Jan. 22, 1929.

1,699,581

W. E. BOCK

CENTRIFUGAL MACHINE

Original Filed Aug. 24, 1923 2 Sheets-Sheet 1

Fig. 3.

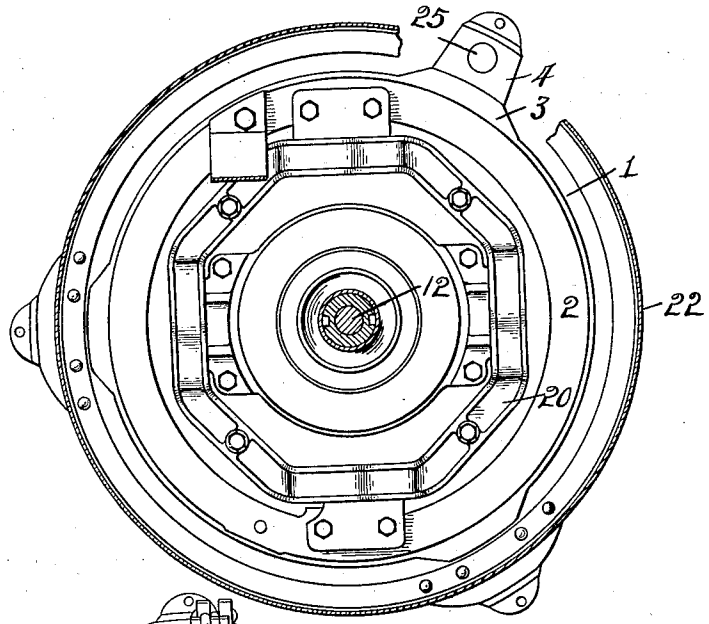
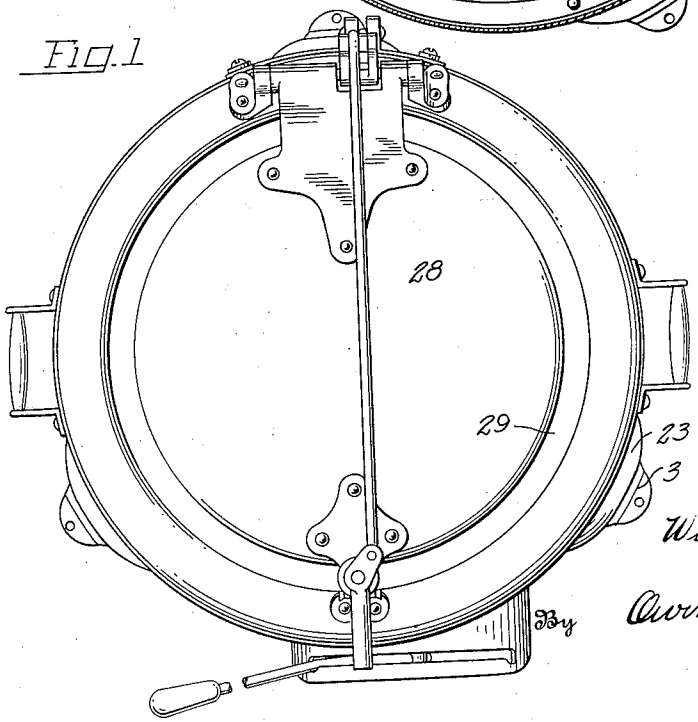


Fig. 1



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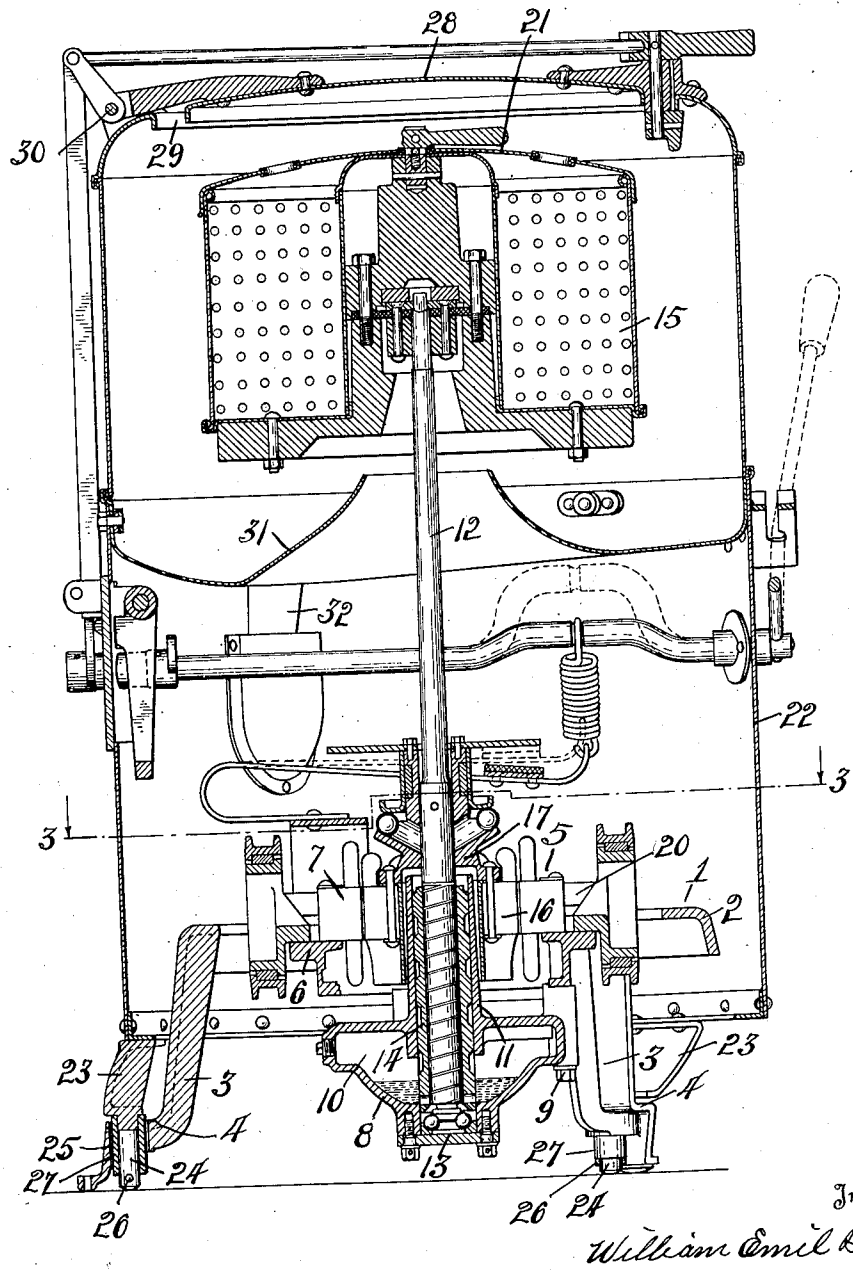
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Fig. 2.



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Patented Jan. 22, 1929. 1,699,581

UNITED STATES PATENT OFFICE.

WILLIAM EMIL BOCK, OF EAGLE POINT COLONY, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BOCK LAUNDRY MACHINE COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

CENTRIFUGAL MACHINE.

Original application filed August 24, 1923, Serial No. 659,120. Divided and this application filed April 24, 1925. Serial No. 25,569.

This invention relates to centrifugal machines, and particularly to those adapted for the extraction of liquids from material or matter containing the same. It also relates to certain improvements and refinements for use in connection with the apparatus described and claimed in United States Letters Patent No. 1,483,326, issued February 12, 1924.

In the use of high speed machines of the character described where the driven member is disposed within an enclosing case, an air cushion is generated between the driven member and casing and causes a bad lateral rocking and rebounding of the driven member within the casing when rotating at high speed. One object of the invention is to overcome or prevent this objectionable feature.

Another object of the invention is the provision of means in association with the pedestal member of the apparatus to prevent noisy rattling occurring when the apparatus is running due to connecting the enclosing shell and pedestal together.

This application is a division of my copending application Serial No. 659,120, filed August 24, 1923.

The invention is fully described in the following specification, and while in its broader aspect it is capable of embodiment in numerous forms a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a top plan view of an apparatus embodying the invention in closed operating position. Fig. 2 is a central vertical section of an apparatus embodying the invention, and Fig. 3 is a cross-section on the line 3—3 in Fig. 2.

Referring to th drawings, 1 designates a pedestal or base comprising, in the present instance, a ring-like top portion 2 and a plurality of supporting legs 3. These legs are provided intermediate their ends with outwardly offset seat portions 4 for the purpose hereinafter described.

An electric motor 5 is mounted in the pedestal 1 for yielding universal rocking movements relative thereto with its rotor axis normally vertically disposed. The motor frame 6, which carries the field 7, has its top preferably open or devoid of the customary shaft bearing and has at its underside a frame part 8, which is secured at several points around the same to the frame 6 by bolts 9. The frame part 8 forms an oil chamber 10 therein and has a sleeve 11 extending upward therefrom through the frame 6 axially thereof, preferably to a point above the same.

An upright shaft or spindle 12 is journaled at its lower end portion in the sleeve bearing 11 with its lower end resting on a step bearing 13 so that it is free to rotate within the frame, but is prevented from lateral movements relative thereto. A bushing 14, in the present instance, is provided between the sleeve bearing 11 and shaft 12. The shaft 12 projects a distance above the motor and carries at its upper end a container 15 for universal rocking movements relative thereto.

The rotor 16 of the motor is mounted for free rotation within the field 7 around the sleeve 14 concentric therewith and has at its upper end a head 17, which is mounted around the shaft 12 and rigidly pinned, or otherwise secured thereto, for rotation therewith.

To permit the motor 5, its shaft 12 and the container 15 to have universal rocking movements, the motor frame 6 is mounted in a ring-like frame member 20 for yielding rocking movements in one plane, and this frame member 20 is mounted in the pedestal ring 2 for yielding rocking movements in a plane at right angles to the plane of rocking of the motor frame in the member 20. The details of this mounting need not be more specifically described, as it does not in itself form any part of the present invention and is merely illustrated to show that the shaft 12 or support for the container 15 is mounted for universal rocking movements of the container.

The outer peripheral wall of the container 15 is perforated to permit the centrifugal discharge of liquid from within the container, and the top of the container is closed by a cover 21.

An enclosing shell or casing 22 is provided for the operating parts of the apparatus. This shell is open at its lower end and has supporting brackets or legs 23 projecting downward therefrom and provided with foot

studs 24 which project loosely through openings 25 in the respective offset portions 4 of the pedestal legs 3, and rest on the subjacent floor or other support so that each, the shell and the pedestal, has an independent support. The lower edge of the shell 22, in the present instance, extends below the top portion of the pedestal around the upper portions of the legs thereof and free from contact therewith. A pin 26 is projected through each foot stud 24 with its ends projecting therefrom, thereby preventing a removal of the studs from the pedestal leg openings and enabling the shell and pedestal and associated parts to be moved as a unit. The pins 26, however, do not normally have contact with the pedestal legs. In order to prevent a noisy rattling due to the connecting of the shell and the pedestal together and the vibration thereof when the machine is running, each foot stud 24 has a sleeve 27 of rubber or other sound deadening material mounted thereon within the opening 25, and the opening is preferably of sufficient size so that a slight space is left between its wall and the bushing. It is found in practice that this construction effectually prevents noise and rattling of the parts, and at the same time provides a simple manner of connecting the parts to retain them in assembled relation.

The upper end of the casing 22 extends above the container 15 and is open, except for a cover 28 for closing the same. This cover is hinged to one side of the top opening 29 of the casing at 30. The means for securing the cover 28 in closed position forms no part of the present invention and need not, therefore, be described. An annular trough member 31 is provided within the casing 22 below the container 15 and is adapted to catch the liquid thrown from the container and to direct it to a side drainage discharge tube 32 projecting downward from the trough bottom and to a suitable point of discharge without the casing. The trough member 31 has its central portion open to provide a free space through which the shaft 12 projects and within which it may oscillate.

During the experiments which were carried on in connection with the construction of this machine, it was found that when the container 15 was disposed within an enclosing case and driven at speed the container had a bad rocking and rebounding action that was detrimental to the operation of the machine, such action being due, it is believed, to the confining of air within the casing between it and the drum periphery, which air was rapidly driven around within the casing and presumably created an air cushion that acted on the container to cause it to rebound from one side to the other of the casing and frequently to strike the sides of the casing although spaced a considerable distance therefrom when the container was in normal position. It was found that this objectionable action could be entirely prevented by providing an air relief through the casing wall at a point or points without the periphery of the container. It was not practical, however, to provide such relief around the periperal wall of the casing inasmuch as such wall must be imperforate to prevent the passage therethrough of liquid thrown outward from the container, and the relief was, therefore, provided in the top portion of the casing by making the top opening 29 sufficiently large to provide a relief space between it and the periphery 7 of the cover 28. This relief opening, or at least a portion thereof should be disposed without the periphery of the container when in normal position within the casing, as otherwise it is found that the results are not satisfactory.

I wish it understood that my invention is not limited to any specific form, arrangement or parts, as the different features of novelty constituting the present invention may be modified in different ways and are capable of separate use without departing from the spirit of the claims.

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

1. In a machine of the class described adapted to generate rapid vibrations when running, a base frame having legs with laterally offset portions provided with vertically disposed apertures, an enclosing case for the operating parts having studs projected from its lower edge through said apertures and adapted to rest at their lower ends on the support on which the base frame rests, means preventing a withdrawal of the studs from the apertures, and sound deadening means carried by the studs within the apertures.

2. In a machine of the class described adapted to generate rapid vibrations when running, a pedestal having downwardly projecting supporting legs provided with outwardly offset portions intermediate their ends, and each offset portion having a vertically disposed aperture therethrough, a casing enclosing the operating parts and having its lower edge surrounding the upper portion of the pedestal in spaced relation thereto, said case having supporting legs projecting downward therefrom through the apertures in the pedestal legs and adapted to rest on the support on which the pedestal rests, means preventing withdrawal of the casing legs from the apertures and sound deadening members between the casing legs and the walls of the apertures through which they project.

In testimony whereof I have hereunto signed my name to this specification.

WILLIAM EMIL BOCK.