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SAFETY DEVICE FOR CONTROLLING THE FLOW OF COMBUSTIBLE FLUIDS.

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1,140,313.

Patented May 18, 1915.

Fig. 1.

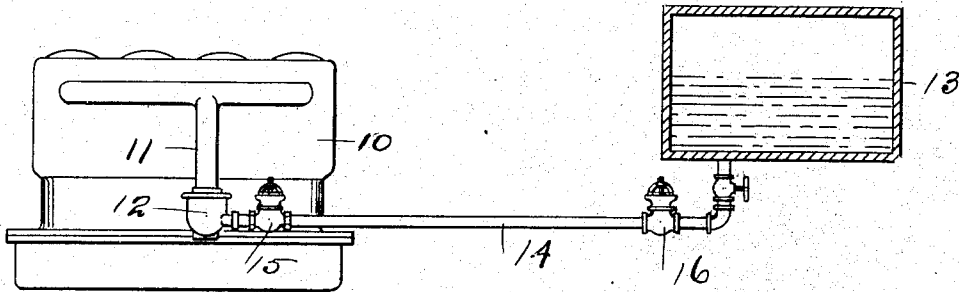
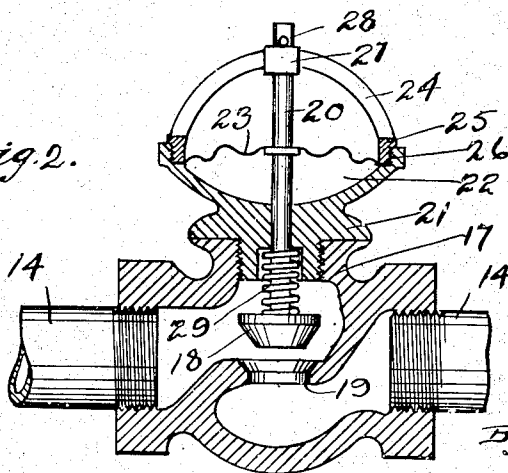


Fig. 2.



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SAFETY DEVICE FOR CONTROLLING THE FLOW OF COMBUSTIBLE FLUIDS.

1,140,313.

Specification of Letters Patent.

Patented May 18, 1915.

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To all whom it may concern:

Be it known that I, WILLIAM HOWARD PAINE, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Safety Devices for Controlling the Flow of Combustible Fluids, of which the following is a specification.

This invention relates to an automatically actuated safety device for controlling the flow of combustible fluids.

It is well known that in the use of internal combustion engines, either in boats, vehicles, or stationary power plants, that the engine is liable, from various causes, to back fire through the carbureter, which often sets fire to the highly combustible fluid therein contained, and as soon as the carbureter float is burned the gasoline flows out uncontrolled and feeds the flames and in a few moments the whole plant has been destroyed, and in the case of a motor boat loss of life often occurs.

The object of my invention is to remove this source of danger by positioning one or more valves in the fuel supply pipe, one being close to the carbureter, and another, if desired, close to the tank containing the fuel, and to hold these valves normally in their open position by a fusible member, whereby when a fire occurs the heat will at once melt the fusible member and permit the valve to close, automatically cutting off the supply of fuel, when the fire may be readily extinguished.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

Of the accompanying drawings: Figure 1— is a diagrammatic view illustrating my improved safety attachment as applied to the fuel supply pipe between the fuel receptacle and the engine. Fig. 2— shows a valve, the casing being in section, in which the fusible member is on the outside of the casing in position to be quickly acted upon and fused by the heat.

Referring to the drawings, 10 designates an internal combustion engine which is provided with the usual manifold or in-take pipe 11, to which the carbureter 12 may be attached. This carbureter may be of any

usual or desired construction, which controls the flow of the fuel to the engine by a float or other suitable means. In the usual arrangement of a power plant using such an engine, either in a boat or vehicle, fuel is usually carried in a tank or receptacle 13, located, for safety, some distance from the engine and the fuel is conveyed therefrom to the engine through a small supply pipe 14. The feature of my invention is to provide a valve normally held in open position by means of a fusible member, and to connect such a valve to the supply pipe 14 adjacent the engine as at 15, and also in some cases to connect another adjacent the tank as at 16, or others may be distributed along the pipe at intervals, if desired, whereby the heat from a fire in or near the carbureter, or at any point between the carbureter and the tank will quickly melt this fusible member and permit the valve to close and so automatically shut off the fuel supply through said pipe.

The casing 17 is of the usual globe valve type adapted to receive the threaded ends of the pipe 14, the same having a closure or valve member 18 adapted to engage the seat portion 19 to shut off the flow through said casing. This valve member is provided with a long outwardly extending stem 20 which projects through the cap or bonnet 21. This cap is cupped out at 22 and a diaphragm 23, which takes the place of a packing to prevent leakage around the stem, is operatively held in this cap being bound around its outer edge by a yoke member 24 having an annular rim 25 threaded at 26 into said cap. The outer end of this stem 20 projects through a bearing 27 in this yoke and has a pin 28 of readily fusible material extending transversely through it and engaging said bearing for the purpose of retaining the valve normally in its open position, and a spring 29 is arranged to engage the inner end of the cap 21 and press against said valve 18 to move the same to its seat at once when the fusible pin has been destroyed by action of heat from an adjacent fire, thereby automatically shutting off the flow through the supply pipe 14 and preventing the fuel from flowing out from said pipe and feeding the flames.

It is found in practice that a construction which locates the fusible member outside of the valve chamber is more sensitive and

fuses quicker than one located within the chamber and immersed in the fuel contained therein.

I have described the construction of shut-off valve illustrated in Fig. 2, but I do not wish to be restricted to this particular style of valve as any valve which is normally held in open position by means of a readily fusible member and applied to the fuel supply pipe may fall within the spirit and scope of my invention.

By the word "valve" I mean that member which is adapted to close the passage through which the fluid passes.

15 I claim:

1. The combination with a valve casing, a valve mounted therein and provided with a stem, and a spring acting to seat said valve, of a diaphragm through which said stem projects, means for securing said diaphragm in position, said means including a yoke member, and a thermal connection between said yoke member and the stem normally holding the valve retracted in opposition to said spring.

25 2. The combination with a valve casing provided with a valve bonnet having a cupped portion, a valve mounted in said

casing and provided with a stem, and a spring acting to seat said valve, of a diaphragm extending across the cupped portion of said bonnet and through which said stem projects, means for securing said diaphragm to said bonnet, said means including a yoke member, and a thermal connection between said yoke member and stem normally holding the valve retracted in opposition to said spring.

3. A thermally controlled valve comprising a valve casing having a removable cap, a yielding diaphragm, means for connecting said diaphragm to said cap with a gas-tight joint, a yoke member above said cap, a valve in said casing provided with a stem connected to said diaphragm, a spring acting on said valve to close it, and a thermal connection between said yoke member and the stem normally holding the valve retracted in opposition to said spring.

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

WILLIAM HOWARD PAINE.

Witnesses:

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