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E. G. CLEMENTS
MOTOR COMPRESSOR UNIT

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Fig. 1

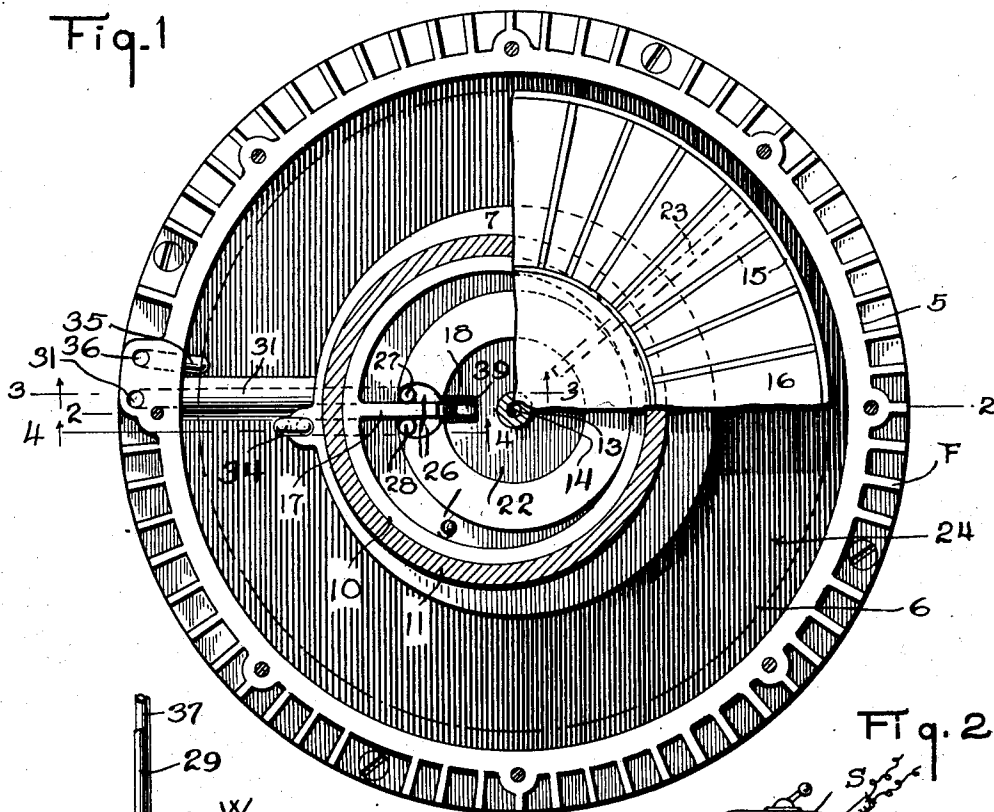


Fig. 2

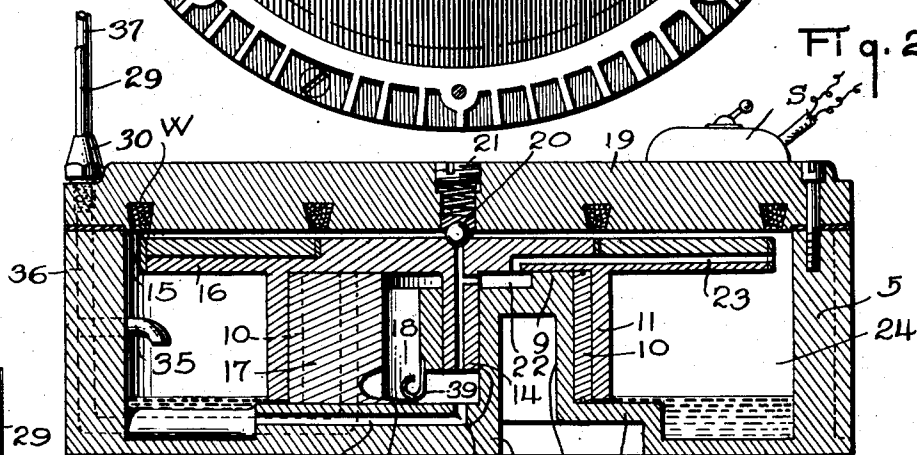


Fig. 3

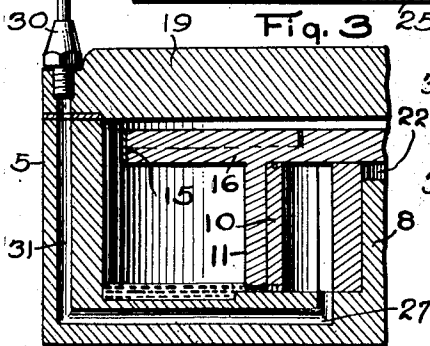
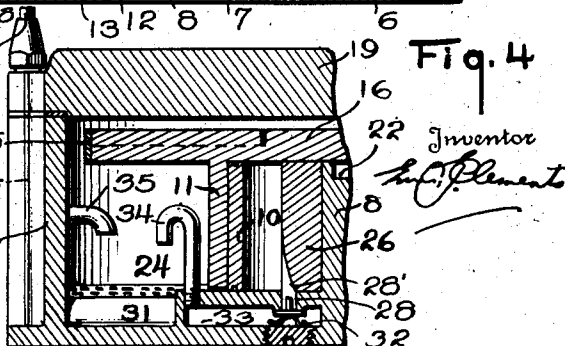


Fig. 4



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UNITED STATES PATENT OFFICE

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MOTOR COMPRESSOR UNIT

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25 Claims. (Cl. 230—137)

My invention relates to rotary compressors and more particularly to that class of compressors known as the planetary, nonrotating piston type, this class of compressors being extensively employed in household refrigerating and air conditioning cyclic systems for the compression of gaseous refrigerants where the compressor is required to run for long periods under varying operating conditions and without attention for such operation.

One object of my invention is to provide an improved compressor of this type of low manufacturing cost for which a minimum of special tools and machining operations will be required to effect perfect fitting and sealing of the relatively movable parts, which parts, are further reduced in number and greatly reduced in weight, particularly those parts required to travel eccentrically of the axis of rotation of the device.

A further object of my invention is to provide such a compressor of high efficiency and durability whereby a minimum of energy and expense is required for its operation and maintenance through a reduction in friction in the moving parts, ease and adequacy of lubrication of said parts and more perfect sealing of the compressor without losses through packed driving connections, sealing diaphragms and the like such as are common to such machines.

A still further object is to provide an exceptionally compact motor compressor unit of low vertical dimensions thereby permitting the manufacture of domestic refrigerator boxes with larger food compartments, for given size units, than has heretofore been possible.

Another object is to produce a motor compressor unit in which the stator and surrounding casing of the compressor are cast as a unit, the casing cover carries the motor field windings, and the motor armature and compressor rotor and cylinder comprise the sole moving parts of the machine and are mounted wholly within the compressor casing for direct operation by the field poles of the cover.

Another object is to produce such a motor compressor unit wherein a rotating magnetic field is produced in the compressor cover so as to act on substantially the entire surface of the disk-like rotor of the compressor and in this manner obtaining a high efficiency motor.

Other objects of my improved unit relate to means for mounting and adequately lubricating the moving parts thereof and to the provision of means for relieving excessive pressures within the compression chamber of the compressor upon

the entrance of oil slugs to said chamber, upon starting, etc., all as will appear as the description of the invention progresses and the novel features thereof are pointed out in the appended claims.

In describing my invention in detail, reference is had to the accompanying drawing, wherein like characters of reference designate corresponding parts, and in which:

Fig. 1 is a top plan view of the motor compressor with the cover removed and the motor armature or rotor partially broken away to show the integral eccentric driving flange portion thereof which depends therefrom in its association with the nonrotating, relatively movable cylinder of the compressor;

Fig. 2 is a vertical transverse section taken on line 2—2 of Fig. 1 showing the several parts of the motor and compressor assembled to provide a single gas and oil-tight casing for enclosing the relatively movable parts thereof;

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 1 and showing the inlet passage for gaseous refrigerant to the suction side of the compressor chamber or working space; and

Fig. 4 is a further fragmentary sectional view taken on line 4—4, and showing the valved outlet port and receiving chamber from the compression side of the compressor chamber, which receiving chamber is in constant communication with the interior of the sealed casing.

In the drawing, the numeral 5 indicates the vertical side wall of the casing, which as shown, is cylindrical, but which may be of any desired configuration. Cast integrally with the side wall is a bottom supporting wall 6, the central portion of which is extended up into the casing and is circumferentially stepped in its central region to provide concentric embossment portions, the outer 7 of which is of annular horizontal shelf-like formation, and the inner or central portion 8 is of a cylindrical formation which rises perpendicularly from the shelf-like portion to a height slightly less than the side wall 5 of the casing. The adjoining surfaces of the portions 7 and 8 are ground to accurate dimensions to extend at right angles to each other, as is also the annular horizontal surface of the top wall 9 of the cylindrical portion 8. These ground right angularly disposed annular surface portions 7, 8 and 9 of the embossment constitute the stator of the compressor on which the eccentrically disposed relatively movable ring-like wall portions 10 and 11 of the rotor assembly are supported in sealing engagement therewith.

As shown, the vertical and horizontal wall por-

tions of the stator may be hollowed out on the under or bottom side of the casing to lighten the structure and provide a space in which air may circulate to cool the stator. At the center of this hollow embossment structure is formed an integral web portion 12 which extends radially from one side of the cylindrical wall portion 8 and from the top wall 9 to the bottom wall 6 of the casing. A centrally disposed bore 13 is formed in this web which provides the center bearing for the rotor assembly. Rotatably mounted in this bore 13 is a vertical stub shaft 14 of a disk-like armature or rotor of an electric motor indicated more or less diagrammatically by the connected bars and rings 15 which are shown embedded in the upper surface of a fly wheel-like disk 16. From the lower face of this rotor disk depends the annular cylinder driving flange or ring portion 11 which is eccentrically disposed with respect to the axis of rotation of the disk 16 and of considerably greater interior dimensions than the diameter of the cylindrical wall 8 of the compressor stator. As shown in Fig. 1 the ring-like compression cylinder 10 is mounted closely within the flange 11, this cylinder being proportioned to make line contact throughout its height with the cylindrical stator wall 8 and to be spaced therefrom at all other points to provide a crescent-shaped working space between them. A blade or partition member 17 of equal height with said cylinder 10 is connected to the inner wall thereof and extends radially therefrom into a vertical slot 18 in the cylindrical wall of the stator which slot extends radially into the web 12 of the stator casting. The compression cylinder 10 is thus slidably carried between the rotary driving flange 11 and cylindrical stator wall 8 so as to execute an oscillatory movement relative to the stator and produce a rolling progression of line contact therewith during rotation of the disk 16. When the parts are assembled as above described the upper and lower sealing edges of the ring or cylinder 10 and its radially extending blade 17 are confined between the opposed ground surfaces of the rotor disk 16 and shelf-like portion 7 of the stator embossment. The ring-like driving flange 11 which closely surrounds the cylinder 10 is preferably formed integral with the disk 16 at its upper end, and being of a height substantially equal to that of the cylinder 10, may also slidably engage the upper surface of the shelf-like portion 7 of the stator. Inwardly of the cylinder driving flange 11 and cylinder 10 the rotor disk 16 is adapted to frictionally engage and ride upon the annular top wall portion 9 of the stator embossment with which it normally has sealing engagement.

Seated upon the vertical side walls 5 of the casing is an enclosing cover member 19, which cover member is centrally bored and threaded at its upper end of the bore to receive a spring pressed thrust bearing 20, the tension of the spring of which is adjustable by a screw plug 21. As shown in Fig. 2 the thrust bearing 20 yieldably engages the top center bearing surface of the rotor disk 16 holding the moving parts of the compressor in desired frictional relationship under normal pressures developed within the compressor cylinder. If, however, an excessive or dangerous pressure is reached within the working space of the cylinder the rotor will be forced upward slightly and the pressure relieved over the upper end surface of the partition member 17 to the low pressure side of the compressor or over the wall 9 into the oil receiving recess 22, which recess is in

constant communication with the interior of the casing through a radial duct or ducts 23 in the rotor disk 16. The construction herein disclosed also provides for the automatic unloading of the compressor without the necessity of additional parts or mechanism, the rotor disk lifting under the influence of the magnetic field developed in the motor stator on starting, in the manner already described, and relieving the compressor until the motor gets up to speed.

It will be understood, however, that the ducts 23 normally function as a centrifugal pump to draw and circulate oil from the oil reservoir provided by the horizontal bottom casing wall 6 of the gas chamber 24, through duct 25 and vertical bore 13, hollow stub shaft 14, and blade slot 18 which are in communication with the oil recess 22. From the outer end of the ducts 23, which are at the periphery of the rotor disk 16, the oil is discharged against the vertical casing wall 5 where it is cooled by external heat radiating fins F, and returned to the reservoir. As shown in Fig. 2 the oil level in the reservoir is preferably maintained slightly above the level of the shelf-like step 7 of the stator embossment so that the lower ends of the ring-like cylinder 10 and its driving and confining flange 11 of the rotor disk 16 will be insured adequate lubrication under all operating conditions.

The eccentrically disposed driving flange 11 and compression cylinder 10 are preferably constructed as thin wall rings, i. e., the transverse dimensions of these rings are no more than is required for adequate sealing with the cooperating surfaces, so as to reduce to a minimum the weight of the eccentrically moving parts and the frictional losses therebetween. I have, therefore, shown the radial partition or sealing blade 17 as a rigid part of the cylindrical ring 10 which is slidably engaged on opposite sides by a split vertical rocking bearing member 26, the arcuate side portions of which are vertically recessed adjacent the sides of the blade 17 to register with inlet and outlet ports 27 and 28, respectively, in the horizontal stator wall 7 of the working space of the compressor and disposed on opposite sides of the blade 17. It will be observed that the vertical recesses in the side portions of the rocking bearing 26 need not extend throughout the height of the bearing member as indicated at 28' in Fig. 4.

In the operation of the device the windings indicated at W, of the motor stator and casing cover 19 may be energized by a suitable source of current controlled by the switch S, which windings produce a rotating magnetic field adjacent the upper surface of the disk type armature 16 causing the armature to rotate.

Gaseous refrigerant enters the device through the pipe line 29 and fitting 30, which latter is threaded into the conduit 31 in the side wall 5 of the casing. This conduit 31 extends horizontally through the bottom wall 6 and communicates at its inner end with the inlet port 27, which port is in communication with the working space of the compressor on the receiving side of the blade 17, as shown in Figs. 1 and 3. Upon each revolution of the rotor disk 16 and its eccentrically disposed compression cylinder driving flange 11, gas is drawn into the working space through port 27 and compressed between the compression ring or cylinder 10 and the cylindrical wall 8 of the stator embossment on the compression side of the blade 17 and discharged through the outlet port 28, check valve 32, valve chamber 33 and goose 75

neck discharge pipe 34, into the gas chamber 24 of the casing. From the chamber 24 the compressed gas is led to a suitable condenser (not shown) through pipe 35 and conduit 36 and pipe line 37. On starting or in the event an excessive pressure is developed within the working space of the compressor, such as would cause the rotor disk 16 to rise slightly under the compression of the spring pressed thrust bearing 20 to relieve the pressure, as above explained, the compression cylinder 10 is held in sealing relation with the horizontal surface of the shelf-like portion 7 of the stator abutment by engagement of the tail portion 38 of the radial blade 17 beneath the spring member 39 at the rear of the blade slot 18.

While I have shown but one embodiment of my invention, it will be apparent to those skilled in the art that changes may be made therein without departing from the spirit and scope of the invention as herein disclosed and covered by the appended claims.

I claim:

1. A compressor unit comprising a gas-tight casing, a compressor stator having a vertical cylindrical wall rigidly carried by the bottom wall of said casing, a disk-like rotor journaled on the top of said stator for rotary sealing engagement therewith, an eccentrically disposed ring-like flange depending from said rotor and surrounding said stator, and a compressor cylinder member mounted within said flange for operation thereby relative to the cylindrical wall of said stator.

2. A compressor unit comprising a gas-tight casing, a compressor stator having a vertical cylindrical wall rigidly carried by the bottom wall of said casing, a compressor cylinder member surrounding said stator and cooperating therewith to provide a working space therebetween, a disk-like rotor frictionally engaging the upper annular end surfaces of said stator and cylinder member and extending therebeyond, and means operatively connecting said cylinder member and rotor at points eccentric to the vertical center of said stator.

3. A compressor unit comprising a gas-tight casing, a compressor stator having a vertical cylindrical wall rigidly carried by the bottom wall of said casing, a compressor cylinder member surrounding said stator and having sealing engagement with said bottom wall and stator wall to provide a working space therebetween, and a rotor mounted for rotation within said casing on said stator and cylinder member and having a flat under surface in normal frictional sealing engagement with the upper annular end surfaces of the stator and cylinder member, and said rotor having an operative connection with said cylinder member at points eccentric to the vertical center of said stator.

4. A compressor unit comprising a gas-tight casing having a supporting bottom wall, side walls and a top, a compressor stator having a cylindrical wall upstanding from the bottom wall of said casing and terminating short of said top, a compressor cylinder member surrounding the cylindrical wall of said stator and cooperating therewith to provide a working space therebetween, a rotor frictionally mounted on the upper end surface of said stator and cylinder for rotatable sealing engagement therewith adjacent the top of said casing, said rotor having means cooperating with said cylinder member at points surrounding said stator and eccentric to the vertical center thereof, to cause said cylinder member to move relative to said stator and casing.

5. In a compressor unit, a body comprising an integral gas-tight casing having a supporting bottom wall with an elevated horizontal supporting portion, enclosing side walls having upper edges adapted to receive an enclosing cover member, and a centrally disposed compressor stator having a cylindrical wall upstanding from said elevated horizontal portion of said bottom wall, said casing having a re-entrant bottom providing an air space within said upstanding stator, and said bottom and side walls outwardly of said elevated bottom wall portion providing a reservoir for oil.

6. A compressor unit comprising a gas-tight casing having a supporting bottom wall with a raised horizontal portion, side walls and a top, a compressor stator having a cylindrical wall upstanding from the horizontal portion of said bottom wall as a rigid part thereof, a compression cylinder member surrounding the cylindrical wall of said stator and having sealing engagement with said stator wall and horizontal portion of said bottom wall and cooperating therewith to provide a working space therebetween, a rotor rotatably mounted within said casing and having a horizontal face in sealing engagement with said stator and cylinder member and extending therebeyond, means operatively connecting said cylinder member and rotor at points eccentric to the vertical center of said stator, an oil and compressed fluid reservoir in said casing surrounding said stator and rotor elements, and said rotor including means communicating with said reservoir and operative during the rotation thereof to circulate oil through said stator and associated parts and discharging the same onto the side walls of said casing in returning the same to said reservoir.

7. A motor compressor unit comprising a gas-tight casing having a supporting bottom wall, side walls and a top, a motor stator carried by the top of said casing, a compressor stator upstanding from the bottom wall of said casing, and a motor rotor and compressor cylinder assembly interposed between said stators and mounted for movement relative thereto, said rotor including a disk having a flat under surface portion supported in sealing engagement on the upper end surfaces of the compressor stator and cylinder, and said rotor having means surrounding said compressor stator and eccentrically disposed with respect to the vertical axis thereof, to operatively connect the motor rotor and compressor cylinder of said assembly for relative movement about said last mentioned stator.

8. A compressor comprising a stator having a horizontal supporting wall portion and a cylindrical wall portion upstanding therefrom, a rotor mounted for rotation on the upper end surface of said cylindrical wall portion and having a horizontal wall portion extending parallel to the horizontal wall portion of said stator for sealing engagement with the upper end surface of said cylindrical wall portion, a compression cylinder member surrounding said cylindrical wall portion and having sealing engagement therewith and with said horizontal wall portions, said cylinder member cooperating with said wall portions of said stator and rotor to provide a working space therebetween, and means connecting said cylinder member to said stator and rotor for imparting movement to said cylinder member relative to said walls of said stator and rotor.

9. A compressor comprising a stator having a horizontal supporting wall portion and a cylindrical wall portion upstanding therefrom, a rotor

mounted for rotation on the upper end surface of said cylindrical wall portion and having a horizontal wall portion extending parallel to the horizontal wall portion of said stator for sealing engagement with the upper end surface of said cylindrical wall portion, a compression cylinder member surrounding said cylindrical wall portion and having sealing engagement therewith and with said horizontal wall portions, said cylinder member cooperating with said wall portions of said stator and rotor to provide a working space therebetween, and means operatively connecting said cylinder member and horizontal wall portion of said rotor for imparting movement to said cylinder relative to said stator and rotor.

10. A compressor comprising a stator having a horizontal supporting wall portion and a cylindrical wall portion upstanding therefrom, a rotor mounted for rotation on the upper end surface of said cylindrical wall portion and having a horizontal wall portion extending parallel to the horizontal wall portion of said stator for sealing engagement with the upper end surface of said cylindrical wall portion, a compression cylinder member surrounding said cylindrical wall portion and having sealing engagement therewith and with said horizontal wall portions, said cylinder member cooperating with said wall portions of said stator and rotor to provide a working space therebetween, and means depending from the horizontal wall portion of said rotor and closely surrounding said cylinder member for imparting movement to said cylinder member relative to said stator and rotor.

11. A compressor comprising a stator having a horizontal supporting wall portion and a cylindrical wall portion upstanding therefrom, a rotor mounted for rotation on the upper end surface of said cylindrical wall portion and having a horizontal wall portion extending parallel to the horizontal wall portion of said stator for sealing engagement with the upper end surface of said cylindrical wall portion, a compression cylinder member surrounding said cylindrical wall portion and having sealing engagement therewith and with said horizontal wall portions, said cylinder member cooperating with said wall portions of said stator and rotor to provide a working space therebetween, means operatively connecting said cylinder member and horizontal wall portion of said rotor for imparting movement to said cylinder relative to said stator and rotor, and means associated with said rotor for normally maintaining said rotor in predetermined operating engagement with said cylinder member and stator.

12. A compressor comprising a stator having a horizontal supporting wall portion and a cylindrical wall portion upstanding therefrom, a rotor mounted for rotation on the upper end surface of said cylindrical wall portion and having a horizontal wall portion extending parallel to the horizontal wall portion of said stator for sealing engagement with the upper end surface of said cylindrical wall portion, a compression cylinder member surrounding said cylindrical wall portion and having sealing engagement therewith and with said horizontal wall portions, said cylinder member cooperating with said wall portions of said stator and rotor to provide a working space therebetween, means operatively connecting said cylinder member and horizontal wall portion of said rotor for imparting movement to said cylinder member relative to said stator and rotor, and adjustably yieldable means associated with said

rotor for normally maintaining said rotor in predetermined operative engagement with said cylinder member and stator, and means connecting said cylinder member and stator in operative relation with respect to each other independently of said rotor and last mentioned means.

13. In a compressor unit a gas-tight casing the bottom wall of which is formed with a circumferentially stepped embossment providing a central vertical cylindrical portion and an outer annular horizontal portion surrounding said cylindrical portion and elevated above the bottom wall of the casing, and a relatively movable compressor cylinder assembly surrounding said cylindrical portion of said embossment and having sealing engagement therewith and with said annular horizontal portion, and said assembly including means rotatable relative to said cylinder for moving said cylinder relative to the walls of said embossment and having sealing engagement with the upper ends of said cylinder and embossment.

14. A compressor having a stationary horizontal base portion and a vertical cylindrical stator member rigidly supported thereby, a ring-like cylinder member surrounding said stator member and having sealing contact with said base portion and said stator member, a disk-like rotor mounted for sealing engagement with the upper end of said stator and cylinder member, said cylinder member cooperating with said stator, base and rotor to provide a crescent-shaped working space therebetween, a blade connecting said cylinder member and stator and dividing said working space into suction and compression chambers, and means operatively connecting said cylinder member and rotor at points eccentric to the vertical center of said stator.

15. A compressor having a stationary horizontal base portion and a vertical cylindrical stator member rigidly supported thereby, a ring-like cylinder member surrounding said stator member and having sealing contact with said base portion and said stator member, a disk-like rotor mounted for sealing engagement with the upper end of said stator and cylinder member, said cylinder member cooperating with said stator, base and rotor to provide a crescent-shaped working space therebetween, a blade connecting said cylinder member and stator and dividing said working space into suction and compression chambers, and an eccentrically disposed flange member depending from said disk-like rotor and closely surrounding said cylinder member for imparting movement to said cylinder relative to said rotor and stator members.

16. A compressor having a vertical cylindrical stator member, a ring-like cylinder member surrounding said stator member and cooperating therewith to provide a crescent-shaped working space therebetween, a blade connecting said cylinder member and stator and dividing said working space into suction and compression chambers, a disk-like rotor mounted to ride on the upper end of said stator for sealing engagement therewith and with said cylinder and blade members, and an eccentrically disposed driving flange depending from said rotor and surrounding said cylinder member.

17. A compressor having a vertical cylindrical stator member, a ring-like cylinder member surrounding said stator member and cooperating therewith to provide a crescent-shaped working space therebetween, a blade connecting said cylinder member and stator and dividing said work-

ing space into suction and compression chambers, a disk-like rotor mounted in sealing engagement with the upper end of said stator and cylinder, and means operatively connecting said disk-like rotor and cylinder member.

18. A motor compressor unit comprising a gas-tight chamber having a stationary horizontal base portion and a vertical cylindrical compressor stator member rising therefrom as a rigid part thereof, a ring-like cylinder member surrounding said stator and supported on said base portion, means radially connecting said cylinder member to said stator for rolling contact therewith, a disk-like armature mounted for rotary sealing engagement with the upper ends of said stator and cylinder member, an eccentrically disposed flange depending from said armature and operatively engaging said cylinder member, and a motor stator fixedly carried by said casing in cooperative relation with said armature.

19. A motor compressor unit comprising a gas-tight casing having a supporting horizontal base portion and a vertical cylindrical compressor stator member rising therefrom as a rigid part thereof, said casing having side walls laterally spaced from said stator member and a top extending from said side walls over said stator member, a ring-like cylinder member surrounding said stator member and supported on said base portion, means radially connecting said cylinder member and stator member for relative nonrotary movement, a disk-like armature mounted for rotary sealing engagement with the upper ends of said stator member and cylinder, an eccentrically disposed flange depending from said armature and closely surrounding said cylinder member, a motor stator carried by the top of said casing in vertical spaced relation to said armature for cooperation therewith, and yieldable means for normally maintaining said armature in predetermined operative relation with said compressor stator member and cylinder member and with said motor stator.

20. A compressor unit including a compression cylinder member, end walls therefor, one of which end walls is adapted for endwise movement during the operation of the compressor, a blade housed in the cylinder and intake and exhaust ports communicating with the cylinder and wherein the blade and cylinder planetate for compression of fluids introduced therein, means operating on the movable end wall for maintaining the sealing engagement of both end walls against the blade member during the normal operation of the compressor but yieldable to permit unloading of the compressor by end-wise movement of the movable end wall to permit passage of fluid around an end of the blade in the cylinder from the high pressure side thereof to the low pressure side thereof, said movable end wall constituting the rotary element of an electric driving motor and having a connection with said cylinder member of the compressor whereby planetary movement may be imparted thereto and a stator member cooperating with said rotary element for driving the same, said stator element operable on said rotary element to move the same against the sealing means to unload the compressor during the starting operation thereof.

21. A compressor unit including a compression cylinder member, end walls therefor, one of which end walls is adapted for endwise movement during the operation of the compressor, a blade housed in the cylinder and intake and exhaust

ports communicating with the cylinder and wherein the cylinder planetates for compression of fluids introduced therein, spring means operating on the movable end wall for maintaining the sealing engagement of both end walls against the blade member during the normal operation of the compressor but yieldable to permit unloading of the compressor by an end-wise movement of the movable end wall to permit passage of fluid around an end of the blade in the cylinder from the high pressure side thereof to the low pressure side thereof, said movable end wall constituting the rotary element of an electric driving motor and having a connection with said cylinder member of the compressor whereby planetary movement may be imparted thereto, a stator member cooperating with said rotary element for driving the same, said stator element operable on said rotary element to move the same against the sealing means to unload the compressor during the starting operation thereof, and means for adjusting the pressure of the spring means for maintaining the sealing engagement of the end walls with the blade.

22. A compact motor compressor unit comprising a gas tight casing having relatively flat end walls, wherein the stator member of the motor comprises one of the end walls, a rotor member of the motor and a fluid compressor in direct driving relationship with respect to each other with their axes intersecting the flat walls of the casing, said compressor having a stator member extending vertically from the other of the flat walls of the casing and terminating adjacent to the motor stator flat wall thereof, and a rotor member of the motor and compressor including a disk-like member in sealing engagement with the terminal end of said compressor stator, between it and the motor stator flat wall of the casing.

23. A compact motor compressor unit comprising a gas tight casing having relatively flat end walls, wherein the stator member of the motor comprises one of the end walls, a rotor member of the motor and a fluid compressor in direct driving relationship with respect to each other with their axes intersecting the flat walls of the casing, said compressor having a stator member extending vertically from the other of the flat walls of the casing and terminating adjacent to the motor stator flat wall thereof, a rotor member of the motor and compressor including a disk-like member in sealing engagement with the terminal end of said compressor stator between it and the motor stator flat wall of the casing, and means for yieldingly securing said rotor in its sealing engagement with the compressor stator.

24. A compact motor compressor unit comprising a gas tight casing having relatively flat end walls, wherein the stator member of the motor comprises one of the end walls, a rotor member of the motor and a fluid compressor in direct driving relationship with respect to each other with their axes intersecting the flat walls of the casing, said compressor having a stator member extending vertically from the other of the flat walls of the casing and terminating adjacent to the motor stator flat wall thereof, a rotor member of the motor and compressor including a disk-like member in sealing engagement with the terminal end of said compressor stator, between it and the motor stator flat wall of the casing, means for yieldingly securing said rotor in its sealing engagement with the compressor stator,

and means operable from the exterior of the casing for adjusting said yieldable securing means.

25. A compact motor compressor unit comprising a gas tight casing having relatively flat top and bottom walls, the inner faces of said walls being formed to provide a motor stator and a compressor stator respectively with the opposed faces of said stators in adjacent axially spaced relationship, said compressor stator having inlet and discharge ports, a disc of less diameter than the interior of said casing interposed between the opposed faces of said stators, the opposed faces of said stators being spaced a distance

slightly greater than the thickness of said disc, means on the upper face of said disc and cooperating with the stator on said top wall to provide the armature of the motor, means on the lower face of said disc and cooperating with the stator on said bottom wall to provide the rotor of the compressor, a member eccentrically surrounding said compressor stator and cooperating therewith and with said disc to provide a compression chamber, and means mounting said disc for rotation about a fixed axis relative to said stators.

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