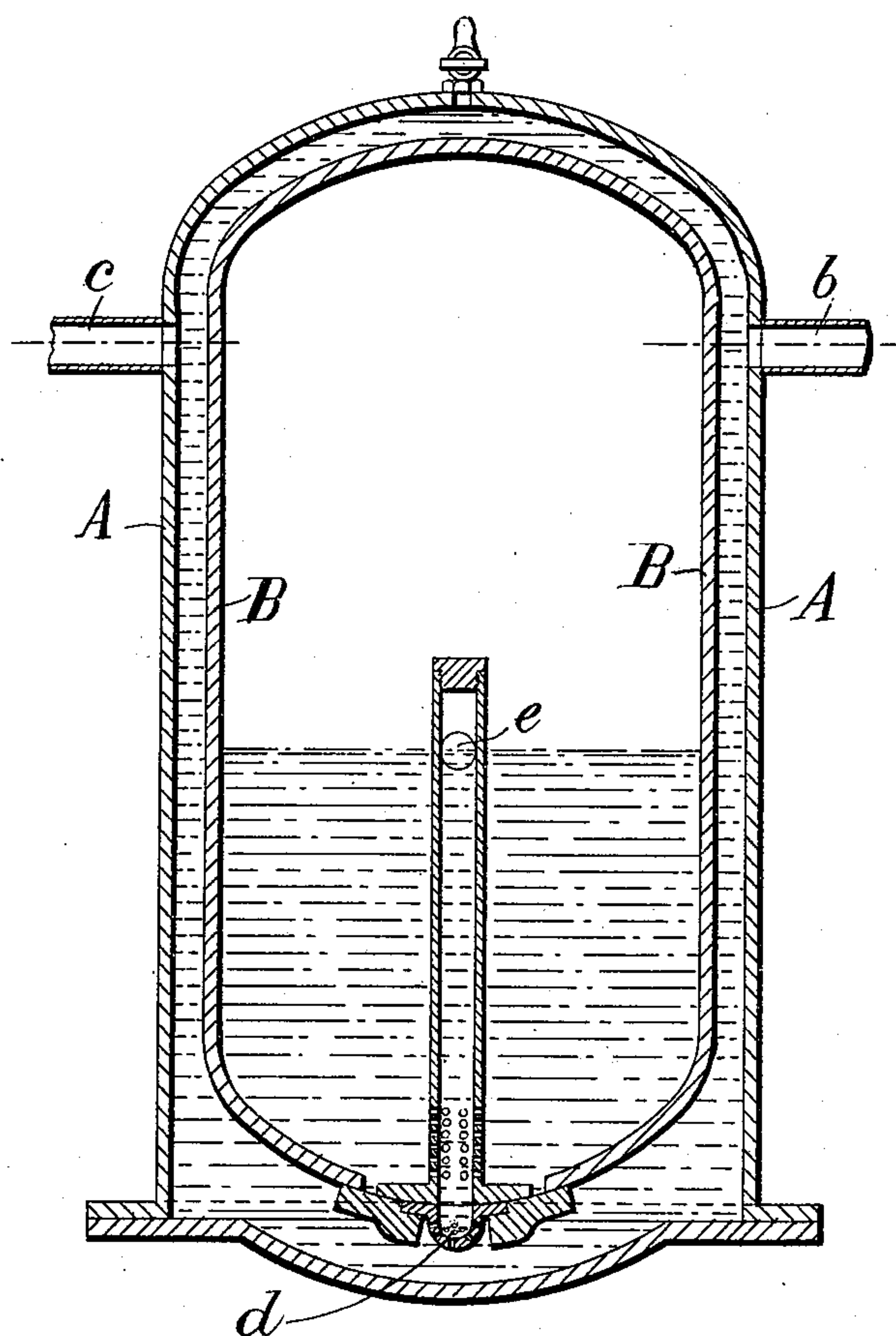


(No Model.)

B., F. & H. HOOKER.
HYDRAULIC AND FLUID PRESSURE ACCUMULATOR.

No. 561,992.

Patented June 16, 1896.



WITNESSES

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UNITED STATES PATENT OFFICE.

BENJAMIN HOOKER, FREDERICK HOOKER, AND HENRY HOOKER, OF
LONDON, ENGLAND.

HYDRAULIC AND FLUID PRESSURE ACCUMULATOR.

SPECIFICATION forming part of Letters Patent No. 561,992, dated June 16, 1896.

Application filed July 31, 1895. Serial No. 557,776. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN HOOKER, FREDERICK HOOKER, and HENRY HOOKER, subjects of the Queen of Great Britain and Ireland, residing at Pear Tree Court, Farringdon Road, London, England, have invented an Improved Hydraulic and Fluid Pressure Accumulator, of which the following is a specification.

Our invention relates to an improved hydraulic or fluid pressure accumulator; and the invention is devised with the object of providing an apparatus of compact form and simple construction for the purpose of accumulating the pressure required for working machines operated by the said agent.

In order that the invention may be readily understood, reference is made to the accompanying drawing, which is a cross-section in a vertical plane of an apparatus constructed in accordance therewith.

The apparatus consists of an outer casing A, which is preferably bell or dome shaped in external appearance, closed at the bottom end, and provided with a pipe *b* for the admission of the water or other liquid employed, and *c* is a similar outlet-pipe.

Within the said casing A is an internal chamber B, preferably of similar shape and having a small opening *d* at its lower end or base adapted to be closed by an internal valve *e*, which is confined within a guide, as shown. The said inner chamber B is permanently charged with air or gas at any pressure which may be desirable, the said air or gas being prevented from escaping by the valve *e* before mentioned.

Liquid is forced into the outer casing A by means of a pump or other source of supply, and when the liquid-pressure in the outer chamber exceeds the gaseous pressure in the inner B the latter pressure is overcome and the liquid enters the inner chamber also, the ball *e*, which is buoyant, floating on the surface of the admitted liquid. When the desired working pressure is obtained in the apparatus, the supply is cut off from the pump to the apparatus by hand or an automatic device or other means. On lowering the pressure within the apparatus by the emission of

the liquid from the outer casing liquid is again forced in until the working pressure is regained. It will be seen, however, that while the whole of the pressure may be removed from the outer casing there still remains a constant pressure in the inner chamber, thereby effecting a great economy of time in raising the pressure necessary for the proper working of the machine or device to which it is connected. It will also be seen that there are no heavily-weighted plungers such as are commonly used in hydraulic-pressure accumulators, the apparatus being portable and of extremely simple construction.

The object of the inner chamber is to prevent the escape of the contained gas, as, being surrounded by liquid and by the outer chamber, the filtration of the gas through the substance of the material (which is continually taking place when a single chamber is used) is entirely obviated, the gaseous pressure remaining constant and not liable to reduction from this cause. Moreover, when in operation the pressure on the water in the outer chamber should not be allowed to fall below the pressure of the gas at which the inner chamber is originally charged, and thus, there being an equivalent pressure on both the outer and inner surfaces of the chamber, there is no effort on the part of the gaseous pressure to escape.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination in a liquid-pressure accumulator of an outer casing, an inner chamber surrounded by water and containing air or gas at a pressure having an opening in its base, a buoyant valve adapted to close said opening and pipes for the admission and emission of the liquid to the outer casing the whole being constructed arranged and operating substantially as described and illustrated.

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Witnesses:

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