

[54] **RAILWAY CAR FUEL TANK ASSEMBLY**

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[52] **U.S. Cl.**..... **105/1 A**, 105/26 R, 105/61.5, 105/62 R, 105/65, 105/396, 220/85 S, 222/145, 280/5 A

[51] **Int. Cl.**..... **B61c 5/02**, B61c 17/02, B61f 1/08

[58] **Field of Search**..... 105/26 R, 35, 59, 172, 105/416, 451, 452, 1 A, 61.5, 62 R, 65, 396; 220/1 V, 855; 222/145; 280/5 A; 296/24 R

[56] **References Cited**

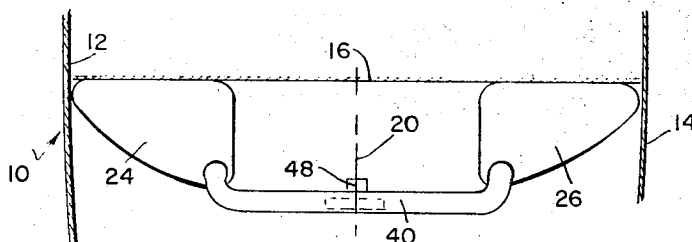
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[57] ABSTRACT

Twin arrangements of fuel tanks for power-engine feed are suspended from a railway vehicle floor. The pair of elongated fuel tanks is arranged substantially symmetrically about an axis, and piping means connect the tanks to a pipe coupling for feeding fuel to a power engine from a single outlet.

6 Claims, 5 Drawing Figures



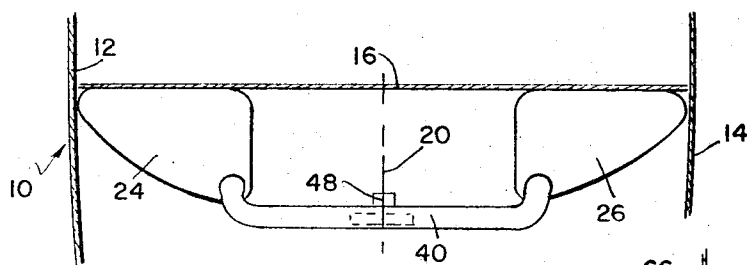


FIG. 1

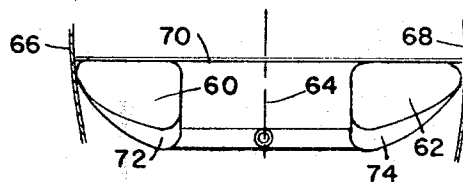


FIG. 3

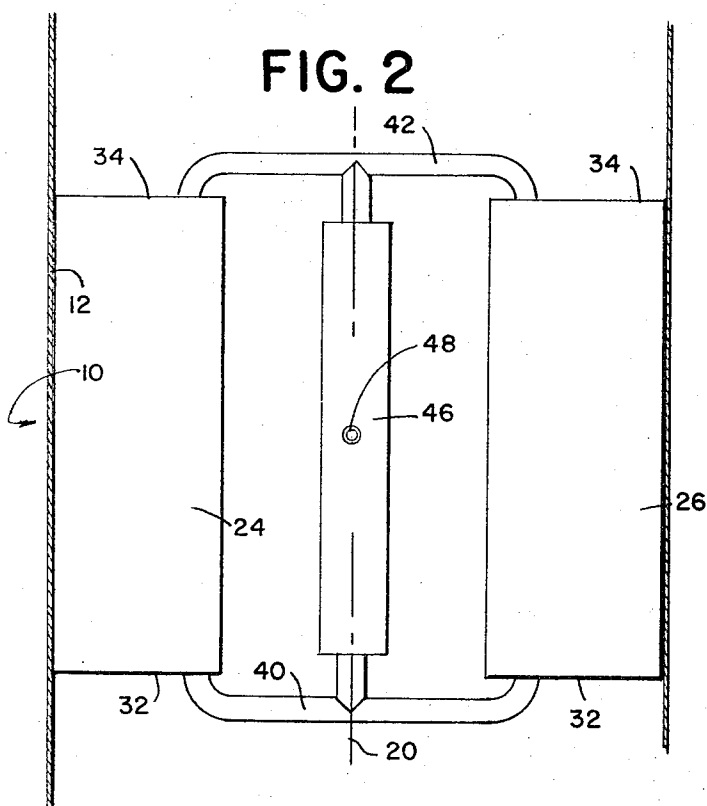


FIG. 2

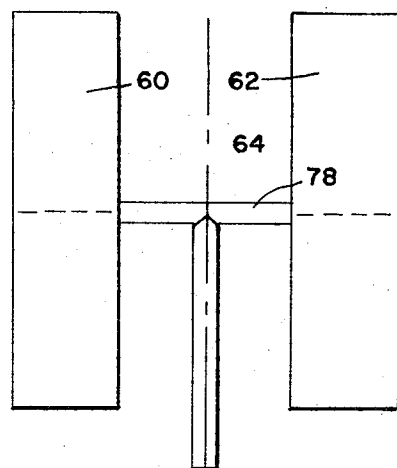


FIG. 4

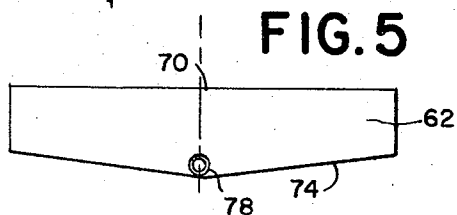


FIG. 5

RAILWAY CAR FUEL TANK ASSEMBLY

CROSS-REFERENCES TO RELATED INFORMATION AND REFERENCES

This application for patent is co-pending with at least the following related application concurrently filed herewith:

Ser. No. 350,807, entitled Gas Turbine Powered Self-Propelled Railway Train, which application discloses a train having at each end, a motive power car equipped with a gas turbine power plant and suitable controls for operating the train in either direction with equal facility.

BRIEF SUMMARY OF THE INVENTION

The invention relates to a twin arrangement of fuel tanks for power-engine supply, specifically for a gas-turbine railway vehicle. More particularly, the invention relates to providing a pair of tanks having a symmetrical configuration about a common external axis and in which the tanks have a regular shape.

FIELD OF THE INVENTION

In railway train design, vehicle size is limited by the clearance diagram making it necessary to arrange all the components rationally so as to facilitate assembly and disassembly. As concerns gas turbine railway vehicles, the twin arrangement of fuel tanks is preferable to the single tank for several reasons, viz.:

- a. Ease of manufacturing because of the size being smaller than that of a single component.
- b. Larger fuel capacity, thereby increasing autonomy.
- c. Greater ease of access under the chassis.
- d. Eliminates de-energizing of pumps when brakes are applied, or in the event of steep slopes or sharp bends with compensation for insufficiency of cant or inclination by means of an extra thin feed tank connecting the two reservoirs.
- e. Possibility of shapes better adapted to the full use of the capacity of the fuel stored.

BACKGROUND OF THE INVENTION

It is an object and advantage of the invention to provide a fuel feed-in method affording the advantages listed above.

It is a further object, feature and advantage of the invention to provide the feed-in method designed so as to have on either side of the vehicle's longitudinal axis and beneath its chassis two identical reservoirs of suitable shape to accommodate the track gauge width.

It is a further object and advantage of the invention to provide two tanks having a regular shape.

It is another object of the invention to provide tanks that are interconnected in the lower part via the end surfaces by means of pipings that are interconnected by an extra-flat feed tank.

Another object of the invention is to provide suitable piping connecting the feed tank to the engine feed pump.

Another object is to provide tanks that are interconnected solely by a central piping in the lower part of the tank.

In a further concept and object of the invention, the bottoms of these two tanks are bowl-shaped.

In another feature of the invention, the tanks are connected via pipings that are interconnected by an extra-flat feed tank.

An additional object of the invention seeks to provide tanks that are connected only by a central pipe.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

The above and other objects and advantages of the invention will become apparent upon full consideration of the following detailed description and accompanying drawings in which:

FIG. 1 shows, in accordance with the best mode of the invention, an end view of the twin arrangement;

FIG. 2 shows in accordance with the invention the top view of the twin arrangement shown in FIG. 1;

FIG. 3 shows a variation of the invention in an end view;

FIG. 4 represents a variation of the invention seen from the plan or top view of the arrangement shown in FIG. 3; and

FIG. 5 shows a cross-section taken along line 5—5 of FIG. 3 showing the modification of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Referring now to the drawings, there is shown in FIGS. 1 and 2 a portion of a gas turbine railway vehicle 10 having sides 12,14, as shown, and having a vehicle or car floor 16 a railway train including a motive power car of this type is disclosed and claimed in application Ser. No. 350,807, filed concurrently with this application. Beneath the car floor 16 and on each side of the central axis or longitudinal axis 20 are tanks 24,26 supported from the floor or frame and connected in their lower portion 30 at the end surfaces 32,34 by a connecting pipe section 40,42. The pipe section 40,42 are shown interconnected by an extra-flat or generally flat feed-tank 46. The flat feed-tank 46 is directly coupled by piping 48 located in the central part thereof which connects the feed-tank 46 directly to the engine feed pump (not shown).

In the modification or variation of the invention shown in FIGS. 3—5, there are shown two tanks 60,62 longitudinally disposed about each side of a centrally disposed axis 64. The car sides 66,68 and the car floor 70 are shown in FIG. 3. The tanks 60,62 are constructed and arranged in configuration to be provided with bowl-shaped bottoms 72,74 that at a lowermost location are seen to interconnect by means of a T-shaped pipe 78 which connects the tanks 60,62 to a feed-in pump to the thermal engine (not shown), but also described in said co-pending applications).

Thus it is seen that the invention provides a twin arrangement of fuel tanks for power-engine supply, specifically for a gas-turbine railway vehicle, useful in aiding the stabilizing character of the railway vehicle over an arrangement where a single large tank is used, and which affects changes in the center of gravity when the tank contains liquid that slushes about.

Additional embodiments of the invention in this specification will occur to others and therefore it is intended that the scope of the invention be limited only by the appended claims and not by the embodiments described hereinabove. Accordingly, reference should be made to the following claims in determining the full scope of the invention.

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What is claimed is:

1. Liquid fuel storage system for a railway car, comprising a pair of similar elongated tanks extending horizontally along the length of a car and transversely spaced on opposite sides of the centerline thereof, conduit means disposed generally in the horizontal plane defined by the respective lowermost portions of said pair of tanks and in communication with the interiors of said tanks at said lowermost portions, and a single feed pipe for supplying fuel to an engine, one end of said feed pipe being in communication with said conduit means at a location midway of the respective ends of said tanks.

2. The invention defined in claim 1, wherein said conduit means comprises a single transverse pipe extending between the lowermost portions of said tanks, and said feed pipe is connected to the transverse pipe at the mid-point thereof, said tanks being disposed at the respective opposite sides of the car.

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3. The invention defined in claim 2, wherein the respective lower walls of said pair of tanks are inclined longitudinally downwardly toward their respective central portions, and said transverse pipe is connected between the respective central portions of the tanks.

4. The invention defined in claim 1, wherein said conduit means includes an elongated generally flat feed tank disposed generally in said horizontal plane and extending longitudinally mid-way between said first pair of tanks, said conduit means also including two transverse pipes for communication with the interior of said tanks at their respective ends.

5. The invention defined in claim 4, wherein the respective ends of said flat feed tank are connected with the midpoints of said two transverse pipes.

6. The invention defined in claim 5, wherein the cross-sectional area of said flat tank is considerably smaller than that of said first pair of tanks.

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