

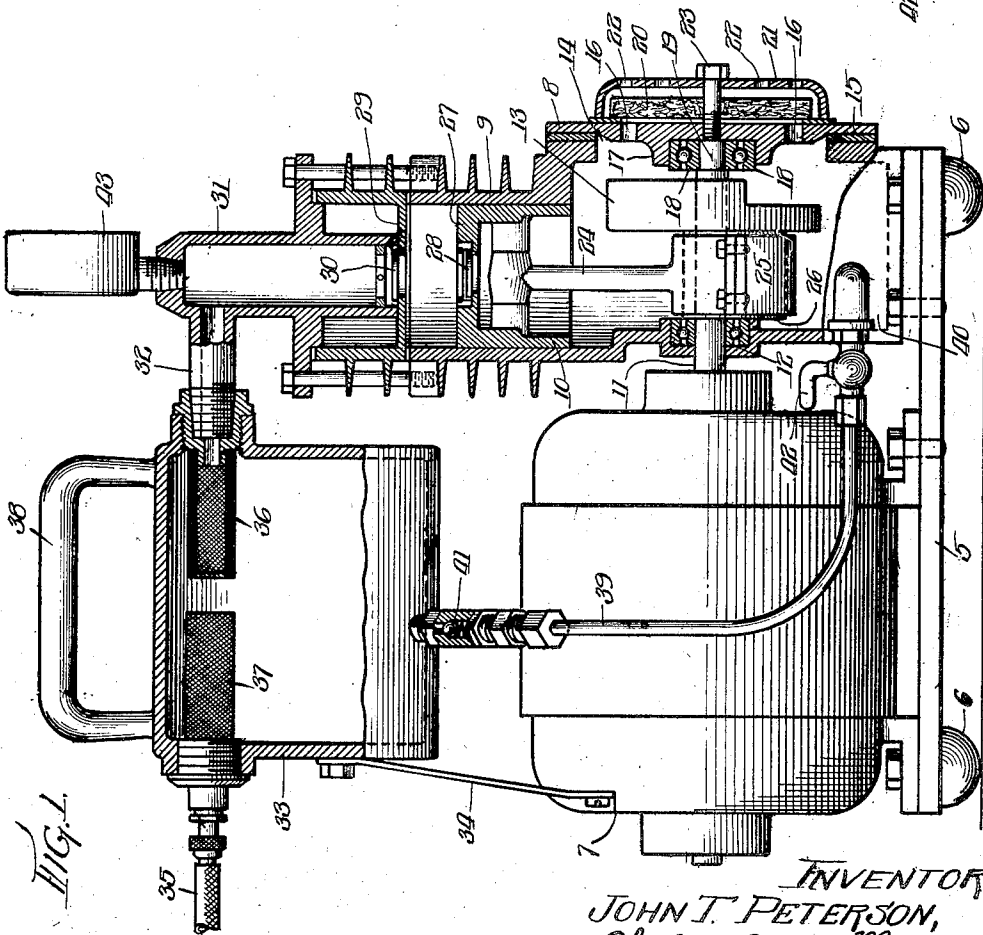
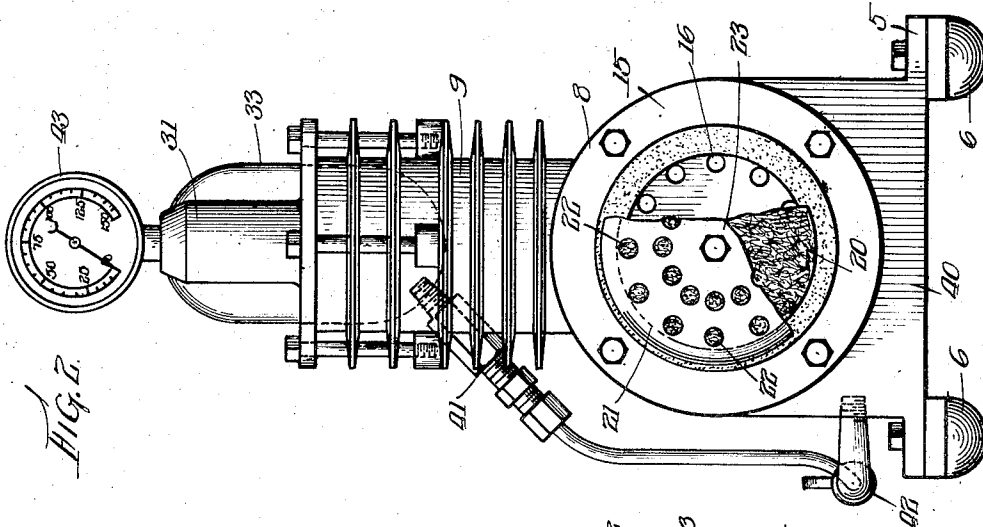
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AIR COMPRESSOR

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AIR COMPRESSOR

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This invention relates to compressors and particularly to compressors for use in connection with spray guns.

The primary object of the invention is to provide a new and novel compressor having a removable air intake cap which is provided with bearings for supporting a shaft which drives the piston connecting rod.

Another object is to provide a compressor of novel design, whereby the compressor is provided with a chamber to prevent the moisture in the air from coming in contact with the material to be sprayed.

Another object is to provide a compact compressor which has an integral handle cast therewith, whereby the compressor may be easily moved from place to place.

A still further object is to provide a new and novel air compressor which is provided with a receptacle for separating moisture from the air and which has a check valve operating at a predetermined pressure, whereby the moisture collected in the chamber is carried to the compressor crank case.

Other objects and advantages will appear throughout the progress of the specification.

The invention comprises in general a motor which has its shaft extending through and connected to an eccentric. The compressor has a removable air intake cap which is provided with a ball race to act as a bearing for the shaft. A receptacle is arranged between the compressor outlet and the air hose connection for straining the air and to collect any moisture which may be in the air. A line connects the receptacle to the crank case and is provided with a check valve therein which operates at a predetermined pressure to drain the condensation, collected in the receptacle, into the crank case.

The accompanying drawing illustrates a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail elevation partly in section showing the construction of the improved compressor.

Fig. 2 is a detail end view of the compressor, parts being broken away for the sake of clearness.

Referring to the drawing, 5 designates a

base supported on feet 6 and upon which an electric motor 7 is rigidly mounted. A compressor casing 8 is also supported on the base 5 and has a cylinder 9 in which the usual piston 10 reciprocates.

The shaft 11 of the motor has one end mounted in suitable bearings 12 arranged in the compressor casing and drives the eccentric 13 which is rigidly fastened to the shaft 11. The compressor casing is provided with an opening 14 which acts as an intake for the compressor and is closed by means of a disk 15 having a plurality of perforations or apertures 16. A boss 17 is provided inwardly of the disk 15 and carries a ball race 18 to support the free reduced end 19 of the shaft 11. A pad such as felt 20 is arranged outwardly of the disk 15 and acts as a strainer for the air entering through the opening 14. A cap 21 having a plurality of apertures 22 is fastened to the outside of the casing by means of a set screw 23 and holds the strainer 20 in position.

The piston 10 is operated by a connecting rod 24 which is provided with a strap 25 operatively mounted on a stub shaft 26, through which the shaft 11 extends and which comprises a part of the eccentric 13. The piston head 27 is provided with a valve 28, and the cylinder head 29 is provided with a valve 30 of the usual construction to permit the air to exhaust and pass through the outlet line 31 in the usual manner. A pipe line 32 having communication with the outlet 31 leads to a receptacle 33 which is supported by the pipe 32 and also by the straps or hangers 34 fastened to the motor. An outlet or hose 35 leads from the outlet end of the receptacle. A strainer 36 is arranged inside of the receptacle and strains the air coming in through the pipe line 32 and removes any water or condensation that may be in the air. A second strainer 37 is also arranged inside of the receptacle to strain the air going out through the hose 35. A handle 38 is integrally cast with the receptacle 33 to provide means for easily moving and handling the compressor.

A pipe line 39 leading from the receptacle 33 communicates with the compressor crank

case 40. A check valve 41 which operates at a predetermined pressure is arranged in the line 39, and when the pressure exceeds a certain limit the check valve 41 will operate, and any condensation which may have collected in the receptacle 33 will pass through the pipe 39 into the crank case 40.

A hand operated valve 42 may be arranged in the line 39, if desired.

An indicator 43 may be arranged at the uppermost end of the outlet 31 for indicating the amount of pressure created by the compressor.

Operation

In practice, the motor 7 rotates the shaft 11 causing rotation of the eccentric which is fixed thereto and reciprocates the piston 10.

During reciprocation of the piston, air is drawn in through the opening 14, which is compressed during the reciprocation of the piston passing through the valve 30 into the compressor outlet 31.

From the outlet 31 the air passes through the pipe 32, through the strainer 36, and into the receptacle 33. The strainer removes any foreign matter and condensation which may be present in the air, and as the air passes through from the receptacle 33 it is again strained by the strainer 37 as it passes out through the pipe line 35. The check valve 41 operates slightly higher than the normal operating pressure of the compressor, and when pressure is built up, as when the device operated by the air pressure from the compressor and is not in operation, the check valve 41 will open permitting any condensation which may collect in the receptacle 33 to pass on through the pipe 39 into the crank case 40. As the pressure recedes, the check valve 41 will again close permitting direct communication from the pipe 32 through the receptacle 33 and thence out through the pipe line 35.

The invention provides a compressor which is compact and easily moved from one position to another due to the rigid connection of the various parts and due to the integrally cast handle. The removable cap acts as a ball bearing support for the motor shaft which drives the piston and permits free access to the interior of the compressor casing to facilitate in making repairs. The receptacle collects foreign matter and condensation which may be present in the air, and permits only clear dry air to pass out through the hose connection 31. The removal of condensation from the air is important inasmuch as varnishes, paints, and particularly lacquers will not adhere to the surface if moisture is present. The compressor is positive in operation, composed of relatively few parts, and may be readily and economically manufactured.

Changes may be made in the form, con-

struction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of the advantages thereof, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. An air compressor comprising a cylinder, a piston, a motor for reciprocating the piston in said cylinder, an air outlet leading from said cylinder, a receptacle fastened to said motor and connected to said outlet, an air line leading from said receptacle, a crank case for said compressor, a line leading from said receptacle to said crank case, and a check valve in said last named line and operating at a predetermined pressure, whereby any condensation collected in said receptacle will be drained into the crank case upon opening of the check valve.

2. An air compressor comprising a cylinder, a reciprocating piston in said cylinder, an air outlet leading from said cylinder, a receptacle connected to said outlet, an air line leading from said receptacle, a strainer in said receptacle and connected to said air outlet, a second strainer in said receptacle and connected to said air line, said strainers being adapted to remove condensation coming in through the air outlet, a crank case for said compressor, a drain line leading from said receptacle to said crank case, and a pressure controlled valve in said drain line, whereby condensation collected in said receptacle will be drained into the crank case upon operation of said valve.

3. An air compressor comprising a base, a motor connected to said base, a compressor casing connected to said base, a shaft for said motor and having both its ends extending through the casing, a piston in said casing, an eccentric on said shaft, a rod connecting the piston and eccentric, and an air intake in said casing about one end of said shaft.

4. An air compressor comprising a base, a motor connected to said base, a compressor casing connected to said base, a shaft for said motor and extending through the casing, an air intake to said casing, a removable perforated cap for said intake, and bearings in said cap and providing a support for the end of said shaft.

5. An air compressor comprising a base, a motor connected to said base, a compressor casing connected to said base, a shaft for said motor and extending through the casing, an air intake to said casing, a removable perforated cap for said intake, bearings in said cap and providing a support for the end of said shaft, a second perforated cap detachably connected to said first named cap, and filtering means arranged between said caps.

6. An air compressor comprising a base, a motor connected to said base, a compressor

casing connected to said base, a shaft for said motor and extending through the casing, an air intake to said casing, a removable perforated cap for said intake, bearings in said cap and providing a support for the
5 end of said shaft, a piston in said casing, a counterbalanced eccentric rigid with the shaft, a rod connecting the eccentric and piston to reciprocate said shaft, a second perforated cap detachably connected to said
10 first named cap, and filtering material arranged between said caps.

7. A compressor comprising a motor, a casing having an intake, a detachable perforated cap for said intake, a piston in said
15 casing, a ball bearing support for said motor shaft carried by said cap, an air outlet from said casing, means for removing condensation in air coming through the outlet, and means for drawing any condensation removed from the air to said casing.

8. A compressor comprising a casing, a motor arranged adjacent the casing and having its shaft extending therethrough, bearings on said casing for supporting the
25 shaft near the motor, and a perforated removable cap for said compressor and supporting the free end of said shaft and providing an air intake for the compressor.

9. A compressor comprising a base, said compressor being mounted upon said base, an electric motor mounted on said base and arranged on one side of the compressor for operating the compressor, an air line leading
35 from the top of the compressor, a receptacle mounted on one side of the compressor and above the motor and operatively connected to said air line, means connecting the receptacle with the motor, and a handle mounted on said receptacle.

40 In witness whereof I have hereunto subscribed my name..

JOHN T. PETERSON.