

opening with very small throw, very slight throttling of inlet air, simplicity and durability, small clearance, and the saving of space in the cylinder head for water-jacketing. Some of their disadvantages are: The closing effort begins at mid-stroke, and increases as the square of the velocity. The air is admitted through a thin hot tube and a hot piston. A considerable leak might occur without its being detected, as it could not very well be heard. The valves are not easily accessible for inspection and repair.

Some peculiar air valves are shown in Fig. 26, which is a section of the air chamber of one end of the compressor whose air cylinder is shown in Fig. 25. The valves are simply rubber rings of circular section, lying in grooves and covering slits in the metal. The pressure of the air expands the rings and uncovers the slits. It will be seen that there are three inlet and one discharge valve. As this is a "wet" compressor the valves are not subjected to a very high temperature, which would soon destroy the rubber.

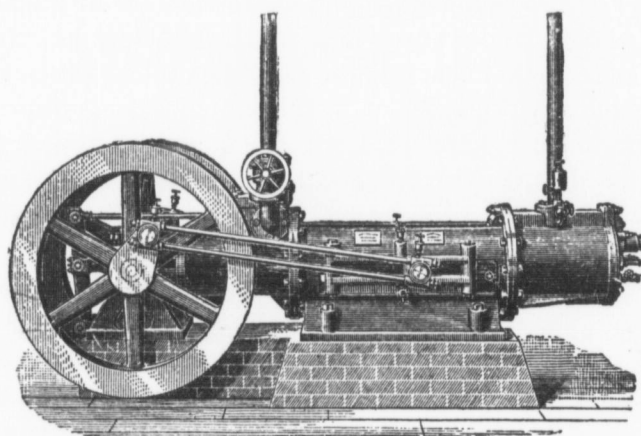


FIG. 37.

The last type of valve which we shall consider is the mechanically controlled poppet valve. This is the type of valve used on the Riedler compressor, where it has given such excellent results.

Fig. 35 shows an air card taken from a compressor with Riedler valves. The air cylinder was 27×42 , the speed 61 revolutions per minute, and the air pressure 78 pounds gauge. The mean effective pressure is 33.3 pounds per square inch.

The general principle of mechanically controlled poppet valves is to provide a means for taking the pressure of the spring or valve rod