Feb. 5, 1929. 1,701,003

E. HARR ET AL

COMPRESSION PUMP

Filed Jan. 4, 1928

Fig. 1

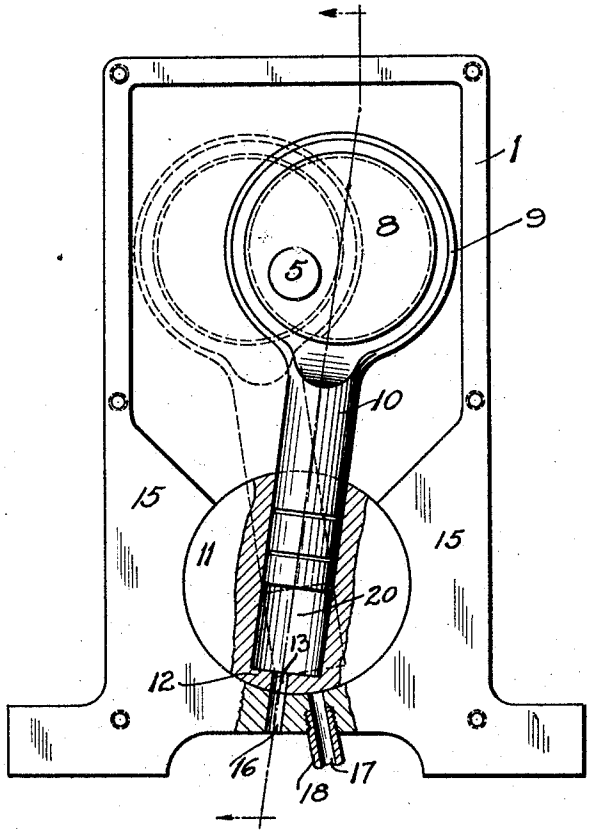
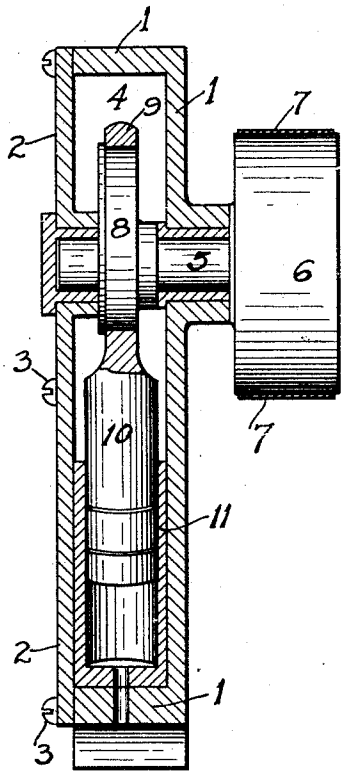


Fig. 2.



INVENTORS

E. Harr

W. Harr

BY *F. P. Lorin* *ATTORNEY*

Patented Feb. 5, 1929. 1,701,003

UNITED STATES PATENT OFFICE.

ELMER HARR AND WALTER HARR, OF WALLACE, IDAHO.

COMPRESSION PUMP.

Application filed January 4, 1928. Serial No. 244,520.

This invention relates to improvements in compression pumps and more particularly to such devices as are adaptable for use in the compression of air, gases and the like.

The principal object of the invention is to provide a device of such construction as to withstand back pressure of air or the like in its endeavor to escape when the density of the compressed air has reached a very high degree.

An important feature of the invention is that the device consists of very few moving parts; is easily disassembled and assembled; and is extremely compact and inexpensive of construction.

Another important feature is that there is little friction between the parts having a relative movement, thus preventing escape of the air and resulting in a very low maintenance cost.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation with the cover removed.

Figure 2 is an edgewise view.

Referring now more particularly to the drawings, 1 indicates the walls of a housing, the front plate 2 of which is secured by screws 3 to the walls 1. The rear wall 1 and front plate 2 are bored out to revolubly receive a shaft 5 driven by any approved means, as pulley 6 and belt 7.

Eccentrically secured to the shaft 5 within the interior 4 of the housing is a disk 8. 9 is an eccentric strap which encircles the disk 8 and which is secured to a piston 10. 11 is another disk which is diametrically bored to slidably receive the piston 10, there being a floor 12 left at the bottom of the bore formed with an outlet 13, extending to the periphery of the disk 11.

The lower part of the housing is solid, as at 15, except an appropriate space to revolubly receive the disk 11. 16 is an intake port and 17 is an outlet port, so arranged that in movement of disk 11 the intake port 16 and outlet port 17 will register with the port 13. To the outlet port 17 is secured one end of a pipe 18 and the other end of that pipe is connected to a container into which the air or the like is to be compressed.

As the shaft 5 is rotated in counter-clockwise direction, it will of course cause the disk 8 to move from its position, as seen in full lines in Figure 1, to its position as seen in dotted lines in that figure, and as the rotation of the shaft 5 is continued, the disk will move back from its dotted line position to its full line position and so on. In other words, a continued rotation of the shaft 5 about its center will cause as oscillatory movement of the disk 11. The position of the piston as seen in full lines in Figure 1 is such that beneath the piston is an air chamber 20 and the port 13 being in registry with the port 16, air of course instantly rushes in and fills the air chamber 20. When the disk 11 in its rotation began to move the port 13 back to the discharge port 17, of course all of the air that had filled the chamber 20 was compressed as the disk turned because on its return movement the piston moved steadily downward but the air within the chamber 20 could not escape because the port 16 was moved out of registry with the port 13, so that when the parts reached their dotted line positions the air which had been compressed with such great force in the chamber 20 immediately passed out through the discharge port 17 and into the container. As the disk then started to move from that position so as to bring the intake ports 13 and 16 into registry, the air which had been compressed in the container could not escape backwardly because the end of the piston was at the bottom of the chamber 20 and only commenced to rise from that position after the discharge port 17 was effectually closed. It will be understood of course that the disk 11 in its oscillatory movement in its seat is in such relation to the walls of the seat that a practically air-tight joint results. It will further be noted that the air as it continues to be compressed more and more and becomes exceedingly dense in the container is prevented by the end of the piston, as already explained, and that in order to escape the condensed air would have to be of such density or power as to shear off the shaft 5.

While we have shown a particular form of embodiment of our invention, we are aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of our invention. We, therefore, desire to avoid being limited to the exact form of embodiment which we have herein shown and described.

What we claim to be new is:

In a compression pump of the class described, a casing having an opening in the rear wall thereof, a front plate removably

fitting the casing and having an opening aligning with the opening in the casing, a shaft journaled in the bore formed by the aligned openings, an eccentric carried by the shaft, a piston driven by the eccentric, and a disk having a cylinder bore, the said disk being carried by the casing and mounted for partial rotation to alternately register an opening in the said casing connected to the interior of the cylinder bore with inlet and exhaust openings in the casing.

In testimony whereof we affix our signatures.

ELMER HARR.
WALTER HARR.