April 2, 1929. J. O. CARREY 1,707,796

COMPRESSOR

Filed Nov. 27, 1925

Fig. 1.

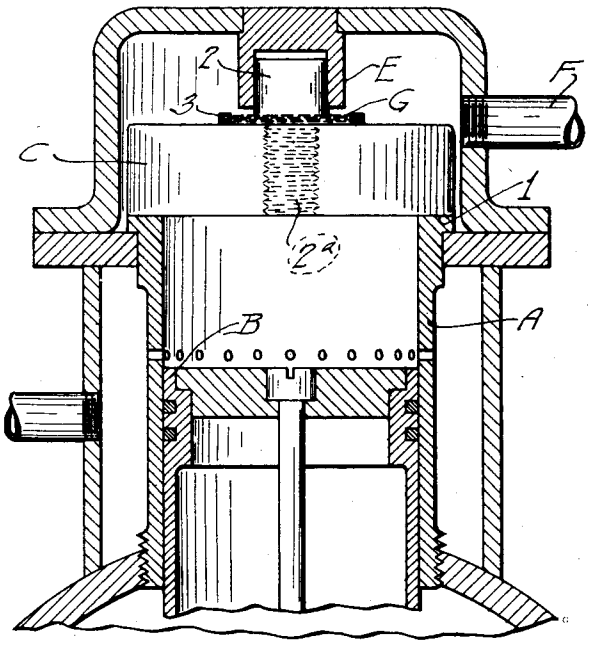



Fig. 2.

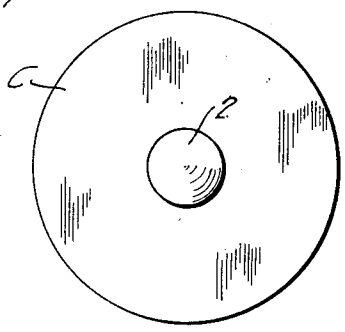



Fig. 4.

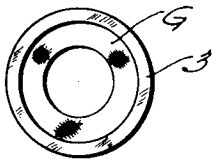
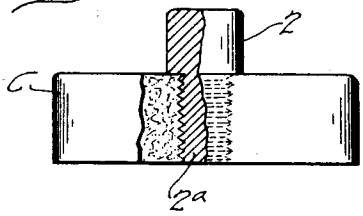



Fig. 3.




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# UNITED STATES PATENT OFFICE.

JOHN O. CARREY, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CARREY-MORSE ENGINEERING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## COMPRESSOR.

Application filed November 27, 1925. Serial No. 71,678.

This invention relates to small size compressors of the kind that are used in domestic refrigerating apparatus, and particularly to compressors of the type in which the discharge valve is held seated by the pressure in the line or reservoir into which the compressor discharges and is unseated by the pressure that is created in the cylinder of the compressor during the compression stroke of the piston.

One object of my present invention is to provide a compressor of the general type mentioned, which is constructed in such a manner that the discharge valve will not make a perceptible noise when it unseats, thereby overcoming one of the inherent objections of conventional compressors used in domestic refrigerating apparatus.

Another object of my invention is to provide a compressor whose discharge valve will not cut, wear or be otherwise injuriously affected by long, continuous usage.

Figure 1 of the drawings is a vertical sectional view of a portion of a compressor constructed in accordance with my invention.

Figure 2 is a top plan view of the discharge valve.

Figure 3 is a side elevational view of said valve; and

Figure 4 is a top plan view of the pad or buffer that is arranged between the discharge valve and the stop that limits the opening movement of said valve.

Referring to the drawings which illustrate the preferred form of my invention, A designates the cylinder of a small size compressor that is designed for use with a domestic refrigerating apparatus, B designates the piston of said cylinder, C designates the discharge valve which is so proportioned that it closes the entire upper end of the cylinder and seats against a valve seat 1 formed by the upper edge or end of the cylinder A, D designates a stationary cap at the upper end of the cylinder that encases the valve C and E designates a stop on said cap that limits the opening movement of the valve C when said valve is moved upwardly away from its seat 1 by the internal pressure produced in the cylinder by the compression stroke of the piston, the interior of the cap D being connected by a pipe F with the line or reservoir into which the compressor discharges, thereby causing the valve C to be normally held seated by the pressure which exists in said tank and in the cap D. In the preferred form of my invention, as herein illustrated, the valve C is guided and held in concentric relation with the valve seat 1 by a center guide 2 that projects upwardly from the top side of said valve into a socket or recess in the stop E.

In order that the valve C will not make a noise each time it is unseated, I arrange a non-metallic buffer or pad G between the top side of said valve and the stop E that limits the opening movement of said valve. Said pad is preferably formed of a plurality of layers of canvas or other suitable fabric, and in most instances it will be of annular form in outline and will be carried by the valve or by the stop E. In the compressor herein illustrated the pad G surrounds the guide 2 on the valve, and said pad is provided at its peripheral edge with a binding 3, preferably of metal, that prevents the layers of fabric which constitute said pad from fraying, the pad being of such diameter that the metal binding 3 at the edge of same will not contact with or engage the stop E when the valve moves upwardly off its seat. When the compressor is in operation the valve C moves upwardly at each compression stroke of the piston B, and the pad or buffer G comes into contact with the stop F, thereby effectively preventing the valve from making a noise.

It is immaterial, so far as the feature just described is concerned, what kind of material is used to form the valve C. However, in order that said valve may be used continuously for long periods without liability of cutting or becoming worn to a degree that will impair its efficiency, I form said valve from a non-metallic composition, known commercially as "micarta", which is composed of numerous layers of fabric treated and compressed in such a way as to produce a dense, hard body that has great wear resisting properties. The center guide 2 that projects upwardly from the top side of the valve C is preferably formed of metal, and said guide can be connected to the valve in any suitable way, as, for example, by a reduced, externally screw-threaded extension $2^a$ on said guide that is screwed into the valve, as shown in broken lines in Figure 3.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A compressor, comprising a cylinder, a valve arranged to seat against one end of

said cylinder and adapted to be held seated by the pressure in the line or reservoir into which the reservoir discharges, a stationary cap that encases said valve, a stop on said cap for limiting the movement of said valve away from its seat, a center guide on said valve that projects into a guideway in said stop, and a non-metallic buffer surrounding said guide and arranged between said valve and stop.

2. A compressor, comprising a cylinder, a valve arranged to seat against one end of said cylinder and adapted to be held seated by the pressure in the line or reservoir into which the reservoir discharges, a stationary cap that encases said valve, a stop on said cap for limiting the movement of said valve away from its seat, a center guide on said valve that projects into a guideway in said stop, and an annular buffer mounted on said guide between said valve and stop and composed of a plurality of layers of fabric whose edge portions are encased in a binding.

3. In a compressor of the type in which the discharge valve is held seated by the pressure in the reservoir into which the compressor discharges, a discharge valve constructed of "micarta" and proportioned so as to normally close one end of the cylinder of the compressor, a stop arranged in alignment with the center of the valve for limiting the opening movement of said valve, and a metallic center guide on said valve positioned in a guideway on said stop and arranged to reciprocate therein.

4. In a compressor of the type in which the discharge valve is held seated by the pressure in the reservoir into which the compressor discharges, a discharge valve constructed of "micarta" and proportioned so as to normally close one end of said cylinder, a stop for limiting the opening movement of said valve, a metallic center guide on said valve that projects into a guideway on said stop, and an annular, non-metallic buffer surrounding said guide and arranged to strike against said stop when the valve opens.

JOHN O. CARREY.