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W. C. BROCK

2,354,573

FUEL TANK

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Fig. 1.

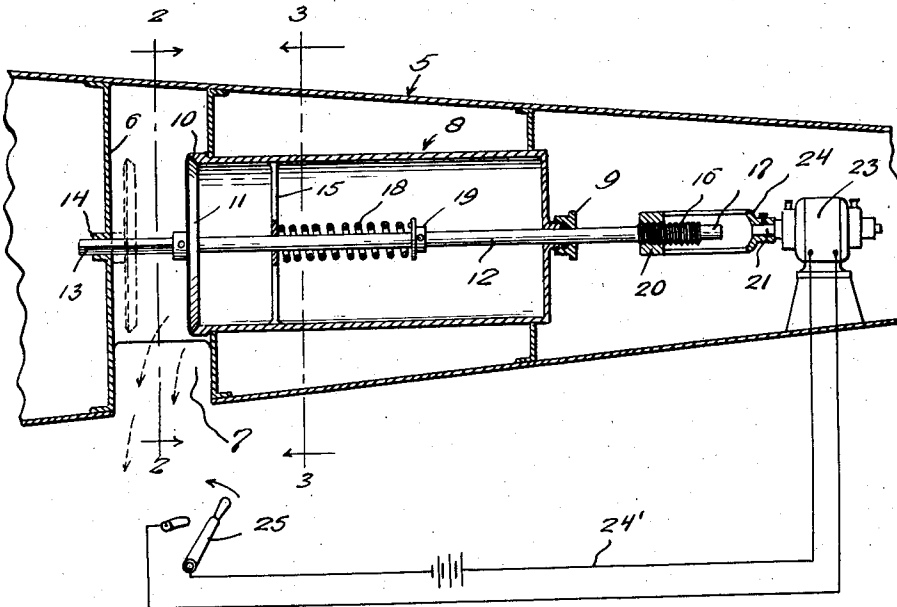


Fig. 2.

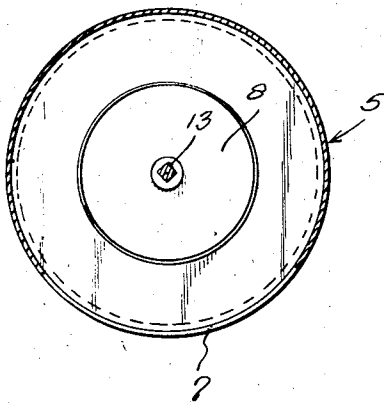
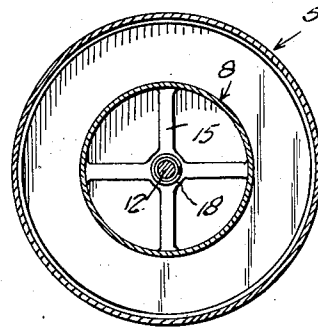


Fig. 3.



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FUEL TANK

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2 Claims. (Cl. 244—135)

This invention relates to a fuel tank for airplanes or for motor vehicles of different kinds; and has for the primary object the provision of a device of this character which may be quickly emptied of its fuel contents in case of an apparent accident to eliminate fire hazards so frequently present in accidents wherein the fuel tank is damaged to permit the escape of the fuel which becomes ignited and results in a disastrous fire or explosion, resulting in the destruction of property and in many instances injury to persons.

Another object of this invention is the provision of a device of the above stated character which under normal conditions will be substantially leakproof and may be quickly set in operation to empty the fuel by a person when it is apparent to said person that an accident cannot be avoided.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a fragmentary vertical sectional view illustrating a fuel tank constructed in accordance with my invention and showing the same adapted to a fragmentary portion of an airplane.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Referring in detail to the drawing, the numeral 5 indicates a fragmentary portion of an airplane. The present showing represents a part of the body or fuselage. However, it is to be understood that while the invention is illustrated as adaptable to this part of an airplane, it also may be installed in some other part of said airplane such as one of the wings. Further, it is to be understood that the invention is readily adaptable to any type of motor vehicle.

In adapting the invention to the airplane it is preferable that the latter be provided with a fire wall 6 which forms a support for part of the valve mechanism and also the airplane adjacent to the fire wall has a discharge opening 7. The fuel tank is indicated by the character 8, one end wall of which is provided with a stuffing gland 9. The opposite end of the tank from

said end wall is shaped to form a valve seat 10 normally engaged by a valve element 11. The seat and valve element may have a ground joint or a gasket may be employed if desired. The valve element 11 is secured to an operating rod 12, one end portion of which is provided with squared faces 13 matching the shape of an opening provided in a bearing 14 of the fire wall 6 to prevent said rod 12 from rotating but which will permit said rod to slide freely in either direction. The operating rod 12 is further supported by a spider 15 mounted in the fuel tank and by the stuffing gland.

The other end portion of the rod 12 is equipped with feed threads 16 which terminate short of said end leaving a portion, as indicated at 17, unthreaded. Surrounding the rod 12 is a coil spring 18, one end of which bears on a collar 19 secured to said rod and the other end against the spider. The action of the spring 18 is to normally retain the valve element in engagement with the seat 10 to prevent the escape of the fuel contents of the tank.

A feed nut 20 is secured to an armature shaft 21 of an electric motor 23 by a coupling 24. The electric motor 23 is pivotally mounted in the airplane and is connected in an electric circuit 24' provided with a control switch 25.

The feed nut 20 either engages the non-threaded portion 17 of the rod or the feed threads 16. When the valve 11 is in engagement with the seat the feed nut 20 is in mesh with the feed threads so that should an accident be apparent to the operator of the airplane, the switch 25 may be closed setting the motor 23 into operation. The nut 20 being rotated by the electric motor and in mesh with the feed threads, moves the rod 12 endwise to the left in Figure 1 disengaging the valve 11 from the seat 10 permitting the fuel contents of the tank 8 to flow therefrom and discharge through the opening 7 of the airplane.

As the electric motor 23 may be left in operation, the stated endwise movement of the rod 12 stops as soon as the feed nut moves onto the smooth portion 17 of the rod to prevent the valve element from being jammed against the fire wall 6.

It is to be understood that the switch 25 will be located in convenient reach of the pilot of the airplane so that the motor 23 may be set into operation with the least amount of effort on the part of the pilot. Whenever the pilot is of the opinion that an accident is unavoidable, it is only necessary that the switch 25 be brought into closed position whence the electric motor

completes the operation of opening the valve to permit the rapid emptying of the fuel tank.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:

1. In combination with a vehicle body having an opening in a lower wall thereof, a horizontally arranged fuel tank mounted in the body and having one end fully open and located adjacent to and in a plane above said opening and shaped to provide a valve seat, a valve element for the seat and movable away from the tank to open the latter for the discharge of its contents through the opening, a shaft connected to the valve element and having feed threads, a feed nut meshing with the feed threads, spring means acting to engage the valve element with the seat, means preventing rotation of the shaft and having the shaft slidable relative thereto and providing a fire wall in the body adjacent the opening and the open end of said tank, and means for rotating said nut to move the valve element away from the seat and close to said second mentioned

means to provide for an unobstructed flow of the contents of the tank therefrom through the opening of the body.

2. In combination with a vehicle body having an opening in a lower wall thereof, a horizontally arranged fuel tank mounted in the body and having one end fully open and located adjacent to and in a plane above said opening and shaped to provide a valve seat, a valve element for the seat and movable away from the tank to open the latter for the discharge of its contents through the opening, a shaft connected to the valve element and slidably supported by the tank and having feed threads arranged externally of the tank, a feed nut meshing with the threads, spring means in the tank acting to engage the valve element with the seat and supported by said shaft, a fire wall located adjacent the opening of the body and adjacent the open end of the tank and having the shaft slidably connected thereto and held against rotation relative thereto, and a power driven means connected to the nut for the rotation thereof to move the valve element by said shaft away from the seat and close to the fire wall to permit free flow of the contents of the tank therefrom through the opening of the body.

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