

975,588.

Patented Nov. 15, 1910.

Fig. 1.

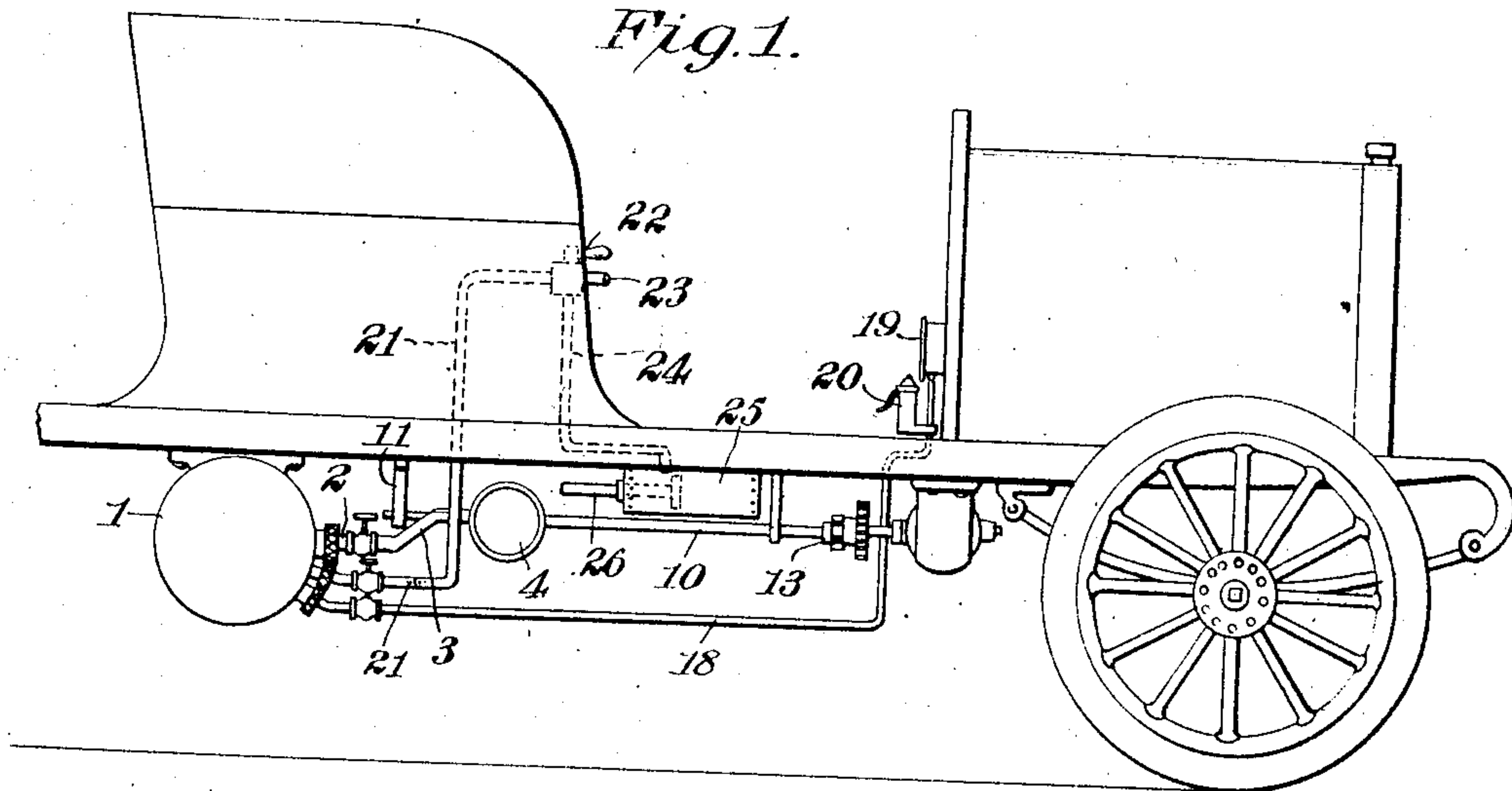
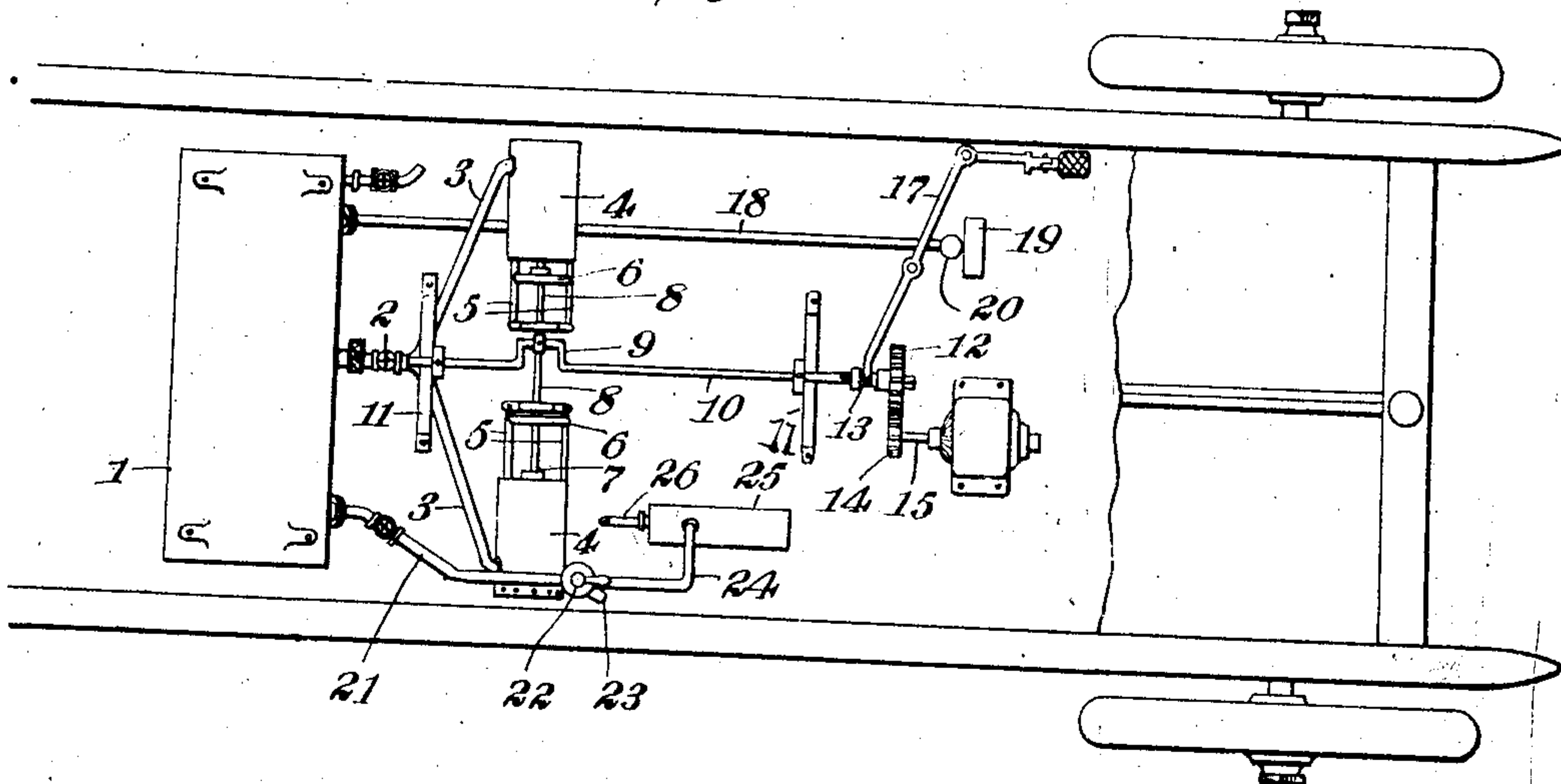


Fig. 2.



Witnesses

Witnesses
 Geo. Enrica
 W. L. Woodson

334

Inventor
R. S. Wallace,

W. A. Macy. Attorneys

UNITED STATES PATENT OFFICE.

ROBERT S. WALLACE, OF FORNEY, TEXAS, ASSIGNOR OF ONE-THIRD TO GROVER G. FIX, OF FORNEY, TEXAS.

PNEUMATIC SYSTEM FOR AUTOMOBILES.

975,588.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed December 23, 1908. Serial No. 469,024.

To all whom it may concern:

Be it known that I, ROBERT S. WALLACE, citizen of the United States, residing at Forney, in the county of Kaufman and State of Texas, have invented certain new and useful Improvements in Pneumatic Systems for Automobiles, of which the following is a specification.

This invention comprehends certain new and useful improvements in automobiles or similar motor-driven vehicles, and the invention has for its object an improved pneumatic system embodying a clutch mechanism through the instrumentality of which the compressors are adapted to be operatively connected to the motor so as to utilize power from the latter to compress a supply of air, the supply of compressed air being utilized in forcibly applying the brakes and being susceptible of various other applications hereinafter suggested.

With this and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a side elevation illustrating the application of the invention to an automobile; and, Fig. 2 is a top plan view with the vehicle top broken away.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

My improved pneumatic system consists essentially of a transverse reservoir 1 that is mounted at the rear portion of the running gear or other suitable portion of the vehicle, and that has connection with one end of an inlet pipe 2 through which compressed air is designed to be introduced into the reservoir. At its other end, the inlet pipe 2 is provided with two branches 3 which are connected with the respective cylinders of two air compressing pumps 4. These pumps or compressors are oppositely and transversely disposed and are arranged in front of the tank 1 and on opposite sides of a driven shaft 10, the driven shaft extending longitudinally of the running gear and being journaled in

proximity to its opposite ends in hangers 11 secured thereto. The cylinders of the pumps are provided at their adjacent ends with guideways 5 in which slide cross-heads 6 fixed on the piston rods 7, the cross-heads being operatively connected through the medium of pitmen 8 to a crank 9 formed at an intermediate point in the length of the driven shaft 10. A sleeve 13 is suitably mounted on the forward end portion of the driven shaft so as to turn therewith and to be capable of sliding longitudinally thereon. A gear wheel 12 is fixed on the sleeve and is arranged in one position thereof to mesh with a relatively small pinion 14 fixed on the rear end of the motor shaft 15 of a suitable motor, the motor shaft being positioned in substantially parallel relation to the driven shaft. The gear wheel 12 coöperates with the pinion 14 to provide a positive clutch between the adjacent ends of the shafts 10 and 15. The clutch is rendered inoperative by sliding the sleeve 13 rearwardly on the driven shaft to shift the gear wheel 12 out of mesh with the pinion 14. As the preferred means for effecting the sliding movement of the sleeve, I employ a lever 17 which is fulcrumed at an intermediate point, as shown, and which has one arm connected to the sleeve and has its other arm operatively connected to a foot or hand operated device positioned in proximity to the driver's seat.

In the practical use of my improved pneumatic system, when the vehicle is standing still, or even when it is in motion, and it becomes necessary to inject compressed air into the reservoir 1 for any purpose, the clutch-controlling mechanism is operated by the driver so as to throw the gear wheel 12 into engagement with the pinion 14. The shaft 10 is then driven from the shaft 15 through the instrumentality of the intermeshing gearing, and the crank 9 therefore reciprocates the pistons 7 in the cylinders of the respective compressor pumps 4, the air compressed in the cylinders being forced through the inlet pipe 2 into the reservoir 1. For convenience, a pipe 18 is preferably attached to the reservoir 1 and leads therefrom to a point in proximity to the driver's seat and carries a gage 19 for indicating the pressure of the air in the reservoir. A whistle or other safety signal 20 is also attached to the pipe 18 and is arranged to be actuated by a predetermined pressure so as

to warn the driver of the expediency of stopping the compressors.

For the purpose of illustration, I have shown and described one manner of utilizing the compressed air supply, in which the supply pipe 21 leads from the reservoir 1 to a point in convenient reach of the operator, and carries a cut-off valve 22, and this cut-off valve or cock is provided with an outlet 23 and is also connected, through the instrumentality of a lead pipe 24, to a brake cylinder 25, the piston 26 working in the cylinder being operatively connected to the brake mechanism (not shown) of the vehicle. With such an arrangement, the operator may conveniently manipulate the cut-off valve 22, when occasion demands, so as to close the outlet 23 and admit air from the supply pipe 21 through the lead pipe 24 into the brake cylinder 25, whereby to actuate the piston and set the brakes. The removal of the brakes is accomplished by manipulating the cut-off valve so as to close the supply pipe 21 and establish communication between the lead pipe 24 and the outlet 23, the compressed air in the cylinder being thus afforded means of escape.

Having thus described the invention, what I claim is:

The combination of a rotary drive shaft, a motor for rotating said shaft, a pinion

fixed on the shaft, a driven shaft formed with a crank, a sleeve rotatable with the driven shaft and slidable longitudinally thereon, a gear wheel carried by the sleeve and adapted to mesh with the pinion to transmit power from the drive shaft to the driven shaft, a lever for sliding the sleeve on the driven shaft to move the gear wheel into and out of mesh with the pinion, a pair of compressor cylinders extending transversely on opposite sides of the driven shaft, pistons having reciprocatory movement within the cylinders, piston rods secured to the pistons and projecting through the adjacent ends of the cylinders, guides provided at the adjacent ends of the cylinders, cross heads secured to the projecting portions of the piston rods and movable in the respective guides, pitmen connecting both piston rods to the crank, a reservoir for compressed air, and a pipe coupled at one end to the reservoir and bifurcating at its other end with the bifurcations communicating with the remote ends of the compressor cylinders.

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

ROBERT S. WALLACE. [L. S.]

-Witnesses:

W. D. ADAMS,
CLEM BAINES.