(No Model.)

F. H. ROMANS.

PUMP.

No. 504,366. Patented Sept. 5, 1893.

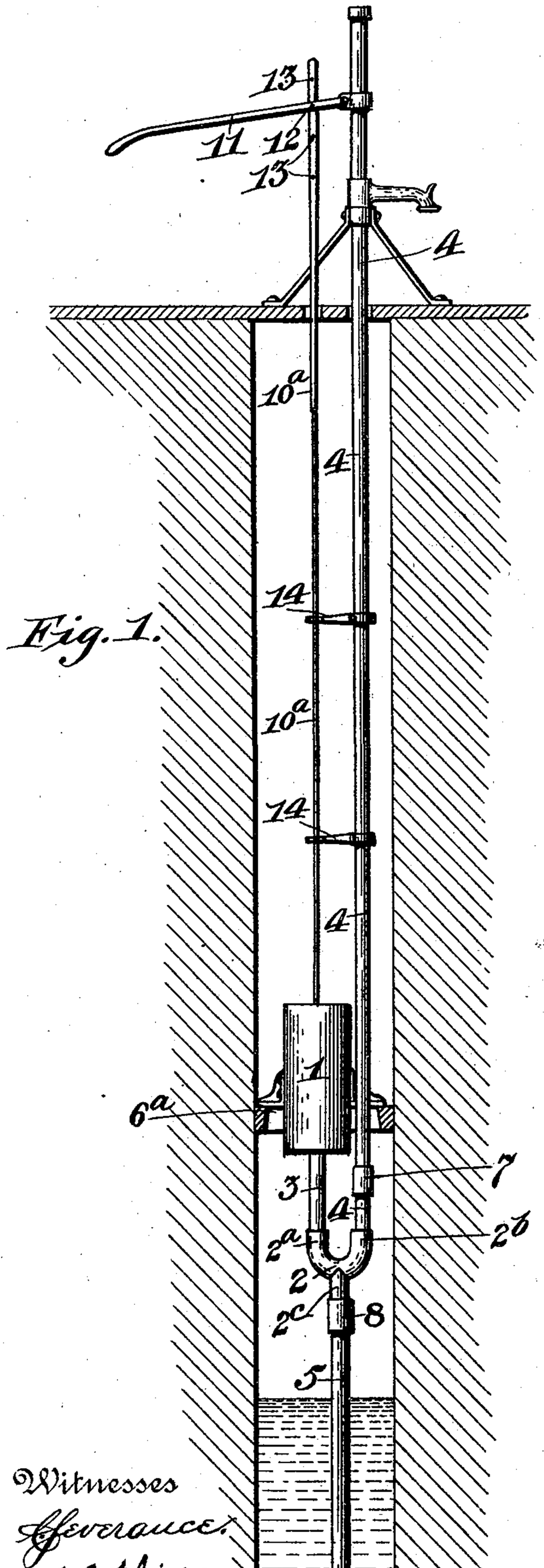

Fig. 1.

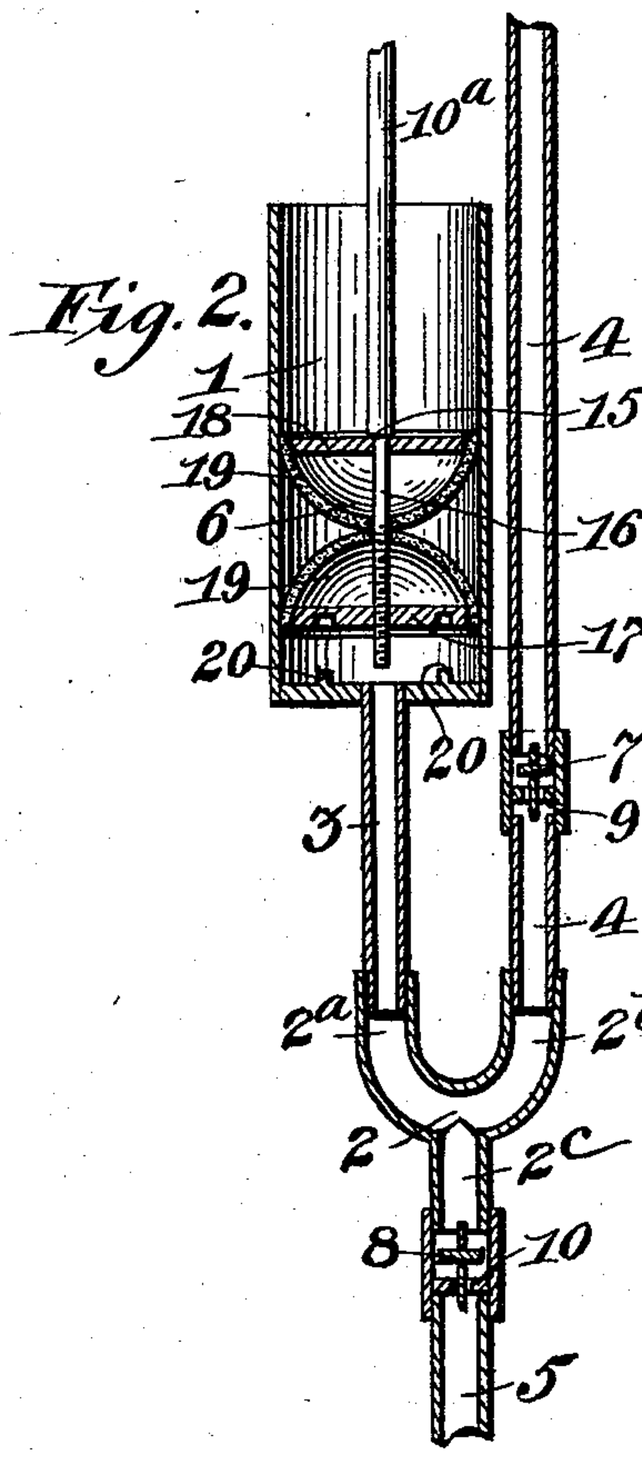

Fig. 2.

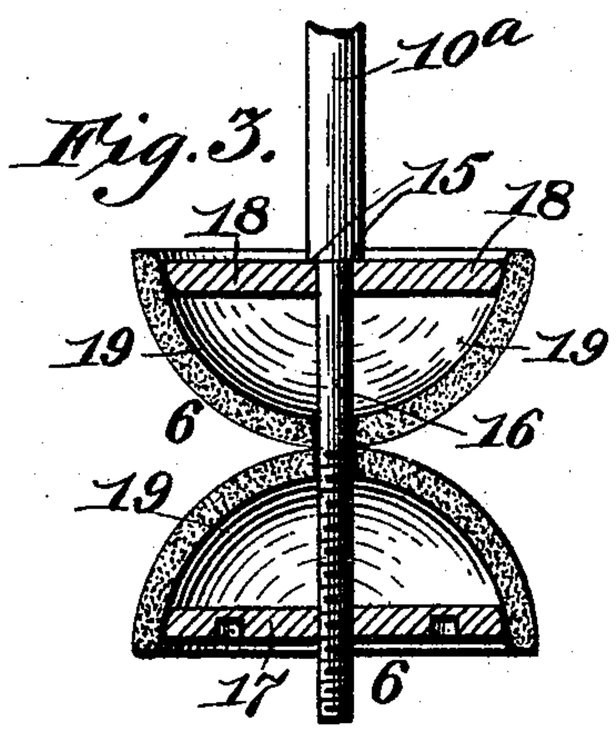

Fig. 3.

Witnesses
Severance.
C. C. Hines.

Inventor
Freeland H. Romans,
By J. B. Sawyer
Attorney

UNITED STATES PATENT OFFICE.

FREELAND H. ROMANS, OF BENTONVILLE, ARKANSAS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 504,366, dated September 5, 1893.

Application filed November 4, 1892. Serial No. 450,964. (No model.)

To all whom it may concern:

Be it known that I, FREELAND H. ROMANS, a citizen of the United States, residing at Bentonville, in the county of Benton and State of Arkansas, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention has for its object to provide certain new and useful improvements in pumps and pistons therefor, and for this object it consists in the construction, arrangement and combination of the several parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by similar marks of reference, Figure 1 is an elevation of my invention as placed in a well. Fig. 2 is a central vertical section through the cylinder and parts contiguous thereto. Fig. 3 is a detail view of the piston.

The cylinder 1 is of any approved construction, and has its bottom connected with one member 2^a of a U piece 2, by the pipe 3, the opposite member 2^b of the said U piece being continued upwardly to the desired height (in most cases to above the top of the well) by the discharge pipe 4. The bottom of the U piece 2 is provided with a downward extension 2^c, which is continued downwardly by the suction pipe 5, to below the surface of the water.

In the accompanying drawings I have shown the pump as placed within the well, together with the necessary piping, and I prefer to fix the cylinder 1, (by means of a suitable support 6^a) at such a height above the normal level of the water in the well, and to make its cubic contents between the highest and the lowest positions of the piston of such a value that when the piston is raised, the vacuum formed will not be sufficient to raise the water within the pipes 2, 3, and 5 to the level of the bottom of the cylinder, and it will thus be seen that no grit or sand will enter the said cylinder, which would cut it out. An upwardly opening poppet valve 7 and a corresponding valve 8, are suitably mounted in diaphragms 9 and 10, in the pipes 4 and 5, above and below their junction with the U piece 2, respectively. The piston 6 is contained in the cylinder, and is actuated by the upwardly extending rod 10^a, whose upper end is adjustably connected to the handle 11, by means of the pin or bolt 12, and the series of holes 13 in the upper end of the rod. The rod 10^a, which is carried in brackets 14 from the pipe 4, has a shoulder 15 on its lower end, and a cylindrical portion 16 below it, the lower part of which is threaded and receives a threaded button 17, while a button 18 is mounted on the cylindrical portion 16, above the threads thereon, a hemispherical washer 19 of leather, rubber, &c., having its open ends surrounding each of the said buttons, while the closed ends of the said washers surround the cylindrical portion 16 of the rod, and abut against each other, whereby when the two buttons are caused to approach, the washers will be expanded and caused to bear against the sides of the cylinder 1, as is desired and forming a piston 6. In order to cause this expansion of the washer, two pins 20 are placed in the bottom of the cylinder 1, which are adapted, when the rod 10^a is lowered to the bottom of the cylinder to enter corresponding recesses in the lower button 17, and to thus hold it while the rod 10^a (which has first been disconnected from the handle 11), is rotated until the button 17 has been screwed thereon a distance sufficient to expand the washer to the proper extent. It will be seen that when the rod is thus lowered the lower end thereof enters the upper end of pipe 3, permitting the button 17 to go down to the bottom of the cylinder.

From the above it will be seen that the operation of my invention is simple and is as follows: Let it be supposed that when the pump is put in the well, this piston is at the bottom of its stroke. Then, upon raising the piston by means of the handle 11, a partial vacuum will be produced in the cylinder, and in the pipes 2, 3 and 5, and that part of the pipe 4 below the valve 7, and the water will rise within the pipes to an extent depending upon the vacuum produced. When the piston is shoved down, the valve 8 will be closed

and the water above the said valve will be forced up the pipe 4, after which by raising the piston the operation may be repeated.

Having thus described my invention, what I claim is—

In a pump, the combination with a cylinder, of a pipe entering the center of the end thereof, pins projecting inwardly from the said end of the said cylinder, a pivoted handle, a piston rod adjustably connected therewith and having a shouldered and threaded lower end contained in the said cylinder, a button mounted on the said rod and bearing on the shoulder thereon, a threaded button working on the threads on the said rod and having depressions therein adapted to engage the said pins in the said cylinder upon the extension of the said rods and hemispherical washers mounted on the said rod and having their open ends closed by the said buttons and their rounded ends abutting, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREELAND H. ROMANS.

Witnesses:

J. W. MARTIN,

S. J. BLOCHEN.