

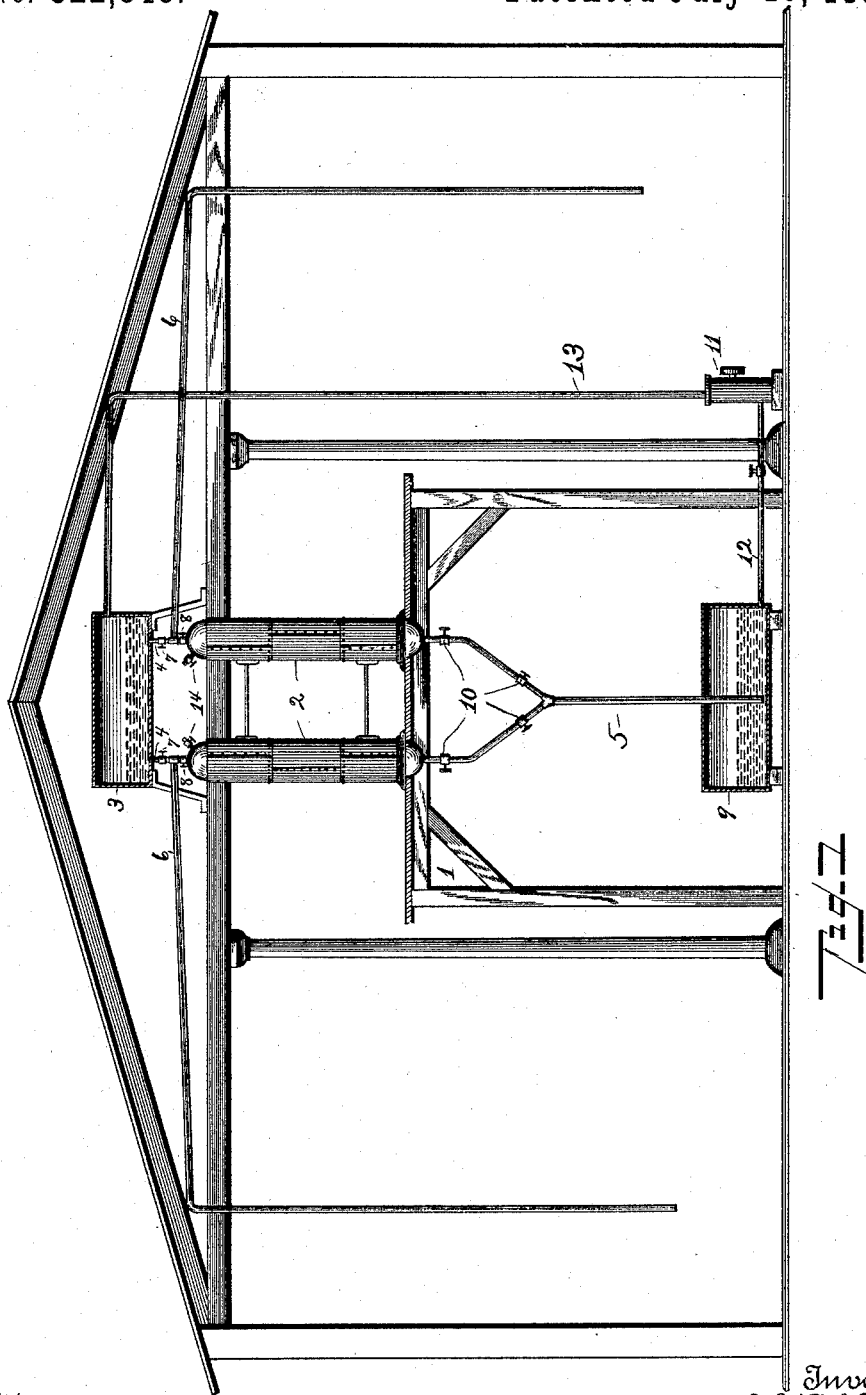
(No Model.)

2 Sheets—Sheet 1.

W. F. M. McCARTY.  
APPARATUS FOR CREATING A VACUUM.

No. 522,848.

Patented July 10, 1894.



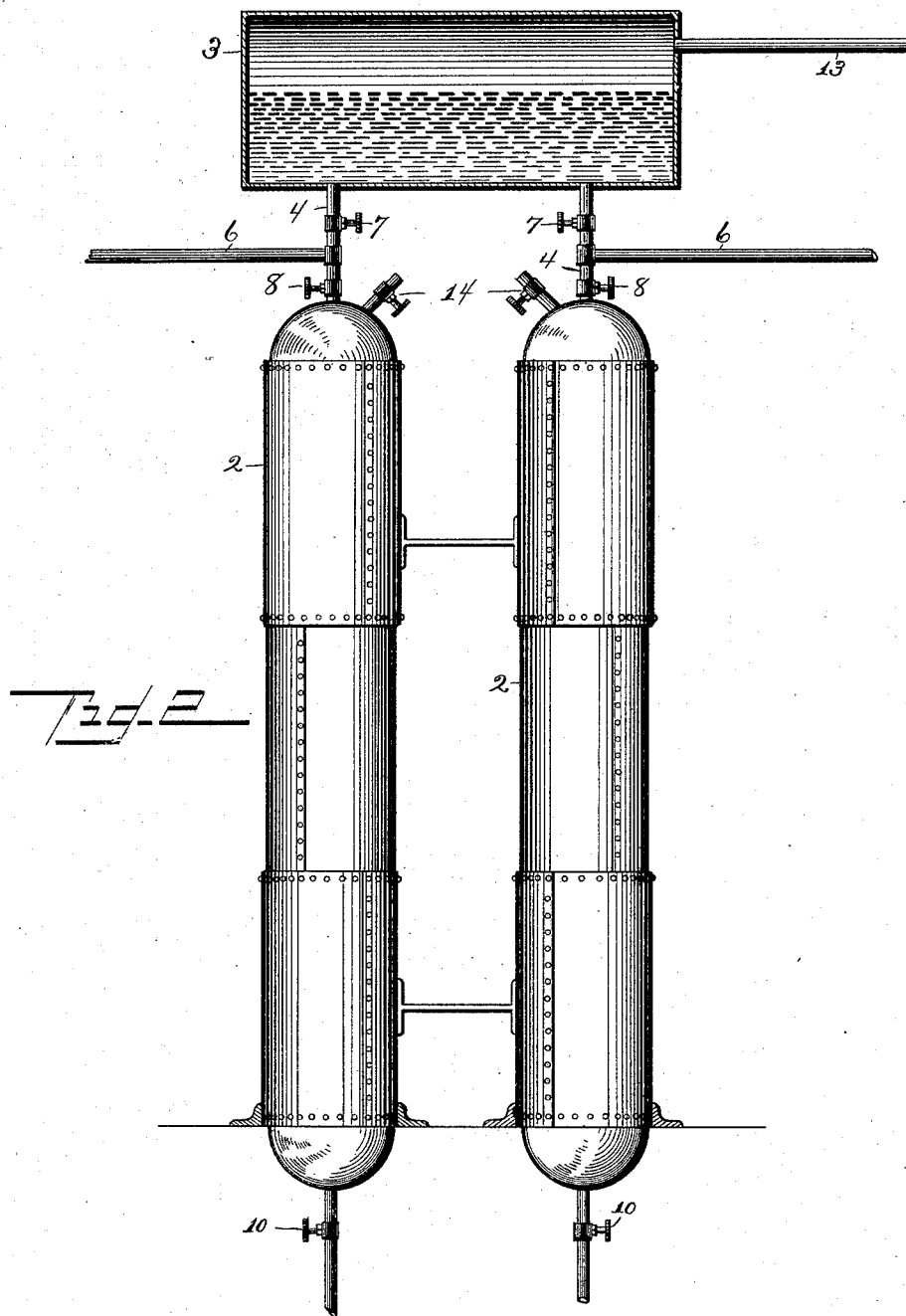
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# UNITED STATES PATENT OFFICE.

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ASSIGNOR TO JOHN W. FLETCHER, OF BOSTON, MASSACHUSETTS.

## APPARATUS FOR CREATING A VACUUM.

SPECIFICATION forming part of Letters Patent No. 522,848, dated July 10, 1894.

Application filed February 9, 1893. Serial No. 461,604. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM FITZCHARLES MASON McCARTY, of Hagerstown, county of Washington, and State of Maryland, have invented a certain new and useful Apparatus for Creating a Vacuum, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce a machine through whose agency a practically complete vacuum may be procured quickly and cheaply without the use of direct acting pumps with valves or seals.

In my device I employ vacuum reservoirs of comparatively large dimensions in combination with tubes or ducts of comparatively smaller dimensions, using metallic quicksilver to make an air-tight seal therein. For example I employ two vertical cylinders six feet high and fifteen inches in diameter, and connect them with tubes one inch in diameter, the area of the cylinders being one hundred and seventy-six and seventy-one one-hundredths, and that of the tubes being nineteen and sixty-three ten-thousandths of an inch. The excess of pressure of the quicksilver in the cylinder will be about sixty times its pressure in the tube. Consequently as the quicksilver passes out of the cylinder through the tube a perfect vacuum will be produced behind the quicksilver in the cylinder.

In the accompanying drawings, Figure 1 is a side elevation of a building containing my apparatus; and Fig. 2 is a view showing the cylinders or reservoirs and tank enlarged.

Referring to the figures on the drawings, 1 indicates a platform of suitable dimensions, form, and construction.

2 indicates a cylinder or reservoir of suitable dimensions constructed in such a manner as to be capable of resisting great pressure and to be absolutely air-tight. In practice I employ more than one of these cylinders, as for example a pair, illustrated in the drawings.

3 indicates a supply tank and 4 pipes connecting each of the reservoirs with the supply tank.

6 indicates a pipe leading from each of the pipes 4 to any part of the building and by

which the vacuum apparatus may be put to practical use, as for example in exhausting the bulbs for incandescent electric lights, or for other purpose.

7 indicates a valve controlling the flow in the pipe 4 above the pipe 6, and 8 indicates a similar valve controlling the flow through the pipe 4 below the pipe 6.

9 indicates a receiving tank, and 5 a small discharge pipe, tube, or duct which, where more than one reservoir is used, is bifurcated, as illustrated, and is connected with the bottom of each of the reservoirs, and which, entering the receiving tank, terminates therein near its bottom.

10 indicates valves controlling the flow through the pipe 5.

11 indicates a pump communicating, as by pipes 12 and 13, with the receiving and supply tanks, and which is adapted to lift the mercury from the receiving tank after it has performed its office into the supply tank for repeating the operation of my apparatus.

14 indicates air cocks in the top of the reservoirs, projecting respectively above the valves 8 and adapted to quickly let off the air from the reservoirs while they are being filled, and to allow the mercury to rise above the valve 8.

In operating my device I fill the reservoirs 2 with mercury from the tank 3 through the pipes 4, the valves 7 and 8 being opened for that purpose using preferably about two tons to each reservoir until the quicksilver rises above the valve 8 and escapes through the cock 14. The valves 7 and 8 and the cock 14 are then tightly closed. The valves 10 are then opened and the mercury allowed to escape into the receiving tank 9. As the mercury passes out of the reservoir through the small pipe 5 it creates a perfect vacuum in the reservoir, which may be utilized as above suggested, through the pipes 6. When the mercury passes into the receiving tank it may be conveyed thence by means of the pump 11 into the tank 3, whence it may be drawn off through the pipes 4 into the reservoirs, the valves 7 and 8 being opened for that purpose to repeat the operation above described.

While I have shown and described a par-

ticular form for carrying out my invention, I do not desire to limit myself thereto, but wish to reserve the right to deviate therefrom at will within the scope of my invention.

5 What I claim is—

10 In an apparatus for creating a vacuum for the purpose specified, the combination with a plurality of reservoirs, supply tank there-  
above, separate independent supply pipes 4  
connecting the top of the reservoirs with the  
bottom of the supply tank, two valves 7 and  
8 in the pipes 4, service pipes 6 communicat-  
ing with the pipes 4 between the valves 7 and  
8, and air cocks 14 in the top of the reservoirs,

of a receiving tank, a common discharge pipe 15  
5 discharging therein, separate independent  
valve controlled discharge pipes connecting  
the bottom of the reservoirs with the common  
discharge pipe 5, and a pump operatively con-  
nected with the supply and receiving tanks, 20  
all co-operating as and for the purpose speci-  
fied.

In testimony of all which I have hereunto  
subscribed my name.

WILLIAM FITZCHARLES MASON McCARTY.

Witnesses:

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C. W. EMBRY.