shoe must not only be adjusted tightly, but within city limits the motorman must keep the brake dragging, in order to stop quickly enough to avoid collisions. It is also evident from the above that in addition to the economy of power there is also a large saving in brake shoes and labour required in keeping them in repair.

On a modern electric car, with the numerous devices now in use, economy of space is an important consideration. The compressor described herein is one of the most compact and self-contained in use. Its simplicity of construction and easy accessibility much reduces the time required for repairs and inspection. The time required to take it apart is very inconsiderable, and with a great number of equipments in service this means a large saving in cost of maintenance.

The general construction of the motor compressor is shown by the assembly drawing, Plate 1. It will be noticed that it is of a two-cylinder inclosed pattern, driven by a series motor mounted directly above the compressor. Each cylinder is furnished with a single acting piston.

The general data of the machine is as follows:

Diameter of cylinder in inches	5
Length of stroke in inches	4
Revolutions of crank shaft per minute	174
Revolutions of armature per minute	1350
Capacity in cubic feet free air per minute	16
H. P. at 90 lbs. pressure	2.6
Amperes of fuses at 550 volts	6

The speed and capacity quoted is supposed to be attained at a pressure of 90 lbs. to the square inch.

Plate 2 shows the cast iron pump base, which forms a frame in which the shafting and pistons work. The inside contains an oil reservoir supplied from an oil-filling elbow screwed into the tapped hole shown at "B." Another hole at "C" keeps oil at the same level in the gear casing.

The shaft bearing caps are of cast iron, two in number, and are fastened in place by means of four set bolts, similar to one shown on the drawing.

The gear and pinion are made in two parts. Blanks are cast from steel, machined in a lathe, placed on an arbor, and the teeth, cycloidal, cut in a gear-cutting machine. The teeth are cut at 45° to the axis of the wheels, right handed in one case and left handed in the other. In the case of the gear, these two halves are rivetted together by eight ½" soft iron rivets. The hole in the centre