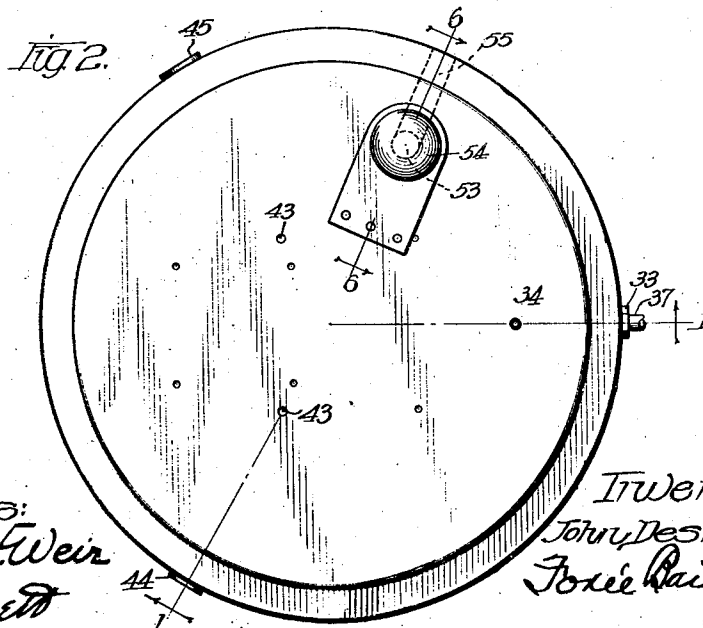
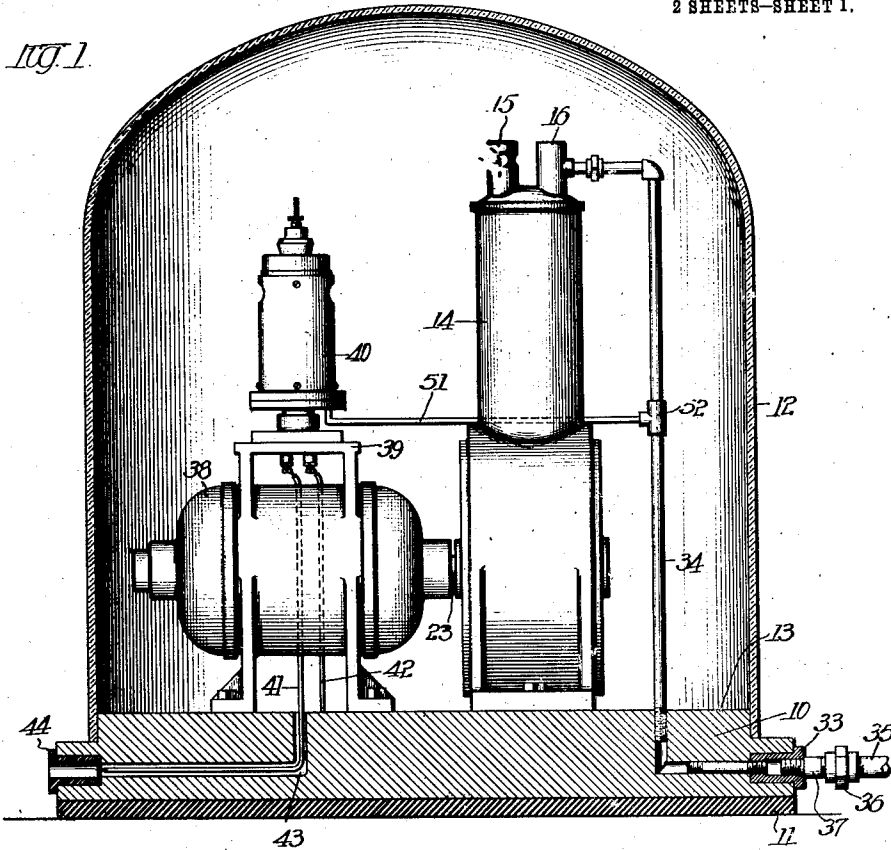


J. DESMOND.
AIR COMPRESSING APPARATUS.
APPLICATION FILED APR. 22, 1912.

1,056,511.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.



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Fig. 3.

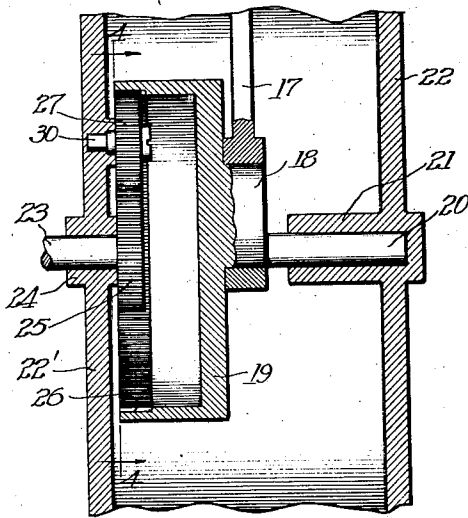


Fig. 5.

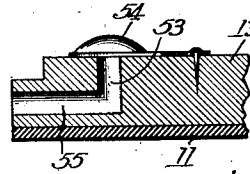
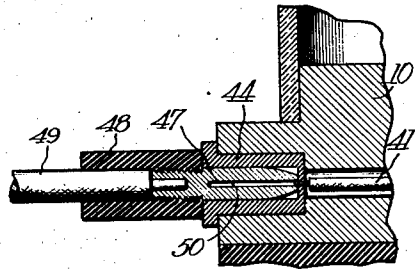
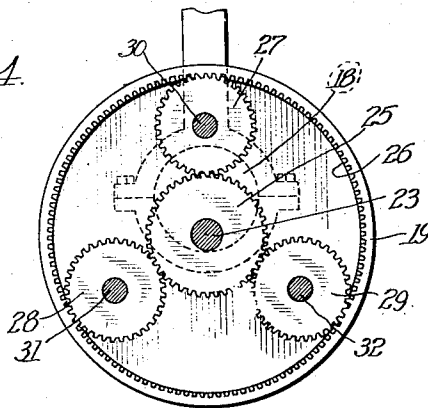


Fig. 6.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN DESMOND, OF WILMETTE, ILLINOIS, ASSIGNOR TO WILLIAM S. POTWIN, OF CHICAGO, ILLINOIS.

AIR-COMPRESSING APPARATUS.

1,056,511.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed April 22, 1912. Serial No. 692,251.

To all whom it may concern:

Be it known that I, JOHN DESMOND, a citizen of the United States, residing at Wilmette, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Air-Compressing Apparatus, of which the following is a specification.

My invention relates to improvements in all air compressing apparatus.

One of the objects of my invention is to provide a self-contained air compressing apparatus consisting of a compressor and a properly connected power motor, arranged on a common base and completely housed, that will operate automatically to maintain a given pressure of air, when connected to an air receptacle, and which has connecting means or electric and air supply terminals extending to the motor and to the air compressor, respectively, passing through the base on which the devices are mounted, said connecting means having terminals in the peripheral edge of the base, to which connections may be made with the source of electric supply and with the air receiver, without the necessity of disturbing the housing covering.

My air compressing apparatus is especially adapted for situations where it is desired to maintain a small quantity of compressed air, in a reservoir, at uniform pressure, such as for inflating automobile tires, for dental purposes and for various other uses, for which it is especially adaptable.

With these, and other objects in view, which will become apparent to persons skilled in the art, my invention consists in the arrangement and combination of parts as hereinafter referred to and more specifically pointed out in the appended claims, special reference being had to the drawing, wherein—

Figure 1 is a vertical central section of the device. Fig. 2 is a plan view of the base; Fig. 3 is an enlarged vertical section through the casing of the compressor showing the means for connecting the high-speed motor to the relatively low speed compres-

sor; Fig. 4 is an enlarged section taken on line 4—4 of Fig. 3; Fig. 5 is an enlarged section through that portion of the base in which the electric terminal is contained, showing the terminal with the connecting wires in place; Fig. 6 is a section taken on line 6—6 of Fig. 2, showing an air inlet valve.

In all of the views the same reference characters indicate similar parts.

10 is a base which is preferably circular in form and may be made of any suitable material, an insulating material is preferred, and 11 being a sub-base which may consist of a disk of relatively soft material such as rubber, which acts as a cushion and prevents injury to polished surfaces upon which the device may be placed.

12 is a dome shaped housing, preferably of glass, made to surround the operating mechanism contained upon the base 10, and being practically impervious to dust, etc. The base is reduced in diameter, as at 13, to provide a shoulder upon which the housing 12 may rest.

14 is an air compressor having the usual reciprocating piston and provided with an air-intake valve housing 15, and an air outlet valve 16. A connecting rod 17, connects the piston within the cylinder of the air compressor, with the eccentric 18. The eccentric 18 is preferably an integral part of a hollow internal gear wheel 19. Extending laterally from the eccentric 18, is a journal 20, which is concentric with the wheel 19, and which finds bearing in the hub 21, of the casing 22.

The motor shaft 23, finds bearing in the perforated boss 24 and carries on its end a gear wheel 25.

The wheel, 19, is provided with an internal gear, as at 26, and the gear wheel 25 which is rotatably fixed to the motor shaft 23, meshes into three bodily stationary and idler gears 27, 28, and 29, which in turn mesh into the gear 26, thereby transmitting the power from the gear wheel 25, of the motor shaft, to the connecting rod 17 of the compressor, at a reduced speed.

These idler wheels are rotatably supported upon studs 30, 31 and 32, respectively, that are secured in the side 22' of the casing, and by means of this transmission the relative speed of the motor shaft 23 with respect to the shaft 20 of the compressor is inversely proportional to the diameter of the respective driving and driven gears 25 and 19, as will be understood from inspection of Fig. 4. Small electric motors usually run at high speeds and to secure the best operation of the compressor it is necessary that its piston should vibrate at a relatively low speed; therefore, this transmitting gearing serves as a means for reducing the speed of the driven shaft from the motor shaft by a practical and compact means.

The piston and cylinder of the compressor are such as are usually used in devices of this general character and the peculiar arrangement and internal electrical connections of the motor are features of no special interest.

The terminal, 33, for the air conducting pipe 34, is secured in the circumferential edges of the base, and the pipe 35, leading to the receptacle designed to receive compressed air, is secured to the terminal 33, by the union 36. Pipe 34 passes through a portion of the base 10, as shown in Fig. 1, and is connected to the discharge valve 16 of the compressor.

The electric motor 38, is secured upon the base 10 and is directly connected with the compressor 14. Upon the top of the motor is an integral bench 39, and supported thereon is a motor controller cut-out device, 40. This particular device is specifically disclosed and claimed in my co-pending application Serial No. 685,941, filed March 25, 1912. Wires 41 and 42 are connected to the motor controller of the motor and pass through the base portion 10 as at 43 and to electric terminals 44 and 45 that are secured to the base and are adapted for the reception of terminal plugs 46 and 47. The terminal plugs are provided with an insulating covering 48 and are secured permanently to wire 49 which leads to a source of electrical supply. These electrical plugs are split as at 50, so as to make frictional contact with the bore of the terminals 44 and 45. The plugs 47 may be withdrawn from and inserted in the receptacles 44 and 45.

The motor controller 40, contains a special pressure-responsive diaphragm in a casing which is connected to the air pressure system by means of pipe 51, as at 52. The diaphragm within the motor controller, controls the electrical contacts that are connected with the motor, so that when pressure in the air pressure system falls below a given point the contacts leading to the motor are thereby closed and the motor is

started and when pressure within the air pressure system has reached the predetermined point the same will be operated to open the circuit and thereby stop the motor. This operation is fully explained in the application to which I have hereto referred.

An air port 53, leads through the base 10, to the outside of the housing, as shown in Figs. 2 and 6. The port is covered by means of a valve 54, so that when there is insufficient air within the housing to supply the compressor the port will automatically open and permit more air to enter the housing through the conduit 55 and to the port.

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

1. In a device of the character described, a flat solid base, a compressor mounted upon said base and having a crank casing (22), a motor mounted upon said base and having a casing providing oppositely facing tables, one secured to the base, and having a shaft coaxially arranged with respect to said crank casing, gearing connections between said motor shaft and compressor, said connections being inclosed within said crank casing, whereby the motor and compressor are immediately adjacent upon said base with none of the power-transmitting parts exposed or visible save a minimum of the motor shaft between the substantially contacting motor and compressor casings, a pressure-responsive cut-out device mounted upon the other table of said motor casing at substantially the level of the cylinder of said compressor, said base having suitable perforations extending from its upper surface to its exposed vertical side surface, connections for the motor and for the compressor extending through said perforations from above the base, and an imperforate cover, tightly engaging the base near its periphery, said base having a valved perforation for admission of air from its exposed vertical side wall to the inclosed space above said base for purposes as described.

2. In a device of the character described, a flat solid base, a compressor mounted upon said base having a crank casing (22) and a cylinder thereabove, said compressor having suitable gearing connections within its crank casing, a motor having its shaft coaxially arranged with respect to said crank casing, a pressure-responsive cut-out device mounted upon the motor, horizontally aligning with the cylinder of the compressor, said base provided with a shoulder near its periphery, and an imperforate cover tightly engaging said shoulder and overlying said compressor, motor, and pressure-responsive device, said base having two perforations for the motor terminal wires, one perforation for the compressor pipe and a fourth

valved perforation, each said perforation
having a vertical portion and a horizontal
portion whereby it may extend from the
upper surface of the base within said clo-
5 sure to the outer exposed vertical surface of
the base below the level of said shoulder,
for purposes described.

In testimony whereof I hereunto set my
hand in the presence of two witnesses.

JOHN DESMOND.

In the presence of—

FORÉE BAIN,

MARY F. ALLEN.