J. H. DENTON.

COMPRESSOR.

APPLICATION FILED APR. 18, 1906.

995,121.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

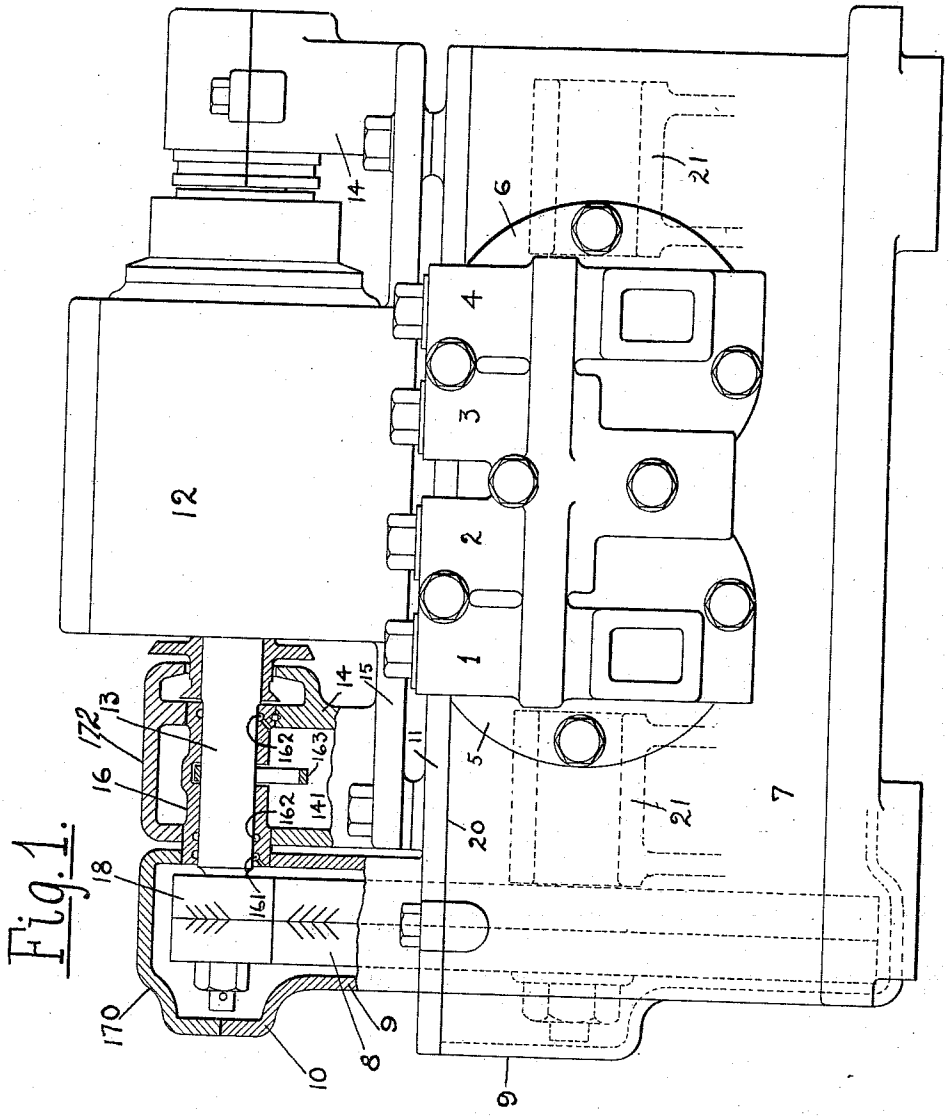

Fig. 1.

WITNESSES:

John C. Penne

Frank E. Bennett

J. H. Denton INVENTOR

BY

G. J. DeWeese ATTORNEY.

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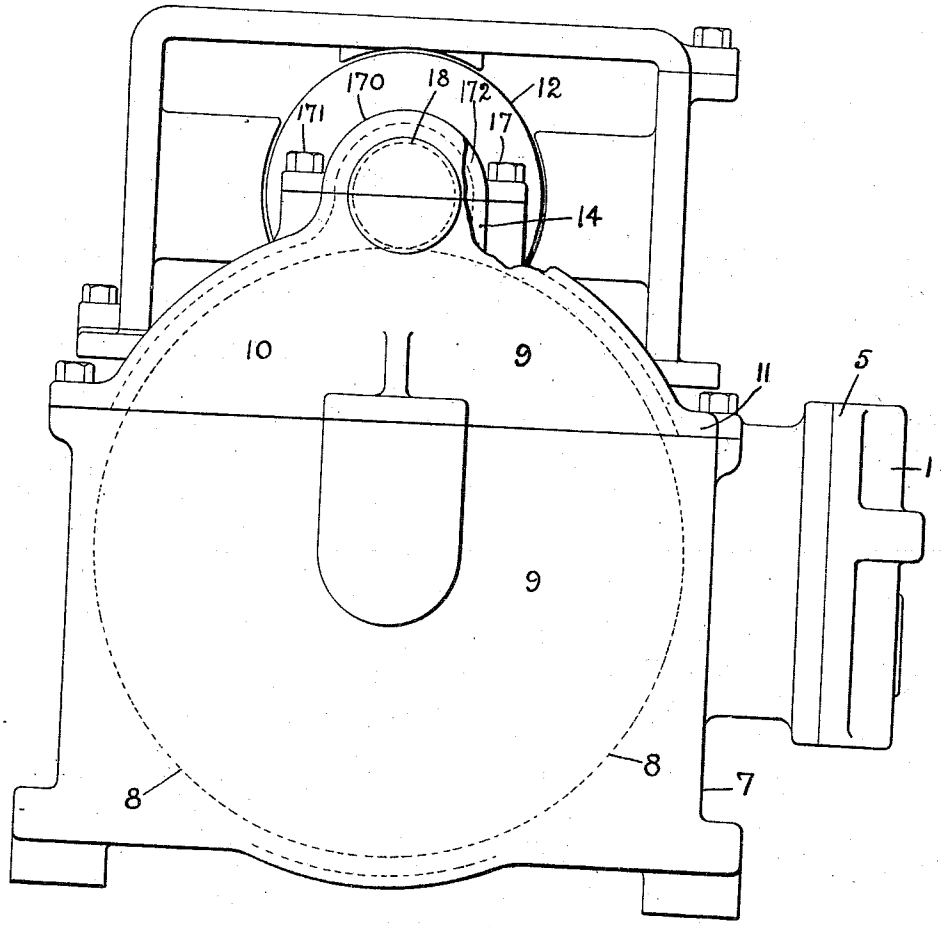
2 SHEETS—SHEET 2.

Fig. 2.



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John C. Pennie

Frank E. Dennett

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BY

G. F. DeMiri ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES H. DENTON, OF MILWAUKEE, WISCONSIN.

COMPRESSOR.

995,121. Specification of Letters Patent. Patented June 13, 1911.

Application filed April 18, 1906. Serial No. 312,285.

To all whom it may concern:

Be it known that I, JAMES H. DENTON, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Compressors, of which the following is a specification.

This invention relates to a self-contained motor and compressor, such as is in common use in connection with street cars and other cars in which air brakes are used. It is usual in this class of device, to use an electric motor which is geared down to the speed of the compressor.

The object of this invention is to provide a device of this character which is comprised in few parts, and in which it is impossible for the heat developed in compressing the air, to be transmitted to the magnets and frame of the motor.

Another object of my invention is to minimize the number of parts of the casing for compressor base, even to the extent of not having to provide a separate gear case.

A still further object of this invention is to so arrange the parts so that the bearing sleeve for the motor shaft can be extended from its support, which is mounted upon the motor base, into the recessed portion of the cover for the compressor base, which recessed portion forms a part of the housing for the reduction gears.

One form of the invention is illustrated in the accompanying drawings in which,—

Figure 1 is an end elevation of the combined unit, showing the cylinder heads with attached valves, and having one of the motor bearings and a part of the gear housing in section. Fig. 2 is a side elevation of the unit looking directly at the gear housing.

The twin compressor having valves 1, 2, 3, 4, attached to its cylinder heads 5, 6, extends into a cylinder base 7, which forms an inclosed chamber for the cranks and shaft of the compressor. The bearings 21 for the compressor crank shaft are shown in dotted lines in Fig. 1. At one end of the crank shaft, is attached a gear 8. This gear 8 extends without the compressor base 7, and its housing 9 is completed by the recessed portion 10 of the cover 11 for the cylinder base 7. This cover 11 is one located in a single plane and may be termed uniplaner.

A motor 12, preferably electric, extends its shaft 13 into bearings 14, 14, mounted upon motor base 15. The bearing 14 at the left of Fig. 1, is shown serving as a support for a bearing sleeve 16 for one end of the shaft 13. This bearing sleeve 16 is bolted rigidly in place by the cap bolts 17, 17, holding cap 172 in place, and extends into the recessed portion 10 of the gear housing 9. The recessed portion 10 has a cap 170 held in place by cap bolts 171. At the left end of shaft 13, is keyed a pinion 18 in mesh with gear 8. Oil grooves 161 and ports lead the surplus oil back to the gear housing 9. Similar grooves and ports 162, 162, serve the same purpose, but lead to a chamber 141, formed in the bearing 14. An oil ring 163 dips into the oil in chamber 141 and serves to lubricate shaft 13.

It should be noted that the motor base 15 is spaced from the cover 11 of the compressor base. The object of this construction is to prevent the heat which is developed in the compression of air in the compressor cylinders, from being transmitted by conduction to the motor magnets and armature. It should also be noted that in the present construction there is no necessity for providing a side cover for the gear housing. The reason for this is that the compressor base is so formed that its cover 11 is bolted thereto in a plane represented by the line 20, which is slightly above the crank shaft axis. The gear can be removed from the compressor base bodily with the crank shaft.

The operation of this device is similar to that of devices in the prior art. Its advantages thereover should be obvious from its construction as described and as more particularly pointed out in the claims. The motor 12 is placed in operation and transmits its power through shaft 13, reduction gears 18 and 8 to the crank shaft of the compressor. The compressor is thus operated at its required lower speed.

Having a separate cover for the compressor base spaced from the motor base insures ventilation. A separate cover also prevents dirt from dropping into the compressor base on removal of the motor.

It is claimed and desired to secure by Letters Patent,—

1. A compressor cylinder, a base for the cylinder forming an inclosed crank chamber, transmission means for the compressor including a gear and pinion, a cover for the crank chamber having a recessed portion forming in combination with the base a

housing for the gear and pinion, and a motor adapted to drive said pinion and having a bearing adjacent to but independent of the recessed portion of the cover.

2. A compressor cylinder, a base for the cylinder forming an inclosed crank chamber and extended to form a section of a housing, a cover for the base formed to complete the housing, transmission means a portion of which is located within the housing, and a motor adapted to communicate motion to said transmission means and having a bearing adjacent to but independent of the cover formation completing said housing.

3. The combination of a motor including a motor shaft, a bearing sleeve for the shaft, and a support for the sleeve, a compressor cylinder, transmission means for carrying power from said motor to said cylinder, a housing for the transmission means said housing being adjacent to but independent of said support for said sleeve and into which the end of said sleeve extends and separate caps for said housing and for said support.

4. The combination of a cylinder, a base for the cylinder forming a chamber, a recessed cover for the chamber, a motor mounted on the cover and having a bearing adjacent to but independent of the recessed portion of the cover, transmission means in the chamber and cover recess for carrying power from the motor to the cylinder, and separate caps for the motor bearing and recessed portion of the cover.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. DENTON.

Witnesses:
G. F. De Wein,
H. C. Case.