

(No Model.)

J. E. MAYNADIER.

PUMP.

No. 249,652:

Patented Nov. 15, 1881.

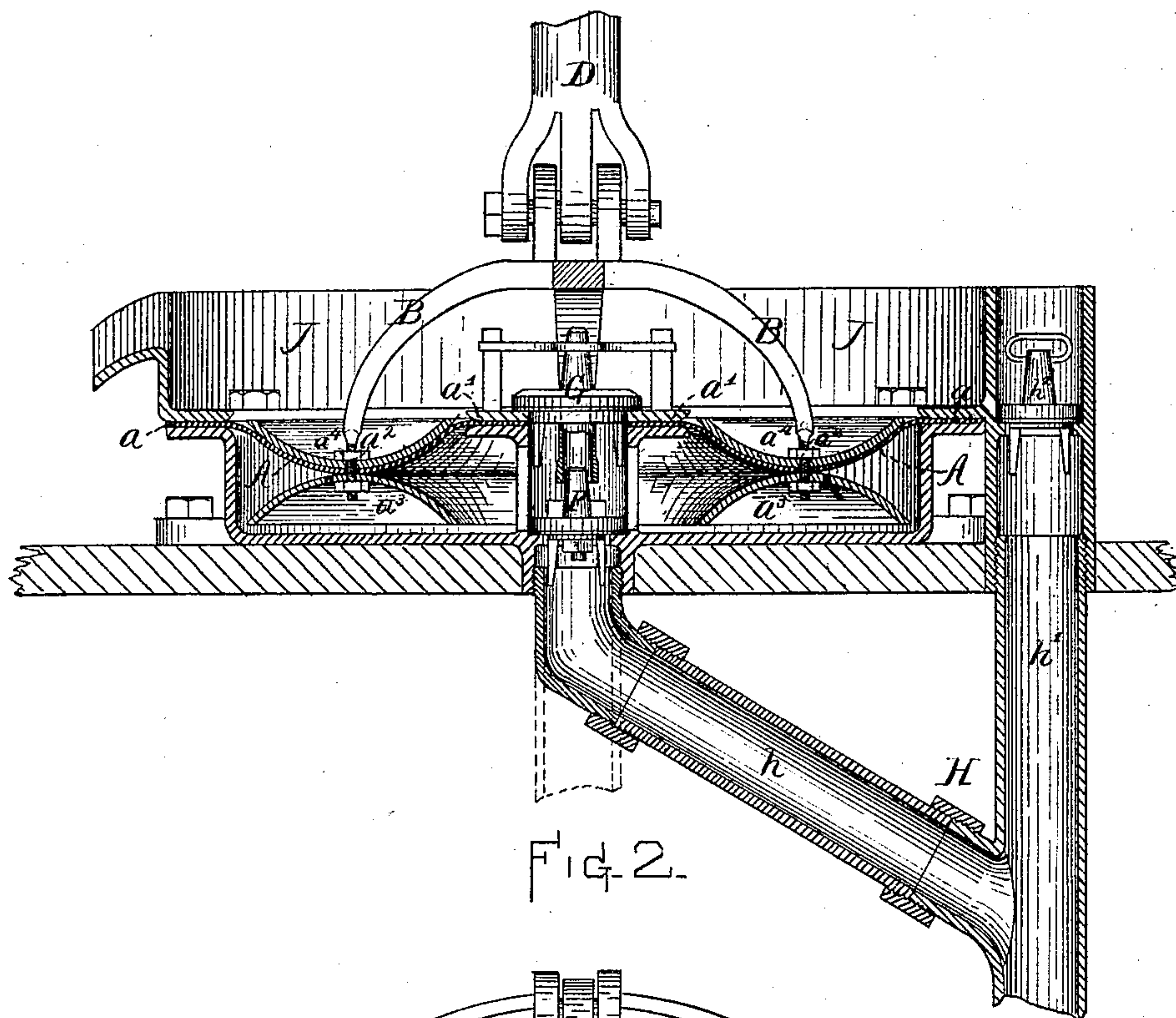


Fig. 2.

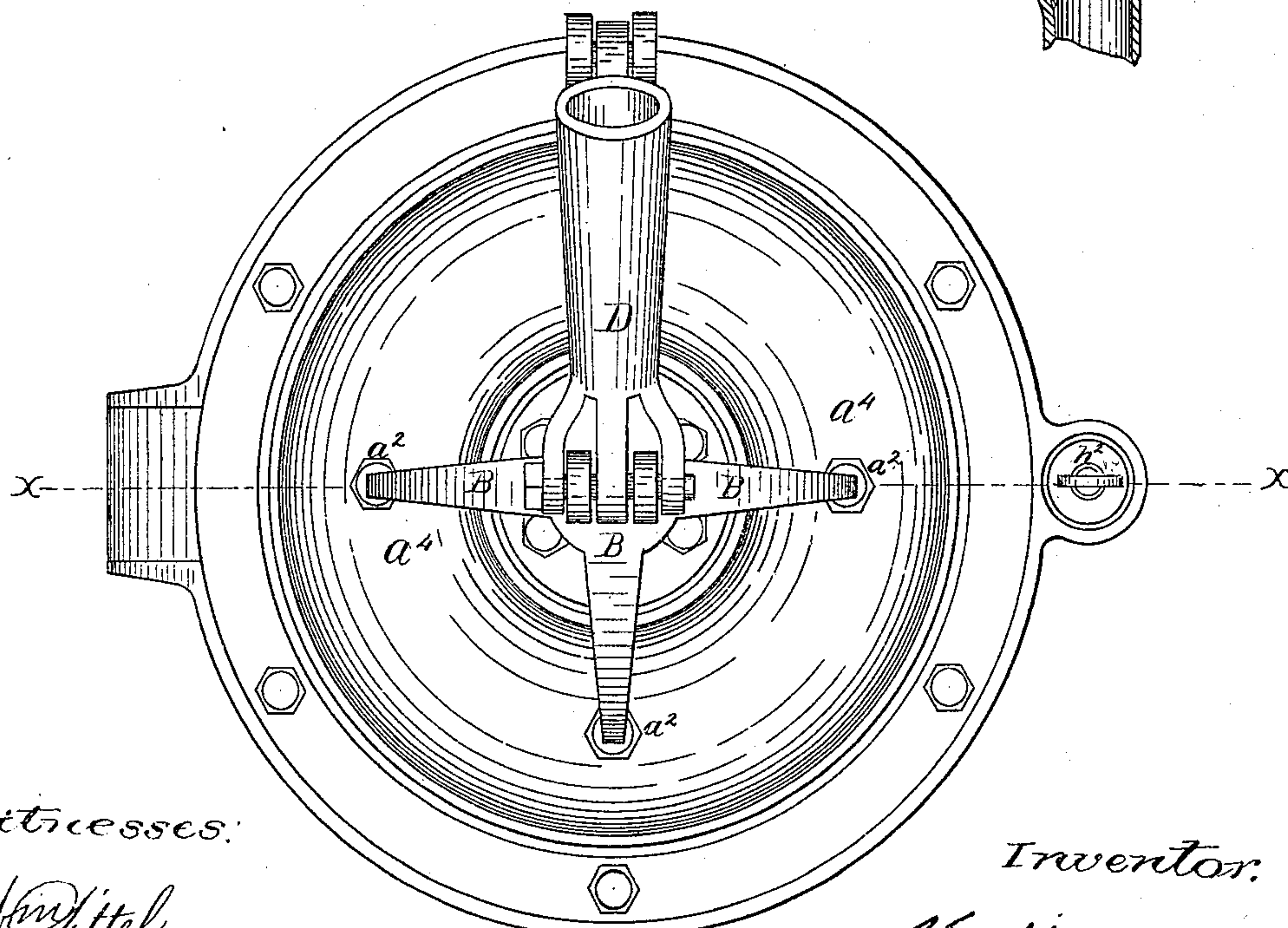


Fig. 1.

Witnesses:

Wm. Fittell.
J. R. Snow.

Inventor:

J. E. Maynard

UNITED STATES PATENT OFFICE.

JAMES E. MAYNADIER, OF TAUNTON, ASSIGNOR TO SAMUEL C. LOUD,
OF BOSTON, MASSACHUSETTS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 249,652, dated November 15, 1881.

Application filed February 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. MAYNADIER, of Taunton, in the county of Bristol and State of Massachusetts, have invented a certain new and useful Improvement in Pumps, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a plan of a pump embodying my invention. Fig. 2 is a section on line *xx* of Fig. 1.

The pump shown in the drawings is a diaphragm-pump, and is designed especially for use on shipboard, my invention being an improvement on the ship's pump patented to Eels and Loud in Patent No. 180,757, dated August 8, 1876.

The main feature of my invention consists in a novel arrangement of the diaphragm with relation to the pump chamber and brake, fully described below.

Another feature of my invention consists in the peculiar arrangement of the forked uptake with relation to the pump-chamber and the discharge-chamber, which is also fully described below.

In the drawings, A is the diaphragm, secured in the usual way at its circumference *a*, but also secured at *a'*, and having the connector B secured to it at *a*², (instead of at *a'*, or at the center, as in diaphragm-pumps heretofore made.) The connector B serves to connect the diaphragm with the pump-brake D, as will be clear without further description.

The washers *a*³ and *a*⁴ serve to connect the diaphragm A with the connector B, and the lower one, *a*³, supports the diaphragm against the pressure of the atmosphere on the upstroke, the upper one, *a*⁴, supporting the diaphragm on the downstroke. The lower one should be perforated to prevent air being retained in it, and the upper one may also be perforated to allow water to drain out of it when the pump is not in use. This part of my invention is applicable to all diaphragm-pumps. I prefer to arrange the valves F and G as shown in the drawings; but the valve-chamber and valves may be at one

side of the pump-chamber, as in the Eels and Loud patent above mentioned.

The uptake H is forked at its upper end, one fork, *h*, supplying the pump-chamber, the other, *h'*, being covered with a valve, *h*². The purpose of this is to enable the uptake to be readily opened, as is often desirable for sounding purposes.

In order to get a water-packing on valve *h*², I connect the upper end of fork *h'* with the discharge-chamber J of the pump, so that it may be always covered with water.

The uptake in many pumps is directly in line with the pump-valves F and G, and so it may be in my pump, as indicated by dotted lines in Fig. 2; but in that case both valves F and G must be removed to open the uptake H.

The operation is as follows: In Fig. 2 the pump is shown in its position after the downstroke of the diaphragm is just completed. During the upstroke of the diaphragm the annular washer *a*³ is borne against the diaphragm, which is held down by atmospheric pressure and carries the diaphragm up with it against the atmospheric pressure, the diaphragm being in the same relation with washer *a*³ at the end of the upstroke as it is with washer *a*⁴ at the end of the downstroke, as shown in Fig. 2, and washer *a*⁴ being in the same relation with the diaphragm at the end of the upstroke as washer *a*³ is at the end of the downstroke. The partial vacuum produced by the upstroke of the diaphragm causes water to flow through valve F, the atmospheric pressure keeping valve G on its seat. During the downstroke of the diaphragm the valve F is held on its seat by the pressure of the water in the pump-chamber, and this water is forced to flow through valve G into the discharge-chamber J, from which the water flows from the discharge-chamber J through the mouth. (Shown on the left of Figs. 1 and 2.)

I am aware of English patent No. 455 of 1853, to John Smith, and disclaim all that is shown therein.

What I claim as my invention is—

1. In a diaphragm-pump, the diaphragm A, held both at its circumference a and at its central part, a' , and connected at a^2 with the brake, as set forth.

5 2. The forked uptake H, with one fork, h , leading to the pump-chamber, and the other fork, h' , covered by valve h^2 , and arranged as

shown with relation to discharge-chamber J, so that the valve h^2 is kept covered with water while the pump is in use.

J. E. MAYNADIER.

Witnesses:

W. A. COPELAND,

J. R. SNOW.