

JAMES M. MOREHEAD.
Steam Vacuum-Pumps.

No. 126,898.

Patented May 21, 1872.

Fig. 1.

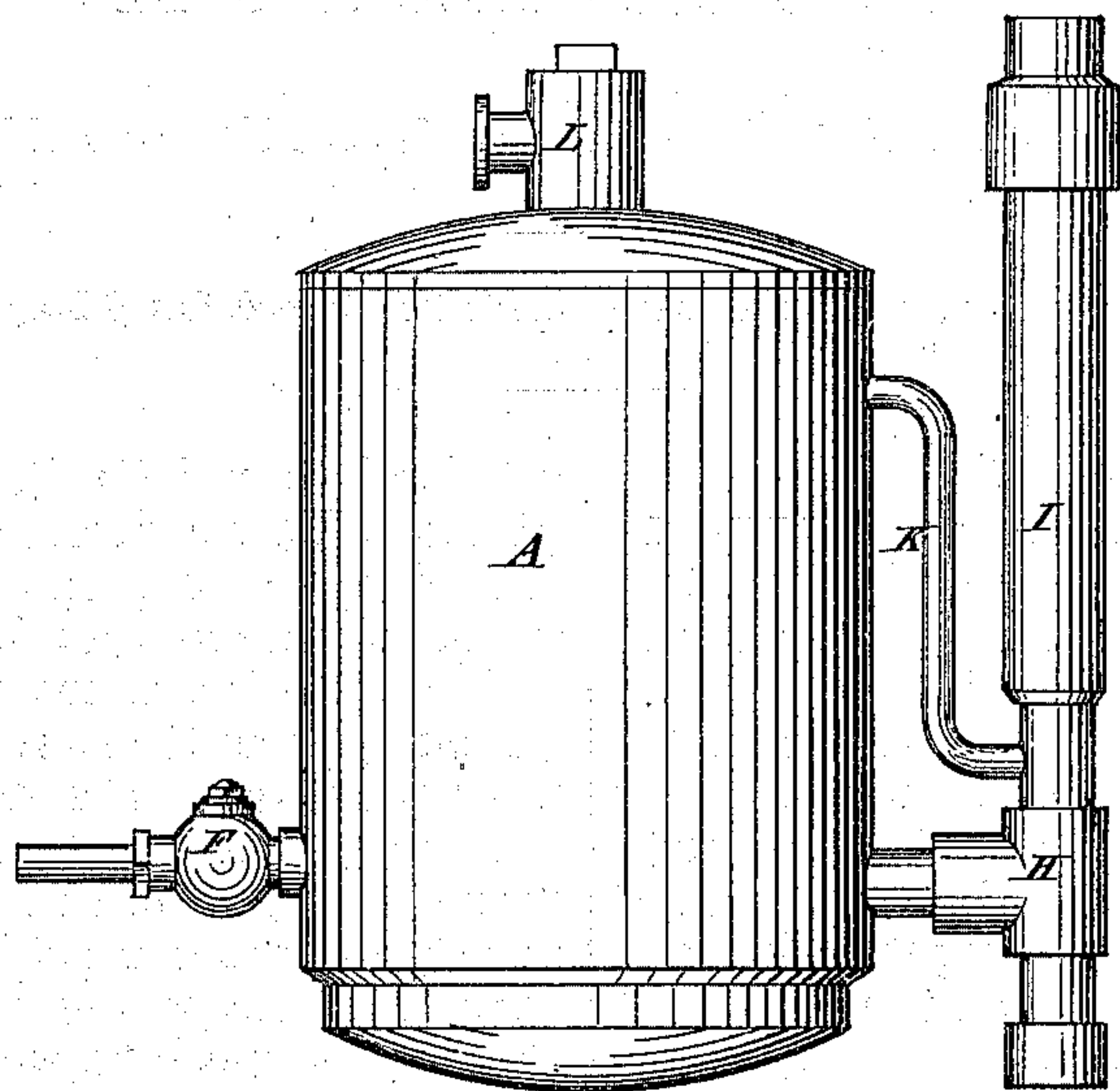


Fig. 2.

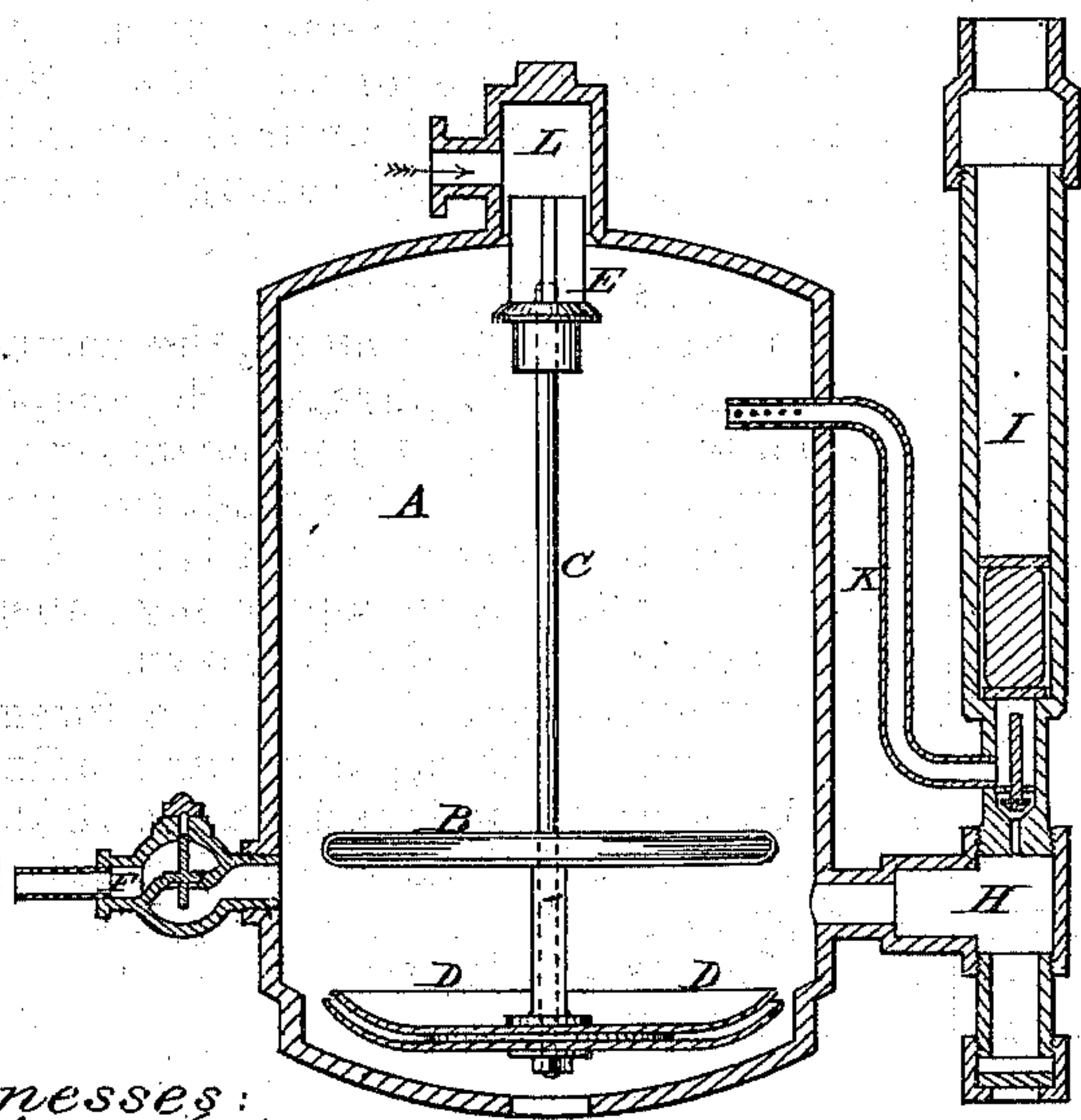
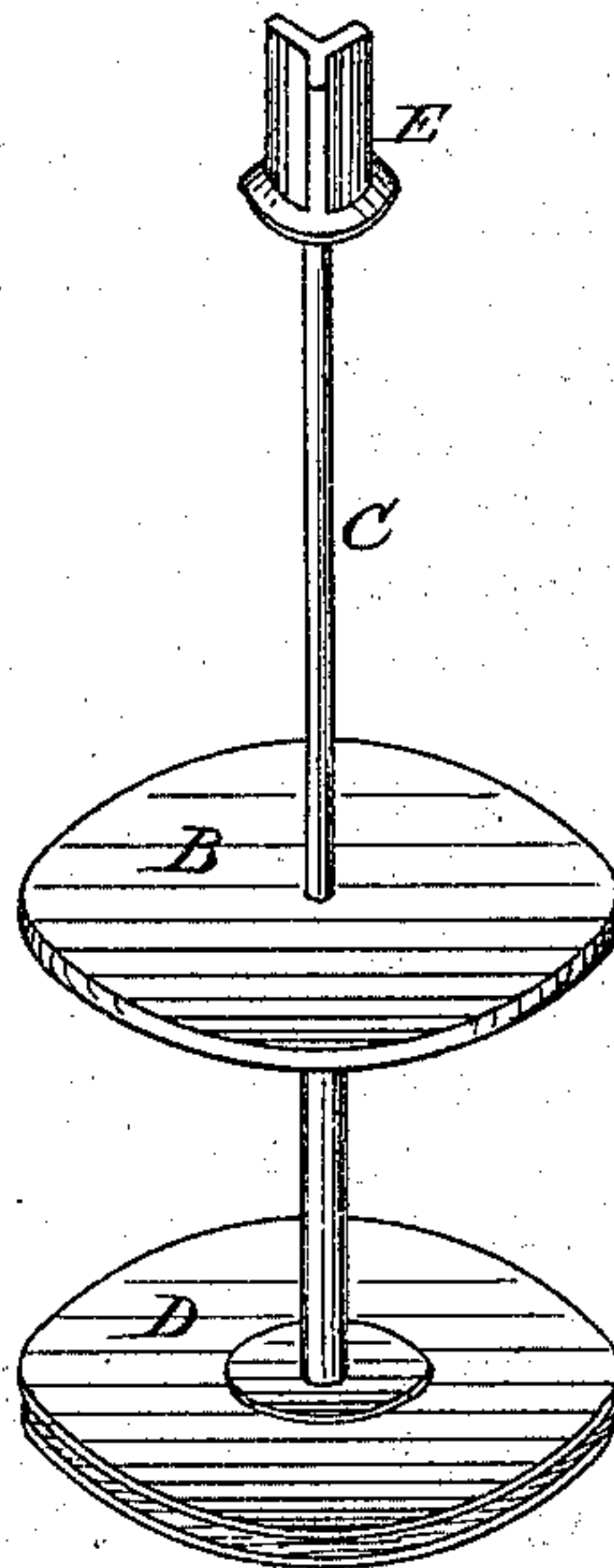


Fig. 3.



Witnesses:

S. M. Poole
John Williams

Inventor:

James M. Morehead
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

JAMES M. MOREHEAD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEAM VACUUM-PUMPS.

Specification forming part of Letters Patent No. 126,898, dated May 21, 1872.

SPECIFICATION.

Be it known that I, JAMES M. MOREHEAD, of the city of Brooklyn, county of Kings, State of New York, have invented an Improvement in Steam Vacuum-Pumps; and do hereby declare that the following description, taken in connection with the accompanying drawing hereinafter referred to, forms a full specification of the same.

My invention consists in making steam-pumps with a metallic diaphragm attached to a rod extending through the center of the cylinder of the pump. This diaphragm is composed of two metallic plates or disks, made so as to allow a small space or chamber between them. They are then soldered or brazed together at their outside edges, the space or chamber being filled with water or other expansive fluid and hermetically sealed. In the upper part of the cylinder, and attached to the top of the rod, is a valve, which operates so as to close the steam-port in top of cylinder. In connection with the metallic diaphragm is another diaphragm at the bottom end of the cylinder, and attached to the said rod, and operated by atmospheric pressure connected with the cylinder, is a discharge-pipe and a suction-pipe; also, an open tube for holding water, and an injection-pipe.

In the accompanying drawing, which illustrates my invention and forms a part of the specification thereof, in which corresponding parts are illustrated by similar letters—

Figure 1 is a side view of my improved steam vacuum-pump. Fig. 2 is a sectional view of the same. Fig. 3 is a detail view, showing my improvement.

In the drawing, A is the cylinder; B, the metallic diaphragm; C, the rod which extends through the cylinder A; E, the valve that is

attached to rod C; D, the atmospheric diaphragm; F, the discharge-pipe; H, the suction-pipe; I, the open tube for holding water; K, the injection-pipe; L, the steam-port.

The operation of my improved steam vacuum-pump is as follows: The cylinder A being filled with water, the steam enters the steam-port L and passes into the cylinder A, which forces the water out at the discharge-pipe F, and, coming in contact with the metallic diaphragm B, heats the fluid contained in the chamber or space between the plates or disks composing the diaphragm B, which, by its expansion, raises the rod C, carrying with it the valve E and closing the steam-port L, (see Fig. 2,) thereby forming a partial vacuum. The water in the open tube I is then forced, by atmospheric pressure through the small injection-pipe K, in jets into the cylinder A, thus forming a complete vacuum. The lower diaphragm D now being acted upon by atmospheric pressure rises up and holds the valve E tightly in its place until the cylinder A is again filled with water through the suction-pipe H.

I claim as my invention—

In a steam vacuum-pump, the combination of the metallic diaphragm B, composed of two plates or disks, with its chamber or space filled with any expansive fluid, the rod C, atmospheric diaphragm D, and valve E, all constructed, arranged, and operating substantially as herein described and shown.

In testimony that I claim the foregoing I have hereunto set my hand and affixed my seal this 4th day of March, A. D. 1872.

JAMES M. MOREHEAD. [L. S.]

In presence of—

LOUIS W. FROST,
CHARLES G. COE.