In the transportation of liquids of an inflammable nature as, for instance, gasoline, for which my improved carrier is especially designed, municipal ordinances limit the amount of liquid which may be transported by each carrier and also require that the liquid be sub-divided and carried in separate compartments. In carriers for transporting and dispensing liquid now in common use, a tank of the total capacity allowed for the carrier, is provided, which tank is sub-divided by transverse partitions into a plurality of smaller compartments. Because of this arrangement it is essential that the tank be of considerable length and of large cross section. The large cross section of the tank greatly reduces its strength or makes it necessary that it be made of heavy gage sheet metal with its consequent great weight. There is also a tendency of the seams to open up under the severe strains to which the tank is subjected in transporting the liquid, especially over rough roads. It is difficult to repair this sub-divided large tank and it is also difficult to properly mount and secure it rigidly on the carrier frame.

The object of my invention is to overcome the faults above mentioned by providing improvements in the carrier and in the liquid containers and also in their common dispensing apparatus whereby the strength of the containers may be materially increased; the weight of the carrier as a whole may be materially decreased; the dispensing of the liquid may be facilitated and the leakage which is now so common may be eliminated.

My invention comprises, generally, a carrier having a plurality of separate containers of comparatively small cross section, disposed side by side longitudinally of the carrier, preferably in upper and lower groups; said containers being connected with valved outlet passages to the dispensing apparatus; novel means under manual control being provided for successively opening the valves in the said outlet passages and for establishing a flow of liquid when the outlet valve of a selected container is opened and novel means also under manual control being provided, operable only when the valves are closed, for locking the valves in their closed positions and for protecting the dispensing apparatus.

My invention also comprises certain improvements in the construction, form and arrangement of the several parts of the carrier as will hereinafter more specifically appear.

My invention is shown and described in connection with an automobile carrier for transporting and dispensing liquids, in which the liquid in the containers is siphoned through the dispensing apparatus, a small hand pump being provided as a part of the dispensing apparatus for starting the siphoning action of the liquid when the outlet valve of a selected container has been opened.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents my improved carrier in side elevation, partly in section and partly in dotted outline.

Fig. 2 represents a transverse section on an enlarged scale, taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 represents a transverse section on an enlarged scale, taken in the plane of the line III—III of Fig. 1, looking in the direction of the arrows.

Fig. 4 represents a detail transverse section taken in the plane of the line IV—IV of Fig. 5, looking in the direction of the arrows.

Fig. 5 represents a detail section taken in
the plane of the line V—V of Fig. 4, looking in the direction of the arrows.

The carrier is herein illustrated as an automobile truck. The longitudinal side bars of the chassis are denoted by 1, and the transverse bar by 2. The liquid container supporting frame is shown as having a three point support on the chassis, as follows:

The front one of the series of frame crossbars 3, has a depressed middle portion 4 which is secured on the chassis transverse bar 2 about midway between the longitudinal side bars 1, by the bolt 5 and its nut 6. The rear two of the frame crossbars 3 are secured on the longitudinal side bars 1, of the chassis by strap bolts 7, and their nuts 8.

The longitudinally disposed liquid containers are herein represented as six cylindrical tanks 9 of relatively small diameters and of thin gage metal, said tanks being arranged side by side in upper and lower groups of threes, the lower group being longer than the upper group so as to add stability to the carrier by keeping the weight as near the ground as possible; and the front and rear ends of the tanks of the lower group projecting beyond the corresponding ends of the tanks of the upper group to permit the tanks of the upper group to be mounted close to the tanks of the lower group without interfering with the devices carried by the tanks of the lower group at their front and rear ends.

The three lower tanks 9 are seated in recesses in a cross bracket 10 a cross bracket 10, and then one cross bracket 10 is secured to the outer ends of these cross brackets 10 and extend lengthwise of the carrier along the outside tanks of the lower group.

The tanks of the upper and lower groups are rigidly secured together and to the frame crossbars, in spaced relationship, as follows:

A series of groups of spacing brackets are located over each one of the frame crossbars 3. The two inside spacing brackets 12 of one group are located between the upper and lower inside tanks and the upper and lower outside tanks. The two outside spacing brackets 13 of said group are located between the upper inside tank and the two upper outside tanks. The two outside spacing brackets 14 of the said group are located between the upper and lower outside tanks.

Vertical bolts 15, which are passed through flanges 16 on the bracket 12 and through the upper flange of the frame crossbar 3, serve with their nuts 17, to tie the brackets 12 to the said frame crossbar 3. Vertical bolts 18, which pass through the said flanges 16 of the brackets 12, and also through the flanges 19 of the brackets 13, serve with their nuts 20, to tie the brackets 13 to the brackets 12. A horizontal bolt 21 which passes through the flanges 22 of the brackets 14, serves with its nut 23 to tie the brackets 14 together. It will thus be seen that a very light and rigid means is provided for securing the tanks together and to the frame crossbars, it being understood that lightness is a great desirability in carriers of this nature. It will also be seen that a very great saving in weight of the carrier is obtained by the ability to build the liquid containers of sufficiently small cross section to utilize very thin gage sheet metal.

Each of the longitudinally disposed tanks 9 has at its front end an uprising filler head 24 provided with the usual filler cap 25, breather vent 26, fusible plug 27 and liquid gage 28. Each of these tanks also has at its rear end an outlet pipe 30 leading upwardly from the bottom of the tank out through the top of the tank where it is provided with a self-closing valve 30 of any well known or approved type. Pipes 31 lead from all of these valves to a common transversely arranged horizontal pipe 32 located above the upper tanks and having a self-closing air inlet valve 33 of any well known or approved type. By locating the filler heads 24 for the tanks of the lower group beyond the forward ends of the tanks of the upper group and by locating the outlet valves for the tanks of the lower group beyond the rear ends of the tanks of the upper group, I am enabled to mount the upper tanks in close proximity to the lower tanks and thereby materially increase the stability of the carrier, as before set forth.

The self-closing outlet valves 30 are each provided with a handle 34 and the valve 33 is provided with a handle 35 for operation by the manually controlled means to be hereinafter described. The liquid dispensing apparatus is located at the rear of the tanks and comprises a pipe 36 which leads downwardly from the horizontal pipe 32, through a hand suction pump 37 of any well known or approved form to the dispensing nozzle 38 which is located below the lower group of tanks and which is provided with the usual delivery hose. This dispensing nozzle 38 is provided with a self-closing valve 39 having a handle 40 for manually opening the same.

The manually controlled means for dispensing the liquid from selected tanks is constructed and arranged as follows:

The upper and lower cross shafts 41 and 42 are mounted in suitable bearings 43 and 44 of brackets 45, having their supporting arms 46 and 47 secured to the rear ends of the outside tanks of the upper and lower groups.

The upper cross shaft 41 has fixed thereon three discs 48, each having a cross pin 49 forming an abutment for engaging and lifting the valve handle 34 of its corresponding upper tank outlet valve 30 at a predetermined time.
mined point in the rotary movement of the disc.

Similarly, the lower cross shaft 42 has fixed thereon three discs 49, each having a cross pin 51 forming an abutment for engaging and lifting the valve handle 34 of its corresponding lower tank outlet valve 30, to open the valve at a predetermined point in the rotary movement of the disc.

The cross pins 49 and 51 on the discs 48 and 50 are so positioned with respect to one another as to cause the successive opening and closing of the outlet valves for the several tanks, it being understood that the self-closing valve 39 is held open and the hand suction pump is operated to start the siphoning action of the liquid when the outlet valve for a selected tank is opened.

The upper cross shaft 41 has also fixed thereon a disc 52 having an annular series of cross pins 53 corresponding in number to the number of tank outlet valves, which cross pins form abutments which are so positioned as to engage and move the handle 35 to open the air inlet valve 33 at predetermined times to stop the further siphoning of the liquid from the tanks.

The upper and lower cross shafts 41 and 42 of the delivery apparatus have fixed thereon worm gears 54 and 55 which are driven by worms 56 and 57, fixed to a hand shaft 58 mounted in suitable bearings 59 and 60 of a bracket 61, supported on the cross shafts 41 and 42. This hand shaft 58 is provided at its lower end with a crank handle 62 for manually turning the shaft to bring the successive cross pins into coaction with their respective valve handles to open the valves.

The dispensing apparatus and the valves 30 and 33 are suitably enclosed and protected by a cage 63 having a door 64 for gaining access to the apparatus. This door is provided with a projection 65 which is arranged to enter one of an annular series of notches 66 in the periphery of the middle lower disc 50 for permitting the door to be closed and, for locking the disc and thereby the apparatus when the door is closed.

These recesses 66 correspond in number to the number of tank outlet valves and are so positioned that the door cannot be closed or the apparatus locked unless all of the tank outlet valves 30 are closed, the coaction of the projection 65 with its recess 66 serving to thus lock the outlet valves in their closed positions by preventing the turning of the disc carrying shafts. The door 64 of the cage may be locked in its closed position by any suitable locking device 67.

In operation—the door 64 of the cage 63 is first unlocked and opened, the upward movement of the door withdrawing the projection 65 from its locking engagement with the disc 50. The handle 62 is then manipulated to turn the hand shaft 58, thereby causing the rotation of the upper and lower discs 48 and 50 and the successive opening and closing of the outlet valves until the outlet valve of the selected tank is opened, by the coaction of one of the pins 49 or 51 on an upper or a lower disc with its valve handle. The discharge nozzle valve 39 may then be opened and held open and the hand suction pump 37 manipulated to start the flow of liquid by a siphoning action from the selected tank upwardly through its outlet pipe 29, valve 30 and pipe 31 to the cross pipe 32 and from thence downwardly through the pipe 36 and pump 37 to the discharge nozzle 38. As soon as this flow of liquid is established it will continue by a siphoning action to empty the tank until the flow of liquid is broken. This may be done at the proper time by further turning the hand shaft 58 to cause one of the cross pins 53 on the disc 52 to engage and move the handle 35 of the air inlet valve 33, to open the valve and admit air to the cross pipe 32. This movement of the hand shaft 58 will, at the same time, permit the outlet valve 30 to close. The liquid in the pipe 26 may then be allowed to drain off through the discharge nozzle 38 when the discharge nozzle valve 39 may be permitted to close. The door 64 may be closed and locked, the closing movement bringing the projection 65 into locking engagement with one of the notches 66 in the lower middle disc 50 for locking the dispensing apparatus with all of the outlet valves closed, thereby preventing the danger of the unintentional operation of the dispensing apparatus as, for instance, by the movement of the carrier. It will be understood that the door cannot be closed unless a notch 66 of the disc 50 is opposite the projection 65 as the projection would otherwise strike the periphery of the disc 50 between the notches, before the closing of the door.

When one tank has been emptied, it is obvious that the hand shaft 58 may be turned to open another selected tank outlet valve for the emptying of its tank.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence, I do not intend to limit myself to the particular embodiment herein shown and described, but what I claim is:

1. A carrier for transporting and dispensing liquids including a plurality of liquid containers of relatively small cross section, disposed longitudinally of the carrier, side by side in upper and lower groups, filler heads rising from the front ends of the containers and outlet pipes rising from the rear ends of the containers, the containers of the lower group projecting beyond
the front and rear ends of the containers of the upper group, whereby the containers of the upper group may be mounted close to the containers of the lower group without interfering with the said uprisin filler heads and outlet pipes of the lower group.

2. A carrier for transporting and dispensing liquids including a plurality of liquid containers, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, and manually rotatable discs, one for each handle, provided with abutments arranged to engage and move said handles for successively opening said valves, and means for establishing a flow of liquid from a selected container when its outlet valve is opened.

3. A carrier for transporting and dispensing liquids including a plurality of liquid containers of relatively small cross section, disposed longitudinally of the carrier, side by side, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, and manually rotatable discs, one for each handle, provided with abutments arranged to engage and move said handles for successively opening said valves, and means for establishing a flow of liquid from a selected container when its outlet valve is opened.

4. A carrier for transporting and dispensing liquids including a plurality of containers, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, rotatable discs, one for each handle, provided with abutments arranged to successively engage and move said handles for opening said valves, means for establishing a flow of liquid from a selected container when its outlet valve is opened, a shaft on which said discs are mounted, and a hand shaft having a geared connection with said disc shaft for rotating said discs.

6. A carrier for transporting and dispensing liquids including a plurality of containers of relatively small cross section, disposed longitudinally of the carrier, side by side, in upper and lower groups, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, upper and lower groups of rotatable discs, one for each handle, provided with abutments, arranged to engage and move said handles for successively opening said valves, means for establishing a flow of liquid from a selected container when its outlet valve is opened, upper and lower shafts on which said discs are mounted, and a hand shaft having geared connections with both of said disc shafts for rotating said discs.

7. A carrier for transporting and dispensing liquids including a plurality of containers of relatively small cross section, disposed longitudinally of the carrier, side by side, in upper and lower groups, the tanks of the lower group projecting beyond the front and rear ends of the tanks of the upper groups, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, upper and lower groups of rotatable discs, one for each handle, provided with abutments, arranged to engage and move said handles for successively opening said valves, means for establishing a flow of liquid from a selected container when its outlet valve is opened, upper and lower shafts on which said discs are mounted, and a hand shaft having geared connections with both of said disc shafts for rotating said discs.

8. A carrier for transporting and dispensing liquids including a plurality of containers, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, manually rotatable connected discs, one for each handle, provided with abutments arranged to successively engage and move said handles for opening said valves, means for establishing a flow of liquid from a selected container when its outlet valve is opened, a shaft on which said discs are mounted, and a hand shaft having a geared connection with said disc shaft for rotating said discs.

9. A carrier for transporting and dispensing liquids including a plurality of containers, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, manually rotatable connected discs, one for each handle, provided with abutments arranged to successively engage and move said handles for opening said valves, means for establishing a flow of liquid from a selected container when its outlet valve is opened, a cage for enclosing and protecting said dispensing apparatus, said cage having a door provided with a device arranged to coat with one of said discs only when all the outlet valves are closed, to lock the valves in their closed position.
ers of relatively small cross section disposed longitudinally of the carrier, side by side, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, valves normally closing said passages, handles for said valves, manually rotatable connected discs, one for each handle, provided with abutments arranged to successively engage and move said handles for opening said valves, means for enclosing and protecting said dispensing apparatus, said cage having a door provided with a device arranged to coact with one of said discs only when all the outlet valves are closed, to lock the valves in their closed position.

10. A carrier for transporting and dispensing liquids including a plurality of containers, a common dispensing apparatus for said containers, outlet passages connecting the containers with the dispensing apparatus, outlet valves normally closing said passages, an air inlet valve, handles for said outlet and air inlet valves, manually rotatable connected discs, one for each handle, provided with abutments, arranged to successively engage and move said handles for opening said valves, and means for establishing a flow of liquid from a selected container when its outlet valve is opened.

14. A carrier for transporting and dispensing liquids including a plurality of containers of relatively small cross section, disposed longitudinally of the carrier, side by side in upper and lower groups, the containers of the lower group projecting beyond the rear ends of the container of the upper group, a cross pipe located above the containers, a self-closing air inlet valve for said cross pipe, outlet pipes leading upwardly from the containers and said cross pipe, self-closing outlet valves in said pipes, a valve discharge nozzle located below the containers, a discharge pipe leading downwardly from said cross pipe to said discharge nozzle, manually operated means for successively opening said outlet and air inlet valves, and a hand suction pump connected to said discharge pipe, operable to establish a flow of liquid from a selected container when its outlet valve is opened.

15. A carrier for transporting and dispensing liquids including a plurality of containers of relatively small cross section, disposed longitudinally of the carrier, side by side in upper and lower groups, the containers of the lower group projecting beyond the rear ends of the containers of the upper group, a cross pipe located above the containers, a self-closing air inlet valve for said cross pipe, outlet pipes leading upwardly from the containers to said cross pipe, self-closing outlet valves in said pipes, a valve discharge nozzle located below the containers, a discharge pipe leading downwardly from said cross pipe to said discharge nozzle, manually operated means for successively opening said outlet and air inlet valves, and a hand suction pump connected to said discharge pipe, operable to establish a flow of liquid from a selected container when its outlet valve is opened.
ly opening said outlet and air inlet valves, a hand suction pump connected to said discharge pipe, operable to establish a flow of liquid from a selected container when its outlet valve is opened, and a cage enclosing and protecting said pipes, valves, pump, nozzle and manually operated means, said cage having a door for gaining access to the interior of the cage.

In testimony, that I claim the foregoing as my invention, I have signed my name this 24th day of January, 1929.

CHRISTOPHER CUNNINGHAM.