

(No Model.)

H. Q. FRENCH & G. G. SHENTON.

DOUBLE ACTING PUMP.

No. 271,829.

Patented Feb. 6, 1883.

Fig. 1.

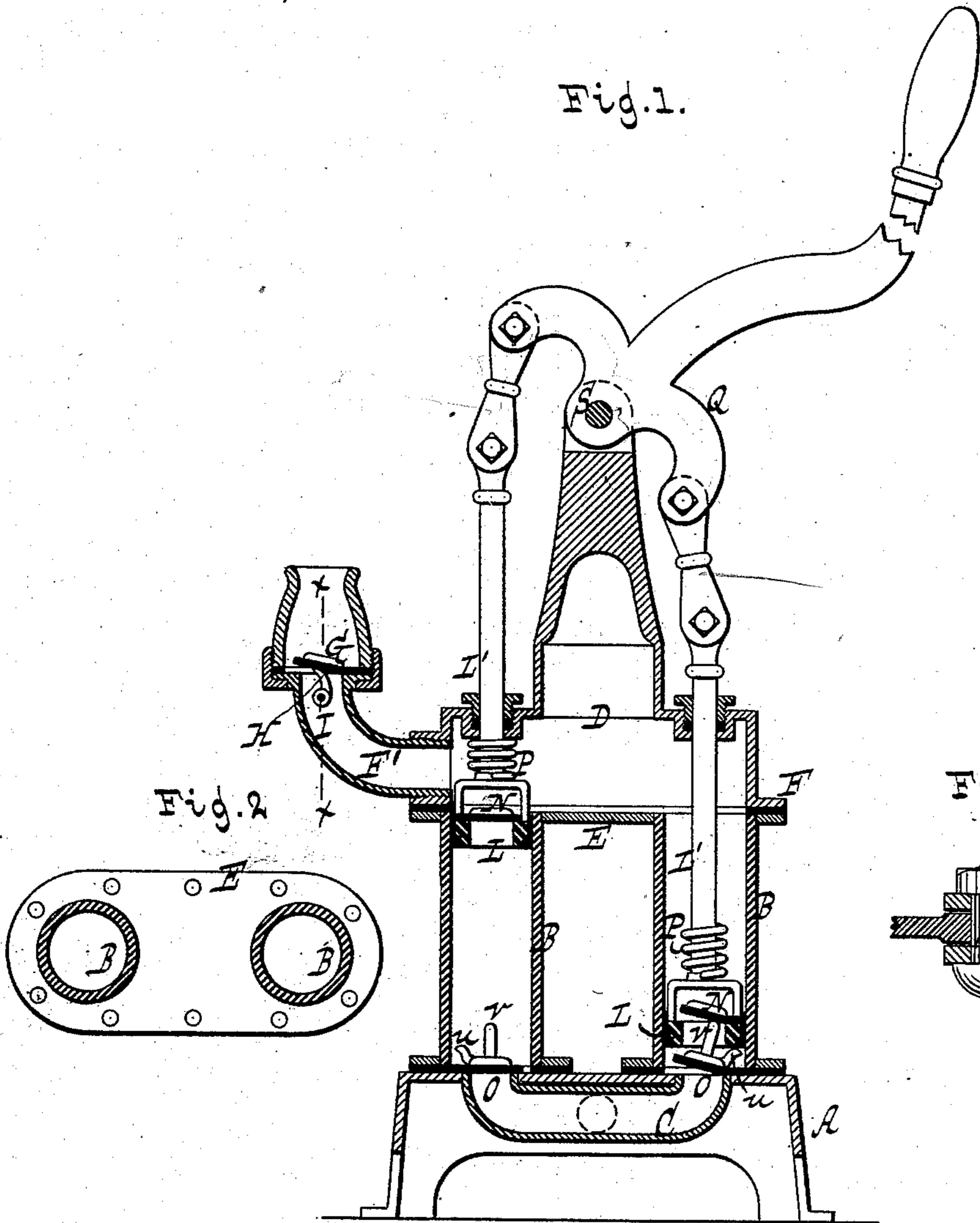


Fig. 2.

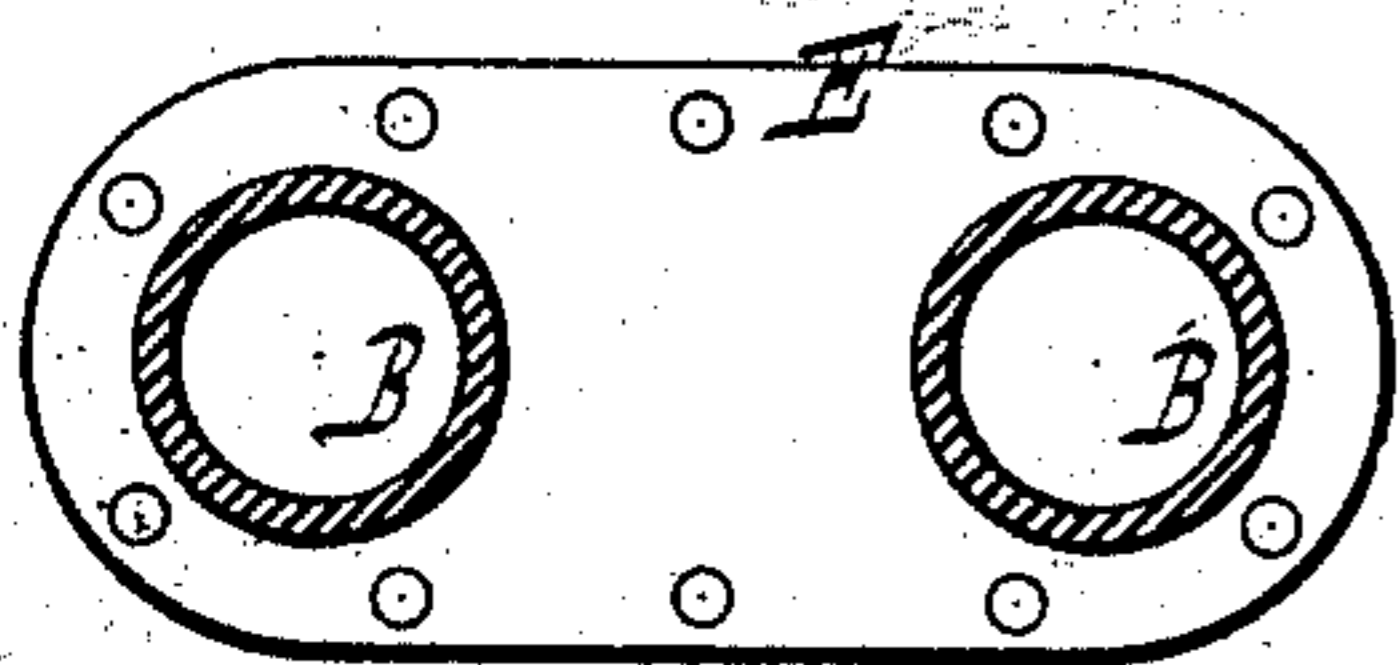


Fig. 4.

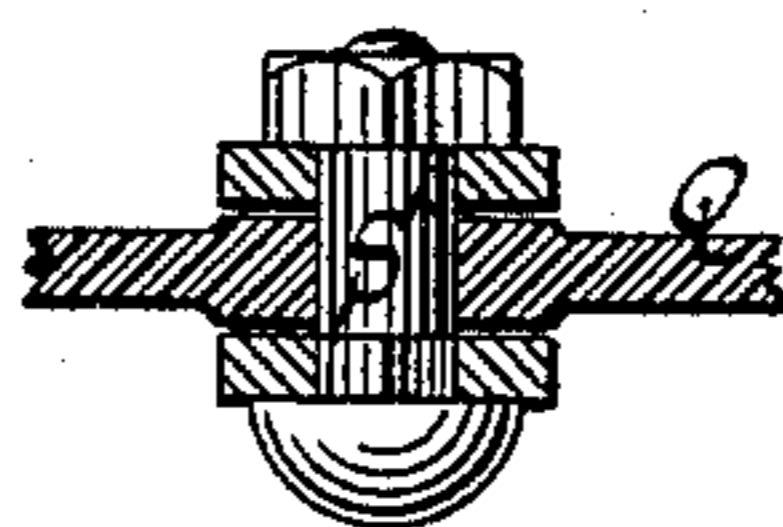
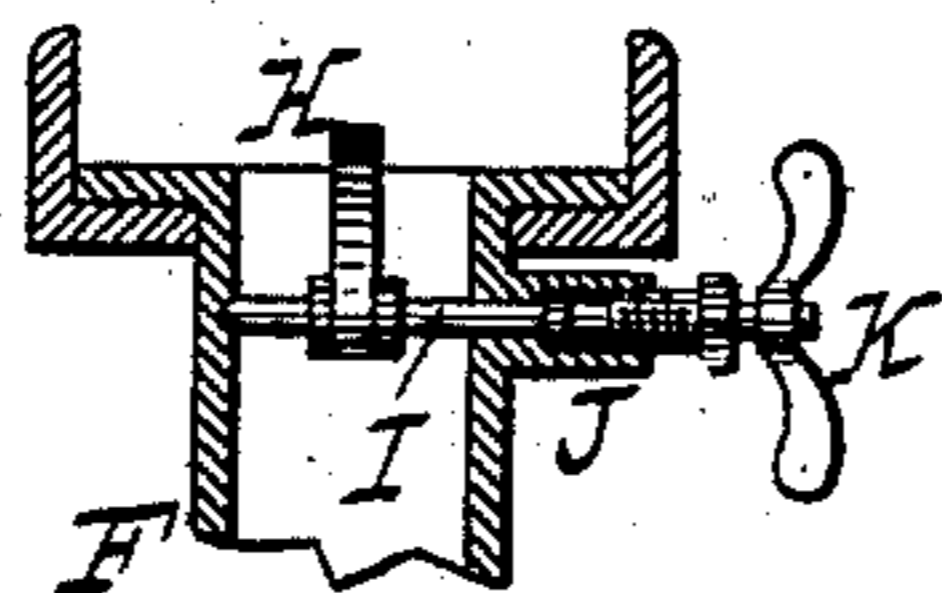


Fig. 3.



WITNESSES:

Chas. Wahlers.
William Miller

INVENTORS

Hamline Q. French &
George G. Shenton

BY

Van Santvoord & Hunt

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HAMLIN Q. FRENCH, OF PELHAM MANOR, AND GEORGE G. SHENTON, OF
BROOKLYN, N. Y.; SAID SHENTON ASSIGNOR TO SAID FRENCH.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 271,829, dated February 6, 1883.

Application filed April 27, 1882. (No model.)

To all whom it may concern:

Be it known that we, HAMLIN Q. FRENCH, a citizen of the United States, residing at Pelham Manor, in the county of Westchester and State of New York, and GEORGE G. SHENTON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Double-Acting Pumps, of which the following is a specification.

This invention relates to double-acting pumps comprising two upright cylinders and an air-chamber at the top of the cylinders, having the latter connected thereto; and it consists in the novel construction and arrangement of parts, hereinafter described, whereby the manufacture of the pumps is simplified or cheapened and a facile and safe arrangement of reacting springs is obtained.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a sectional elevation. Fig. 2 is a horizontal section through the pump-cylinders, looking upward. Fig. 3 is a vertical section on the line *xx*, Fig. 1. Fig. 4 is a detail view of the fulcrum for the plunger-operating beam.

Similar letters indicate corresponding parts.

The letter A designates a base, from which rise the pump-cylinders B, two in number, and in which is arranged a suction-pipe, C, connecting with both cylinders. D indicates the air-chamber. Each of the cylinders B is composed of a seamless drawn tube, so that when it has been cut to the required length it is ready for use and requires no further finish, and for the purpose of connecting the cylinder to the air-chamber D we employ a crown-plate, E, which is common to both cylinders, and which is secured, as by screws, to a flange, F, cast or otherwise attached to the lower edge of the air-chamber, a suitable packing being interposed between the plate and flange. The joints between the cylinders B and crown-plate E are formed by securing the upper ends of the cylinders into suitable openings in the crown-plate in the manner known, as riveting or in any analogous manner.

Prior to our invention it has been common to cast the cylinders B, and hence it is necessary to finish or "true" the same, which obvi-

ously requires considerable labor and skill, whereas by making the cylinders of seamless tubes and using a single connecting or crown plate for both cylinders the labor involved in the manufacture of the pump is reduced to a minimum, and the cost thereof is comparatively reduced.

From the air-chamber D extends a delivery-pipe, F', containing the usual discharge-valve, G, which opens upward. In the old style of pumps no provision is made for opening this valve G other than by the ascending column of water, and, a quantity of the water always remaining in the connections of the delivery-pipe, this water is liable to freeze in cold weather. For the purpose of opening the discharge-valve G and retaining the same in an open position, we make use of a cam, H, which is arranged in the delivery-pipe in such a manner that when it is set to the proper position it acts on the valve to raise the same off from its seat, as indicated in Fig. 1. This cam H is fixed to a shaft, I, which has its bearings in the sides of the delivery-pipe, and one end of which projects outward therefrom through a stuffing-box, and is provided with a finger-button, K.

The pump-plungers L, working in the cylinders B, carry the usual valves, N, and at the lower ends of the cylinders B are arranged the usual suction-valves, O, provided with center pins, *v*, and heels *u*, so that when the plungers are lowered to the fullest extent they strike the valve-heels, and thereby open the suction-valves, while the valve-pins at the same time open the plunger-valves, as indicated on the right-hand side of Fig. 1, whereby the water that may be contained in a pump-cylinder is allowed to discharge. When the extra power applied to bring the plungers L to the extreme positions last referred to is left or taken off, the plungers are brought back to their normal positions by means of reacting springs P—one to each plunger—which are made in the form of spirals, and are coiled on the plunger-rods L' within the pump-cylinders, so that these springs are compressed by the plungers against the top of the air-chamber D, adjacent to the points where the plunger-rods pass through such top, on the upward movement of the plun-

gers—namely, when the additional power is applied. Reacting springs have heretofore been used; but we are not aware that spiral springs have ever been applied to the plunger-rods within the pump-cylinders. By this arrangement of the springs they are kept safe against grit or dust, and are not liable to get out of order, while the expense and labor involved thereby are trifling. The plungers L are connected to and operated by a beam, Q, which has its fulcrum on a pivot, S, and in order to reduce the wear on this pivot we make the same rigid or stationary, as in the manner shown in Fig. 4.

We are aware that an air-vessel has been arranged over and between two pump-cylinders to form the fulcrum of the pump-lever, combined with a water-way connecting the lower ends of the cylinders, and a water-delivery pipe extending from the casing of the air-chamber, said delivery-pipe containing a check-valve, and the pump-cylinders containing valves having vertical pins and heels, so that when the plungers descend they act on the heels of said valves to lift the latter, while the pins on the valves open valves in the plungers. Such, therefore, we do not broadly claim.

We are also aware that a cam has been arranged to lift a valve located in the pipe which delivers the water to the pump-barrel, said

valve, when lifted by the cam, serving to open the valve in the pump-cylinder to permit the water to be emptied therefrom; but such is not our invention.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore set forth, of the pump-cylinders composed of seamless drawn tubes, the independent crown-plate having orifices in which the upper ends of the cylinders are secured, and the air-chamber constructed with a flange upon its lower or free edge, having secured thereto the crown-plate, for the purpose of connecting the cylinders to the air-chamber.

2. The combination, substantially as hereinbefore set forth, of the plungers, the plunger-rods, and the coiled springs, one coiled around each plunger-rod within the pump-cylinders to be compressed by the plungers in their upward movement, substantially as described.

In testimony whereof we have hereunto set our hands and seals in the presence of two subscribing witnesses.

HAMLIN Q. FRENCH. [L. S.]
GEO. GEE SHENTON. [L. S.]

Witnesses:

W. HAUFF,
CHAS. WAHLERS.