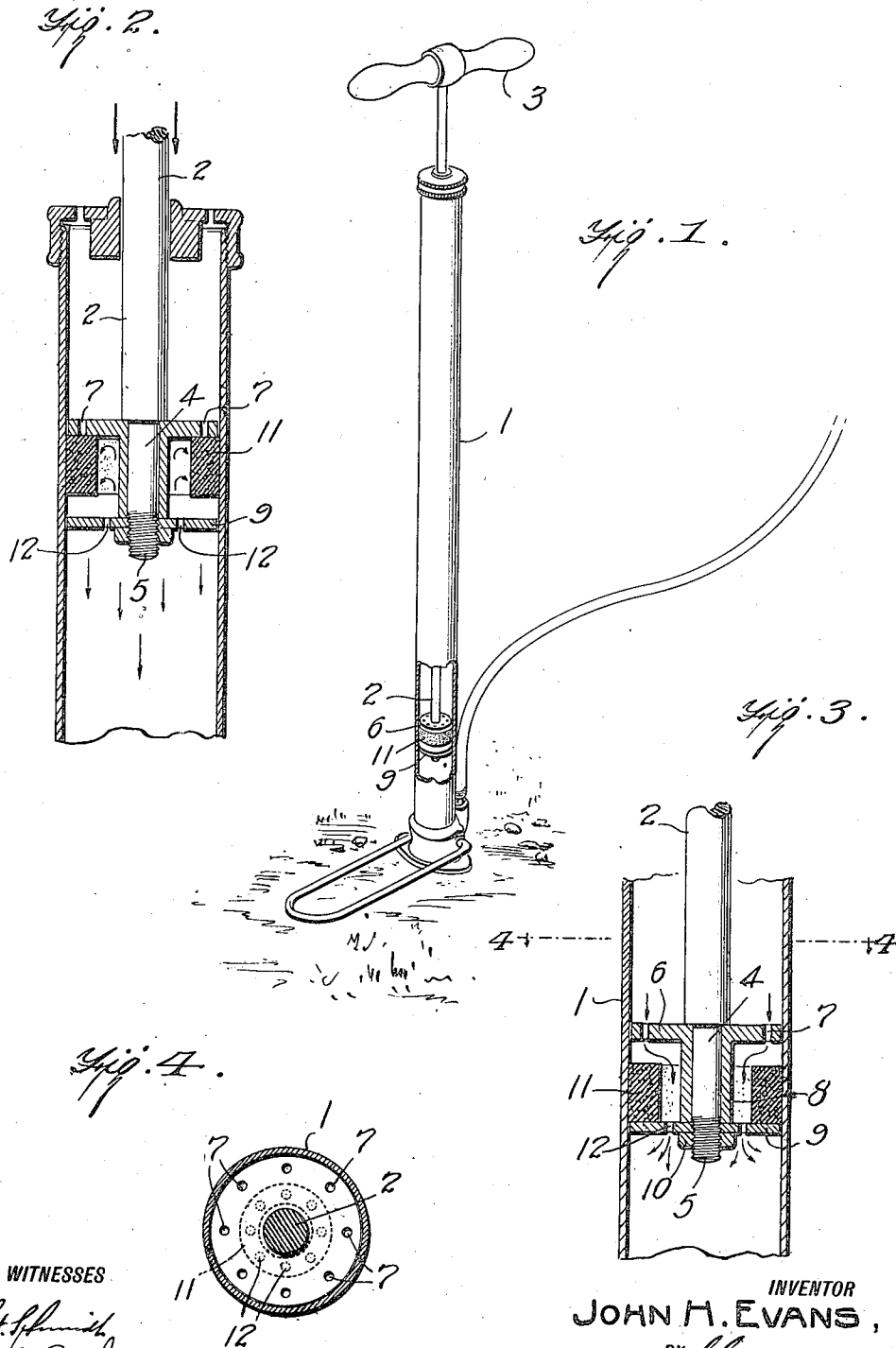


J. H. EVANS.
PUMP PISTON.

APPLICATION FILED JUNE 12, 1917. RENEWED MAR. 19, 1921.

1,402,222.

Patented Jan. 3, 1922.



WITNESSES

L. H. Schmidt
W. E. Beck

INVENTOR

JOHN H. EVANS,

BY *Alvin H.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN H. EVANS, OF NORTHCARROLLTON, MISSISSIPPI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO KEROSENE SYSTEM SALES COMPANY, OF DREW, MISSISSIPPI, A CORPORATION OF MISSISSIPPI.

PUMP PISTON.

1,402,222.

Specification of Letters Patent.

Patented Jan. 3, 1922.

Application filed June 12, 1917, Serial No. 174 226. Renewed March 19, 1921. Serial No. 453,709.

To all whom it may concern:

Be it known that I, JOHN H. EVANS, a citizen of the United States, and a resident of Northcarrollton, in the county of Carroll and State of Mississippi, have made certain new and useful Improvements in Pump Pistons, of which the following is a specification.

My invention relates to improvements in pistons for pumps, and consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a pump piston which is especially designed for use with air pumps, but which may be used for pumping any suitable fluid, which consists of few parts, these parts being so arranged as to be easily assembled and at the same time to prevent the air or fluid from escaping around the piston on the pressure stroke.

A further object of my invention is to provide a device of the class described having an annular slidable washer which is arranged to close certain air inlet openings during the pressure stroke and to open them during the intake stroke.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application, in which—

Figure 1 is a perspective view provided with my improved piston.

Figure 2 is an enlarged section through the pump and piston showing the annular washer in one position.

Figure 3 is a similar view showing the parts in another position, and

Figure 4 is a section on the line 4—4 of Figure 3.

The invention is primarily designed for use in air pumps. In the drawings 1, denotes the cylinder of an air pump and 2 the piston rod, which is controlled by a handle 3. The rod 2 is provided with a reduced end portion 4 which is threaded at 5, as shown in the drawings. A circular plate 6 has a central opening arranged to fit over the reduced portion 4 and to lie against the shoulder formed at the junction of the reduced portion with the main body portion of the piston rod. This plate is provided with

a series of openings 7, which in the present instance are arranged in a circle around the axis of the piston rod. The plate 6, is provided with a hub or sleeve 8 which surrounds the portion 4 of the piston rod. A second plate 9, is disposed within the cylinder and is held to the threaded end of the piston rod by means of a nut 10. Between the plates 6 and 9 is an annular washer or valve member 11. This is slidable with respect to the plates and as shown in the drawings is spaced from the sleeve 8. The plate 9, is provided with a series of perforations 12, which are preferably arranged in a circle around the axis of the piston rod, the openings 12 being arranged to register with the central opening of the washer 11.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

Consider Figure 3. In this figure, the parts are shown in the position in which they would take when the intake stroke of the pump is being made. For instance, in an air pump the air would pass through the openings 7 through the central opening in the annular washer and thence through the openings 12, into the lower part of the cylinder, where the cylinder is an air pump cylinder such as that shown in Figure 1.

On the reverse or downward stroke, the plate 6 is brought into engagement with the washer 11 which covers the openings 7. The air pressure in the lower part of the cylinder will be transmitted through the openings 12 to the interior of the washer and cause the latter to expand and hug the interior of the cylinder thereby preventing any danger of air getting past the plate 6.

On the upward stroke the washer is brought into engagement with the plate 9, the openings 7 being uncovered so as to permit the passage of fluid as stated.

The arrangement is such that the annular washer or valve member 11 is held tightly to the plate 6, over the openings 7, and also to the walls of the cylinder by the air pressure. This reduces to a minimum the liability of the air getting past the piston on the pressure stroke, and at the same time when the intake stroke is taken the pressure is relieved from the washer so that it will tend to withdraw away from the cylinder walls slightly. It will also move away from

the opening 7, so that the piston is readily moved during the intake stroke.

I claim:

1. The combination of a piston rod, a circular plate rigidly carried by said piston rod, said plate having a series of perforations, a second plate rigidly carried by said piston rod, a sleeve surrounding said piston rod for spacing said first named plate from said second named plate, an annular washer surrounding said sleeve and spaced therefrom, said washer being disposed between the plates and being of a thickness less than the distance between the plates, one face of said washer being arranged to cover the opening in said first named plate on the pressure stroke, the opposite face being brought into engagement with said second named plate on the intake stroke and said second named plate being provided with openings arranged to register with the central opening in said annular washer.

2. The combination with a piston rod having a reduced portion threaded at its end, a circular plate having a series of perforations arranged in a circle about the axis of the piston rod, a sleeve surrounding the reduced portion of the piston rod and extending from said plate, a second plate carried by the piston rod, a nut for holding said second named plate against one end of said sleeve, an annular washer disposed between said plates, said annular washer be-

ing spaced from said sleeve and arranged to surround the latter, the thickness of said annular washer being less than the distance between said plates, one face of said annular washer being arranged to cover the openings in said first named plate on the pressure stroke, the opposite face of the washer being arranged to engage the second named plate on the intake stroke and said second named plate being provided with a series of openings arranged to register with the central opening of said annular washer.

3. In a pump, a cylinder, a piston rod, a circular plate secured to the piston rod and slidably contacting with the walls of the cylinder, a sleeve formed on the plate and receiving one end of said piston, a second circular plate slidably contacting with the walls of the cylinder and secured to the said end of the piston and abutting the sleeve, and a washer of a thickness less than the distance between the plates and disposed therebetween, said washer surrounding said sleeve and spaced therefrom and slidably contacting with the walls of the cylinder, said plates being formed with perforations, with the perforations of the second plate located between the perforations of the first plate and the sleeve and in registry with the space between said washer and said sleeve.

JOHN H. EVANS.