

F. RANDON.

APPARATUS FOR THE PRODUCTION OF PURE SULPHUROUS GAS.

No. 337,197.

Patented Mar. 2, 1886.

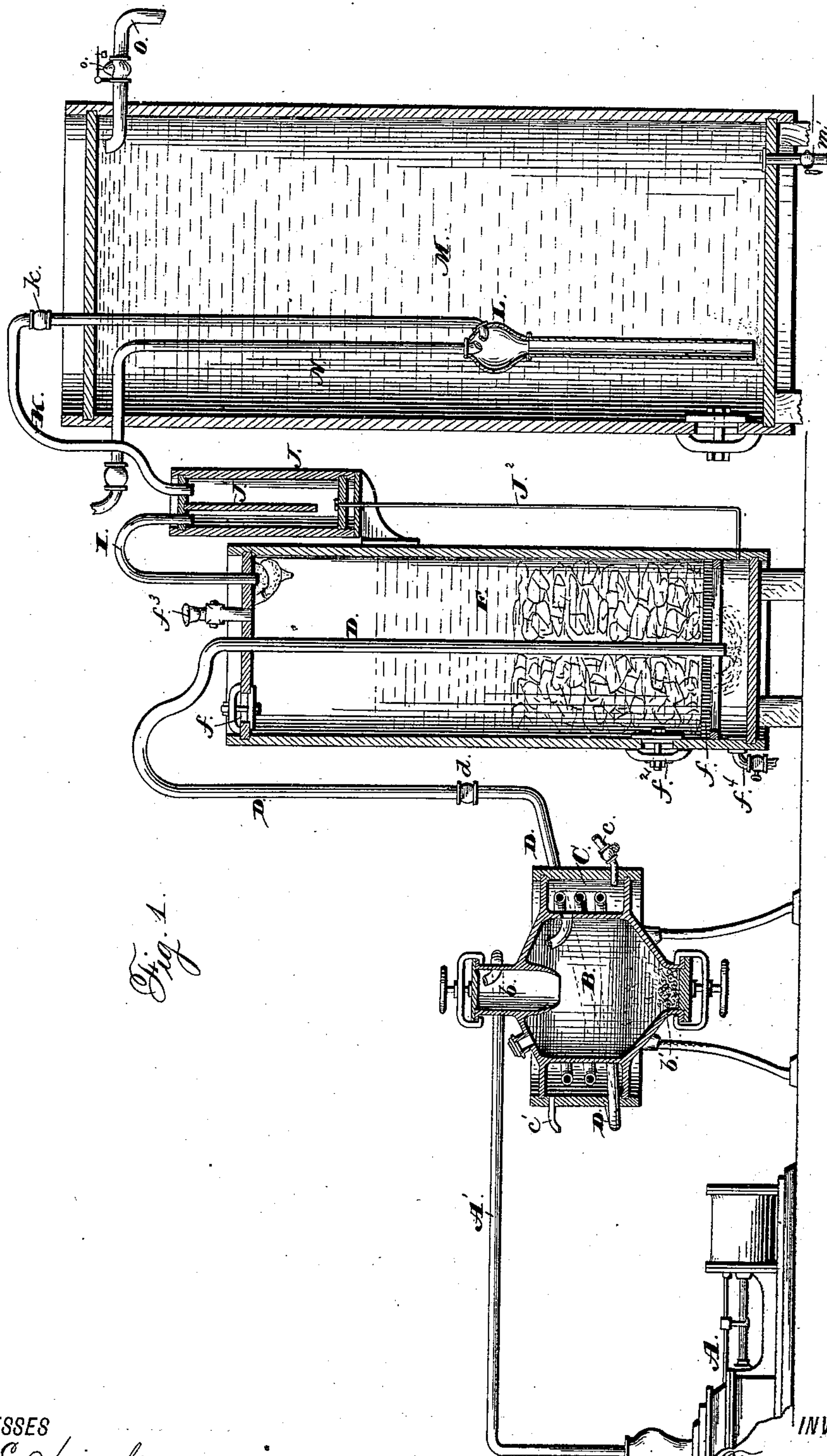


Fig. 1.

WITNESSES

Gas. E. Hutchinson.  
J. A. Rutherford

INVENTOR

Francois Randon,  
By James L. Norris,  
Attorney

(No Model.)

2 Sheets—Sheet 2.

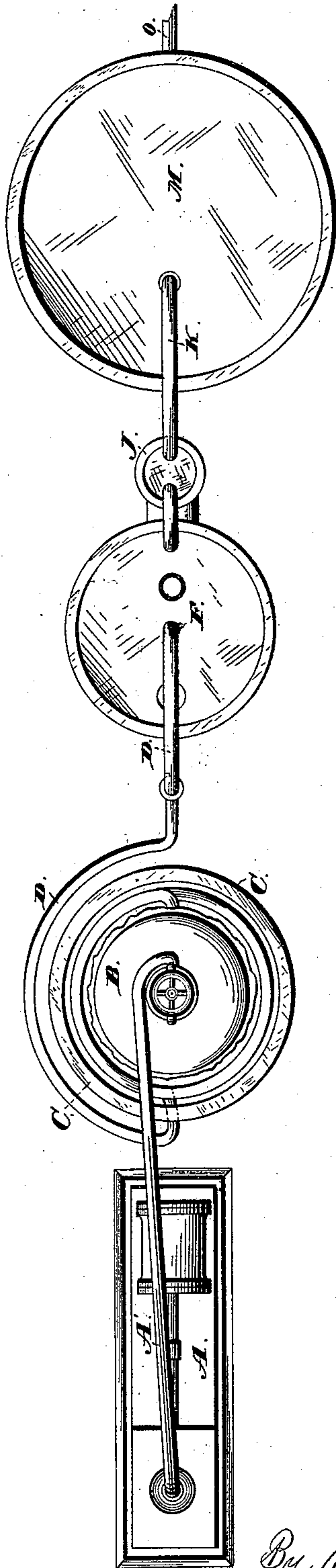
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Fig. 2.



WITNESSES

*Gas. E. Hutchinson.*  
*J. A. Rutherford*

INVENTOR

*Francois Randon,*  
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# UNITED STATES PATENT OFFICE.

FRANÇOIS RANDON, OF NEW ORLEANS, LA., ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO VIRGINIE M. T. JOHNSON, OF NEW YORK, N. Y.

## APPARATUS FOR THE PRODUCTION OF PURE SULPHUROUS GAS.

SPECIFICATION forming part of Letters Patent No. 337,197, dated March 2, 1886.

Application filed June 14, 1883. Renewed August 3, 1885. Serial No. 173,446. (No model.)

*To all whom it may concern:*

Be it known that I, FRANÇOIS RANDON, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Apparatus for Production of Pure Sulphurous Gas, of which the following is a specification.

My invention relates to apparatus for the production of sulphurous gas by compressed air; and the novelty consists in the construction, arrangement, and adaptation of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The invention is fully illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a central vertical section, and Fig. 2 a plan view.

Referring to the drawings, in which similar letters of reference indicate like parts in both the figures, A designates a double-acting air-pump of any suitable and approved construction and actuated by any proper power. The pump conveys air under pressure through the connecting-pipe A' into the combustion-chamber or metallic reservoir B, which reservoir is open at the top, as *b*, to insert and at the bottom *b'* to remove the substances from which the gases are generated, principally by combustion. This reservoir or combustion-chamber B is arranged within a cooling-tank, C, and a pipe, D, leading from the interior of the chamber B to a purifying-tank, F, has a large portion of its length coiled in the said cooling-tank C in order that the temperature of the gases passing through the pipe D may be lowered before reaching the purifying-tank. The cooling-tank C has a water-inlet connection, *c*, and an outlet-connection, *c'*, either or both of which may be provided with a stop-cock, and it is designed to keep, especially in cities where there is a water-pressure, a continuous flow of water through this cooling-tank.

The generated gas passes through the pipe D, which is provided with a check-valve, *d*, to prevent backflow of such gas from any cause to the purifying-tank F, which tank is provided with a false bottom, *f*, above which

is placed broken pieces of carbonated lime, magnesia, strontium, or other alkaline or carbonated bases, which serve as purifiers or neutralizers.

The generated gas, being pressed constantly forward by the pump A, passes through the pipe D, and is discharged into the purifying-tank F, beneath the false bottom *f* thereof, and from thence is forced upward through the layers of broken carbonated substances and is purified.

The tank F is provided with a door or trap, *f'*, through which the carbonated pieces are inserted, and a door, *f''*, through which the same may be removed to clean the tank. Through an inlet, *f'''*, provision is made for the injection of water at will to dampen the carbonized material or neutralizers—such as alkaline, pure or carbonates, (lime, magnesia, baryta, strontia)—and a drain cock and pipe, *f''''*, allow for the surplus water which collects beneath the false bottom *f* to be drawn off when necessary. The gas, thus cooled and purified, is conducted by the pipe I into the reservoir J, which reservoir is provided with a vertical diaphragm, *J'*, which, being secured at the top, reaches to within a short distance of the bottom of the reservoir. From a point near the bottom of this reservoir J a drain-pipe, *J''*, which is always open, leads to the interior of the tank F beneath the false bottom *f*, and any liquid which may have been forced through the pipe I by the rapid generation and passage of the gas into the reservoir J is thus led back to the tank F, and thence drawn off through the pipe *f''''*.

K designates a pipe which leads from the upper part of the reservoir J to the charging-chamber L, which is suspended in the reservoir M, and this pipe K is also provided with a check-valve, *k*, to prevent back-flow. This charging-chamber connects with a pipe, N, leading from the outside of the tank M and adapted to convey the raw cane-juice, saccharine liquor, or other liquid to be charged into the charging-chamber and in contact with the gas which is forced through the pipe K. The mingled gas and liquor are discharged from the chamber L through a pipe, N', which has its exit arranged near the bottom of the



reservoir M. The reservoir M has a trap or door, *m*, for cleaning the same, and a drain-cock, *m'*.

The liquid becomes charged with the gas, and the gas bubbles up through the body of the liquid in the reservoir M. From the upper portion of the said reservoir M a gas-exit pipe, *O*, projects, and this pipe is provided with an escape-valve, *o*, which by a counterpoise, *o'*, is adapted to maintain a predetermined degree of pressure in the reservoir M. As soon, however, as this predetermined degree is exceeded, the gravity of the counterpoise is overcome, and the gas escapes until the proper pressure again accrues.

The operation of the device from the foregoing description will be readily understood. The description is general as to the essential features, the size, material, and so forth, being such as will accord the best results.

Modifications in details of construction may be made without departing from the principle or sacrificing the advantages of the invention.

Having thus described my invention, what I claim is—

1. In the generation of gas as described, a combustion-chamber having connections with a pump to force air under pressure into the interior thereof, a water-jacket embracing such combustion-chamber, and a pipe leading from the interior thereof through coils formed in the water-jacket to multiply the cooling-surface, substantially as described.

2. In combination with a purifying-tank

having a false perforated bottom and a pipe leading the gas from the combustion-chamber through its water-jacket into the said purifying-tank below the false bottom, a pump for holding said gas under pressure, substantially as described.

3. The purifying-tank having false bottom, water inlet, and drain, in combination with the combustion chamber and its water-jacket, a pump, and a pipe leading from the combustion-chamber through the water-jacket and into the purifying-tank below the false bottom, said pipe having a check-valve to prevent backflow, substantially as described.

4. In combination with the purifying-tank having perforated false bottom, the reservoir J, having diaphragm *J'*, the pipe *I*, and the pipe *J'*, leading from said reservoir J back to the purifying tank below the false bottom, substantially as described.

5. The treating tank or reservoir M, having an exit near the bottom and a safety exit-valve for the gas under pressure, in combination with the purifying-chamber L, having an inlet-pipe, the receiver J, and the pipe leading from the receiver to the charging-chamber, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANÇOIS RANDON.

Witnesses:

ANDREW HERO, Jr.,  
S. THEVIOT, Jr.