

J. S. WOOD.
GAS APPARATUS FOR RAILROAD CARS, &c.
No. 105,757. Patented July 26, 1870.

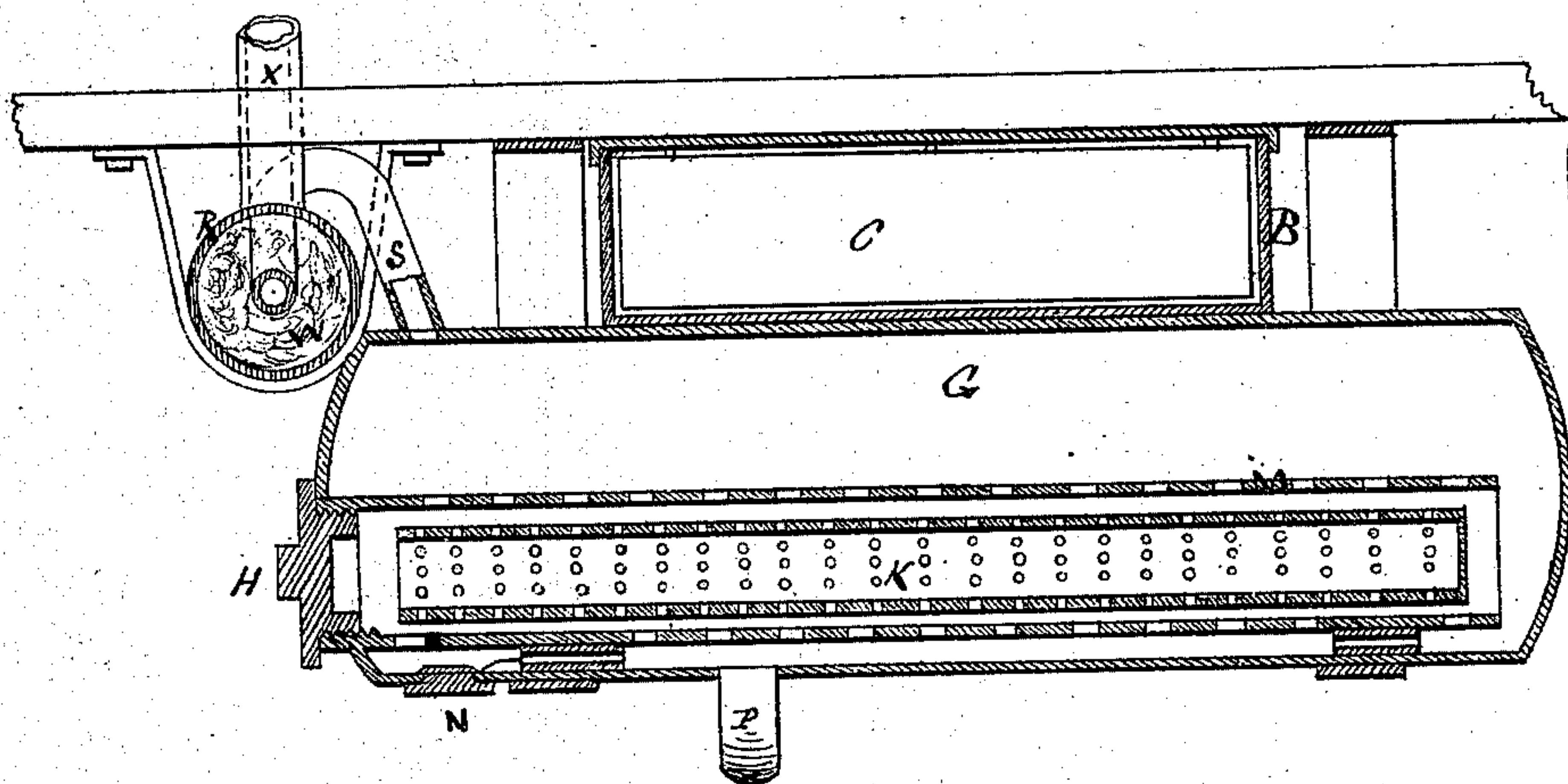
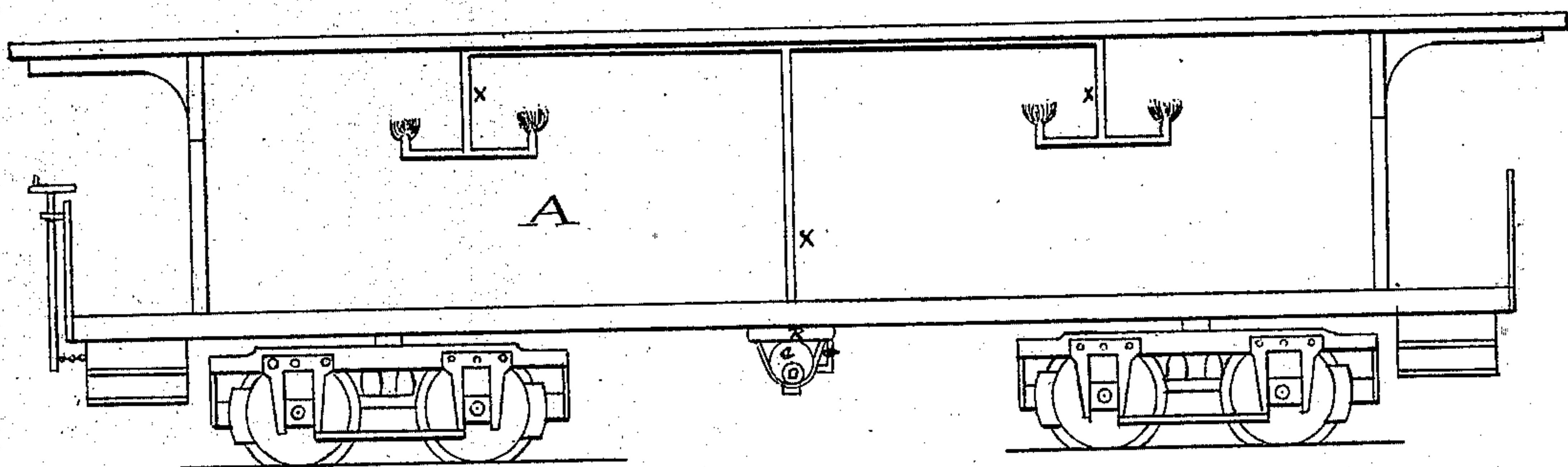


Fig. 2.

Fig. 3

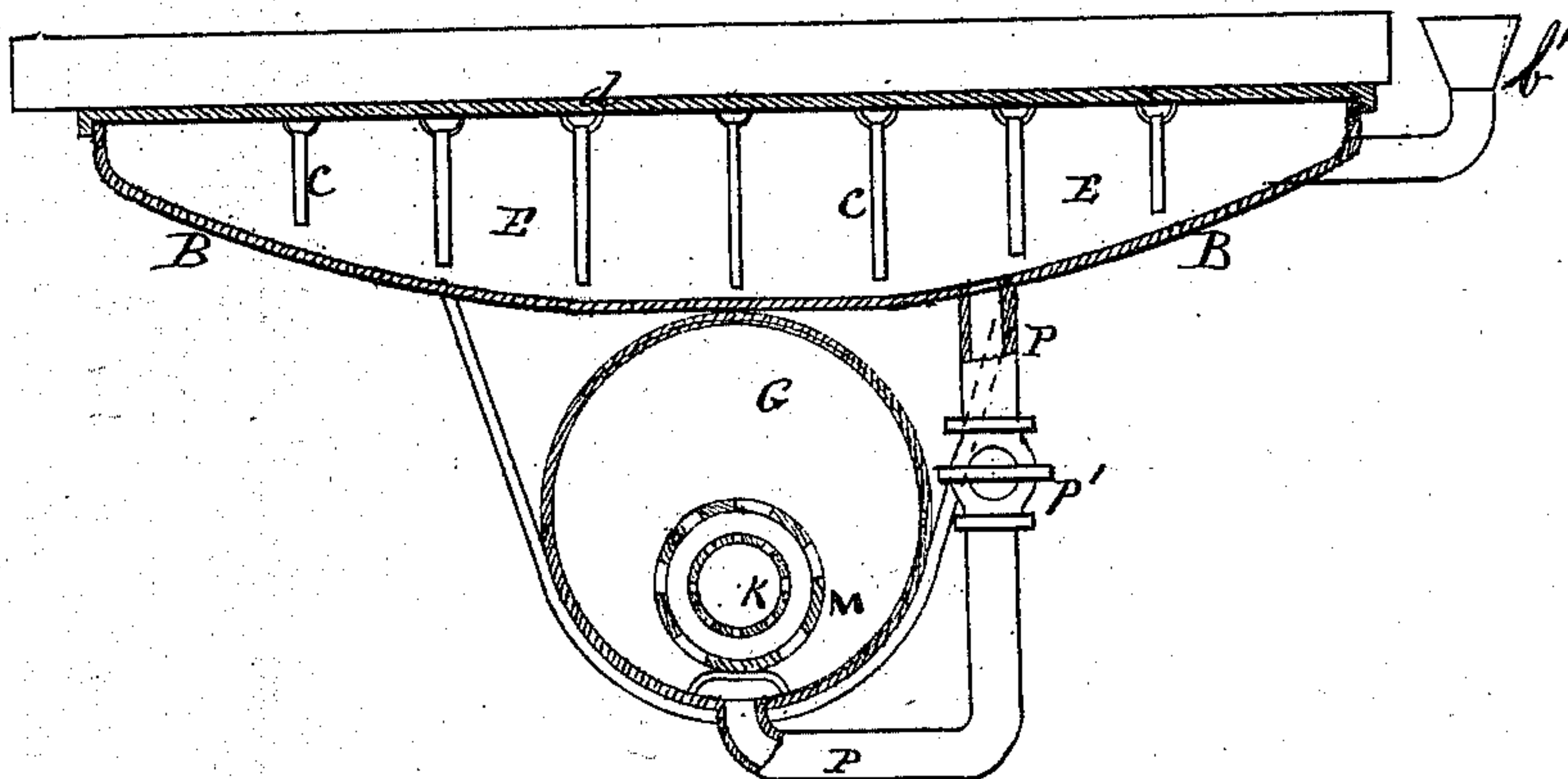
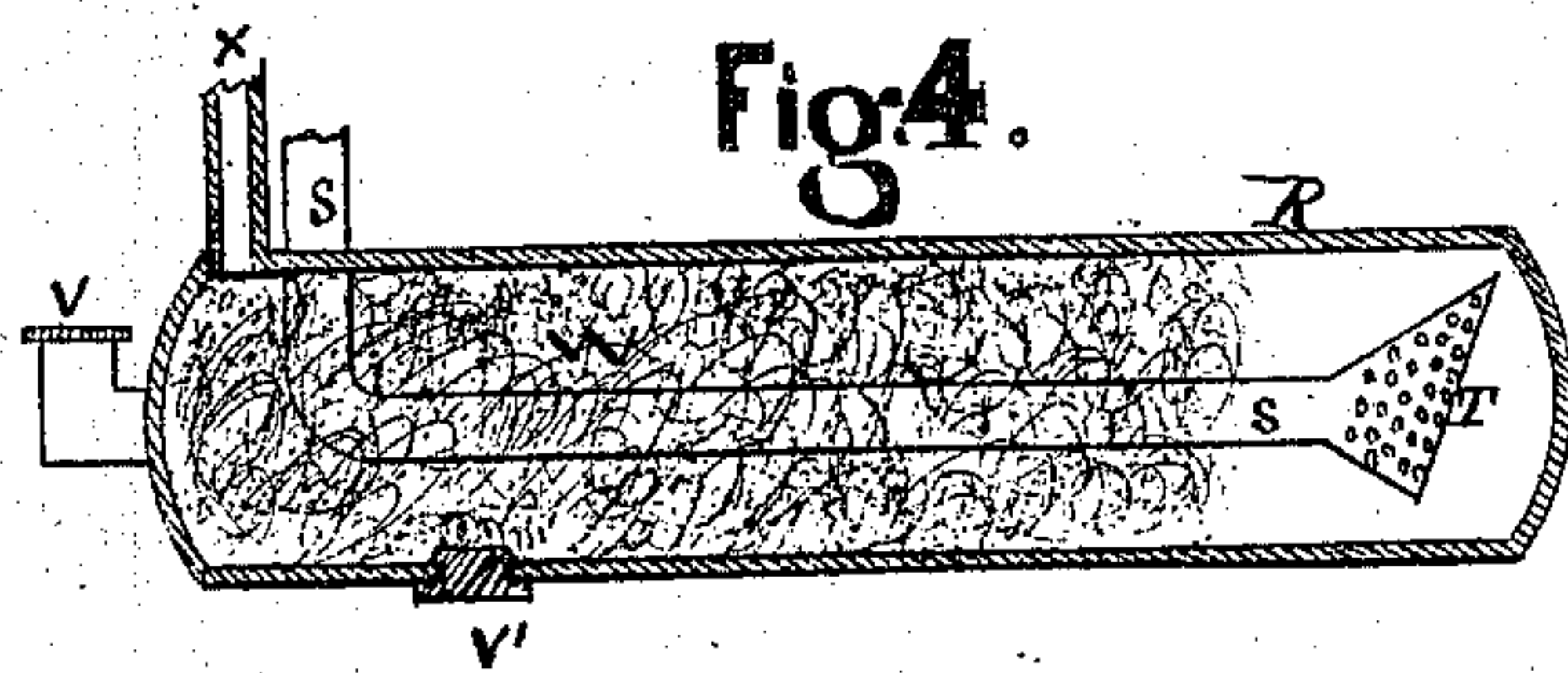


Fig. 4.



Witnesses { *Edw. Brown*
Jos. Raby

Joseph S. Wood.

United States Patent Office.

JOSEPH S. WOOD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND JOHN J. CARBERRY, OF SAME PLACE.

Letters Patent No. 105,757, dated July 26, 1870.

IMPROVEMENT IN GAS APPARATUS FOR RAILROAD CARS, &c.

The Schedule referred to in these Letters Patent and making part of the same

I, JOSEPH S. WOOD, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improved "Gas Apparatus for Railroad Cars," of which the following is a specification.

The nature of my invention, which is an improvement on my patent of April 5, 1870, No. 101,558, consists in the construction and arrangement of the machine so as to adapt it to the illumination of railroad or city horse-cars. The machine is in three parts, the upper one containing dilute acid, the lower one having the iron turnings, and the third being the carbureting-tube.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, in which—

Figure 1 is a general elevation of a railroad car, with my apparatus attached.

Figure 2 is a section longitudinally through the car and machine.

Figure 3 is a cross-section through the car.

Figure 4 is a longitudinal section through the carbureter.

A is the railroad car, having secured beneath it the tank B, for dilute sulphuric acid.

This tank is made broad and shallow, and has several plates, C C, suspended from the lid, so as to come within an inch of the bottom.

A passage, *d*, is also left for air, over the plates, and air-holes are placed in the lid.

These plates divide the tank up into so many separate cells, E, which prevent the liquid serging from end to end with the motion of the car.

Sufficient opening is made in each plate, or left beneath it, so that the liquid may maintain the same level in all the cells.

The tank is filled through inlet *V*.

Beneath this, or at a lower level, is the horizontal vessel G, about two feet in diameter and six feet long.

It has a plug or door, H, at one end, through which the perforated tubular basket K, which contains the iron filings, is inserted.

This basket is steadied from rolling about from the motion of the car by the perforated sheath M secured inside.

N is a mud-plug, through which the oxide and sediment are withdrawn.

From the bottom of the tank B passes the circulating pipe P, which enters the bottom of the cylinder G, so that the dilute acid escapes from it below the level of the basket K.

A stop-cock, *p*, is placed in this pipe.

R is the carbureting-tube, which is packed with saturated wick or sponge, W.

A pipe, S, passes from the top of the cylinder G into the top of the tube R, and then along the inside, centrally terminating in a rose, T.

V is the inlet through which the tube R is filled with gasoline, which is afterward drawn off through the plug *V*, leaving the sponge saturated with gasoline.

The operation of the machine is in this manner:

The cock *p* being opened, the dilute acid descends the pipe P, and comes in contact with the iron turnings in the basket K, generating hydrogen gas, which escapes up the pipe S into the carbureter R, passing out at the rose T, and backward through all the saturated sponge, and out at the pipe X to pipes and gas-burners in the railroad car.

The machine itself regulates the quantity of gas made, by means of the circulating pipe P. As soon as too much gas is made, the pressure forces the liquid up the pipe P into the tank B out of contact with the iron-turnings, where it remains until the pressure is decreased, when it again descends. The cock *p* can be shut off when the machine is not in operation; and, also, when the liquid is all in the upper tank, B, it may be shut off and the liquid retained there, while the basket K is refilled, and the sediment removed.

Thus not only is the proper pressure maintained, but the liquid in contact with the iron-turnings is being constantly changed.

I do not claim the arrangement of an air-carbureter beneath or outside a railroad car, as that was made and used before the date of my invention.

My invention relates to modifications in the apparatus for generating and carbureting hydrogen gas, which modifications adapt the apparatus for use beneath railroad cars, and for other analogous uses and places.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Constructing the cylinder G and basket K of a horizontal tubular form, so that the said basket is inserted and withdrawn from the end of the cylinder, so as to adapt the hydrogen-gas generator to its position beneath railway cars, as herein described.

2. The tank B, with a series of dividing-plates, C, for the purpose herein described.

3. The combination and arrangement of the tank B, the horizontal cylinder G, tubular basket K, and circulating pipe P, for the purpose herein described.

4. The arrangement of the horizontal tube R, with inside pipe S, surrounded with saturated packing W, so that the hydrogen gas passes out at the end T, and passes backward through the packing and out at pipe X, in the manner and for the purpose herein described.

JOSEPH S. WOOD.

Witnesses:

EDWD. BROWN,
JOS. RABY.