May 8, 1934. W. R. BROWN 1,957,526

AIR COMPRESSOR

Filed June 19, 1933

Fig. 1.

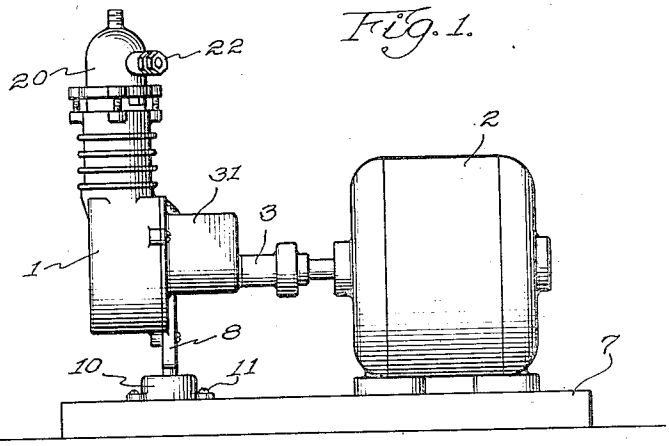


Fig. 2.

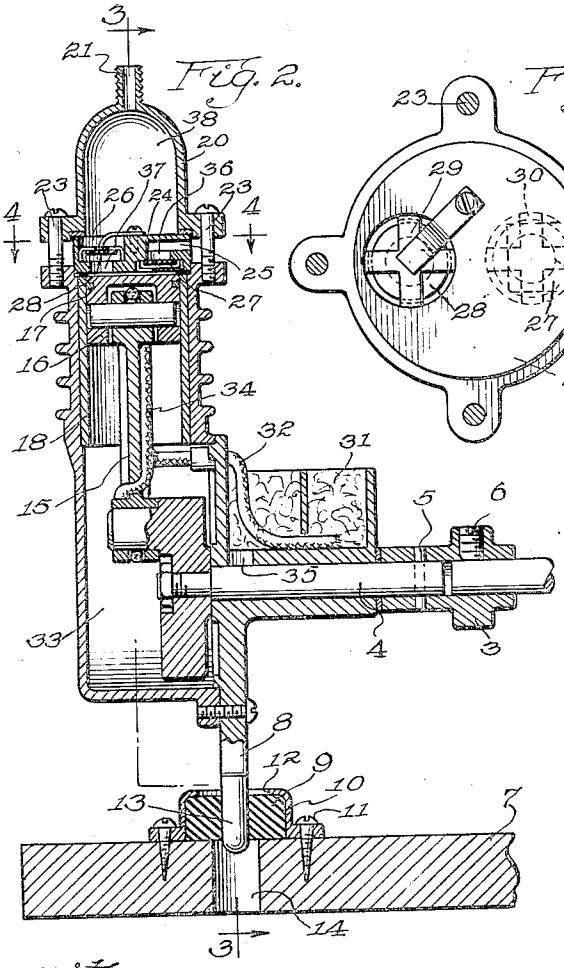
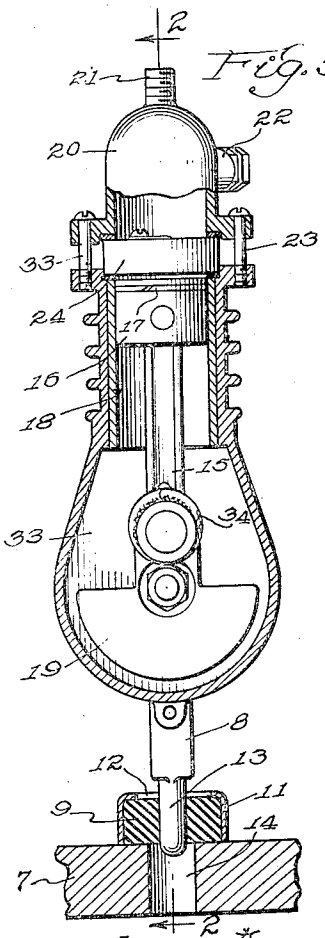


Fig. 4.

Fig. 3.



Witness
Arthur M. Franke.

Inventor
William R. Brown.

by Rummler Rummler & Woodworth Attys.

Patented May 8, 1934

1,957,526

UNITED STATES PATENT OFFICE

1,957,526

AIR COMPRESSOR

William R. Brown, Chicago, Ill.

Application June 19, 1933, Serial No. 676,468

2 Claims. (Cl. 230—58)

This invention relates to improvements in air compressors.

The main objects of this invention are to provide an improved air compressor having a flexible or floating mounting; to provide an improved light weight air compressor which is connected directly to the shaft of a motor and operates satisfactorily without perfect alignment; and to provide an article of manufacture which is simple in construction and operation and inexpensive to manufacture.

An illustrative embodiment of this invention is shown in the accompanying drawing in which:

Figure 1 is a front view in elevation of compressor and motor connected together.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 3.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional plan view taken on the line 4—4 of Fig. 2, showing the cap removed.

Referring in detail to the construction shown in the drawing, the conpressor 1 is directly connected to a motor 2 by coupling 3. The coupling 3 is secured to the shaft 4 of the compressor by means of a rivet or the like 5, and connected to the shaft of the motor by means of the set screw 6.

A fractional horse power motor is mounted on one end of a base 7 and the compressor is partially supported at the other end of the base by means of an integral torque arm 8 which is seated in a soft rubber element 9. The element 9 is held in place by a metal cap 10 which is secured to the base 7 by any suitable means such as screws 11. The cap 10 is provided with an aperture 12 on its upper surface and is considerably larger than the circumference of the rounded end 13 of the arm 8 so that the arm may vibrate within a limited range and yet prevent the arm from contacting with the metal cap 10.

The base 7 is provided with an aperture 14 to accommodate the lower portion 13 of the arm 8 in the event that the arm is too long, as the height of the compressor depends upon the height of the shaft of the motor to which it is attached.

The compressor comprises a connecting rod 15, a piston 16 having the usual piston ring 17, and is mounted within the cylinder 18. A crank 19 is connected to the shaft 4 and connecting rod 15. The upper portion of the compressor comprises a head 20 having a threaded outlet 21 and a safety valve 22, and is connected to the main body of the compressor by means of screws 23. The safety valve is adjustable so that a constant pressure of air will be delivered through the outlet 21.

Interposed between the upper portion of the piston 16 and below the lower portion of the head 20 is a diaphragm 24 containing an inlet valve 25 and an outlet valve 26. The valves 25 and 26 are provided with movable elements 27 and 28 which are held in place by brackets 29 and 30.

The oiling system comprises a reservoir 31 and a wick 32. The wick 32 projects into the crank case 33 and contacts with the connecting rod 15 and wick 34, which is wound around the connecting rod 15. The reservoir 31 is also provided with an outlet 35 for lubricating the shaft 4.

In operation, the motor is secured to the base and the compressor connected directly to the shaft thereof by means of the coupling. After the compressor has been connected to the motor, if necessary an aperture is cut in the base so that the arm can not contact with the base. The cap and rubber elements are then placed on the arm, and the cap secured to the base, anchoring the arm in the rubber element, and this will prevent the compressor from turning around with the shaft 4 and still permit considerable movement of the arm in the resilient rubber element.

On the downward stroke of the piston, air will be drawn through the intake, causing the movable element 27 to drop to its seat and open the aperture 36, thereby allowing air to fill the chamber above the piston and the suction created in the top of the piston will cause the movable element 28 to drop down and cover the aperture 37, thereby preventing air from leaving the chamber 38 in the cap 20. On the upward stroke, the air in the cylinder above the piston will force the movable element 27 upwardly to close the aperture 36 and prevent the air from leaving the chamber above the piston through the intake and will also cause the movable element 28 to move upwardly, thereby opening the aperture 37, and force the air into the chamber 36 of the cap 20 and outwardly through the opening 21.

As will be apparent from the foregoing, one of the principal advantages of my new and improved construction is the small compressor body required for the comparatively large delivery of compressed air. A further advantage is the floating mounting of the torque arm which eliminates the usual accurate alignment of the compressor and motor on a separate bearing.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that details of the construction shown may be altered or omitted without

departing from the spirit of this invention as defined by the following claims.

I claim:

1. An air compressor having a torque arm, a motor having a shaft, said compressor arranged to be mounted on the shaft of said motor, a base, said motor adapted to be mounted adjacent one end of said base and means mounted on the other end of said base arranged to receive said torque arm and prevent rotation of said compressor.

2. An air compressor having a torque arm, a motor having a shaft, said compressor arranged to be mounted on the shaft of said motor, a base, said motor adapted to be mounted adjacent one end of said base, and resilient means mounted on the other end of said base arranged to receive said torque arm and prevent rotation of said compressor.

WILLIAM R. BROWN.