

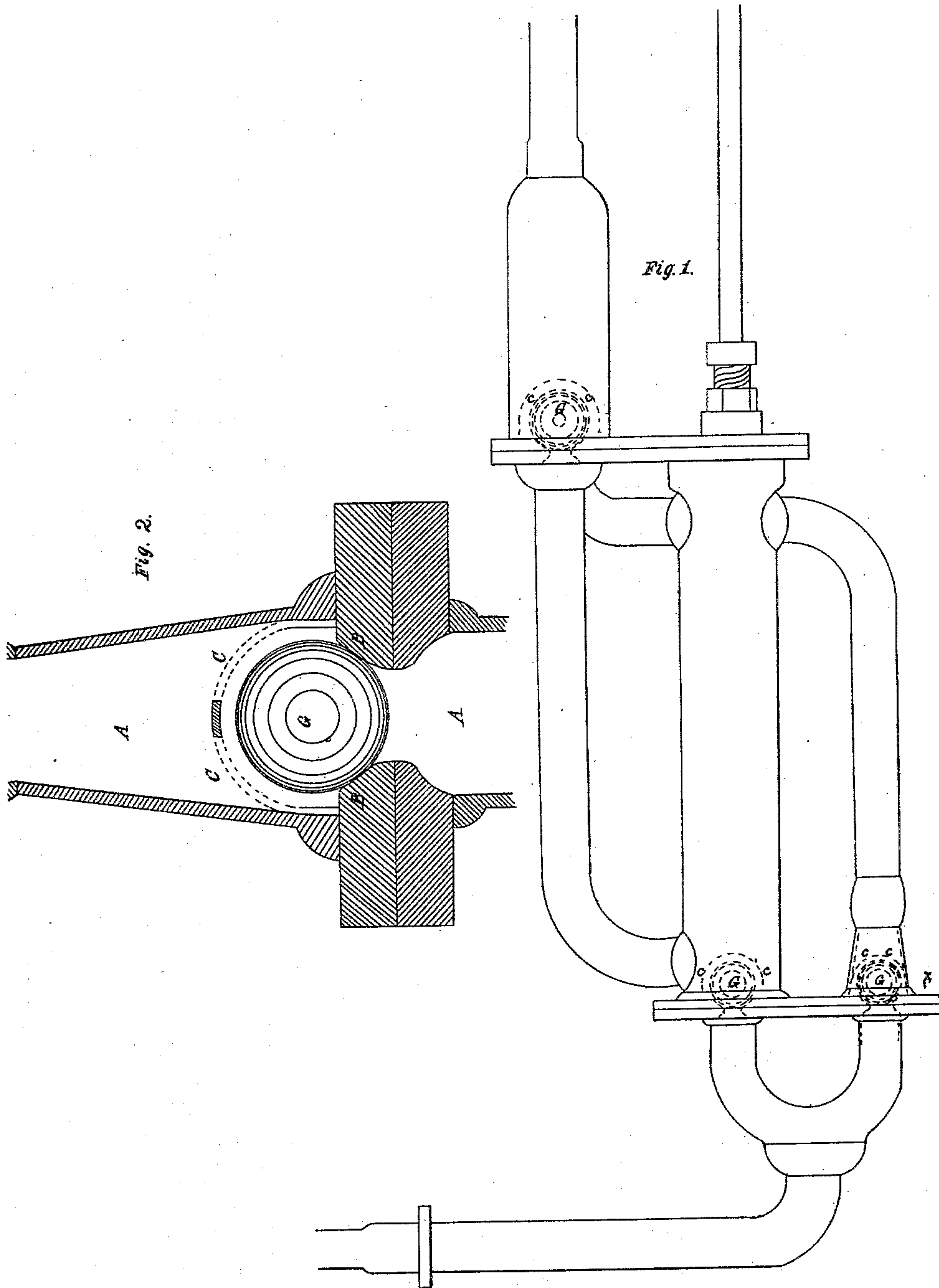
No. 75,335.

PATENTED MAR. 10, 1868.

G. F. WILSON.

APPARATUS FOR CONVEYING ACID PHOSPHATES AND OTHER ACID LIQUIDS.

2 SHEETS—SHEET 1.



WITNESSES.

William Hodge
W. H. H. Gentry.

INVENTOR.

Geo. F. Wilson

No. 75,335.

PATENTED MAR. 10, 1868.

G. F. WILSON.

APPARATUS FOR CONVEYING ACID PHOSPHATES AND OTHER ACID LIQUIDS.

2 SHEETS—SHEET 2.

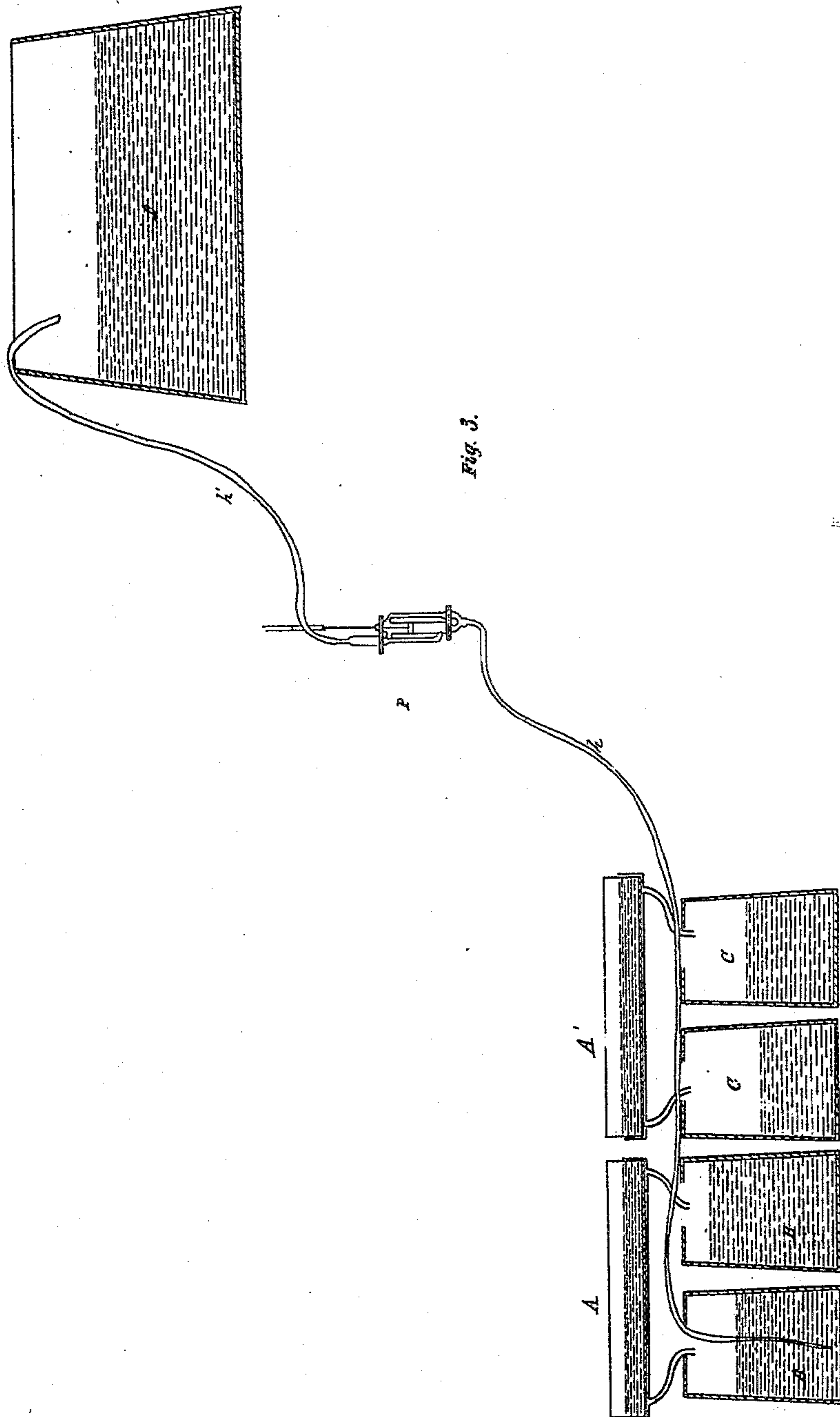


Fig. 3.

WITNESSES.

William Arden
H. H. McGinley

INVENTOR.

United States Patent Office.

GEORGE F. WILSON, OF EAST PROVIDENCE, RHODE ISLAND.

Letters Patent No. 75,335, dated March 10, 1868.

IMPROVEMENT IN APPARATUS FOR CONVEYING ACID PHOSPHATES AND OTHER ACID LIQUIDS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN :

Be it known that I, GEORGE F. WILSON, of East Providence, in the county of Providence, and State of Rhode Island, have invented a new and improved Mode of Conveying Phosphoric Acid Liquor without deterioration; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to provide for the rapid and economical transfer, in large quantities, of acid liquor, without acquisition of impurity from the tanks in which it is received, from the leaches to the distributing-reservoir, or to other receptacles where it is required to be used.

In my early attempts to move the acid liquor, a common ship's pump and wooden troughs or rigid pipes were employed, but with the expansion of the manufacture this became inadequate. Pumps operated by power were required. The corrosion of the ordinary leather and brass valves was so rapid as to render them irregular and leaky, and useless after short service. The necessity of drawing liquor from different tanks, led to the use of suction hose, and this led to the use of hose for distribution, so that the whole pumping and distribution of acid liquor were accomplished by one fixed pump, one suction-hose, and one flexible distribution-pipe. The hose first employed was of leather, secured by brass and copper rivets, but the corrosive action of the acid soon rendered them useless. After many experiments, I found that I was able to transfer this acid liquor by the use of pumps consisting of lead cylinders, with vulcanized elastic spherical rubber or gutta-percha valves, and the hose of vulcanized rubber or gutta percha.

The essential parts of my pump are shown in the accompanying drawings, fig. 1 and fig. 2. It is constructed wholly of lead, except the flanges and their fastenings, and the piston-rod, which may be made of brass, and the valves to be presently described.

Figure 1 represents the form of an ordinary double-action pump, the arrangement and action of piston and valves being the same as those in the ordinary double-action pump.

My improvement consists in the application of vulcanized gutta-percha or rubber valves to pumps, made, as above described, of lead.

Figure 2 illustrates the construction and arrangement of valves, which close when the pressure is downwards, as at *x*, fig. 1.

A, fig. 2, represents a part of the pipe; B B, one of the flanges; G, the globular vulcanized rubber or gutta-percha valve sitting upon its seat, and closing the aperture of the flange at B B. C C represent leaden straps, which limit the distance to which the valve G may be raised from its seat B B, the action of the valve in stopping or permitting the passage of liquid being the same as that of ordinary valves in the same situation.

Figure 3 shows the application of the vulcanized gutta-percha or rubber hose *h h'* to the pump P, for the transfer of acid phosphate liquor from the tanks B B and C C, leached from the leaches A and A', to the reservoir D, where the products of several leaches may be mingled, and rendered of uniform specific gravity.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. My improved pump, constructed of lead and vulcanized rubber or gutta percha, substantially as and for the purpose above specified.

2. Also the application of vulcanized rubber or gutta-percha hose, in combination with the above-described pump, for the transfer of acid phosphate-of-lime liquor, for the purpose above set forth.

GEO. F. WILSON.

Witnesses:

WILLIAM HEDGE,
E. N. HORSEFORD.