

J. HAUSER.
AIR PUMP,
APPLICATION FILED FEB. 27, 1918.

1,324,894.

Patented Dec. 16, 1919.

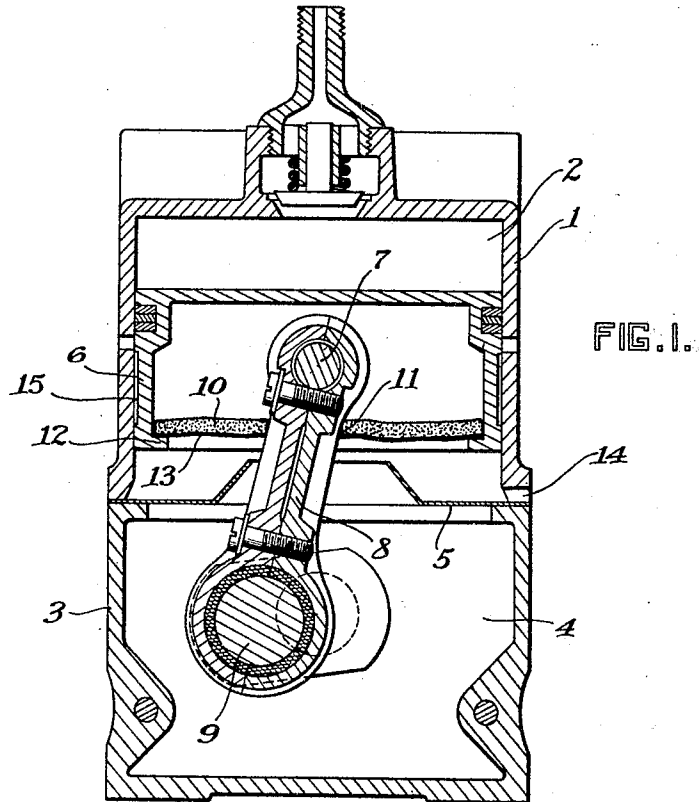
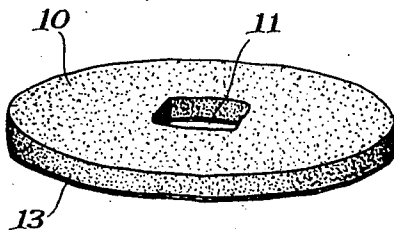


FIG. 2.



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UNITED STATES PATENT OFFICE.

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AIR-PUMP.

1,324,894.

Specification of Letters Patent.

Patented Dec. 16, 1919.

Application filed February 27, 1918. Serial No. 219,492.

To all whom it may concern:

Be it known that I, JACOB HAUSER, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Air-Pumps, of which the following is a specification.

The present invention relates to air pumps and more particularly to the type in which there is employed a casing having a compression chamber and a crank chamber with a piston operating within the compression chamber and driven by a pitman pivotally connected to the piston. In air pumps of this type considerable difficulty is met in compressing air without saturating the same with the oil which is used for lubricating the operating parts of the pump, oil being, as is well known, destructive of rubber used in pneumatic tires to which the compressed air is supplied. It is an object of this invention to provide a means which will adapt itself to the movement of the pitman and at the same time will act to prevent the lubricant from running along the pitman and being conducted through the pitman connection to the walls of the compression chamber.

To this and other ends the invention consists of certain parts and combinations of parts all of which will be hereinafter described, the novel features being pointed out in the appended claims.

In the drawings:—

Figure 1 is a vertical section through an air pump embodying the present invention; and

Fig. 2 is a perspective view of the flexible disk which prevents the oil entering the hollow piston.

Referring more particularly to the drawings, 1 indicates the upper section of the pump casing formed with the compression chamber 2, and 3 indicates the lower section of the pump casing formed with the crank chamber 4. Secured between the two members of the casing is a baffle member 5 which separates the crank chamber 4 from the compression chamber 3. Within the compression chamber 3, a piston 6 operates, being, in this instance, of hollow formation and having a pin 7 extending through its side

walls to turn in the latter. To this pin a pitman 8 is secured, the latter being journaled upon the crank 9 at its lower end. The foregoing parts are described in my application filed October 10, 1917, Serial No. 195,720, and no claim is herein made to the specific construction of such parts.

It has been found that, when the crank chamber 6 contains a lubricant for lubricating the operating parts of the pump, this lubricant splashes through the opening 9 in the baffle 5 and enters the hollow piston, lodging upon the pitman 8 and the pivot pin 7, and being conducted by such parts through the bearing openings in the side walls of the hollow piston to the walls of the compression chamber 2 in such a manner that the compressed air becomes saturated with the lubricant. In order to overcome this movement of the lubricant, a flexible diaphragm or disk 10, preferably made of cotton or other fibrous material, is formed with an opening 11, the walls of which closely hug the sides of the pitman, while the edges of the diaphragm preferably rest upon an inwardly-turned flange 12 formed on the interior of the hollow piston. The under surface 13 of this fibrous material is preferably coated with shellac or other substance, which will prevent the fibrous material from absorbing the oil.

With this arrangement the movement of the pitman with reference to the piston is permitted as the yielding or flexible diaphragm 10 adapts itself to such movement. At the same time this diaphragm effectively closes the hollow piston and any oil which splashes from the crank chamber 4 collects on the under side of the diaphragm and falls mostly into the crank chamber 4 through the opening 9, a slight amount, however, dropping on the diaphragm 5 and running off such diaphragm through the breathing opening 14 situated above the diaphragm. A slight amount of the oil may pass to the walls of the compression chamber 2, but this amount is practically negligible, owing to the fact that the piston is provided with an annular lubricant-collecting recess, and has split spring packing rings above said recess, said rings acting to scrape any excess oil from the walls of the compression chamber. It has been found by experiment that a

10 pump provided with the flexible diaphragm discharges the compressed air with little or no oil, whereas with the diaphragm removed a noticeable amount of oil will saturate the compressed air.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination with a hollow piston and a pitman pivotally connected to the piston, of a diaphragm forming a tight connection with the pitman below the pivotal connection and having provision for adapting itself to the movement of the pitman on its pivot.

2. The combination with a hollow piston and a pitman pivotally connected thereto, of a flexible diaphragm arranged within the hollow piston and forming a tight connection with the pitman below the pivotal connection of the latter with the piston.

3. The combination with a hollow piston provided internally with an inwardly-extending annular flange and a pitman pivotally connected to the piston above said flange, of a flexible diaphragm resting on the flange within the hollow piston and forming a tight connection with the pitman.

4. The combination with a hollow piston and a pitman pivotally connected to the piston, of a diaphragm of textile material arranged within the hollow piston forming a tight connection with the pitman, the under side of said diaphragm having a non-absorbing covering.

JACOB HAUSER.