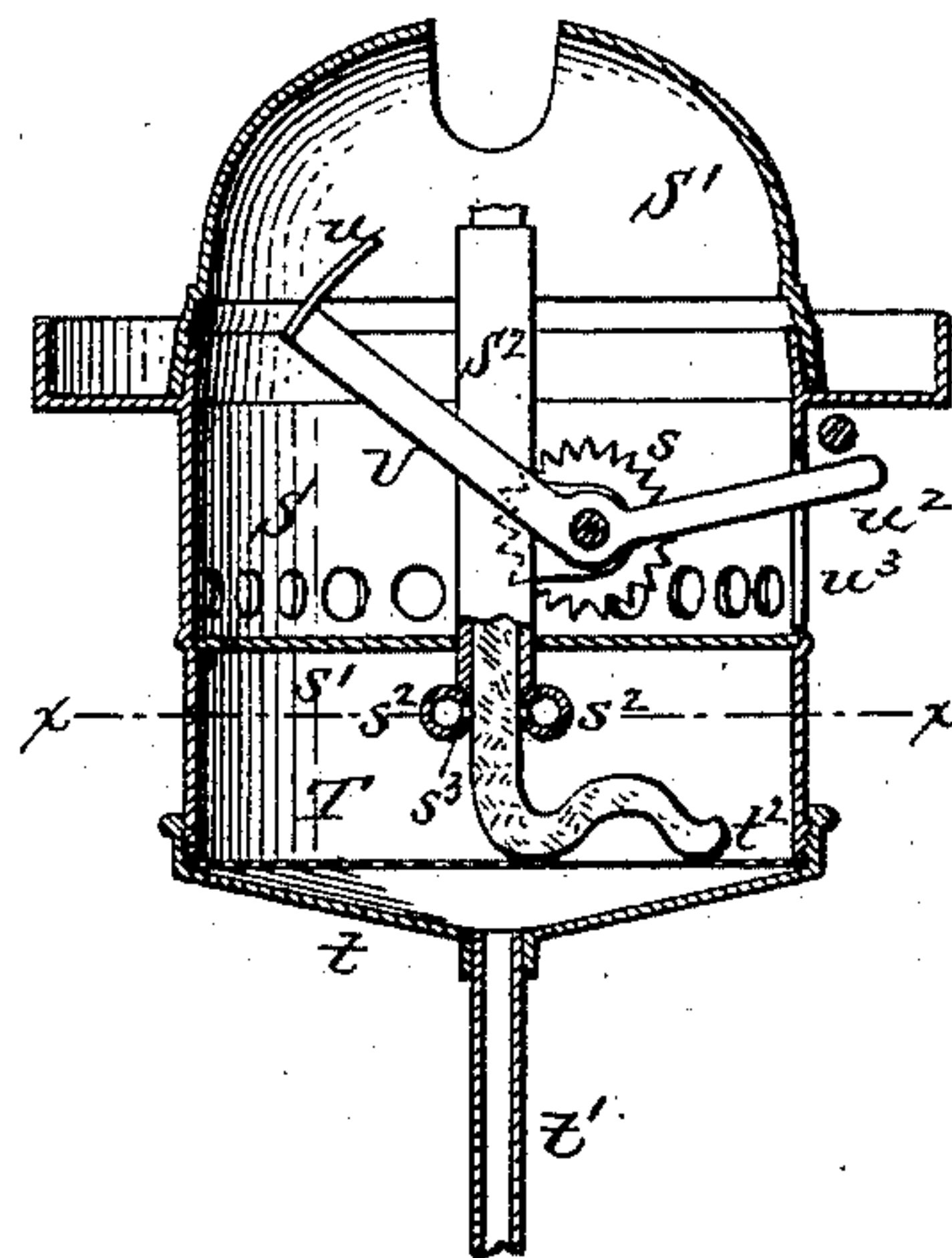


Fig. 8.

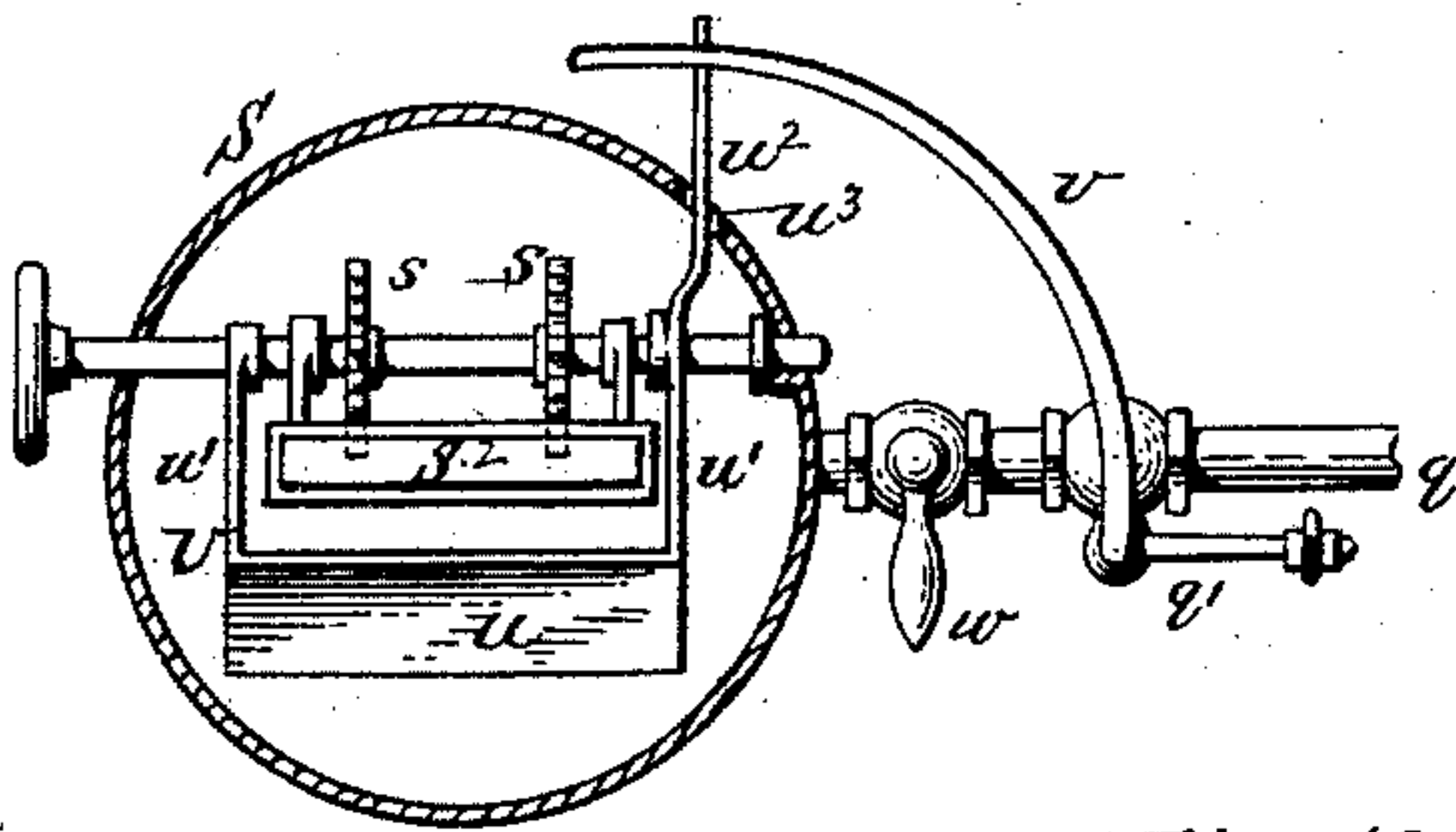


Fig. 9.

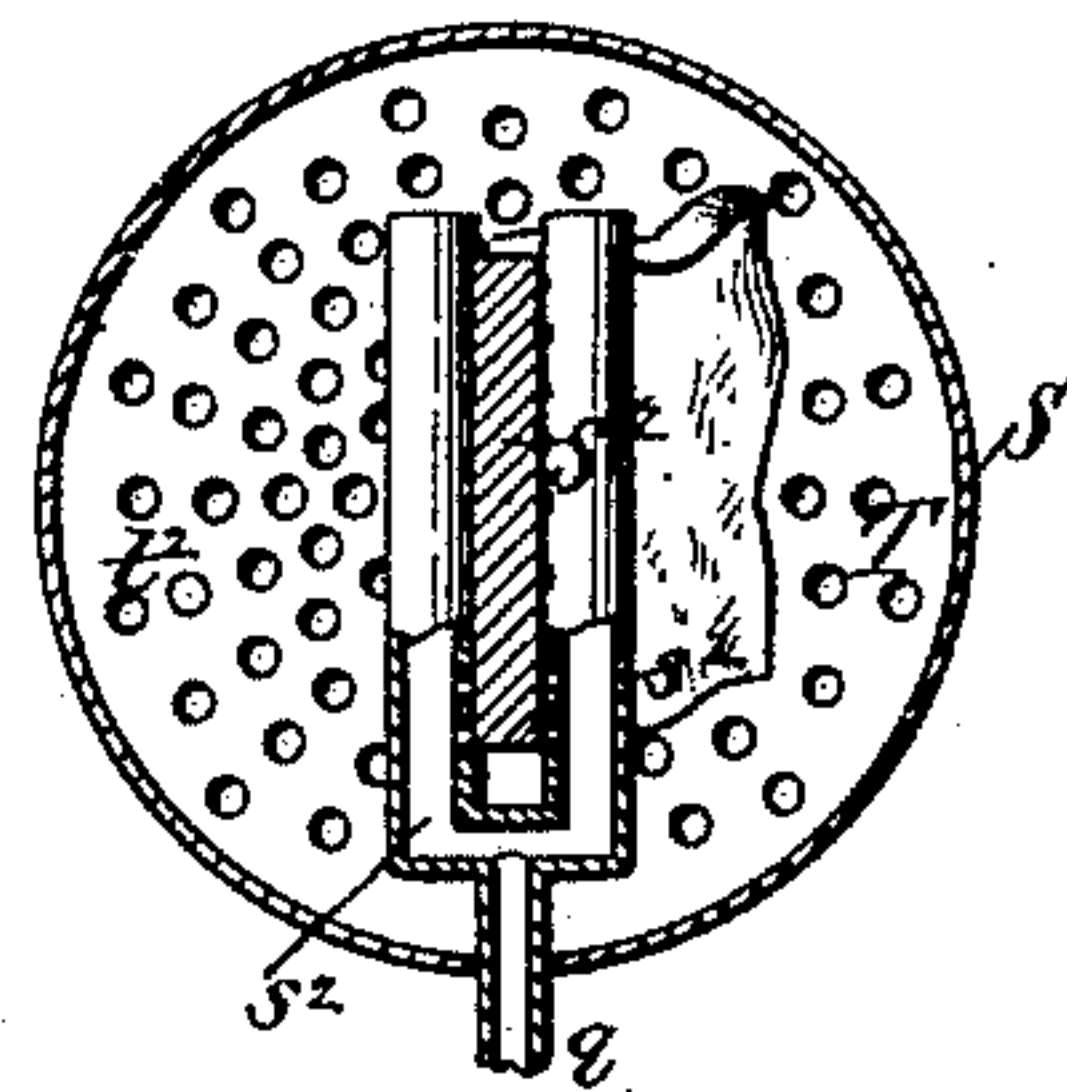
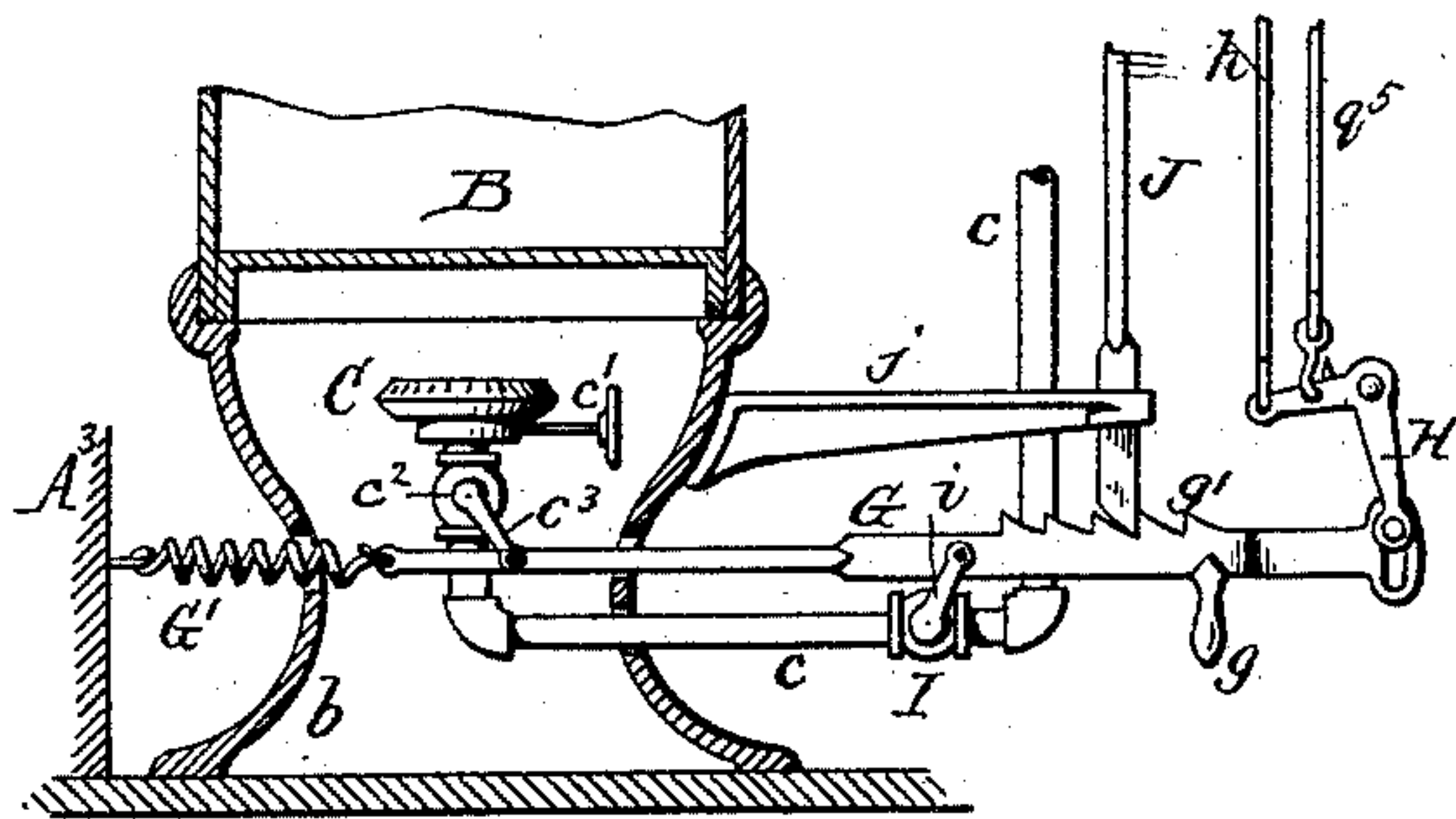


Fig. 10.



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UNITED STATES PATENT OFFICE.

WILLIAM WILSON, OF EARLVILLE, ILLINOIS.

APPARATUS FOR HEATING AND LIGHTING RAILROAD-CARS.

SPECIFICATION forming part of Letters Patent No. 393,599, dated November 27, 1888.

Application filed April 18, 1887. Serial No. 235,214. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WILSON, a citizen of the United States, residing at Earlville, in the county of La Salle and State of Illinois, have invented a new and useful Improvement in Apparatus for Heating and Lighting Railroad-Cars, of which the following is a specification.

This invention has for its object to provide means whereby the fire in car-heaters can be quickly and automatically extinguished, in case of an accident to the train, to prevent the fire from igniting the surrounding wood-work of the car, and also to provide means whereby the lamps can be extinguished at the same time.

My invention relates more particularly to a device in which oil, gas, or any other product of petroleum is employed as a fuel, and which is conducted from a suitable reservoir in the car to a burner arranged below a water-boiler for heating the water, which is circulated from the boiler through pipes arranged along the sides or bottom of the car.

The invention consists of the improvements which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 represents a sectional elevation of one end of a railway-car to which my improvements are applied. Fig. 2 is a sectional elevation, on an enlarged scale, of the oil or fluid reservoir, the upper portion of the boiler, and the actuating mechanism attached thereto. Fig. 3 is a cross-section in line *x x*, Fig. 2. Fig. 4 is a fragmentary top plan view, on an enlarged scale, of a portion of the actuating mechanism. Fig. 5 is a sectional elevation in line *y y*, Fig. 2. Fig. 6 is a sectional elevation of one of the lamps on an enlarged scale. Fig. 7 is a sectional elevation at right angles to Fig. 6. Fig. 8 is a sectional top plan view of one of the lamps. Fig. 9 is a cross-section in line *x x*, Fig. 7. Fig. 10 is a sectional elevation, on an enlarged scale, of the lower portion of the heater, showing the burner and connecting parts.

Like letters of reference refer to like parts in the several figures.

A represents the floor of an ordinary railway-car; A', the roof; A², the sides, and A³ one of the ends of the car.

B represents a water-boiler arranged at one

end of the car and supported upon a suitable base, *b*, secured to the floor of the car. The boiler B may be of any suitable construction, and is provided with pipes *b'*, through which the water from the boiler is circulated through the car.

C represents an oil or gas burner arranged below the boiler B and provided with a supply-pipe, *c*, which is connected with a reservoir, D, containing the oil or other fluid which is supplied to the burner. The burner C is provided with a regulating-valve, *c'*, and at its junction with the supply-pipe *c* with a stop-cock or valve, *c''*, whereby the supply of oil to the burner is shut off. The reservoir D is preferably arranged at one end of the car, and is supported upon brackets *d*, secured to the end or sides of the car. The reservoir D is provided in its bottom with an opening which is closed by a screw-plug, *d'*, having a central opening for the reception of the end of the supply-pipe *c*.

e represents a conical valve arranged within the oil-reservoir D, and adapted to fit in a conical seat or cavity, *e'*, formed in the screw-plug *d'*, so that the supply of oil to the pipe *c* can be shut off.

e'' represents the stem of the valve *e*, which projects through the top of the reservoir D, and is guided in a bracket, *e'''*, secured to the inner side of the reservoir.

e'''' is a spiral spring coiled around the valve-stem *e''*, between the bracket *e'''* and the valve *e*, and tending to close the valve against its seat.

e''''' represents a vent-opening formed in the upper end of the valve-stem *e''*, through which the external air is admitted to the reservoir. The upper portion of the valve-stem is preferably made hollow, as shown in Fig. 2, and the vent-opening *e'''''* is arranged in such a position that it will be open when the valve *e* is raised from its seat and closed by the adjacent top portion of the reservoir D when the valve rests on its seat.

F represents a bell-crank lever pivoted to the upper end of the reservoir D and attached with its inner arm to the upper end of the valve-stem *e''*. The latter is provided with two flanges or collars, *e''''''*, between which the bifurcated end of the lever F engages, so that the valve-stem and valve will be raised or lowered by the movements of the lever.

G represents a horizontal bar arranged near the lower end of the car and adapted to actuate the valves c^2 and e of the burner and oil-reservoir, respectively. The bar G is attached near its inner end to the arm c^3 of the valve c^2 , and at its outer end to one arm of a bell-crank lever, H, which is pivoted to the side wall of the car. The other arm of the lever H is connected by means of a connecting-rod, h , with the lower arm of a bell-crank lever, H'. The latter is arranged near the upper end of the car, and is connected to the bell-crank lever F by a connecting-rod, h' .

G' is a spiral spring secured with one end to the end wall, A³, of the car, and with its opposite end to the inner end of the bar G, and having a tendency to draw said bar inwardly. By pulling the bar G outwardly to the position represented in Fig. 1 the movement of the bar is transmitted to the arm c^3 and lever F, thereby opening the valves c^2 and e and permitting the fluid to pass to the burner. Upon releasing the bar G the spring G' will draw the bar inwardly, thereby moving the lever F and arm c^3 in the opposite direction and closing the valves e and c^2 , thus cutting off the supply of oil to the burner. The bar G is provided with a handle, g , whereby it can be manipulated.

The supply-pipe c is preferably provided between the reservoir D and the valve c^2 with two extra valves, I I', which assist in effectually shutting off the supply of oil to the burner. The valve I is connected with the actuating-bar G by an arm, i , and the valve I' is connected with the lever F by a connecting-rod, i' .

J represents a vertically-movable bar or bolt which is adapted to engage with ratchet-teeth g' , formed on the upper edge of the bar G, so as to lock the bar in position after the same has been drawn outwardly to the position represented in Fig. 1. The locking-bar J is guided in brackets j , secured to the boiler B, and is formed at its lower end with an abrupt and an inclined edge corresponding to the shape of the ratchet-teeth g' .

K represents a lever pivoted to a bracket, k , secured to the upper end of the boiler B, and connected with its outer arm to the upper end of the locking-bar J, so that by depressing the inner arm of the lever K its outer end will raise the locking-bar J and disengage the latter from the actuating-bar G.

k' represents a spiral spring secured with one end to the outer arm of the lever K and with its other end to an arm, k^2 , formed on the bracket k . The spring k' draws the outer end of the lever K downwardly and tends to hold the locking-bar J in engagement with the teeth of the actuating-bar G.

L represents an upright rod, which is pivoted at its lower end to the upper end of the boiler B by means of a ball-and-socket joint, l , so as to give the rod a universal movement.

m represents vertical rods or pins arranged between the inner end of the lever K and a

plate or disk, L', secured to the upper portion of the pivoted rod L. Four pins, m , are preferably employed, and the inner end of the lever K is provided with an enlargement or disk, k^3 , upon which the pins m are supported. The pins m rest loosely with their lower ends in openings or sockets formed in the disk k^3 of the lever K, and bear with their upper ends against the under side of the disk L', so that by moving the vertical rod L out of a perpendicular position the disk L' will bear downwardly on the vertical pins m and cause the latter to depress the inner end of the lever K. This movement raises the outer end of the lever K, which in turn lifts the locking-bar J out of engagement with the actuating-bar G.

The pins m are surrounded by spiral springs n , which are interposed between the disk L' and a plate or frame, N, secured to the upper end of the boiler B. The frictional contact of the springs n assists in retaining the pivoted rod L in a perpendicular position, and prevents the same from assuming an inclined position under the ordinary joltings of the car.

O represents a weight, which is suspended from the side wall or roof of the car above the rod L, and which is provided in its under side with an opening or recess, o , into which the upper end of the pivoted rod L projects. The recess o is made of such size as to allow of a slight swaying movement of the weight O without coming in contact with the rod L.

o' represents light springs attached to the weight O, and which prevent the weight from vibrating sufficiently to strike against the rod L under the ordinary movements of the car. The springs o' are arranged at equal distances apart, and are attached with their outer ends to a frame, P, secured to the side wall of the car.

In the event of the car being derailed or overturned, the jar sustained by the car will cause the weight O to strike the upper end of the pivoted rod L and move the same out of its normal position. This movement of the rod L causes the disk L' to bear down upon the pins m , and compels the latter to depress the inner end of the lever K, thereby raising the outer end of the lever and disengaging the locking-bar J from the actuating-bar G. The latter, being now released, moves inwardly under the pressure of the spring G', and closes the valves which control the supply of fuel to the burner.

Q represents the lamps of the car, Q' the oil tank or reservoir, and Q² the main supply-pipe. The lamps Q are connected with the main supply-pipe Q² by branch pipes q , which are provided with stop-cocks or valves q' , for controlling the supply of oil to the burners of the lamps. The reservoir Q' is provided with a valve, q^2 , similar to the valve e of the reservoir D, and the stem q^3 of the valve is connected to the inner arm of a lever, q^4 , pivoted to the upper end of the reservoir Q'. The outer arm of the lever q^4 is connected with the bell-crank lever H by a rod, q^5 .

r represents a horizontal actuating-rod arranged near the upper end of the car and connected with one end to the upper end of the valve-stem q^3 by means of a bell-crank lever, r' . The opposite end of the rod r is attached to a spiral spring, r^2 , which is secured to the roof or side of the car.

r^3 r^4 represent bell-crank levers arranged near the upper end of the car, and which are pivoted with their upper arm to the horizontal rod r . The lower arms of the levers r^3 r^4 are connected with the actuating-arms of the valves q' by connecting-rods r^5 .

By drawing the actuating-bar G outwardly the valves of the reservoir Q' and lamps Q are opened, and when the bar G is released the said valves are closed by the series of levers and connecting-rods.

The burners of the lamps Q are constructed in the following manner:

S represents the air-chamber of the burner, and S' the burner-cone surmounting the same.

S^2 is the wick-tube arranged within the air-chamber and provided with spur-wheels s for raising and lowering the wick. The wick-tube S^2 is made flat or rectangular in form and is supported by a diaphragm, s' , secured within the air-chamber S . The latter is provided below the diaphragm s' with a chamber, T , which is provided with an inclined bottom, t , having a central discharge-pipe, t' . The lower end of the wick-tube S^2 terminates in the chamber T , and is provided with two horizontal tubes, s^2 , arranged on opposite sides of the wick-tube. The tubes s^2 are connected with the branch pipes q of the main supply-pipe Q^2 , and are provided on their inner sides adjacent to the wick-space with holes or perforations s^3 , through which the oil passes and saturates the wick. The lower end of the wick rests upon a diaphragm, t^2 , which is provided with perforations through which the surplus oil may drain off into the discharge-pipe t' . Each discharge-pipe t' is connected with a main pipe, t^3 , which conducts the oil to a suitable tank or receptacle.

U represents an extinguishing device arranged within the air-chamber S and adapted to be swung over the top of the wick-tube to extinguish the flame. The extinguisher U consists of a horizontal plate or shield, u , which is pivoted to the shaft of the spur-wheels s by means of two arms, u' . One of the arms u' is provided with an extension, u^2 , which projects through a slot, u^3 , formed in the side of the air-chamber S .

The valves q' of the branch pipes q are each provided with an arm or finger, v , which engages against the extension u^2 when the valve is closed. The extinguishing-shield u is so arranged that it will fall away from the wick-tube by gravity when its extension u^2 is released from the finger v , and the arrangement of the extension u^2 is such that it will be actuated by the finger v when the valve q' is closed. Upon closing the valve q' the finger v will strike the extension u^2 of the shield and cause the

same to swing over the upper end of the wick-tube and extinguish the flame.

The branch pipes q are each preferably provided with an auxiliary cock, w , which may be operated by hand.

I do not desire to claim in this application the construction of the car-lamps herein described and shown, but reserve the right to cover the same in a separate application for patent.

I claim as my invention—

1. In a car-heating apparatus, the combination, with an oil-reservoir, a burner, and a supply-pipe connecting the burner with the oil-reservoir, of a cut-off valve arranged in said supply-pipe, a shifting-bar connected with said cut-off valve, a locking-bar engaging with said shifting-bar, and a spring whereby the shifting-bar is operated when released by said locking-bar, substantially as set forth.

2. In a car-heating apparatus, the combination, with the reservoir D and a burner, C , connected with said reservoir by a pipe, c , of a valve, e , arranged in said reservoir above the mouth of the pipe c , and provided with a stem, e^2 , extending through the top of the reservoir, a shifting-bar, G , connected with said valve-stem, a locking-bar engaging with said shifting-bar, a spring whereby said shifting-bar is actuated when released by the locking-bar, and a weight suspended above said locking-bar, and adapted to automatically release the locking-bar from the shifting-bar upon the car assuming an abnormal position, substantially as set forth.

3. The combination, with the oil-reservoir D and burner C , connected by a supply-pipe, c , of valves e^2 e , arranged, respectively, in the reservoir and supply-pipe, an actuating-bar, G , connected with said valves, a locking bar or bolt, J , engaging with the actuating-bar G , and a suspended weight whereby the locking-bar is automatically disengaged from the actuating-bar G , substantially as set forth.

4. The combination, with the actuating-bar G , of a locking-bar, J , engaging with said actuating-bar, a lever, K , connected to the locking-bar J , a pivoted rod, L , provided with a disk, L' , pins m , arranged movably between the disk L' and the lever K , and a weight, O , suspended above the pivoted rod L , and adapted to strike the latter when the weight is moved out of a normal position, substantially as set forth.

5. The combination, with the supply-pipe c and reservoir D , of a valve, e , arranged in said reservoir and provided with a stem, e^2 , extending through the reservoir, and a vent-opening, e^5 , formed in said stem, and adapted to be closed by the adjacent portion of the reservoir when the valve is closed, substantially as set forth.

Witness my hand this 5th day of March, 1887.

WILLIAM WILSON.

Witnesses:

JNO. J. BONNER,
CARL F. GEYER.