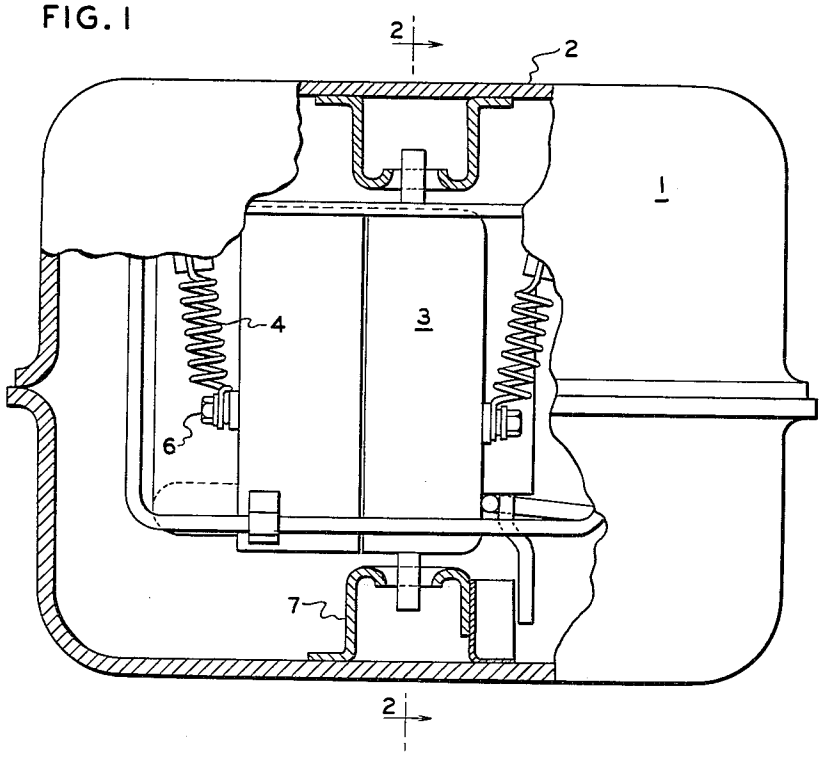
April 10, 1956 O. H. SCHELDORF 2,741,425

COMPRESSOR BUMPER ARRANGEMENT

Filed April 19, 1954

FIG. 1



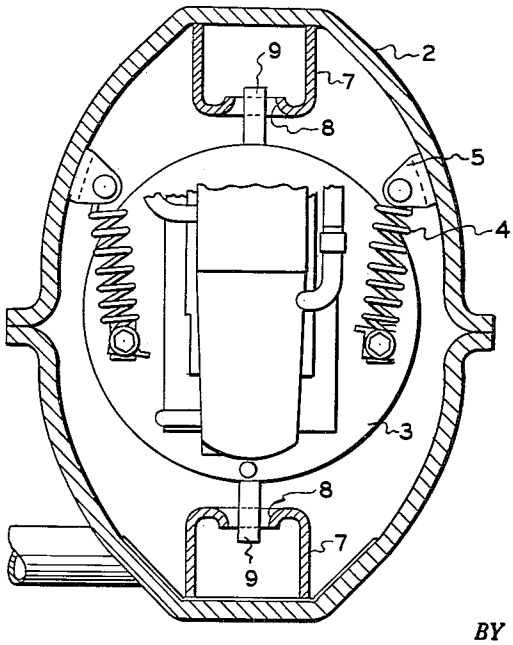


FIG. 2

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COMPRESSOR BUMPER ARRANGEMENT

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Application April 19, 1954, Serial No. 424,017
1 Claim. (Cl. 230—232)

This invention relates to hermetically sealed compressors and, more particularly, to internally resiliently mounted hermetically sealed compressors.

When a motor-compressor unit is suspended within the interior of a sealed casing by springs, there must be provided suitable means for limiting the movement of the unit within the casing particularly during shipment. If limiting means were not provided, the unit might easily be damaged by intermittent contact with the interior of the sealed casing.

While the conventional three-point compression spring suspension has been suitable in supporting heavy low-speed compressors, it has been found that compression springs are not suitable for supporting light, high-speed compressors due to noise transmission from the unit to the case through the heavy compression springs.

Likewise, where tension springs have been used in the three-suspension system, in some cases the springs were mechanically strong and heavy, or where an effort was made to use lighter springs the system was supplied with relatively expensive mechanical buffer arrangements to limit the movement of the compressor within its case.

This invention contemplates the provision of an improved tension spring suspension system having tension spring supports and a buffer arrangement, which system has a simplified and inexpensive construction.

This system includes two pairs of generally vertically positioned tension springs, one pair attached to each end of the compressor unit and to the casing. A mechanical buffer is provided between the compressor unit and the casing which permits the unit to move a limited distance in the vertical direction, but more restrictedly limits its angular movement in all other directions, thereby directly absorbing such mechanical shocks which if they were taken by the springs alone might well tension them beyond their elastic limit. This arrangement permits very light and flexible springs to be used safely. These light springs have the advantage that they minimize the transmission of noise from the compressor unit.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterizes the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Resilient means in tension are attached to the unit and the casing for suspending the unit within the casing to permit movement of the unit in the plane of the resilient means. Suitable means are attached to the casing and means are attached to the unit on opposite sides thereof to cooperate with the means attached to the casing to limit movement of the unit primarily to the plane of the resilient means.

For a better understanding of the invention, reference may be had to the accompanying drawing, in which:

Fig. 1 is an elevational view partly in section of a hermetically sealed compressor embodying the present invention; and

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1.

Referring to the drawing and particularly Fig. 1, there is shown a hermetically sealed compressor 1 including a sealed casing 2. A motor-compressor unit 3 is disposed within the interior of the casing 2. This motor-compressor unit 3 is supported by four generally vertically disposed tension springs 4, three of which are

shown. As shown in Figs. 1 and 2, a pair of tension springs 4 are disposed on each end of motor-compressor unit 3. The upper end of each of the springs 4 is attached to a lug or ear 5 that is secured to the interior of the casing 2. Suitable fastening means 6 is provided to secure the lower end of each spring 4 to the motor-compressor unit 3.

Brackets 7 are disposed in the uppermost and lowermost portions of the interior of the casing 2. The brackets 7 are secured to the interior of the casing 2 by suitable means such as welding, for example. Each of the brackets 7 is provided with an opening 8. Pins or studs 9 are disposed on opposite sides of the motor-compressor unit 3 and are adapted to pass through the openings 8 of the brackets 7 as shown in Figs. 1 and 2. It will be understood that alternatively the brackets 7 could be secured to the unit 3 and the pins 9 to the casing 2 if desired. The opening 8 is preferably of a greater diameter than the diameter of the pin or stud 9 in order to permit limited movement of the pin 9 with respect to the bracket 7.

The pins 9 and brackets 7 are designed to permit the motor-compressor unit to move primarily in the general direction of the springs 4, that is vertically, through the limits of movement allowed by the spaces between the compressor and the adjacent edges of the brackets 7, but in all other planes motion is restricted to the dimension of the openings 8. Thus, it will be observed that the pins 9 and brackets 7 not only restrict movement of the unit in transverse planes through the springs but also limit the distance that the unit is able to move in the direction of the springs due to the unit contacting one or the other of the brackets. The pins 9 and brackets 7 have been designed to limit movement in all planes and particularly in those angular planes of tilt which where if unrestricted motion were permitted, severe damage to the springs most likely would result. However, it will be seen that the unit 3 is not prevented from rotating about the axis of the pins 9.

The present invention has the advantage of providing mechanical strength to support the motor-compressor unit during shock loading. It also has the advantage of minimizing the area from which the noise of the compressor is radiated and noise is a major factor, particularly in high-speed compressors.

While the present invention has been described by reference to a particular embodiment thereof, it will be understood that modifications may be made by those skilled in the art without actually departing from the invention. I, therefore, aim in the appended claim to cover all such variations as come within the true spirit and scope of the foregoing disclosure.

I claim:

A hermetic compressor including a sealed casing, a motor-compressor unit disposed within said casing, spaced, vertically positioned, tension springs attaching the sides of said unit to said casing for suspending said unit within said casing, a pair of brackets attached to the interior of said casing, said brackets being disposed on the top and bottom sides of said casing and extending inwardly therefrom, and a pair of co-linear pins attached to said unit on the top and bottom sides thereof, said brackets having openings therein, each of said openings having a greater diameter than each of said pins, said pins being disposed in the openings in said brackets to limit the tilting and vertical movement of said unit within said casing primarily in the general direction of said springs.

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