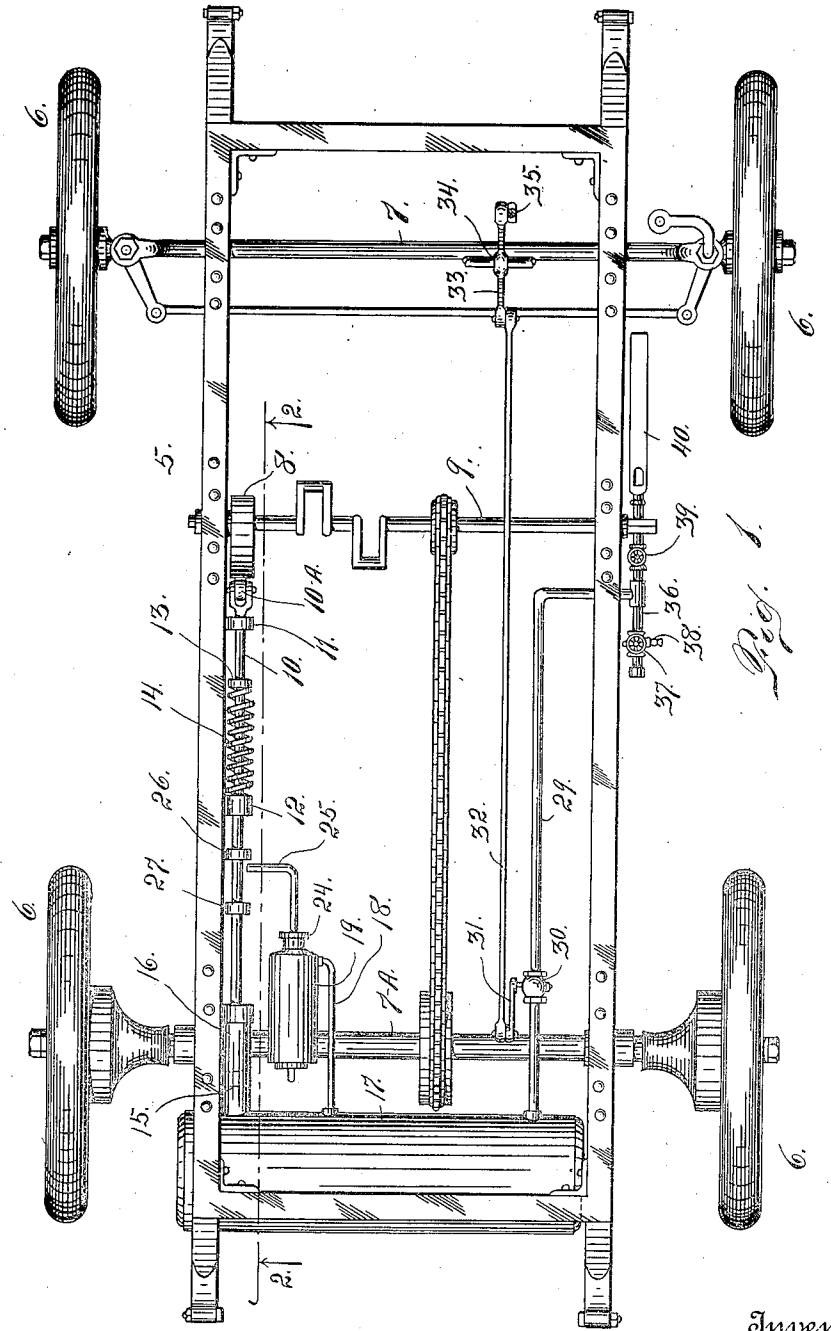
No. 877,924. PATENTED FEB. 4, 1908.

E. E. HAMPTON & C. G. SMITH.

AIR COMPRESSOR MECHANISM FOR SELF PROPELLED VEHICLES.

APPLICATION FILED OCT. 1, 1906.

2 SHEETS—SHEET 1.



Witnesses

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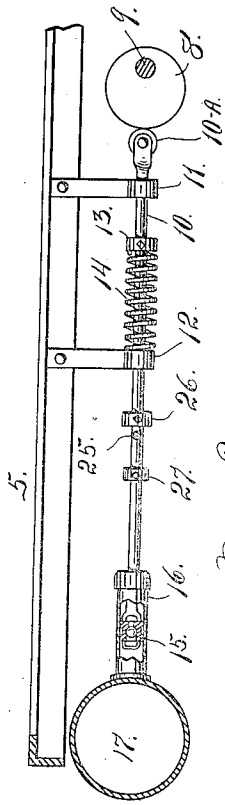


Fig. 2.

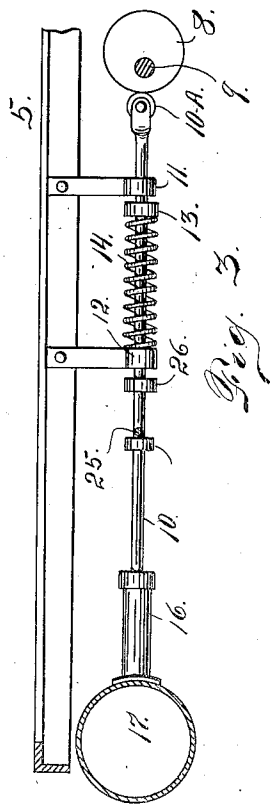


Fig. 3.

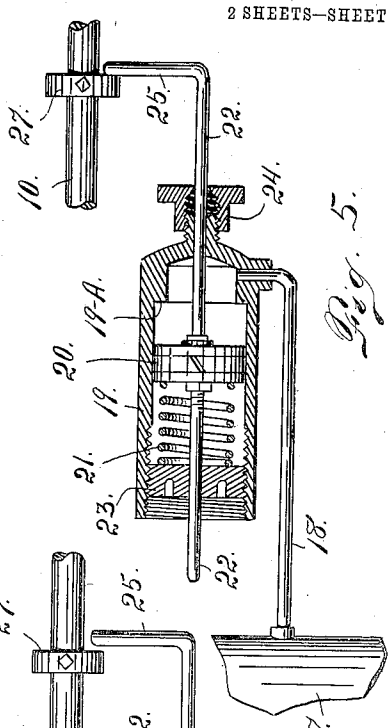


Fig. 5.

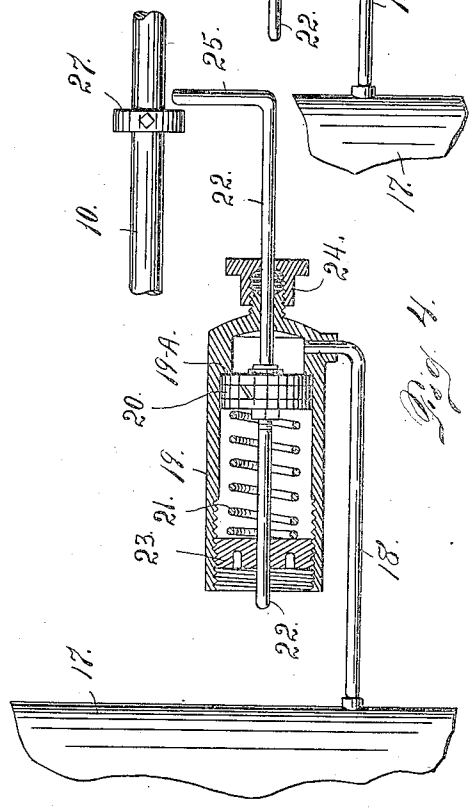


Fig. 4.

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UNITED STATES PATENT OFFICE.

ERNEST E. HAMPTON AND CICERO G. SMITH, OF PALISADE, COLORADO.

AIR-COMPRESSOR MECHANISM FOR SELF-PROPELLED VEHICLES.

No. 877,924. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed October 1, 1906. Serial No. 336,965.

To all whom it may concern:

Be it known that we, ERNEST E. HAMPTON and CICERO G. SMITH, both citizens of the United States, residing at Palisade, in the county of Mesa and State of Colorado, have invented certain new and useful Improvements in Air-Compressor Mechanism for Self-Propelled Vehicles; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in air compressor mechanism for self propelled vehicles.

In the case of automobiles it is extremely advantageous to have a compressed air receiver mounted on the vehicle, to facilitate the starting of the same, and inflate the tires as well as for other purposes in connection with machines of this character.

The object of our present invention is to provide a device of this character adapted to be operated from the power shaft or crank shaft of the motor whether the same be an explosive engine, a steam or electric motor, provision being made for stopping the compression within the receiver when the air therein has reached a predetermined limit of compression, since it will usually not be desirable or necessary to continue the compression for any considerable portion of the time during which the vehicle is used.

In our invention provision is made for automatically stopping the operation of the air compressor mechanism and also to automatically render the same active as circumstances may require.

Having briefly outlined our improved construction, we will proceed to describe the same in detail reference being made to the accompanying drawing in which,

Figure 1 is a top plan view of the running gear of an automobile equipped with our improvements. Fig. 2 is a section taken on the line 2—2 Fig. 1. Fig. 3 is a similar view showing the piston rod of the auxiliary cylinder in a different position. Fig. 4 is a sectional view taken through the auxiliary cylinder, shown in connection with the piston rod of the air compressor, the said rod being broken away on both sides of the stop upon which the piston rod of the auxiliary cylinder acts. Fig. 5 is a similar view showing the parts in different relative positions.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the frame work of the running gear of an automobile; 6, the ground wheels; 7, the front axle; and 7^A the rear axle. Upon this frame work is suitably journaled a crank shaft 9 upon which is mounted an eccentric cam 8 acting on an anti-frictional roller 10^A carried by a piston rod 10 slidably mounted in guides 11 and 12 mounted on the frame work 5. Between the guide 12 and a stop 13 on the rod, is located a coil spring 14 surrounding the rod and whose normal tendency is to hold the roller 10^A against the eccentric cam 8 whereby the rod 10 is reciprocated. The extremity of the rod remote from the roller 10^A is connected with a piston 15 located in a cylinder 16 connected with an air receiver 17. As the crank shaft is operated the rod 10 and piston 15 will be reciprocated whereby air is compressed in the receiver 17. This receiver is connected by means of a pipe 18 with a cylinder 19 in which is located a piston 20 acted on by a coil spring 21 which normally holds the piston at its forward limit of movement, the spring being of sufficient strength to resist any movement of the piston until the air in the receiver 17 is compressed to the desired limit say sixty pounds to the square inch. When this limit is reached, the air in the receiver 17 being in communication with the cylinder 19 forward of the piston acts to force the piston rearwardly. This piston is made fast to a rod 22 which is slidably mounted in the cylinder 19, passing through a tension nut 23 at one extremity of the cylinder and a stuffing box 24 attached to the other end. This rod is also provided with a hook-shaped extremity 25 occupying a position between two stops 26 and 27 adjustably mounted on the rod 10.

When the air within the receiver 17 reaches the predetermined limit of compression, this air will act on the piston 20 and move the rod 22 sufficiently to act on the stop 27 and force the rod 10 rearwardly far enough to throw the roller 10^A out of contact with the eccentric cam 8 whereby the air compressor becomes inoperative until the compression within the receiver 17 becomes sufficiently reduced to allow the piston 20 to resume its normal position.

An air delivery pipe 29 is connected with

the receiver and provided with a valve 30 for controlling the passage of air therethrough. Connected with the valve 30 is a crank arm 31, the latter being connected with the rear extremity of a rod 32 its forward extremity being connected with an operating lever 33 fulcrumed at 34. This lever is controlled by a rod 35 which may project upwardly and be readily accessible for the purpose of operating the valve when for any reason it is desired to allow the air to pass through the delivery pipe 29. As shown in the drawing this delivery pipe is connected with an auxiliary pipe 36 provided with valves 38 and 39. Adjacent the valve 38 the pipe 36 is provided with a nipple for the attachment of a tube for tire inflating purposes; while the extremity of the pipe opposite the valve 38 is provided with an alarm device 40. Whenever it is desired to use either of these devices, the corresponding valve 38 or 39 as the case may be is opened.

The air compressor mechanism described in this application is also described in our previous application entitled "Starters for explosive engines" executed Sept. 15th, 1906. An important use for the air from the receiver 17 is shown and described in the said application, namely for starting an explosive or other engine. Of course the compressed air may be utilized for any desired purpose. The cylinder 19 is provided with a shoulder 19^A near its forward extremity, against which the piston 20 is normally seated under the influence of the spring 21. When, however, the pressure within the receiver has reached a predetermined limit, namely that sufficient to overcome the tension of the spring 21, the said pressure moves the piston against its spring sufficiently to cause the extremity 25 of the piston rod 22 to act on the stop 27 of the rod 10 of the air compressor mechanism and shift the said rod out of the path of the cam 8 whereby the said mechanism is rendered inoperative as heretofore explained.

Having thus described our invention, what we claim is:

1. In air compressor mechanism for vehicles, the combination with a moving part of the vehicle, of an air receiver mounted on the vehicle, and means actuated by the air in the receiver for automatically rendering the compressor mechanism inoperative when the air has reached a predetermined limit of compression within the receiver, said means comprising a cylinder, a piston in the cylinder, a spring acting on the opposite face of the piston from that which is engaged by the air, and a rod connected with said piston and having a part adapted to engage the compressor mechanism for the purpose set forth.

2. The combination with a vehicle provided with a rotary shaft, of air compressor mechanism including a receiver, a piston, a piston rod, the latter having a part normally connected in operative relation with the said shaft, and means automatically actuated from the air within the receiver and adapted to act on the piston rod of the air compressor, whereby the said rod is thrown out of operative engagement with the said shaft when the air has reached a predetermined limit of compression within the receiver.

3. The combination with a self-propelled vehicle, of air compressor mechanism mounted thereon and having a piston rod connected in operative relation with a moving part of the vehicle, the said rod having two separated stops, a cylinder in communication with the receiver of the said mechanism, a piston in the cylinder, a spring acting on the opposite face of the piston from that which is engaged by the air, and a rod connected with said piston and having a part located between the said stops of the air compressor rod, the tension of the said spring being such that when the air reaches a predetermined limit of compression, it acts on the said piston and moves the latter against its spring sufficiently to disengage the air compressor rod from the moving part of the vehicle whereby the air compressor mechanism is automatically rendered inoperative.

In testimony whereof we affix our signatures in presence of two witnesses.

ERNEST E. HAMPTON.
CICERO G. SMITH.

Witnesses:
WILLIAM EDWARDS,
H. M. BURGER.