

Oct. 22, 1940.

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2,218,936

VALVE ASSEMBLY

Filed April 1, 1939

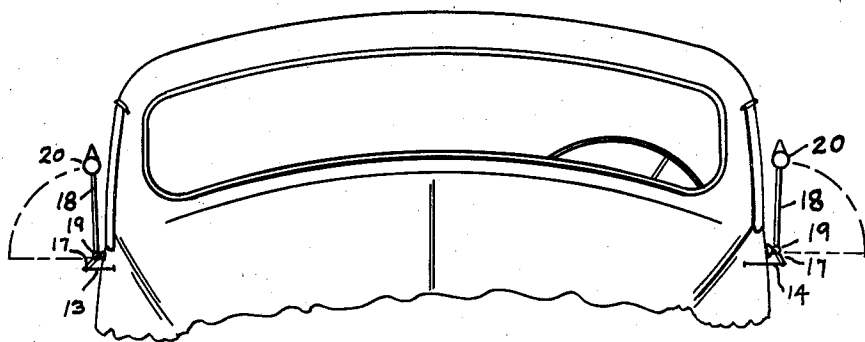


FIG. 1.

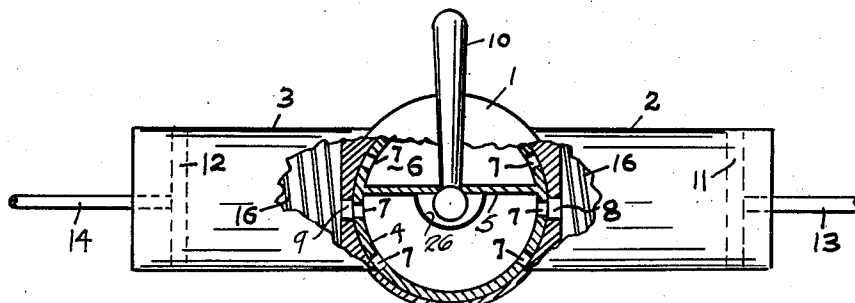


FIG. 2.

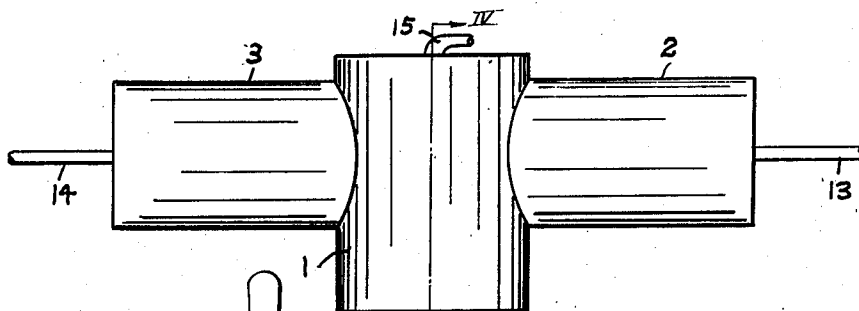


FIG. 3.

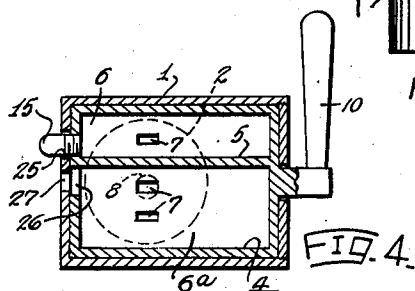


FIG. 4.

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2,218,936

VALVE ASSEMBLY

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Application April 1, 1939, Serial No. 265,533

2 Claims. (Cl. 60—97)

This invention relates to improvements in direction indicating signals.

An object of my invention is to provide a central cylindrical member with a pair of oppositely disposed piston chambers integral to said central cylindrical member.

A further object of my invention is to provide a tubular chamber positioned within said central cylindrical chamber having a plurality of ports in order to communicate to a right or left port of the oppositely disposed piston chambers.

A further object of my invention is to provide a vacuum actuated piston for each of said oppositely disposed piston chambers and each provided with a piston rod.

A further object of my invention is to provide a coil spring positioned in the inner end of each of said oppositely disposed piston chambers.

A still further object of my invention is to provide a vacuum chamber within said tubular chamber.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a front elevation of the device installed upon an automobile.

Figure 2 is a side elevation of the central part of the device with parts broken away.

Figure 3 is a top plan view of the central part of the device and Figure 4 is a vertical sectional view taken on line IV—IV of Fig. 3.

By referring to the drawing it will be seen that an operating mechanism has been provided which comprises a centrally positioned cylindrical chamber 1 having a pair of oppositely disposed cylinders 2 and 3 formed thereon. In order that vacuum action may be directed to these cylinders 2 and 3 alternately, a cylindrical valve 4 has been positioned within the cylindrical chamber 1. This cylindrical valve 4 is provided with a partition 5 which divides the same into an upper and lower compartment, the upper compartment designated by the numeral 6 is adapted to be connected through a connection 15 to a suitable source of vacuum such as an intake

manifold of an internal combustion engine. The connection 15 is threaded into a suitably tapped hole in the closed end of the valve 4 and the end of the chamber 1 is formed with an arcuate opening 25 through which the connection 15 extends. It will be understood that the arcuate opening 25 permits a free oscillating movement of the valve 4 in the chamber 1 and that the connection 15 striking the ends of the arcuate slot 25 acts to position the valve in operative positions. The lower compartment 6a is provided with a large semi-circular opening 26 in one end of the valve which opening communicates with the atmosphere through an opening 27 in the end of the chamber 1. Positioned at various locations in the cylindrical valve 4 are a plurality of ports 7 which will, upon rotation of the cylindrical valve 4 by means of a lever 10 which is affixed to one end thereof and positioned so that it is convenient to the driver of the automobile, cause a pair of the ports 7 to register with openings 8 and 9 communicating with the cylinders 2 and 3 respectively; it being understood that when, for instance, one of the ports 7 communicating with the vacuum chamber 6 is positioned so as to register with the opening 9, one of the ports 7 communicating with the atmospheric chamber is then in registry with the opening 8 of the opposite cylinder. Also, the middle port 7 on each side of the valve 4 is used to connect the ports 8 and 9 to the atmospheric chamber 6a only when the lever 10 is in a neutral or central position.

The oppositely disposed cylinders 2 and 3 carry pistons 11 and 12 respectively to which are connected piston rods 13 and 14 respectively, and a coil spring 16 is positioned within each of the cylinders 2 and 3 between the innermost ends thereof and the pistons 11 and 12 so that their normal tendency is to return to the positions indicated in Figure 2 of the drawing. This is made possible by the openings 8 and 9 thus establishing communication with the atmosphere and thus permitting the springs 16 to effectively return the pistons 11 and 12. It will thus be seen that when the lever 10 is swung to the right or left the resulting action will be to move either the right or the left piston inwardly compressing the coil spring 16 and thus providing movement of the piston rods 13 and 14 which extend outwardly to the exterior of the automobile.

By referring to Figure 1 it will be seen that the piston rods 13 and 14 are each attached to a control arm 17. This control arm 17 is inte-

gral with the signal arms 18 pivotally mounted upon a bracket 19. It will be seen that the signal arms 18 are provided with an electric light 20.

5 What I claim is:

1. In combination, a substantially cylindrical housing having relatively thin walls and closed ends, a thin-walled hollow valve plug having closed ends and rotatably mounted in substantially fluid tight relation within the housing, a substantially diametrical partition in the valve plug dividing it into two chambers, one of the chambers being connected to the atmosphere, means connecting the other chamber at its end to a source of sub-atmospheric pressure, said housing being formed at substantially diametrically opposed sides with outlet ports, the valve plug being formed with a pair of ports in the atmospheric pressure chamber registering with the outlet ports when the plug is in a neutral position, said plug having a second pair of ports in the atmospheric pressure chamber one of which registers with one outlet port when the plug is turned to the right and the other of which registers with the other outlet port when the plug is turned to the left, said plug having two ports in the sub-atmospheric pressure chamber out of register with the outlet ports when the plug is in neutral position but one port registering with the outlet port not connected with atmospheric pressure when the plug is turned to the right and the second port registering with the other outlet port when the plug is turned to the left, and means extending at right angles

from the axis of the plug for manually operating the valve.

2. In combination, a one-piece casting including a substantially cylindrical housing of relatively thin walls and relatively thin-walled fluid motor cylinders of less diameter than the housing formed integrally with the housing and extending in opposite directions therefrom at substantially right angles to the axis of the housing but having their axes substantially aligned, a thin-walled hollow valve plug having closed ends rotatably mounted in substantially fluid tight relation within the housing, a substantially diametrical partition in the valve plug dividing it into two chambers, means connecting one of the chambers to a source of sub-atmospheric pressure, means connecting the other chamber to the atmosphere, said housing being formed with ports connecting to motor cylinders and the inside of the housing, four ports in the atmospheric chamber walls of the valve plug adapted to connect both of the motor cylinders to atmospheric pressure in the neutral position of the valve, and adapted to connect at least one of the cylinders to the atmosphere when the plug is turned either to the right or to the left, said plug having a pair of ports in the walls of the sub-atmospheric chamber neither of which is in register with the housing ports in the neutral position of the valve plug but one of which comes into register when the plug is turned to the right or to the left, and manually operated means connected to the valve plug for turning it to the right or to the left.

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