March 24, 1925. 1,530,577

H. F. SCRUBY

ATTACHMENT FOR MOTOR VEHICLES

Filed April 19, 1924 2 Sheets-Sheet 1

Fig. 1.

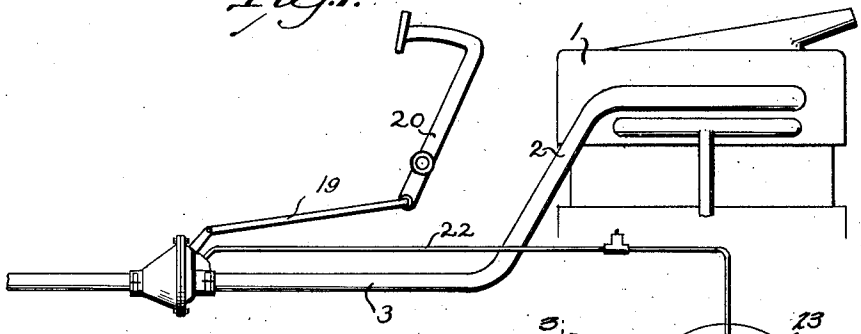
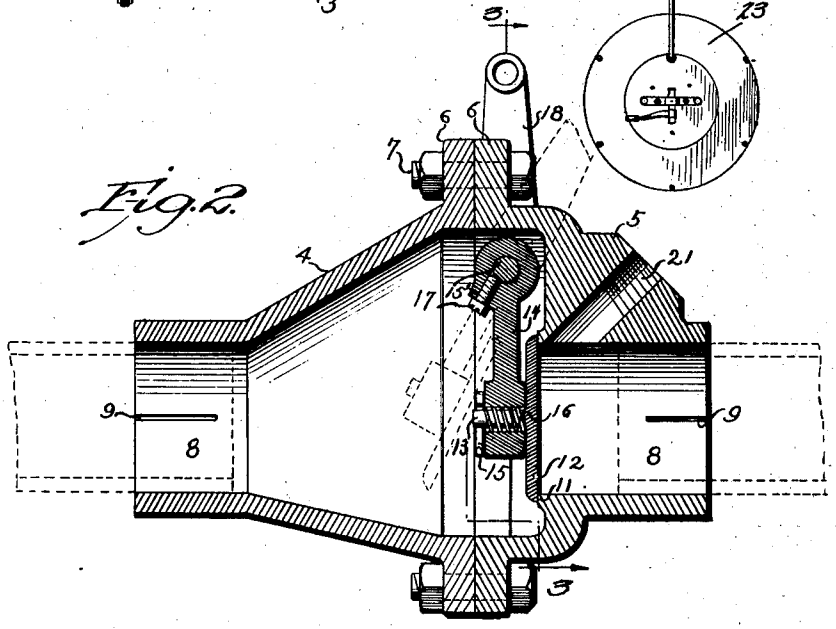



Fig. 2.



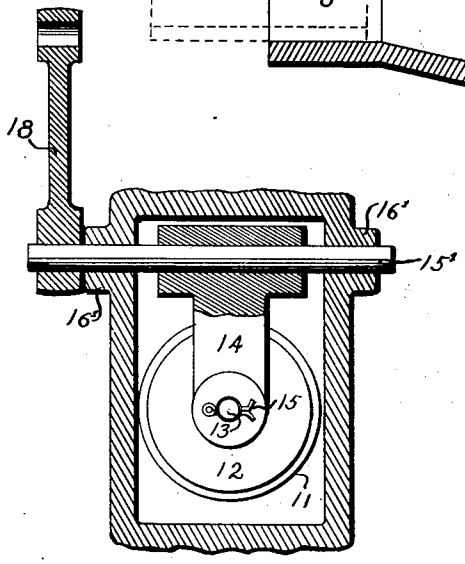
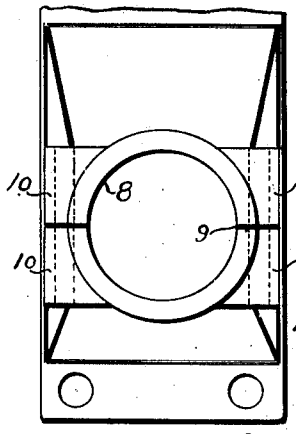




Fig. 3.

Fig. 4.




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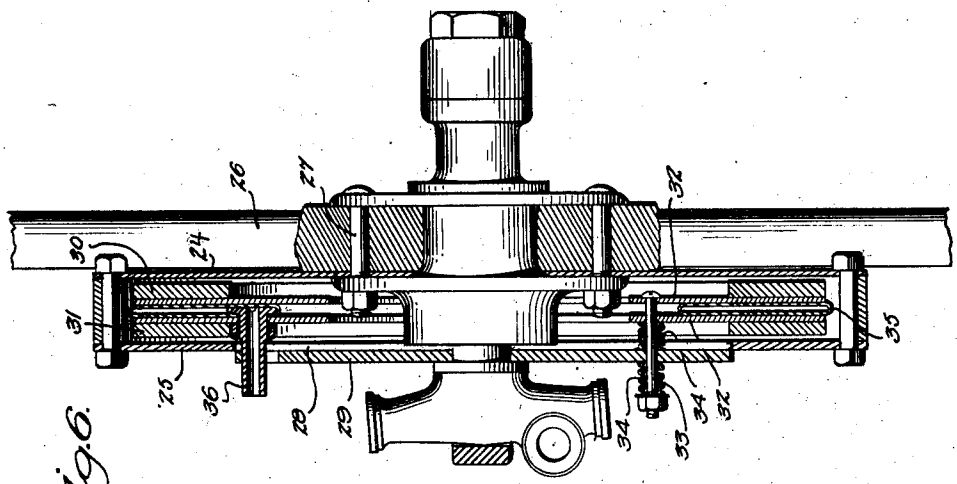



Fig. 6.

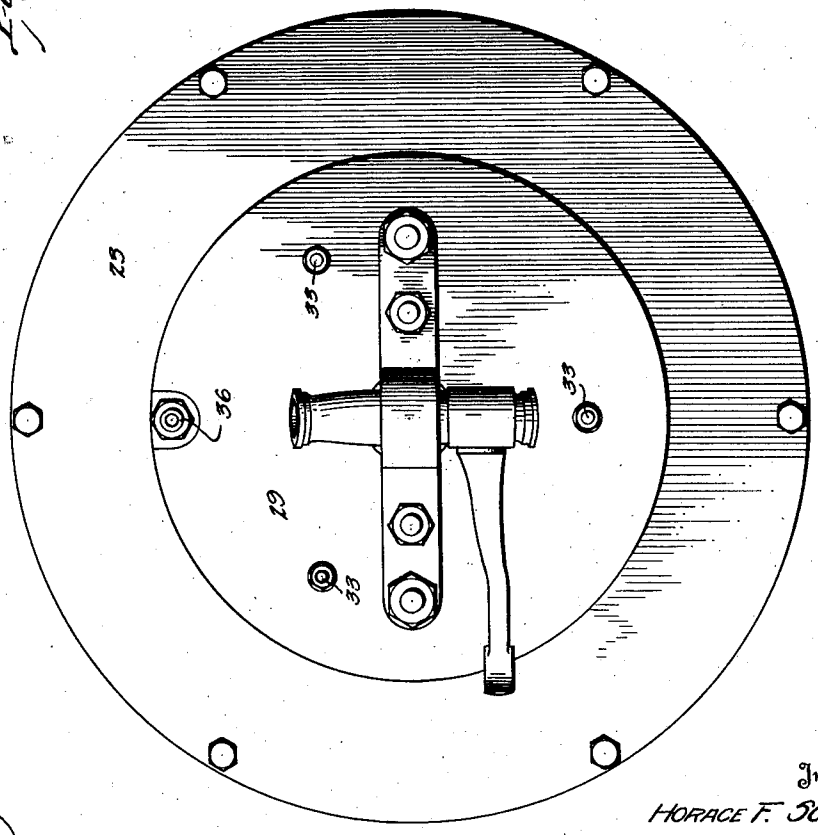



Fig. 5.

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# UNITED STATES PATENT OFFICE.

HORACE F. SCRUBY, OF LOS ANGELES, CALIFORNIA.

## ATTACHMENT FOR MOTOR VEHICLES.

Application filed April 19, 1924. Serial No. 707,782.

*To all whom it may concern:*

Be it known that I, HORACE F. SCRUBY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Attachments for Motor Vehicles, of which the following is a specification.

This invention relates to attachments for motor vehicles, and more particularly to means for building up a pressure in the exhaust pipe for the purpose of performing useful work.

In carrying out the invention, I provide a casing arranged in the exhaust line, the casing having a main passage for normal flow of exhaust gas, and a valve arranged therein whereby the flow of gas through the exhaust passage may be arrested. I further provide a secondary passage in the casing arranged on the inlet side of the valve at such an angle to the main passage that the normal flow of gas through the main passage will act as an ejector to withdraw gases from the secondary passage.

In normal operation, a slight pressure exists in the exhaust pipe of a motor vehicle and this pressure would ordinarily be transmitted to any pipe or conduit leading from the exhaust passage. By providing the secondary passage at such an angle that the flow of gases through the main pipe acts as an ejector, a slight vacuum is normally maintained in the secondary passage and the apparatus connected thereto.

In the accompanying drawings, I have shown one embodiment of the invention. In this showing:

Figure 1 is a diagrammatic view of an internal combustion engine showing the invention applied,

Figure 2 is a central vertical sectional view through the valve casing,

Figure 3 is a transverse vertical sectional view on line 3—3 of Figure 2,

Figure 4 is an end elevation of the valve casing.

Figure 5 is a side elevation of a fluid pressure brake, and,

Figure 6 is a vertical sectional view of the brake.

Referring to the drawings, the reference numeral 1 designates an internal combustion engine of any type having the usual exhaust manifold 2 connected to an exhaust pipe 3. The parts heretofore described are of the usual construction and form no part of the present invention, except in the combination claimed.

In providing means for building up a pressure in the exhaust pipe for the purpose of performing useful work, I employ a valve casing arranged in the exhaust pipe and consisting of two sections 4 and 5, each of which is provided with a flange 6 at its inner end and these flanges are adapted to receive bolts 7 by means of which the two sections are secured to each other. The outer ends of each section are provided with circular passages 8 for the reception of the ends of the sections of the exhaust pipe. As shown, these end portions of the valve casing are provided with slots 9 and are further provided with lugs 10 through which bolts are adapted to be passed to draw the ends of the valve casing around the exhaust pipe and form a gas tight joint.

Within the section 5 of the valve casing, there is formed a valve seat 11 adapted to be engaged by a pivotally mounted valve 12. As shown, the valve is provided with a stem 13 adapted to pass through an opening in a yoke 14. A cotter pin 15 is arranged in the valve stem and a coil spring 16 is arranged around the valve stem between the valve and the cotter pin to retain the valve in snug engagement with the valve seat when it is in closed position. The yoke 14 is mounted on a shaft 15 extending transversely of the valve casing and arranged in suitable bearing portions 16 in the side walls of the valve casing. The yoke is secured to this shaft by means of a set screw 17 or other suitable fastening element. The shaft extends exteriorly of the casing and is provided with an arm 18. This arm is adapted to be connected to suitable actuating mechanism arranged adjacent the driver's seat. As shown, a link 19 may be connected to the outer end of the arm 18 and the link is in turn connected to a foot pedal 20 mounted in the vehicle.

The valve casing is provided with a secondary passage 21 arranged at an angle to the main passage as shown, and a pipe 22 leads through this passage to any suitable apparatus that may be operated within the limits of pressure capable of being built up in the exhaust pipe. In Figure 1 of the drawings, I have diagrammatically illustrated a fluid pressure brake 23 con-

nected to the pipe 22. The detail construction of the brake is shown in Figures 5 and 6 of the drawings and is substantially the same as that disclosed and claimed in my prior Patent No. 1,482,661, granted February 5, 1924. As shown, the brake drum consists of a pair of parallel plates or disks 24 and 25 which are adapted to be secured to a vehicle wheel 26 by means of bolts 27. The outer disk is provided with a central opening 28 and this opening is closed by a stationary plate or disk 29. Within the casing, there is provided a pair of friction rings 30 and 31 which are normally spaced from the inner face of the disks 24 and 25 and are adapted to engage these disks when moved laterally. These rings are mounted on a pair of supporting members 32, the supporting members being stationary and being carried by pins 33 extending through the plate 29. Suitable springs 34 may be arranged on the pins or bolts 33 to normally retain the friction rings in inoperative position. An expansible member 35 is arranged between the supporting members 32 and the interior of the expansible member is provided with a tube 36 which extends through the opening 28 and through a slot in the plate 29. This tube is connected to the pipe 22.

The installation and operation of the device will be apparent from the foregoing description. The exhaust pipe is split intermediate its ends and the valve casing arranged therein. Bolts are arranged in the openings in the lugs 10 and tightened to form gas-tight joints between the valve casing and the sections of the exhaust pipe. The valve 12 is normally in the position shown in dotted lines in Figure 2 of the drawings, permitting an unobstructed flow of exhaust gases through the apparatus. When the valve is in open position, the exhaust functions in its ordinary manner. The arrangement of the secondary passage 21 is such that any gases in the pipe 22 will be withdrawn by the flow of gases through the exhaust pipe. This is important in using the apparatus for certain purposes, such as, for instance, the operation of fluid brakes. Normally, a pressure of from ½ to 1½ pounds per square inch exists in the exhaust pipe of an internal combustion engine when the engine is running and if the secondary passage 21 was so arranged that this pressure was communicated thereto, the pressure would cause the brakes to drag at all times. By arranging the passage in the manner shown, a slight vacuum is created therein and unintentional operation of the brakes avoided. When a pressure is to be built up in the exhaust pipe for the purpose of operating the brakes or performing any other useful work, the valve 12 is arranged in the full line position shown in the drawings through the manipulation of the foot lever 20 and pressure created is transmitted through the pipe 22 to the expansible member 35 or other apparatus.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. An attachment for motor vehicles comprising a valve casing adapted to be arranged in the exhaust pipe of an internal combustion engine, said casing being provided with a main passage, and a valve arranged in said passage, said casing being further provided with a secondary passage arranged at an angle to the main passage whereby the flow of gases through the main passage when the valve is open will withdraw gases from said secondary passage.

2. An attachment for motor vehicles comprising a valve casing adapted to be arranged in the exhaust pipe of an internal combustion engine, said casing being provided with a main passage, and a valve arranged in said passage, said casing being provided with a secondary passage adjacent the inlet end of said main passage and arranged at an acute angle to said main passage.

3. An attachment for motor vehicles comprising a valve casing adapted to be arranged in the exhaust pipe of an internal combustion engine, said casing being provided with a main passage and being further provided with a secondary passage communicating therewith and arranged at an angle thereto whereby passage of gases through said main passage will withdraw gases from said secondary passage, a valve pivotally mounted in said casing and adapted to close said main passage when the valve is in closed position, and operating means for said valve.

4. An attachment for motor vehicles comprising a valve casing adapted to be arranged in the exhaust pipe of an internal combustion engine, said casing being provided with a main passage and being further provided with a secondary passage communicating therewith and arranged at an angle thereto whereby passage of gases through said main passage will withdraw gases from said secondary passage, a valve seat formed in said main passage, a shaft arranged transversely of said casing adjacent said valve seat, a valve mounted on said shaft and adapted to engage said seat, an operating means connected to said shaft exteriorly of said casing.

5. The combination with the exhaust pipe of a motor vehicle, of a valve casing arranged therein, a valve mounted in said casing, and an auxiliary conduit connected to said valve casing on the inlet side of said valve whereby a pressure will be built up in said conduit for the performance of useful work when the valve is in closed position, said conduit being arranged at such an angle to the exhaust pipe that a reduced pressure will be created in said conduit when the valve is in open position.

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

HORACE F. SCRUBY.

Witnesses:

O. W. WINKLER,

CHAS. A. SCRUBY.