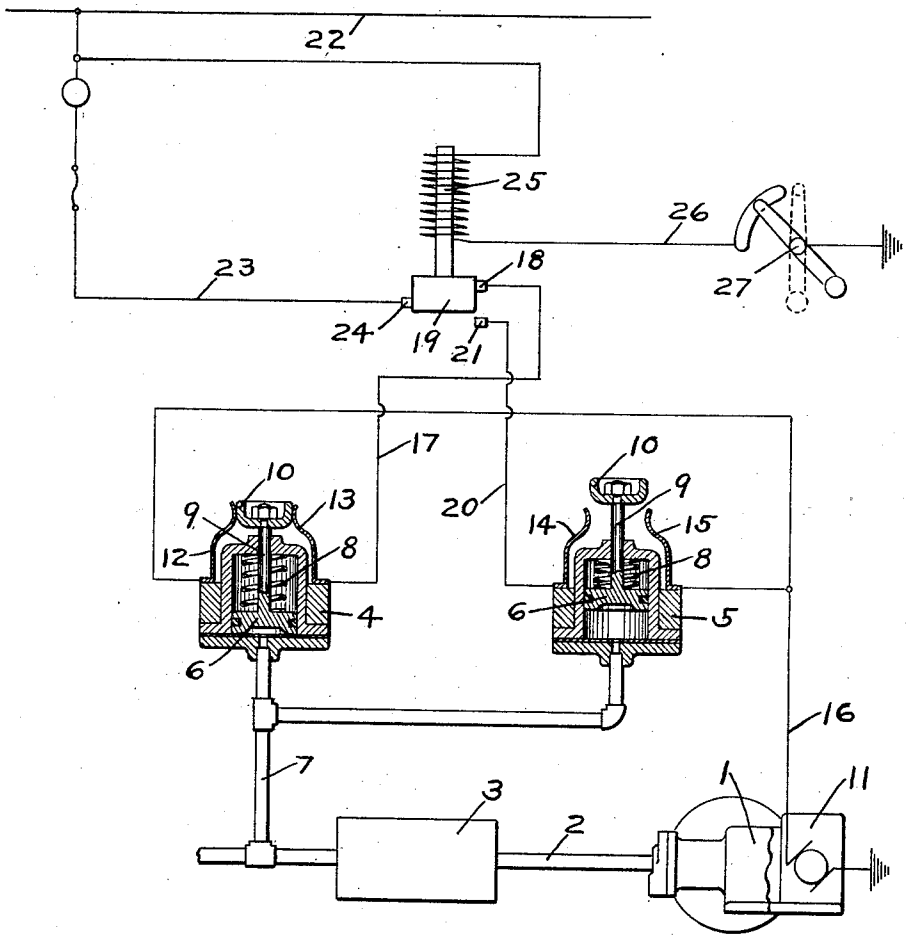
April 19, 1932. C. H. BECK 1,854,729

COMPRESSOR CONTROL DEVICE

Filed Oct. 18, 1928



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UNITED STATES PATENT OFFICE

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COMPRESSOR CONTROL DEVICE

Application filed October 18, 1928. Serial No. 313,219.

This invention relates to fluid compressing apparatus, such as employed on railway trains and traction cars.

On vehicles equipped with a fluid compressor, a governor device is provided which is adapted, upon a predetermined reduction in pressure in the main or storage reservoir, to effect the starting of the compressor. When the compressor is thus started, it continues to operate until the main reservoir pressure has been increased to a predetermined maximum degree, at which time, the compressor governor operates to effect the stopping of the compressor.

It is often undesirable to have the compressor running while a vehicle is standing, since the running of the compressor is apt to be noisy to such an extent as to be disagreeable and annoying, and the principal object of my invention is to provide automatic means for preventing the compressor from operating while a vehicle is standing, or unless the main reservoir pressure has been reduced to a very low degree.

In the accompanying drawing, the single figure is a diagrammatic view of a fluid compressing apparatus embodying my invention.

The apparatus shown in the drawing comprises an electric motor driven fluid compressor 1 adapted to compress fluid through a pipe 2 into a main or storage reservoir 3, a normal compressor governor device 4, and an additional compressor governor device 5.

Each governor device is shown diagrammatically as comprising a casing containing a piston 6, subject on one side to the pressure of fluid as supplied from the main reservoir 3 through pipe 7, and subject on the opposite side to the pressure of a spring 8. Each piston carries a stem 9 having secured thereto a contact member 10, adapted when the piston is in its inner position, to close a circuit leading to the electric motor 11 which drives the compressor 1 and to open the circuit when the piston is moved out.

Contact finger 12 of the governor device 4 and contact finger 15 of the governor device 5 are connected to wire 16 leading to the motor 11, contact finger 13 is connected to a wire 17, leading to a contact 18 adapted to engage a movable contact member 19, and contact finger 14 is connected to a wire 20, leading to a contact 21, also adapted to be engaged by the contact member 19.

Electric current is supplied from the trolley wire 22 through a wire 23 to a contact 24 which engages the contact member 19. The contact member 19 is operated by a relay 25, the coil of which is in circuit with the control circuit wire 26.

When the usual controller handle, indicated diagrammatically at 27, is in a power on position, as shown in full lines, the relay 25 is energized, and the movable contact member 19 is held in the position shown in the drawing, in which a circuit is established from wire 23 to wire 17 through engagement of contacts 24 and 18 with the contact member 19, while the contact 21 is out of engagement with the contact member 19.

Current is then supplied to the compressor motor 11 by operation of the governor device 4. The governor device 4 is adjusted for operating the compressor within the usual maximum and minimum pressure range as ordinarily employed.

If the vehicle is brought to a stop, the controller handle is shifted to off position, as shown in dotted lines, and the relay 25 is then deenergized, so that the contact member 19 is permitted to move downwardly so as to cause the contact 21 to engage the contact member 19 while the contact member 19 moves out of engagement with the contact 18. A circuit is then established from wire 23 to wire 20 and the governor device 5 is thus connected up to control the supply of current to the motor 11. The governor device 5 is adjusted so that the piston 6 will not move downwardly to close the motor cir-

cuit until the pressure in the reservoir 3 has been reduced to a relatively low degree, which is considerably lower than the pressure at which the governor device 4 operates to cut in the compressor motor, but which is sufficient to insure ample main reservoir pressure for operating the brakes to hold the vehicle while standing.

As a result, the usual high pressure governor is cut out while the car is standing and the compressor consequently is not operated while the car is standing, unless the main reservoir pressure should fall to the low degree at which the low pressure governor 5 is adjusted to operate.

On the other hand, as soon as the controller is moved to a power on position so as to start the vehicle, the relay 25 is energized so as to effect the cutting in of the high pressure governor and the consequent operation of the compressor to build up the main reservoir pressure to the usual maximum pressure carried.

While one illustrative embodiment of the invention has been described in detail, it is not my intention to limit its scope to that embodiment or otherwise than by the terms of the appended claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a vehicle carried electric motor driven fluid compressor and a compressor governor operated upon a predetermined reduction in the pressure of fluid compressed by the compressor for closing the compressor motor circuit, of a power controller element and means controlled by said element for preventing the closure of the motor circuit by operation of said governor.

2. The combination with an electric motor driven fluid compressor, of two compressor governors, each adapted to control the opening and closing of the compressor motor circuit, a power controller element, and a switch device for controlling the circuit through which said governors supply electric current to the compressor motor and operative in a power-on position of the controller element for preventing one governor from acting and operative in off position of the controller element for preventing the other governor from acting.

3. The combination with an electric motor driven fluid compressor, of two compressor governors, each adapted to control the opening and closing of the compressor motor circuit, a power controller element, and electrically controlled means operative in a power-on position of the controller element for rendering one governor ineffective to control the compressor motor and in the off position of the controller element for rendering the other governor ineffective to control the compressor motor.

4. The combination with an electric motor driven fluid compressor and a compressor governor for controlling the opening and closing of the compressor motor circuit, of a power controller element and means associated with and operated in power off position of said controller handle for preventing said governor from acting.

In testimony whereof I have hereunto set my hand, this 10th day of October, 1928.

CARL H. BECK.