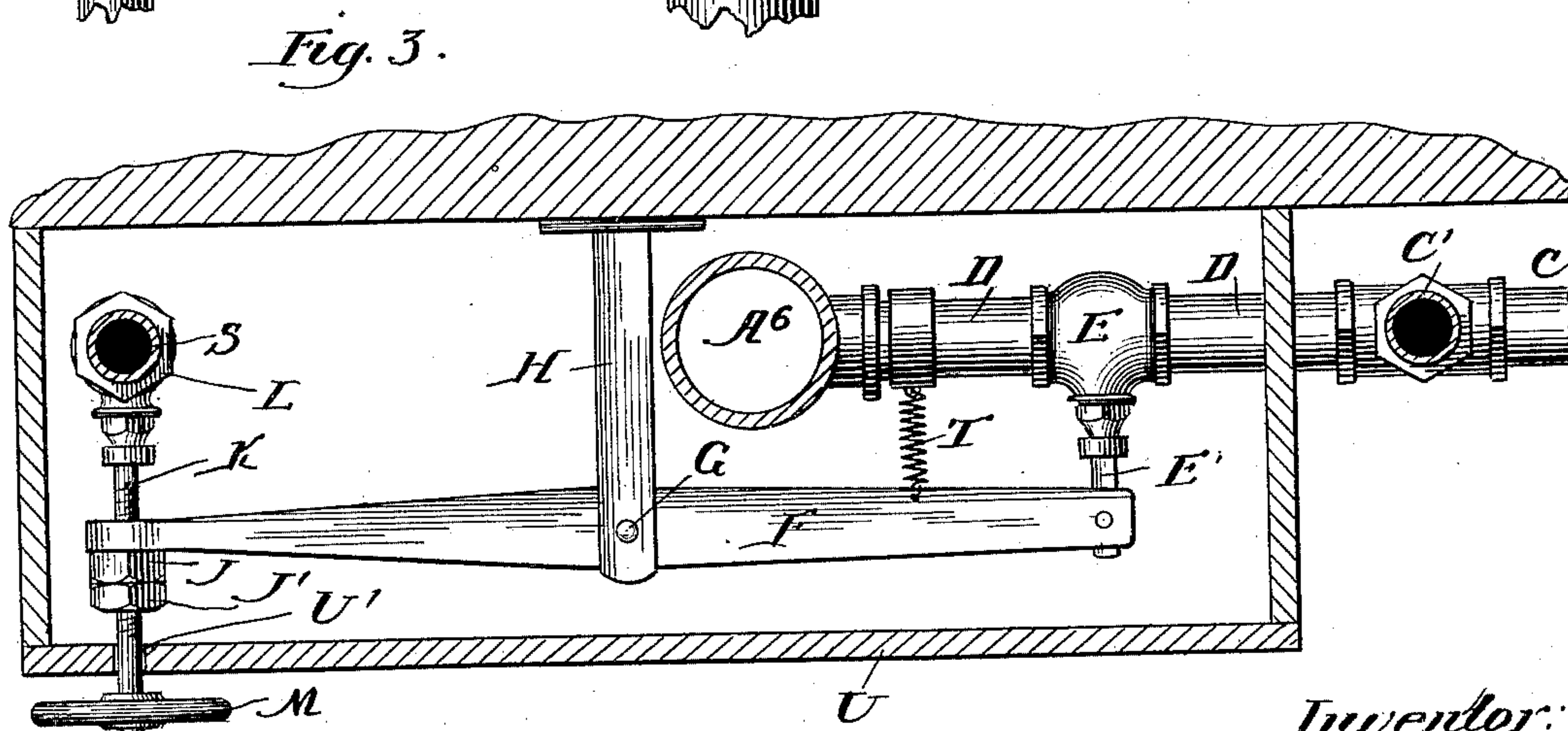
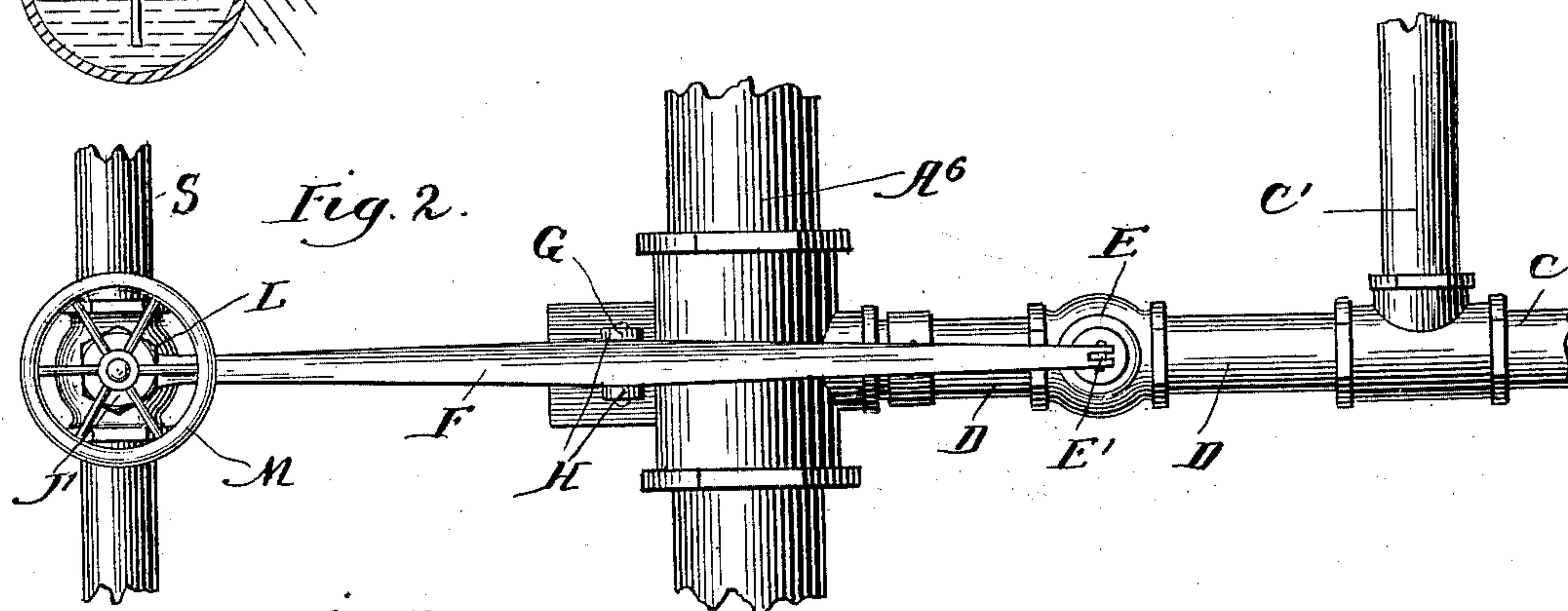
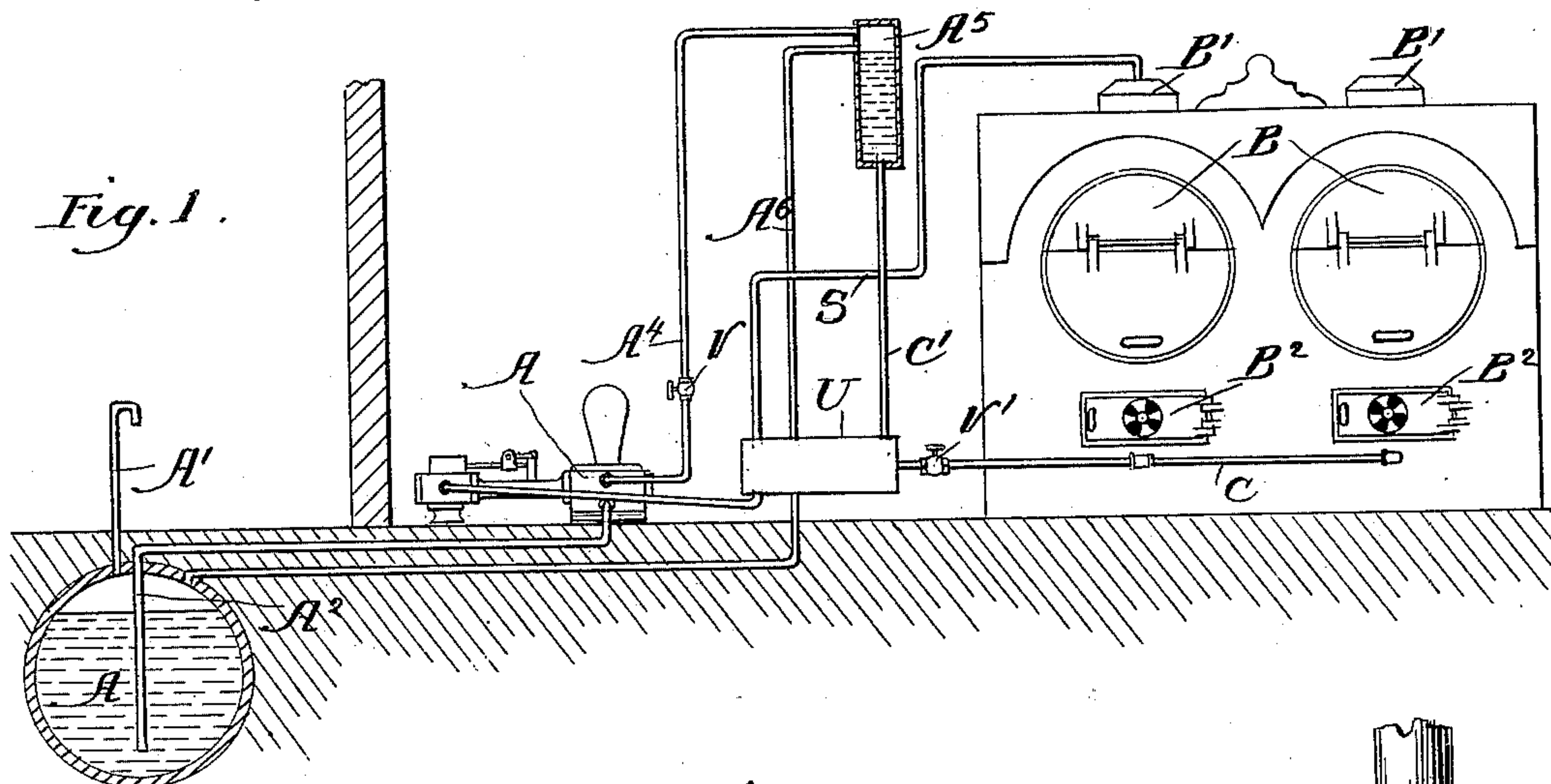


(No Model.)

W. B. WRIGHT.  
DEVICE FOR FEEDING FLUID FUEL.

No. 409,724.

Patented Aug. 27, 1889.



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

WALTER B. WRIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE INTERNATIONAL GAS AND FUEL COMPANY, OF SAME PLACE.

## DEVICE FOR FEEDING FLUID FUEL.

SPECIFICATION forming part of Letters Patent No. 409,724, dated August 27, 1889.

Application filed January 10, 1889. Serial No. 295,948. (No model.)

### *To all whom it may concern:*

Be it known that I, WALTER B. WRIGHT, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Device for Feeding Fluid Fuel, of which the following is a specification.

My invention relates to devices for supplying fluid fuel to furnaces and the like, and has for its object to provide convenient means for so doing, and particularly such means as shall permit the fluid to be fed by gravity and to be withdrawn from the compartment in which the furnace is fixed when not being burned.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a part sectional elevation of my device applied. Fig. 2 is a detail of the devices for controlling the steam-supply and fluid-exhaust, and Fig. 3 is a detail cross-section of the device shown in Fig. 2.

Like parts are indicated by the same letter in all the figures.

A is an oil-tank—situated, for example, at a distance from the room in which the furnace is located—having, if desired, a vent-tube A' and a pipe A<sup>2</sup> leading from near the bottom of the tank to the steam-pump A<sup>3</sup>. A<sup>4</sup> is an oil-pipe leading from such pump to the reservoir A<sup>5</sup>. From near the top of this latter reservoir, and preferably from below the point of its connection with the pipe A<sup>4</sup>, leads the pipe A<sup>6</sup> back to the oil-tank.

B B are the boilers, having the steam-domes B' B' and fire-doors B<sup>2</sup> B<sup>2</sup> opening into the furnace, into which leads the oil-pipe C. This pipe connects with the pipe C', which leads from the bottom of the reservoir A<sup>5</sup>.

S is a steam-pipe leading from the steam-dome to the pump to actuate the same. From the junction of the pipes C and C' leads the short pipe D, containing the gate-valve E, which is operated by the reciprocation of the stem E'. The pipe D opens into the pipe A<sup>6</sup>. The stem E' is secured to a lever F, which is pivoted at the point G on the standard H and the other end of which engages the nut J on the stem K of the globe-valve L. This globe-valve is operated by the hand-wheel M. The

spring T retracts the lever F, so as to normally close the gate-valve E.

U is a box which contains the device shown in Figs. 2 and 3.

The stem of the globe-valve L projects through the aperture U'.

The use and operation of my invention are as follows:

The parts constructed substantially as shown—though of course their relation and arrangement could be greatly altered without departing from the spirit of my invention—are set in operation by opening the valves V, V', and L. When the valve L is open, by operating the hand-wheel M a quantity of steam is permitted to pass through the pipe S to the pump to set the same in operation. This of course starts the oil or fluid fuel through the pipe A<sup>2</sup>, through the pump, through valve V, pipe A<sup>4</sup>, and into the reservoir A<sup>5</sup>. The reservoir is speedily filled, and if the pump were stopped its contents would be fed by gravity through pipe C', pipe C, and valve V' to the discharge-points in the furnace. If, now, there were no vent-pipe leading from the reservoir A<sup>5</sup>, the action of the pump would be to accumulate oil in such reservoir under pressure; hence I have supplied the vent or exhaust pipe A<sup>6</sup>, which leads from the top of the reservoir A<sup>5</sup>, or near the top thereof, back to the tank. It might of course be on a level with the pipe A<sup>4</sup>, and if slightly above the opening of the pipe A<sup>4</sup> into the reservoir A<sup>5</sup> the operation would still be practically the same. By the operation of opening the valve L the lever F is released, so that it may turn on its pivot, and by the action of the spring T the valve-stem E' is forced in and the gate-valve E is closed. Thus any flow of fluid fuel from the bottom of the reservoir A<sup>5</sup> or from below the opening of the pipe A<sup>6</sup> while the device is in normal condition and supplying fluid fuel is prevented, and the oil or the fluid fuel will be fed under a continuous and constant pressure equal to that caused by the height of the fluid over the discharge-point to the fluid-line in reservoir A<sup>5</sup>. When it is desired to shut down, the first motion is to operate the hand-wheel M and close the steam-supply, thus stopping the pump, by which action the



lever F is rotated upon its pivot, its end adjacent to the nut J being carried down toward the valve L, and its other end being raised away from the valve E to open the  
 5 same. When this operation is completed, no steam will be supplied to the pump and the same will cease its motions, and there will be a free opening for the return of the oil or fluid to the fluid-tank both from the top of  
 10 the reservoir, from the bottom thereof, and from the system of pipes leading to the discharge-points.

The lever F may be adjusted to accommodate itself to the travel of the valves and the  
 15 strength of the spring T, by which the position of the nut J and its like nut J' on the stem K and valve L is regulated.

\* I claim as new and desire to secure by Letters Patent—

20 1. In a device for feeding fluid fuel, the combination of an oil-tank, a fluid-reservoir, a pipe and pump to pass the oil from such tank to such reservoir, two pipes leading from such reservoir, one to the points of discharge and the other back to the tank, the  
 25 latter opening into the reservoir at a higher point than the former and at a lower point than the first-mentioned pipe, a pipe leading from the discharge-pipe back to the tank, a valve in the steam-supply pipe which leads to the  
 30 pump, a second valve in the pipe which leads from the discharge-pipe to the tank, and a handle and connecting-bar whereby the two said valves are simultaneously operated in  
 35 opposite directions, so that when the steam is turned on the valve in the pipe leading from the discharge-pipe to the tank is closed and when the steam is turned off it is open to drain the reservoir.

40 2. The combination of a fluid-fuel furnace with an oil-tank and an oil-reservoir, the latter situated higher than the tank and the discharge into the furnace, a discharge-pipe from such reservoir to the furnace, a supply-  
 45 pump, and a pipe from the tank to the reservoir connecting with such pump, and an overflow-pipe from the tank to the reservoir, a pipe leading from the discharge-pipe back to the tank, a valve in the steam-supply pipe  
 50 which leads to the pump, a second valve in

the pipe which leads from the discharge-pipe to the tank, and a handle and connecting-bar whereby the two said valves are simultaneously operated in opposite directions, so that  
 55 when the steam is turned on the valve in the pipe leading from the discharge-pipe to the tank is closed and when the steam is turned off it is open to drain the reservoir.

3. In a device for feeding fluid fuel, the combination of a fluid-tank with a reservoir, 60 two pipes—one a supply, the other an overflow—connecting the same, a fluid-pump in the supply-pipe and a discharge-pipe leading from such reservoir to the points of consumption of the fluid, the supply-pipe opening  
 65 into the reservoir above the overflow-pipe, so that the fluid is circulated through the reservoir, but maintains a constant pressure therein, a pipe leading from the discharge-pipe back to the tank, a valve in the steam-  
 70 supply pipe which leads to the pump, a second valve in the pipe which leads from the discharge-pipe to the tank, and a handle and connecting-bar whereby the two said valves are simultaneously operated in opposite di-  
 75 rections, so that when the steam is turned on the valve in the pipe leading from the discharge-pipe to the tank is closed and when the steam is turned off it is open to drain the  
 80 reservoir.

4. In a device for feeding fluid fuel, the combination of a reservoir from which the fluid is fed to the point where it is consumed, with a pipe leading therefrom to such point, a tank, a vent-pipe leading from such reser- 85  
 voir to the supply-tank and opening into the reservoir at a different height from the first-mentioned pipe, a connection between said two pipes controlled by a valve, so that  
 90 communication between the reservoir and tank may be made from points of different heights upon such reservoir, and a pump and supply-pipes connecting the same with the tank and reservoir.

Signed at Chicago, Illinois, this 7th day of 95  
 January, 1889.

WALTER B. WRIGHT.

In presence of—

FRANCIS W. PARKER,  
 FRANCIS M. IRELAND.