A water supply assembly for mounting on a vehicle rectangular roof is described. The assembly includes a rigid, rectangular water storage tank with an open center having first and second spaced side sections and at least one end section joining the side sections, the sections including communicating interior chambers, upper and lower surfaces, a water inlet and a water outlet, and roof attachment mounts attached to the lower surface of the tank to secure the tank to the vehicle roof. A discharge control means attached to the water outlet, and a hose having a proximal end attached to the control means. A pump may be located between the tank and the control means to pump water under pressure from the tank to the control means.
VEHICLE ROOF-MOUNTED WATER TANK

This application claims the benefit of U.S. Provisional Application Ser. No. 60/559,399, filed Apr. 2, 2004.

BACKGROUND OF THE INVENTION

The present invention relates generally to a water storage assembly to be mounted on the top of a vehicle, and in particular to a vehicular-mounted storage tank for providing water in isolated locations for showering, washing and other purposes.

(2) Description of the Prior Art

Many outdoor activities involve the use of a vehicle, and in particular a vehicle designed for off-road use, such as a Jeep or SUV, as part of the activity or as the means of transportation to carry the participants to the recreational site. In many such activities, the individuals often get sweaty and dirty. Their equipment, e.g., surf boards, bicycles, trail bikes and the like, may get dirty as well.

In many circumstances, there is no readily available source of fresh, clean water to enable the individuals to wash themselves and their equipment, necessitating a return to more civilized areas while dirty and sweaty, and often depositing dirt from their equipment into the vehicle. A means of avoiding this problem would be greatly appreciated by many individuals who engage in such activities.

SUMMARY OF THE INVENTION

Generally the present invention addresses this need by providing a water storage assembly that is suitable for mounting on the roof of a vehicle, in particular 4-wheel drive and off-road vehicles that are used in areas where water outlets are not readily available. The essential components of the assembly are a water storage tank particularly adapted for mounting on the roof of a vehicle that is to be used under off-road conditions. The tank includes an inlet adjacent its upper surface, e.g., an opening with a screw-on cover, for use in filling the tank with water, an outlet adjacent the lower surface of the tank for discharging water, and a means for mounting the tank on the vehicle roof. Preferably, the device also includes a hose with a showerhead or discharge nozzle at its distal end, along with means for securing the hose to the tank when the hose is not in use. A pump may be used to discharge the water under pressure, and an accessory mounting means or carrier may be included for the purpose of carrying items such as bicycles and surfboards on the top of the tank.

Generally, the tank is mounted on a vehicle having a rectangular roof with parallel side edges and parallel ends joining the ends of the side edges. The water storage tank is of a rigid structure to withstand the rigors of off-road use, and is designed so that the center of the vehicle roof is not covered by the tank, thereby enabling use of the roof for other uses, the opening of a sun roof, or even mounting of the tank on the upper surface of a rectangular framework, herein considered a “roof”, when the vehicle, e.g., a Jeep, is used with the top down. Since one of the advantages of the present apparatus is to provide water that is warmed by the sun heating the surface of the preferably dark colored tank, the present configuration also provides a greater surface area, improving heat transfer.

For best availability in use, the tank includes at least one section adjacent an edge, e.g., a side edge or an end edge, of the vehicle roof. Preferably, the tank is comprised of two tank sections mountable adjacent the side edges of the vehicle roof, and at least one end section adjacent an end edge of the vehicle roof, with the sections being joined with communicating chambers. In the preferred embodiment, the storage tank is in the shape of a rectangular tube with outer dimensions conforming to outer dimensions of the vehicle roof, leaving an open interior so that the center of the roof is exposed. The tank includes an inlet on its top surface for addition of water to the storage tank. Generally, the inlet will include a removable, screw-on filler cap. The storage tank will also include an outlet terminating in a valve-operated faucet for discharge of water from the tank. The outlet will be located adjacent the bottom surface of the tank to facilitate gravity feed.

To aid in use for such purposes as showering or washing of items such as surfboards, a hose may be attached to the faucet, and a showerhead, a valve spray nozzle or other accessory may be attached to the distal end of the hose. The hose may remain attached to the faucet, with a clip or other attachment means being provided on the wall of the storage tank to secure the hose when not in use.

Instead of dispensing water from the tank with only gravity feed, a pump can be positioned between the tank discharge opening and the control valve or faucet to discharge the water under pressure, e.g., approximating the pressure experienced with a home shower or garden hose. The pump preferably includes an electric motor, which can be powered from the vehicle electrical system or other battery source, e.g., a 12V power source.

Items such as bicycles and surfboards are frequently transported on storage racks mounted on vehicles, and in particular on the roofs of off-road vehicles. The storage device of the present invention further includes a storage rack mounted on the top of the storage tank that is suitable for this purpose. The exact configuration of the storage rack will depend on the items to be transported. Generally, however, the rack will include an attachment means on its lower surface for use in attaching the rack to the upper surface of the storage tank, and an upper surface configured to receive the item or items to be transported.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of the storage device of the present invention mounted on a typical off-road vehicle.

FIG. 2 is a top view of the storage device of the present invention mounted on a typical off-road vehicle.

FIG. 3 is a top view of an alternative storage device mounted on a vehicle with the tank extending only around the side and rear edges of the vehicle roof.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, terms such as horizontal, upright, vertical, above, below, beneath, and the like, are used solely for the purpose of clarity in illustrating the invention, and should not be taken as words of limitation. The drawings are for the purpose of illustrating the invention and are not intended to be to scale.
As shown in the illustrations, storage device, generally 10, shown mounted on a vehicle V, is comprised of a rectangular storage tank 12 that is constructed of tubular sections 14 joined at their ends by 90° elbow sections 16. The diameter of the tubular sections may be of any size desired. Generally, however, the diameter will be from about 4" to about 10". The amount of water held within filled storage tank 12 will depend on the lengths of the tubular sections and their diameter. Normally, storage tank 12 will be sized to hold from about 10 to about 40 gallons of water.

For ease of construction and for cost considerations, the tubular sections and connecting elbows may be constructed of conventional PVC pipe components that are attached together by a solvent adhesive in a known manner to provide water-proof seals. In order to increase heat absorption, the tank may be made of black or other dark color material, or painted a dark color. Tank 12 is releasably attached to the roof of vehicle V with mounts 18.

Tank 12 includes a filler-capped water inlet 20 used to fill tank 12 with water. Inlet 20 is located on the top of tank 12 so that tank 12 can be completely filled. Tank 12 also includes an outlet 22, terminating in a faucet 24 or other valved discharge means through which water is discharged from tank 12. Hose 26 is connected to faucet 24 and terminates in a showerhead 28. Clip 30 attached to tank 12 is used to store hose 26 when not in use.

Rack 32, configured in the illustrated embodiment for the transportation of bicycles, is attached to the top of tank 12, and is comprised of two trough sections for use in mounting two bicycles on the roof of vehicle V, without interfering with storage tank 12. The exact configuration of rack 32 does not per se form a part of the invention, and it will be obvious to one skilled in the art that racks of various configurations can be mounted on tank 12.

When used, storage tank 12 is filled with water and vehicle V is driven in a normal manner. When the user desires to shower or wash an item while in an isolated location where a source of water, or at least warm water, is not readily available, such as at the beach, the user can simply turn faucet 24, using optional hose 26 and showerhead 28, if desired, to obtain water from tank 12. Due to the positioning of tank 12 on the roof of vehicle V, and to the dark coloring of tank 12, the water will be warmed by the sun under most weather conditions.

FIG. 3 illustrates an alternative assembly with tank, generally 40, comprised of spaced, parallel tubular side sections 42 and 44, adjacent the side edges of vehicle roof R, and joined by a tubular end section 46 extending across the rear edge of roof R. As illustrated by cut-away section 48, the interior chambers of sections 42, 44 and 46 are in communication with each other to form a common tank water-holding chamber. Tank 12 is similarly constructed.

It will be understood that tank 40 may also be reversed so that section 46 extends along the front edge of roof R. Tank 40 includes a capped inlet 48 on top of tank 40 for use in filling tank 40, and a discharge outlet 50 adjacent the lower surface of tank 40. Outlet 50 discharges into pressurizing pump 52 that includes an electric motor powered by the vehicle’s electrical system. Pump 52, in turn, discharges through faucet 54 into hose 56 as described with the first alternative.

Certain modifications and improvements will occur to those skilled in the art upon a reading of the foregoing description. It should be understood that all such modifications and improvements have been deleted herein for the sake of conciseness and readability but are properly within the scope of the following claims.

What is claimed is:

1. A water supply assembly adapted for mounting on a vehicle rectangular roof having parallel side edges and parallel end edges comprising:
   a) a rigid, water storage tank having an open center, upper and lower surfaces, a water inlet and a water outlet;
   b) roof attachment mounts attached to the lower surface of said tank to secure said tank to the vehicle roof; and
   c) discharge control means attached to said water outlet.

2. The assembly of claim 1, wherein said tank includes first and second spaced side sections mountable adjacent said roof side edges and at least one transverse section joining said side sections, said sections including communicating interior chambers.

3. The assembly of claim 1, wherein said tank is rectangular with an outer periphery corresponding to the outer periphery of said roof.

4. The assembly of claim 1, further including a carrier attached to the upper surface of said tank.

5. The assembly of claim 1, further including a hose having a proximal end attached to said control means and a distal end.

6. The assembly of claim 1, further including a pump between said tank and said control means to pump water under pressure from said tank to said control means.

7. The assembly of claim 1, wherein said tank is comprised of spaced, parallel tubular side sections and parallel tubular end sections, said end sections being joined to said side sections by 90° elbow sections.

8. The assembly of claim 1, wherein said tank is constructed of plastic pipe having a black outer surface.

9. A water supply assembly adapted for mounting on a vehicle rectangular roof having an outer periphery, parallel sides and parallel ends comprising:
   a) a rigid, rectangular water storage tank with an open center having first and second spaced side sections and at least one end section joining said side sections, said sections including communicating interior chambers, upper and lower surfaces, a water inlet and a water outlet;
   b) roof attachment mounts attached to the lower surface of said tank to secure said tank to the vehicle roof; and
   c) discharge control means attached to said water outlet.

10. The assembly of claim 9, wherein said tank is rectangular with an outer periphery corresponding to the outer periphery of said roof.

11. The assembly of claim 9, further including a carrier attached to the upper surface of said tank.

12. The assembly of claim 9, further including a pump between said tank and said control means to pump water under pressure from said tank to said control means.

13. The assembly of claim 9, further including a pump between said tank and said control means to pump water under pressure from said tank to said control means.
14. The assembly of claim 9, wherein said tank is comprised of spaced, parallel tubular side sections and parallel tubular end sections, said end sections being joined to said side sections by 90° elbow sections.

15. The assembly of claim 9, wherein said tank is constructed of plastic pipe having a black outer surface.

16. A water supply assembly adapted for mounting on a vehicle rectangular roof having an outer periphery, parallel sides and parallel ends comprising:
   a) a rigid, rectangular water storage tank with an open center having first and second spaced side sections and at least one end section joining said side sections, said sections including communicating interior chambers, upper and lower surfaces, a water inlet and a water outlet;
   b) roof attachment mounts attached to the lower surface of said tank to secure said tank to the vehicle roof;
   c) discharge control means attached to said water outlet;
   d) a hose having a proximal end attached to said control means and a distal end; and
   e) a pump between said tank and said control means to pump water under pressure from said tank to said control means.

17. The assembly of claim 16, further including a carrier attached to the upper surface of said tank.

18. The assembly of claim 16, further including a showerhead attached to the distal end of said hose.

19. The assembly of claim 16, further including a hose clip on said tank.

20. The assembly of claim 16, wherein said tank is constructed of plastic pipe having a black outer surface.

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