Aug. 19, 1924.

1,505,114

C. WEBER

AIR COMPRESSOR

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Fig. 1.

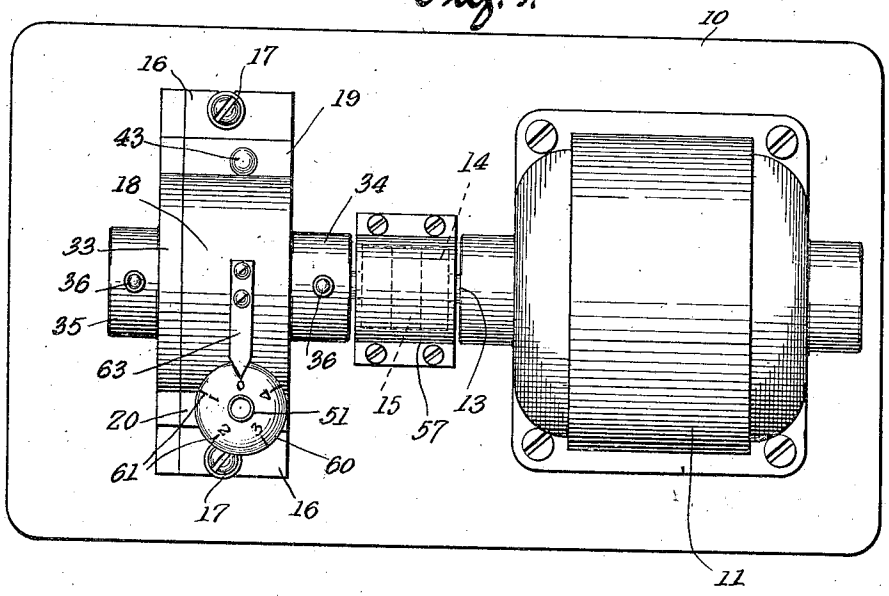
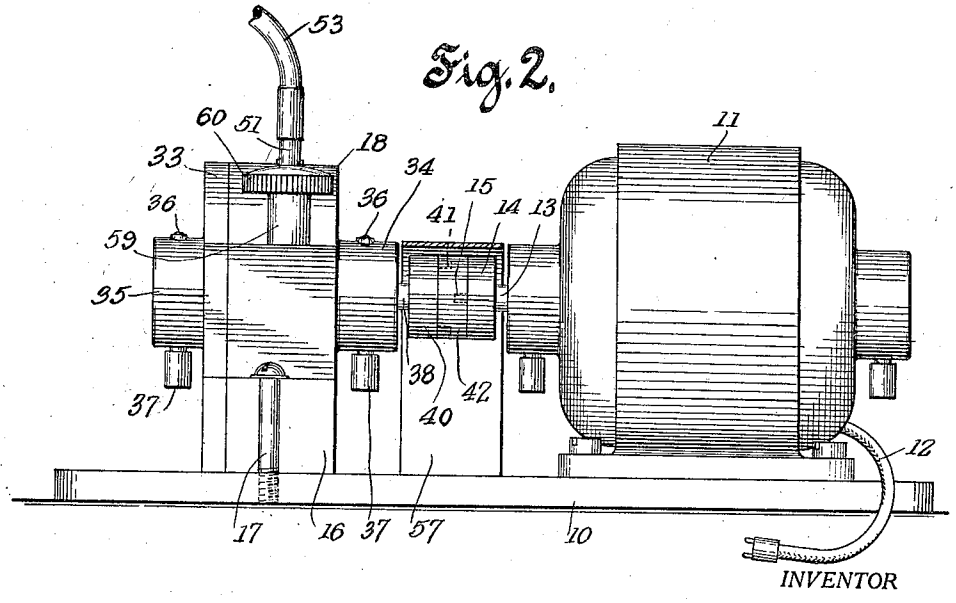


Fig. 2.



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Fig. 3

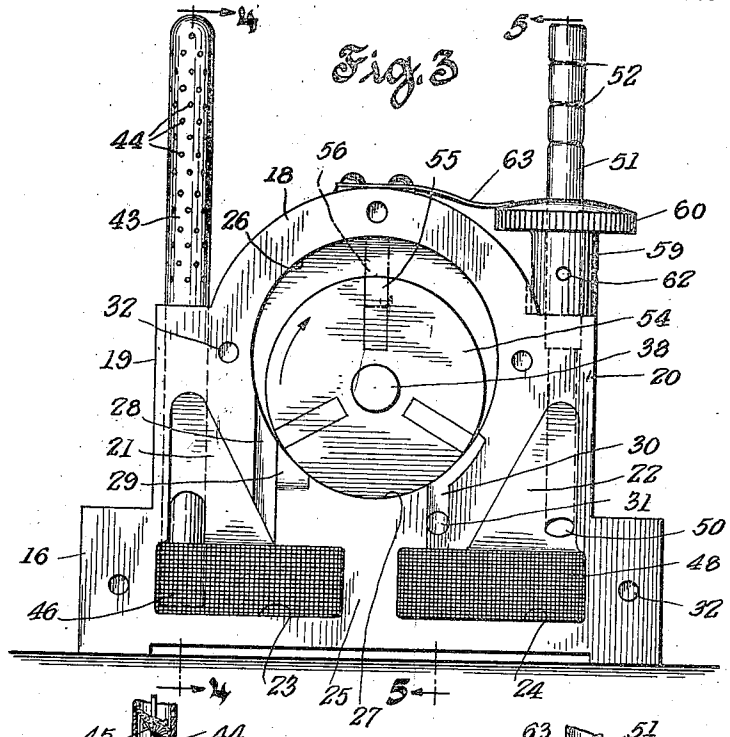


Fig. 4.

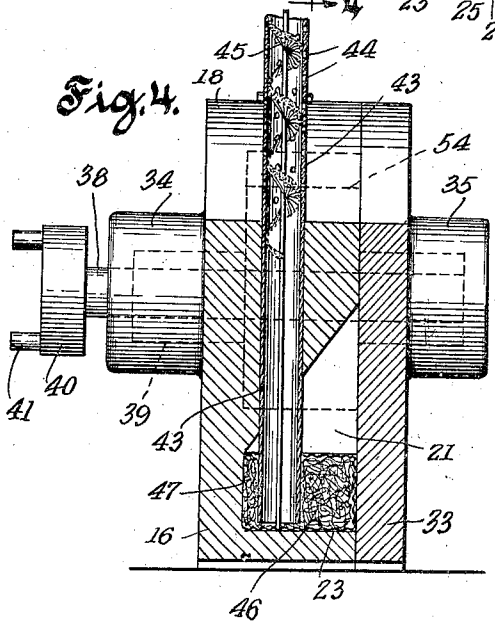
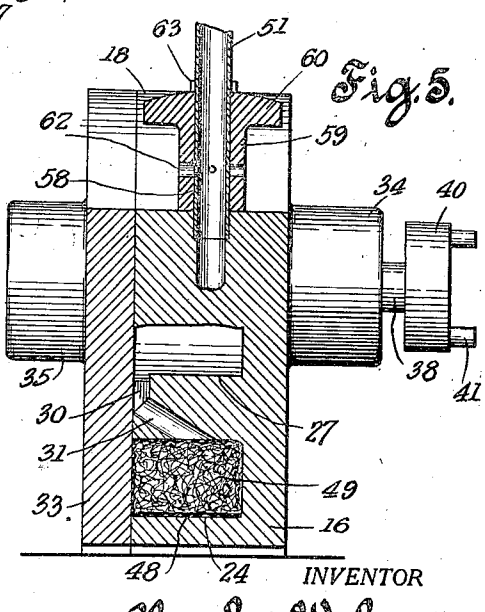


Fig. 5.



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Patented Aug. 19, 1924. 1,505,114

UNITED STATES PATENT OFFICE.

CHARLES WEBER, OF NEWARK, NEW JERSEY, ASSIGNOR TO WEBER PEARL BATH COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

AIR COMPRESSOR.

Application filed April 19, 1923. Serial No. 633,063.

To all whom it may concern:

Be it known that I, CHARLES WEBER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Air Compressors, of which the following is a specification.

This invention relates to air compressors, particularly of the rotary type, directly coupled with a motor upon a base common to both.

One object of the invention is to provide means for thoroughly filtering the air in its passages through the compressor, cleansing and removing impurities from the same.

Another purpose is to produce means for adjustably controlling the pressure of the air delivered by the discharge pipe without change in the speed of compressor.

A further aim is in the provision of an air compressor directly but flexibly connected with a motor upon a common base, forming a unit which can be moved as required and become instantly available.

These and further objects, which will hereafter become apparent, are accomplished by the novel arrangement of parts as set forth in the following specification and illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of an embodiment of the invention as completely assembled with its motor.

Figure 2 is a side elevational view of the same, parts being broken away to show the construction.

Figure 3 is a front elevational view of the compressor body or casing and associated parts, drawn to an enlarged scale, the cover or outer wall being removed.

Figure 4 is a transverse sectional view taken on line 4—4 of Fig. 3.

Figure 5 is a similar sectional view taken on offset planes represented by the line 5—5 of Fig. 3.

In the embodiment of the invention as shown, a flat base plate or platform of elongated rectangular shape is designated by the numeral 10, on one end portion of which is secured an electric motor 11 of any approved type, having its conducting wires carried in a cord 12 engageable with any convenient current supply source and its shaft 13 has fixed upon its extending end a disc 14 carrying in its face a pair of diametrically opposed pins 15.

The body or casing of the compressor consists of a base 16 removably engaged to the platform 10 by screws 17 and rising from the base is the main central portion 18, curved at the top and provided with side extensions 19 and 20.

Formed partially in the base, body and side extensions are chambers 21 and 22, both being open at the front, presenting in the base portion, rectangular recesses 23 and 24 separated by a solid wall 25.

In the upper portion 18 of the body is a smoothly bored oval opening 26, its upper portion being concentric with the profile of the body, the lower part 27 of the opening being bored to a smaller radius taken on the center of, but below the plane of the radius of the larger, upper part of the opening.

Leading from the chamber 21 is a channel or recess 28 entering the opening formed by the bore 26 at a tangent at its side, this channel being enlarged as at 29 at the junction of the bores 26 and 27.

A similar channel 30 extends down from the bore 27 to communicate with a rearwardly inclined drilled passage 31 entering the recess 24.

The entire front of the body is smooth finished and provided with screw holes 32 by which a similarly smooth finished cover plate 33 is secured in such manner as to prevent the passage of air therebetween.

A hub 34 extends rearwardly from the body portion 18, essentially in register with the hubs of the motor and a similar hub 35 extends from the front of the cover plate 33, the profile of which is the same as that of the body.

Suitable oilers 36 are provided in these hubs and also grease plug oilers 37 on their under sides like those of the motor.

The body hub 34 is bored to loosely fit a shaft 38, mounted in anti-friction bearing sleeves 39 fixed in counterbored openings in each hub.

On the rearwardly extending end of the shaft 38 is fixed a disc 40 having in its face a pair of opposed pins 41, the disc and pins being duplicates of the disc 14 and pins 15 of the motor shaft, and between these registering discs is a relatively yieldable disc 42 of such material as leather, rawhide or fibre, drilled to receive the pairs of pins at an angle of ninety degrees apart, constitut-

ing a relatively flexible coupling between the motor and compressor shafts.

An inlet tube 43 is fixed vertically in the extension 19, the tube having a closed upper end and is provided with a plurality of small perforations 44 in its upper extending portion, the inner open end reaching through the chamber 21 nearly to the bottom of the recess 23.

A helical brush 45 is close fitted to the tube 43, its wire stem extending axially through at the bottom.

Fixed in the recess 23 is a filter composed of a foraminous casing 46 made of such material as wire netting completely enveloping a felted material 47 as cotton fibers, the filter completely filling the recess and being provided with a hole through which the tube 43 passes.

A similar filter having a casing 48 and felt 49 is disposed in the recess 24, below the passage 31 at its inner end and a duct 50 entering the chamber 22, the duct extending upwardly in the extension 20 and being counterbored at its upper end to receive the discharge tube 51, the same being annularly recessed, as at 52, to engage with a flexible tube 53.

Mounted on the shaft 38 is a rotor or cylinder 54 having three radial grooves 55 equally spaced and of uniform parallel width, these grooves containing piston blades or wipers 56 adapted to move outwardly, by centrifugal force, making wiping contact with the wall of the bored openings 26 and 27, the latter of which just clears the periphery of the rotor.

It will now be apparent that when the motor is energized, power will be transmitted through the flexible coupling element, to the shaft 38 and rotor in the direction indicated by the arrow in Fig. 3, causing the wipers to be thrown outwardly against the bored openings, sucking in air by the way of the ducts 28—29, upward through the filter elements in the recess 23, to which air has been delivered by the inlet tube 43, which, as has been described, is provided with means for screening impurities, by reason of the fine perforations and enclosed brush.

It will also be clear that the air is forced by the blades of the rotor through the ducts 30—31, causing it to pass through the screen in the recess 24 and thence out of the duct 50 and tubes 51 and 53 to wherever it may be required.

A curved guard 57, fixed to the platform 10, covers the several elements of the coupling, preventing oil from being thrown out when the parts are in operation tending to cleanliness.

In order to control the pressure of air delivered, an opening 58 is formed in the wall of the discharge tube 51 and encircling the tube is a rotatable sleeve 59, resting on the top of the extension 20, and having an enlarged knurled head 60 provided with graduations 61 which agree with perforations 62 in the sleeve 59.

These perforations vary in diameter from a very fine opening to the largest, which may nearly equal the size of the lateral opening in the tube 51, for which they act as a vent or bleeder.

A spring index or finger 63, fastened to the top of the body 18, extends over the head 60, acting both to determine the position of the perforations in the sleeve relative to the opening in the tube, and also to hold the sleeve in operative position when adjusted.

Although I have described my improvements with considerable detail and with respect to certain particular forms of my invention, I do not desire to be limited to such details since many changes and modifications may well be made without departing from the spirit and scope of my invention in its broadest aspect.

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

1. In combination with an air compressor having an outlet tube containing a lateral port, of a rotatable sleeve on said tube having plurality of unequal perforations each selectively registerable with said port to adjustably vent the tube.

2. In combination with an air compressor having an outlet tube containing a lateral port, of a rotatable sleeve on said tube having a plurality of unequal perforations each selectively registerable with said port to adjustably vent the tube, and means for visually determining the position of said sleeve relative to the port.

3. In combination with an air compressor having an outlet tube containing a lateral port, of a rotatable sleeve on said tube having plurality of unequal perforations each selectively registerable with said port to adjustably vent the tube, and means for maintaining said sleeve in adjustment.

4. In combination with an air compressor, an inlet tube closed at its outer end and containing a plurality of fine perforations, and a helical brush closely filling the walls of said tube.

5. In combination with an air compressor, an inlet tube closed at its outer end and containing a plurality of fine perforations, and a cylindrical brush fitting said tube within the range of its perforations.

6. In combination with an air compressor, an inlet tube closed at its outer end and containing a plurality of fine perforations, and a cylindrical brush fitting said tube within the range of its perforations and means for supporting said brush.

7. An air compressor comprising a body having chambers in its lower portion and a bored oval opening in its upper portion, a cover on the front of said body, a shaft rotatably mounted in said body and cover, a rotor on said shaft, said shaft being located on the axis of the lower portion of said oval opening, wipers radially movable in said rotor adapted to wipe the interior of the opening, ducts between each of the chambers and opening, a closed perforate inlet tube leading to one of said chambers, a discharge tube leading from the other chamber, controllable venting means in said discharge tube, and filtering means in both of said chambers, through which air passes to and from said rotor.

8. An air compressor comprising a body having chambers in its lower portion and a bored oval opening in its upper portion, a cover on the front of said body, a shaft rotatably mounted in said body and cover, a rotor on said shaft, said shaft being located on the axis of the lower portion of said oval opening, wipers radially movable in said rotor adapted to wipe the interior of the opening, ducts between each of the chambers and opening, a closed perforate inlet tube, leading to one of said chambers, a brush in said inlet tube, a discharge tube leading from the other chamber, controllable venting means in said discharge tube, and filtering means in both of said chambers through which air passes to and from said rotor.

This specification signed and witnessed this 18th day of April, 1923.

CHARLES WEBER.

Witnesses:
FRED'K C. FISCHER,
F. NOLL.