

(No Model.)

C. L. STOCK.

APPARATUS FOR SEPARATING OIL AND WATER FROM GAS.

No. 468,138.

Patented Feb. 2, 1892.

Fig. 1.

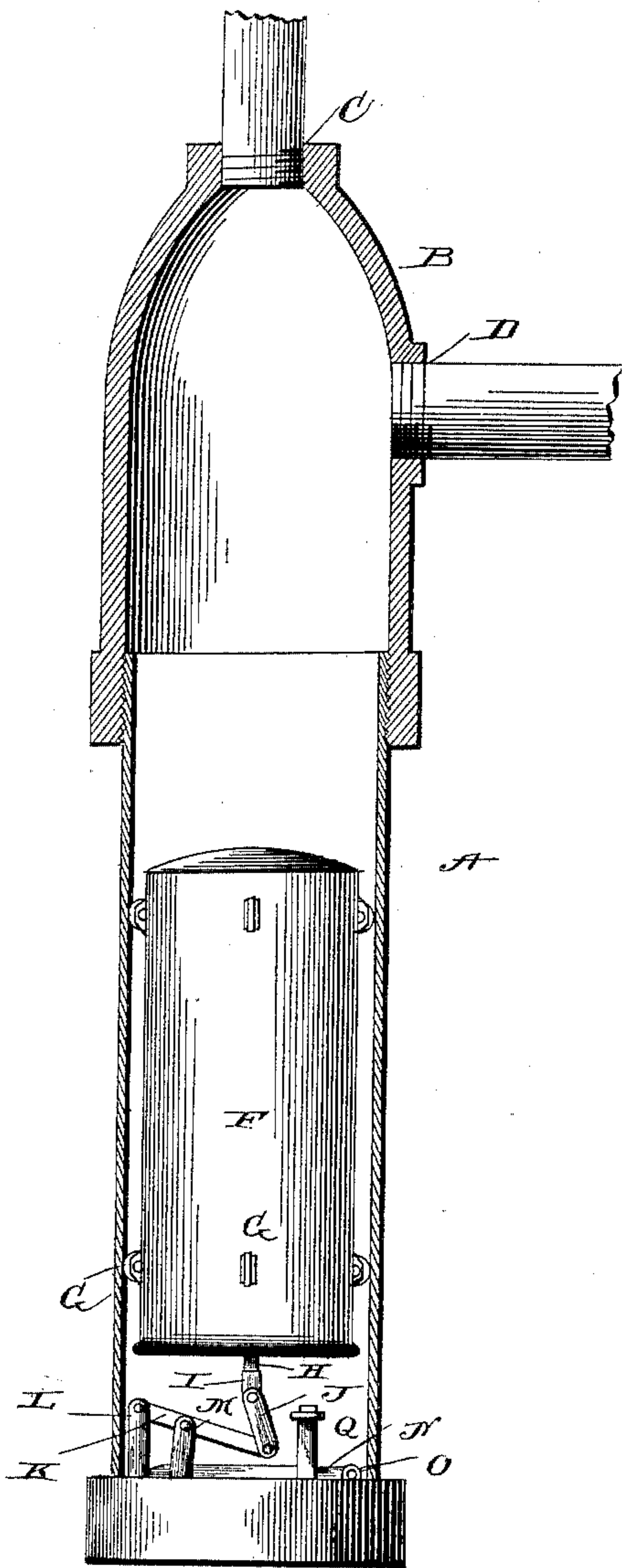
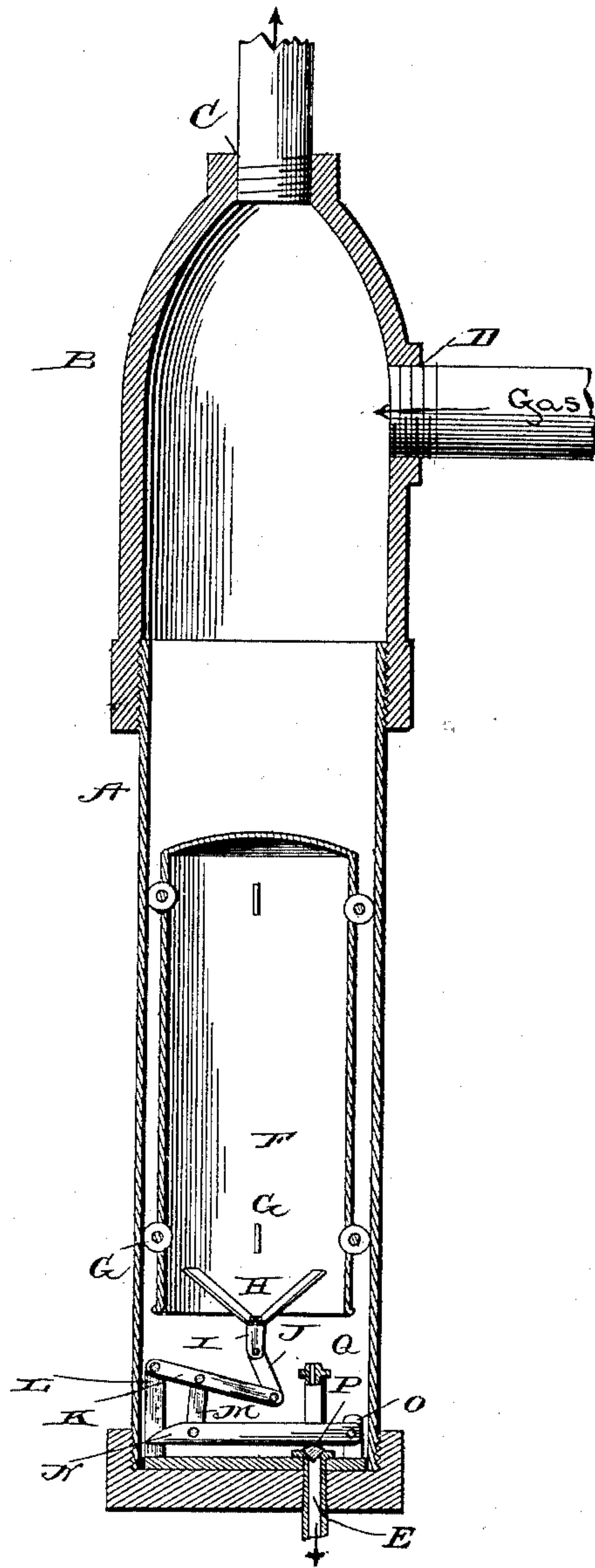


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SEPARATING OIL AND WATER FROM GAS.

SPECIFICATION forming part of Letters Patent No. 468,138, dated February 2, 1892.

Application filed May 13, 1891. Serial No. 392,563. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. STOCK, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Apparatus for Separating Oil and Water from Gas; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention is an improved device for separating oil and water from natural gas as it comes from the well, and the particular object of the invention is to provide a simple and efficient mechanism by the use of which the valve controlling the water-discharge pipe will be positively operated at all times. This object I accomplish by the use of the mechanism illustrated in the annexed drawings; and the invention consists in certain novel features of the same, as will be hereinafter more fully described, and pointed out in the claim.

In the drawings, Figure 1 is a view of my improved device with the receiver in vertical section and the interior parts in elevation, and Fig. 2 is a vertical section of the entire device.

The receiver A may be buried in the ground or arranged in any other suitable or preferred manner. It is constructed of any strong material, preferably metal, and is provided at its upper end with a dome-shaped cap B, having an opening C in its apex, which is engaged by the end of the gas-discharge pipe, and an opening D in its side below its apex, which receives the end of the inlet-pipe. The inlet-pipe leads from the well, and the gas containing the oil, water, and other impurities enters the receiver through the same. At the bottom of the receiver there is an opening E, which registers with or forms the upper end of the water-discharge pipe, the said pipe leading into a suitable tank or reservoir, in which the oil and water are collected. Within the receiver I provide a float F, which is of a diameter somewhat less than the diameter of the receiver and is adapted to move freely

up and down therein as the water and oil reach a higher or lower level. The float is maintained in a strict vertical position within the receiver and kept out of frictional contact with the sides of the same by means of the lugs or rollers G, which are mounted on the sides of the float and bear against the sides of the receiver, as will be readily understood upon reference to the drawings. The float is hollow, and across the lower end of the same is arranged a series of diametrical rods H, to the junction of which I secure the short depending standard or lug I, and to the lower end of this lug I pivot the links J. The lower ends of the links J are pivoted to the inner end of a lever K, which extends radially outward and is pivoted between the upper ends of the standards L, rising from the bottom of the receiver, at one side of the same. Near the outer end of the lever K, I pivot thereto the upper ends of the links M, the lower ends of which are pivoted to a vibratory presser-bar N, which has one end playing in the space between the standards L, whereby it is prevented from moving laterally, and its opposite end pivoted to a standard O, rising from the bottom of the receiver adjacent to the end of the water-discharge pipe.

A valve P is pivoted to the under side of the vibratory presser-bar, directly over the upper end of the water-discharge pipe, and is adapted to rest on the same and thereby control the flow of water therethrough. In order that the valve may be retained directly over the end of the discharge-pipe, I erect on the bottom of the receiver the guide Q, through which the vibratory bar passes and which is arranged in alignment with the end of the pipe.

When the device is in use, the gas, together with the oil and water, flows into the receiver through the inlet-pipe, and the gas rises to the top and passes off through the gas-discharge pipe. The water and oil, however, will be caused to fall to the bottom of the receiver by their weight and will collect therein, as will be seen at once upon an inspection of the drawings. As the liquids accumulate in the receiver they will lift the float, and the float will in turn draw upon the links J M and the lever K to lift the vibratory bar, and thus

raise the valve and open the water discharge pipe to permit the oil and water to pass off. After the liquids have escaped the float will fall by gravity and the valve will again close the discharge-pipe.

It will be seen from the foregoing description, taken in connection with the accompanying drawings, that I have provided a very simple and efficient device by the use of which the liquids contained in the natural gas as it comes from the well will be automatically removed therefrom, so that a perfectly-dry gas will be delivered through the mains for use. The rollers or lugs on the float reduce the friction between the float and the receiver to a minimum, so that the float will move easily and readily at all times, and its satisfactory operation is thus guaranteed. The system of levers and links connecting the float with the valve will multiply the force exerted by the float, so as to thoroughly and positively overcome all sticking of the valve caused by rusting or other causes.

Although I have shown and described the inlet-pipe as arranged near the top of the receiver, it will be readily understood that it

may be arranged at any other point, according to the convenience of the operator, without departing from my invention, as the gas will always rise to the top.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination of the receiver having an inlet and provided with a gas-discharge opening in its top and a water-discharge opening in its bottom, the float arranged in the receiver, the pair of standards erected on the bottom of the receiver, the pivoted presser-bar carrying a valve adapted to close the water-discharge opening and having its free end playing between the said standards, a lever pivoted between the said standards, links connecting the said lever to the presser-bar, and links connecting the said lever with the float.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES L. STOCK.

Witnesses:

CHAS. L. GUERNSEY,
PETER MOUSER.