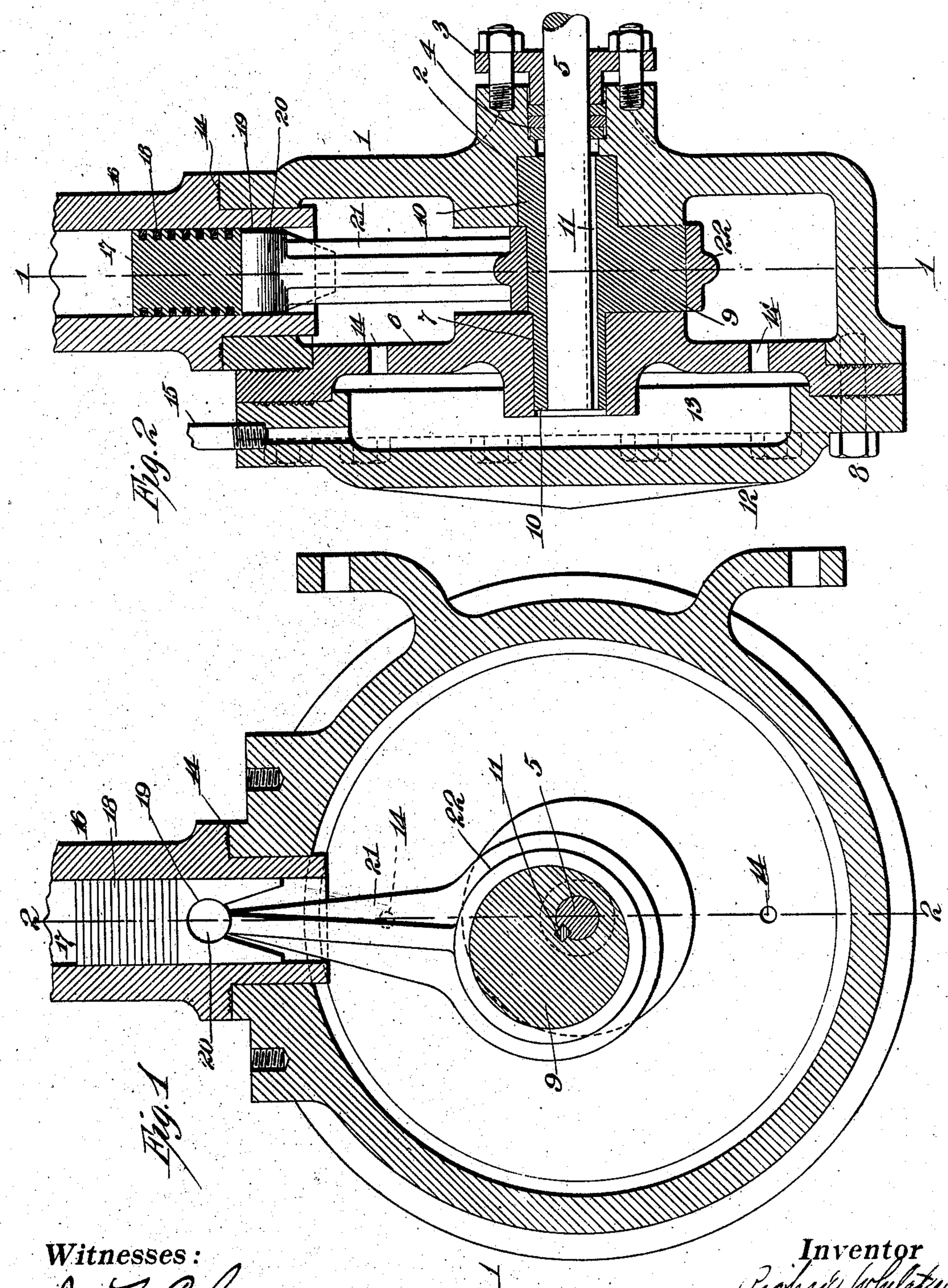
R. WHITAKER.

GAS PUMP.

APPLICATION FILED JAN. 5, 1905.

899,583. Patented Sept. 29, 1908.



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UNITED STATES PATENT OFFICE.

RICHARD WHITAKER, OF NEW BRUNSWICK, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO BRUNSWICK REFRIGERATING COMPANY, A CORPORATION OF NEW JERSEY.

GAS-PUMP.

No. 899,583. Specification of Letters Patent. Patented Sept. 29, 1908.

Original application filed January 11, 1904, Serial No. 188,612. Divided and this application filed January 5, 1905. Serial No. 239,725.

To all whom it may concern:

Be it known that I, RICHARD WHITAKER, a citizen of the United States, residing at New Brunswick, county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Gas-Pumps, of which the following is a specification.

This invention relates to improvements in pumps for compressing any gas, as ammonia gas in ice-making machines, and is a division of my application Serial No. 188612 filed January 11th, 1904.

The objects of the present invention are to produce a pump made of as few parts as possible and connected together by ground joints so that packing will be dispensed with.

Another object is to improve the construction of the eccentric and the bearing of the connecting rod with the piston.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which,

Figure 1 is a sectional view of a pump similar to that disclosed in my original application above referred to and embodying the present invention, taken on the line 1—1 of Fig. 2. Fig. 2 is a similar view taken on the line 2—2 of Fig. 1.

In both views, like parts are designated by the same reference characters.

The casing 1 is of the general shape shown and is provided with a bearing 2, a gland 3, and packing rings 4 for the passage of the actuating shaft 5. A cover 6 having a bearing 7 is secured to one side of the casing by means of stub bolts 8, the joint between it and the casing being ground or otherwise rendered oil-tight, so that the casing will serve as a receptacle for the lubricating oil.

The eccentric 9 is provided with integral bearing portions or stub shafts 10, which are mounted within the bearings 2 and 7 any end play being prevented by the engagement therewith. The shaft 5 passes through the eccentric and is secured in place by any suitable means, such as the key 11.

The outside cover 12, dished as shown, is applied to the cover 6, and forms in conjunction with the cover 6, a double cover, constituting a condensing chamber 13, as described in my original application and also in a division thereof filed by me January 5, 1905, Serial No. 239,723.

The cover 12, is preferably secured in place by the same set of securing bolts as are used for the inner cover. This chamber 13 communicates with the inside of the casing 1 by two or more small openings 14, by means of which the oil will always be at the same height as that within the casing 1. The chamber 13 serves the purpose of a condensing chamber and permits the escape of the ammonia gas which may leak by the packing rings of the piston into the oil casing 1. The escaping gas may be drawn off by means of the pipe 15, into the gas tank and again compressed.

The cylinder 16 is entirely separate from the casing, and is provided with a ground shoulder 14 which rests upon the upper part of the casing 1 to form a gas tight joint. The cylinder is secured in place upon the casing by any suitable means, but preferably by means of a tie-bar and cross-bar, so that the parts may be separated, such as is disclosed in my original application. The piston 17 is provided with a number of packing rings 18 of the usual type and has integrally formed within it a cylindrical bearing 19 which engages with a cylindrical head 20 formed integrally on the upper end of the connecting rod 21. This bearing is in the form of an undercut slot, the under-cut portion being cylindrical in shape and extending completely across the piston. The connecting rod 21 is preferably cast integral with the eccentric strap 22. The bearings 19 and 20 are kept in proper relative position by engagement with the walls of the cylinder no other means being necessary. By making the cylindrical portion 20 of a length equal almost to the internal diameter of the piston, and itself of considerable diameter, a sufficient bearing surface will be secured, so as not to require the need of any adjusting devices. This bearing is extremely cheap and is efficient in operation, and may be very readily taken apart, by first removing the cylinder.

Having now described my invention what I claim and desire to secure by Letters Patent, is:—

1. In a gas pump, the base casing constituting an oil-tight receptacle to contain lubricating oil, an actuating shaft extending transversely into said receptacle, an eccentric keyed on said shaft within said recep-

tacle and having at its opposite sides integral bearing portions, the eccentric strap on said eccentric, and a connecting rod rigid with said strap and having on its upper end an integral cylindrical transverse head, combined with a cylinder removably secured upon the upper end of said casing, a piston within said cylinder having formed within its lower portion a transverse cylindrical bearing extending through it and adapted to receive said head, said head and bearing being substantially co-extensive in length with each other and the diameter of said cylinder, and said casing having bearings in its opposite sides to receive the integral bearing portions of said eccentric; substantially as set forth.

2. In a gas pump, the base casing constituting an oil-tight receptacle to contain lubricating oil, an actuating shaft extending transversely into said receptacle, an eccentric keyed on said shaft within said receptacle and having a transverse bearing in said casing, an eccentric strap on said eccentric, and a connecting rod integral with said strap and having on the end of its upwardly extending portion an integral cylindrical transverse head, combined with a cylinder removably secured upon the upper end of said casing, a piston within said cylinder having formed within its lower portion a transverse cylindrical bearing extending through it and adapted to receive said head, said head and bearing being substantially co-extensive in length with each other and with the diameter of said cylinder; substantially as set forth.

This specification signed and witnessed this 27 day of December, 1904.

RICHARD WHITAKER.

Witnesses:
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