

(No Model.)

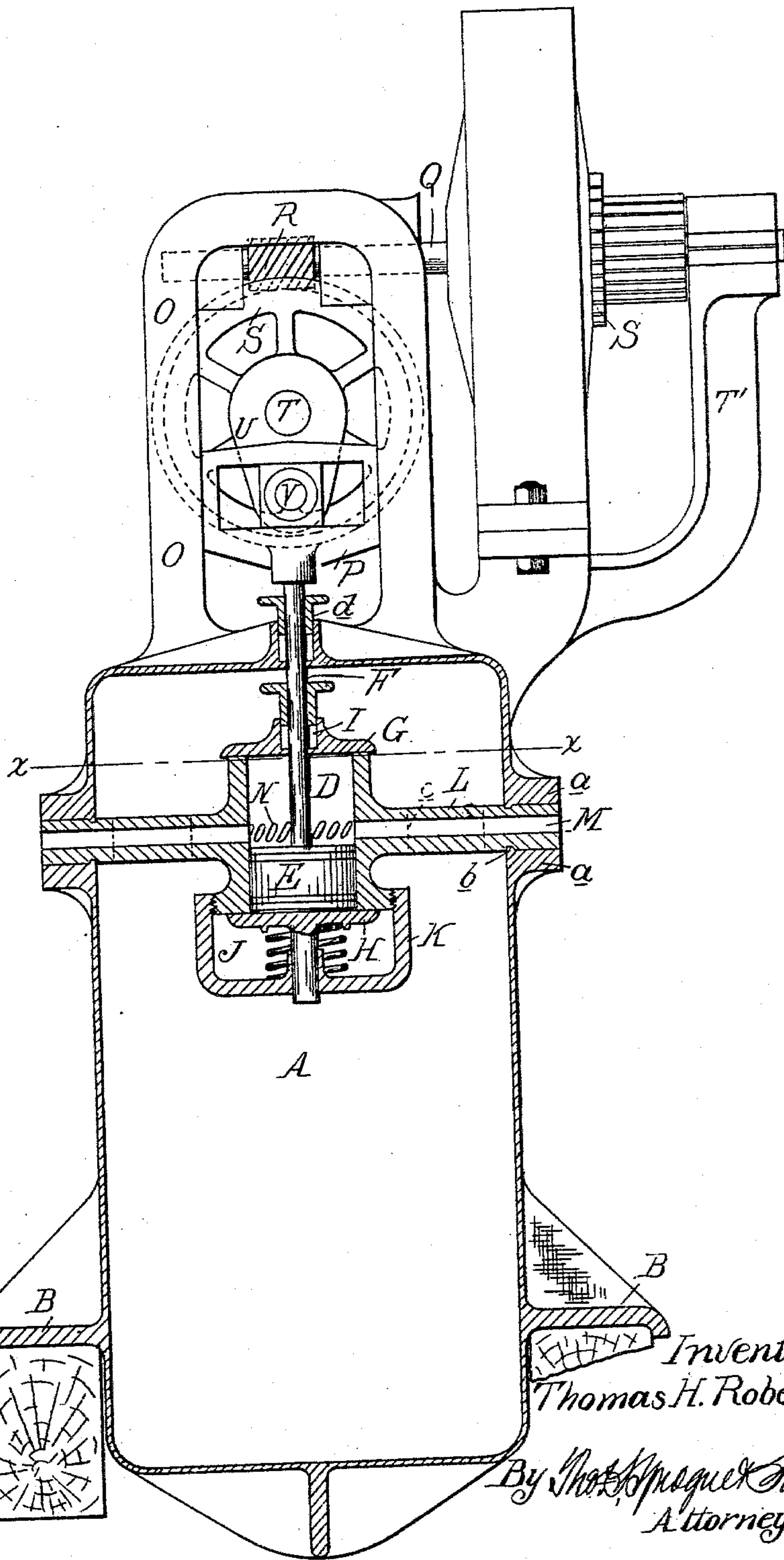
2 Sheets—Sheet 1.

T. H. ROBERTS.
AIR COMPRESSOR.

No. 597,223.

Patented Jan. 11, 1898.

Fig. 1



Witnesses:

Alfred H. Roberts
A. L. Hobby

Inventor:

Thomas H. Roberts,

By *Thos. Messers, Son*
Attorneys.

(No Model.)

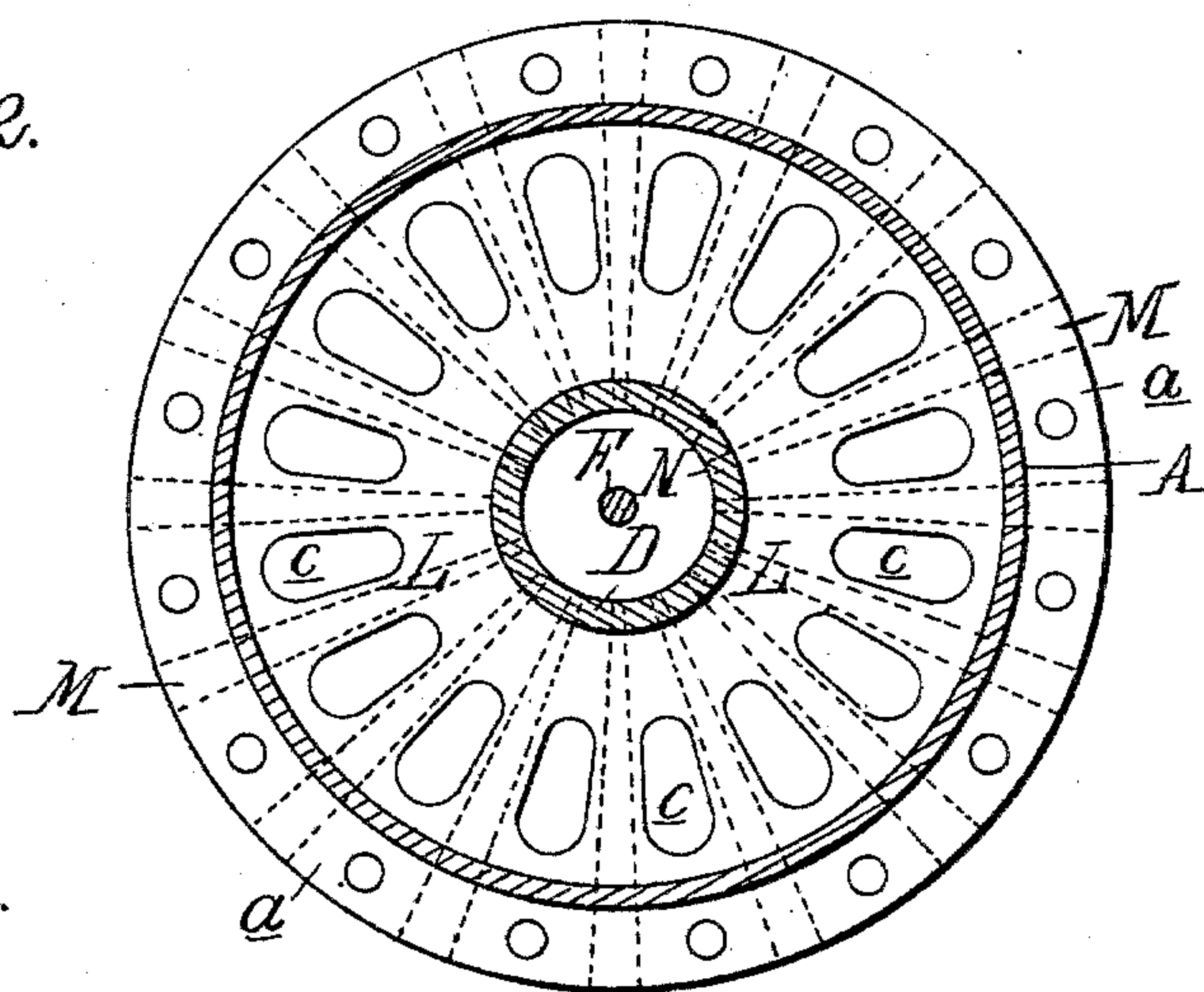
2 Sheets—Sheet 2.

T. H. ROBERTS.
AIR COMPRESSOR.

No. 597,223.

Patented Jan. 11, 1898.

Fig. 2.



Witnesses:

Wm. H. Roberts
A. L. Hobby

Inventor:

Thomas H. Roberts,

By *Thos. Sprague & Son*
Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS HERBERT ROBERTS, OF DETROIT, MICHIGAN.

AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 597,223, dated January 11, 1898.

Application filed December 14, 1896. Serial No. 615,686. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HERBERT ROBERTS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Air-Compressors, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a new construction of air-compressor especially adapted for the equipment of electric cars with air-brakes; and to this end the invention consists in the novel construction, arrangement, and combination of parts whereby extreme simplicity and compactness are obtained, all as more fully hereinafter described, and shown in the drawings, in which—

20 Figure 1 is a side elevation, partly in vertical central section, of my improved air-compressor. Fig. 2 is a horizontal section thereof on line *x x*.

A is the compressed-air tank, provided with lateral flanges B for supporting it in upright position upon suitable supports, such as the floor-timbers C of a car.

30 D is the cylinder of the air-pump; E, the piston; F, the piston-rod, and G and H are valves seated, respectively, on the upper and lower end of the pump-cylinder. The valve G is seated by gravity and has a stuffing-box I for the pump-piston to pass through, and the valve H is upheld by a spring J, supported by a skeleton cap K, which is screwed on the pump-cylinder.

40 The pump-cylinder is provided midway of its length with a head L, in which are formed a series of radial air-passages M, which communicate at their inner ends through the annular series of ports N into the air-cylinder, while the outer ends open into the atmosphere. This head is secured within the air-tank, which to this end is formed of an upper and lower section, each provided with annular flanges *a*, between which the head is bolted in, the flanges being preferably formed with annular lips *b*, adapted to engage with corresponding grooves in the head, all so arranged as to form an air-tight joint between the parts.

50 The head L supports the air-pump within the air-tank in the axial line thereof, and it

is provided with suitable openings *c*, through which the compartments above and below the head communicate.

On top of the tank is secured a gallows-frame O, the sides of which form vertical guide-bearings for the slotted head P, carried by the piston-rod, which latter extends through and is guided in a stuffing-box *d* in the top of the air-tank.

60 On top of the gallows-frame is journaled in suitable horizontal bearings the drive-shaft Q, which carries a worm R, engaging with a worm-wheel S on the shaft I. This shaft has a crank-arm U, provided with a suitable wrist-pin V, which engages into the slotted head P of the piston, all so arranged as to impart a suitable reciprocating motion to the pump-piston.

70 The drive-shaft Q extends on one side of the frame O and carries the armature of a revolving electric motor S of any suitable description, the free end of the shaft being supported in a bracket T, which also supports the stationary parts of the motor, all so arranged as to utilize the power of an electric current applied to the motor for operating the air-pump.

80 It will be seen that the piston of the air-pump alternately compresses the air in the opposite ends of the cylinder, and by the operation of the valves G and H it is stored in the tank, while fresh air is constantly admitted through the ports N from the atmosphere. It will be seen that this air-compressor is of an upright type which requires but very little floor space, practically only what is required for the base of the air-tank to rest on, and by placing the lateral supporting-flanges B above the base the available space between the floor joist is utilized to drop the tank partly below the floor. Furthermore, the drive mechanism is such that the pump works without jar or noise, and the pump, being entirely inclosed within the tank, muffles the noise incidental to the working of air-pumps in such a manner that it does away entirely with the objections heretofore found in placing the air-pumps inside of cars or apartments in dwellings.

95 The pump, being entirely inclosed, is dust-proof and protected from being tampered with, and the necessity of keeping the parts

well oiled does not create any nuisance. To gain ready access to the pump, a suitable hand-hole is placed in the tank.

For the reasons above given my air-pump is especially available for use on electric cars, dwelling-houses, offices, &c., where the demand for such a compressor is constantly increasing.

What I claim as my invention is—

10 1. In an air-compressor, the combination of an air-tank formed of two sections, and an air-pump secured in between the sections, said pump having its pump-cylinder formed with a supporting means fitted in and secured be-
15 tween the sections and provided with a series of air-inlet passages extending through said supporting means into the pump-cylinder.

2. In an air-compressor, the combination of an air-tank formed of a section, having sup-
20 porting-flanges, and a second section, an air-pump having its cylinder provided with an apertured web bolted in between the said sections of the tank, radial air-passages extending through the web into the pump-cylinder
25 and forming an annular series of inlet-ports centrally of the pump, valves seated on the ends of the pump-cylinder and a reciprocating piston having a piston-rod extending through

a stuffing-box in the tank and operated by drive mechanism supported on the tank. 30

3. In an air-compressor, the combination of the air-tank forming a supporting-base, a pump having its cylinder provided with a web bolted in between two sections of the tank and provided with radial air-passages from the
35 outside into the pump-cylinder, a reciprocating piston having a piston-rod extending through a stuffing-box in the tank and drive mechanism supported on the tank.

4. In an air-compressor, the combination of 40 a tank or reservoir for compressed air, a pump-cylinder inclosed within said reservoir intermediate its ends and provided with air-inlet conduits communicating with the external air, movable caps for said pump-cylinder consti-
45 tuting the exhaust-valves thereof, a piston in said cylinder, and means for operating the piston from without the reservoir or tank, substantially as described.

In testimony whereof I affix my signature 50 in presence of two witnesses.

THOMAS HERBERT ROBERTS.

Witnesses:

OTTO F. BARTHEL,
A. L. HABBY.