GAS CYLINDER HOLDER

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FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

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This invention relates to devices for assembling a plurality of gas tanks so that the assembly can be used, maintained, and manually moved as a unit.

Large amounts of gases are often required for various operations, and such gases are conventionally supplied in portable, elongated metal tanks. Such gases are often under pressures of the order of about 2000 pounds per square inch, which necessitates thick walled tanks which are consequently quite heavy. A single tank frequently contains an insufficient supply where the gases are used extensively, necessitating the use of a plurality of such tanks.

Objects of this invention are, to provide devices for assembling groups of such tanks, which will make it easy to handle the groups as units, provide raised portions to accommodate the flanges of hand trucks and the like, bind the tanks firmly and safely into units, and afford safe hand holds for the workmen and protection for the valves and appurtenant parts used with such tanks, and other objects will be apparent upon reading this specification.

A preferred exemplification of the invention is illustrated on the accompanying drawing forming a part hereof, on which the different figures are not necessarily drawn to the same scale. On such drawing

Figure 1 is a front elevation of the holder;
Figure 2 is a horizontal section on the line 2—2 on Figure 1, with parts removed and with tanks in place;
Figure 3 is a side view of a hand truck carrying a unit of assembled tanks;
Figure 4 is a plan view of a detail; and
Figure 5 is an exploded view of another detail.

The invention is illustrated as for handling four tanks 11. They ordinarily are each equipped with a valve 12 for controlling the exit of compressed gas therefrom. The tank holder comprises a bottom member 13 conveniently formed of a metal plate upon which the assembled tanks are to rest and which is disposed downwardly inwardly from the periphery, as at 14. This provides a downwardly protruding part upon which the holder, either with or without tanks thereon, can stand upright with the outer portion of the bottom 13 raised above the floor or other support. Carried by the bottom member is an upright member 15 which may conveniently be a metal pipe. Four plates 16 comprising arms are fixedly attached to the upright 15 to project radially therefrom at ninety degrees apart, and also to the undished peripheral part of the bottom 13. Bolts 17 are attached to the plates 16 and project radially of the upright 15. Plates 20 are fixedly attached to the upright 15 above the plates 16 at angles of ninety degrees apart, and project radially therefrom similarly to the plates 16, each of the plates 20 being directly over a corresponding plate 16 and projecting in the same direction. Bolts 21, similarly to the bolts 17, are attached to the plates 20.

The tanks 11 are assembled, preferably one within each angle formed by the plates 16 and 20, whereupon straps 22, 23 are placed about the group of tanks with the bolts 11 extending through perforations in the strap 22 and the bolts 21 extending through perforations in the strap 23. Nuts 24 and 25 are then placed on the bolts 17 and 21, respectively, and turned to draw the straps tightly about the tanks.

If the straps used are not endless, a special holding means is preferred for the two ends thereof, as shown on Figure 5. The two ends 26 of a strap have each a perforation 27, and are slipped over a bolt 30 which is externally unthreaded and smooth at 31 adjacent its head, but is otherwise threaded exteriorly. The strap ends are positioned on such smooth part 31, and a nut 32 is turned on the bolt to hold the strap ends at such smooth part while permitting turning of the bolt. The bolt 30 is hollow and has interior threads 32a which fit on the threads of the bolts 17 (and 21). Turning the bolt 30 after fitting it onto the end of the bolt 17 (or 21) results in tightening the straps, in the same manner as when the bolts 24 or 25 are tightened.

With the unit standing upright on the dashed portion 14, a hand truck 33 or the like can be used to transport it. The lip or flange 34 of the truck is run under the raised outer portion of the bottom 13, whereupon the unit is pulled into the position on the truck shown on Figure 3. The loaded truck is then moved to the desired place, and tilted upwardly to contact the downwardly projecting bottom portion 16 with the floor and the truck removed. A rail 35 is provided which can be grasped by the workman to aid in loading and unloading the assembly onto and off the truck. This rail does not extend in any direction as far outwardly as the tanks as seen on Figure 2, as a matter of safety, to avoid any possibility of the workman's hand being crushed between the rail and a wall or other object adjacent to which the assembly is being positioned. Such rail will remain far enough away from such wall to prevent his hand being crushed between the wall and the rail. The handrail 36 is at the level of
3. A holder for elongated articles, comprising a bottom plate having a central downwardly dished portion and a relatively raised peripheral portion, radially extending vertical plates attached to the raised portion, an upright attached to the inner ends of the plates, vertical plates above and spaced from said first mentioned plates attached to the upright and extending radially therefrom in the same directions as the first mentioned plates, outwardly extending bolts on the plates, straps adapted to pass around articles between the plates at the levels of upper and lower bolts, the straps having holes to permit slipping them over the bolts, the bolts extending to points short of lines connecting outermost parts of adjacent articles when positioned between the plates, and nuts on the said bolts to retain the straps.

4. A holder for elongated articles, comprising a bottom plate having a central downwardly dished portion and a relatively raised portion, radially extending vertical plates attached to the raised portion, an upright attached to the inner ends of the vertical plates, vertical plates above and spaced from the first mentioned plates attached to the upright and extending radially therefrom in the same directions as the first mentioned plates, outwardly extending bolts on the plates, straps adapted to pass around articles between the plates at the levels of upper and lower bolts, the straps having holes to permit slipping them over the bolts, the bolts extending to points short of lines connecting outermost parts of adjacent articles when between plates, and nuts on said bolts to retain the straps, at least one of said bolts at each level having a smooth portion to accommodate perforated ends of said straps.

5. A holder for gas cylinders having valves, comprising a bottom plate having a central downwardly dished portion and a planar peripheral portion, radially extending vertical plates attached to the planar portion, an upright attached to the inner ends of the vertical plates, second vertical plates above and spaced from the first mentioned plates attached to the upright and extending radially therefrom in the vertical directions as the first mentioned plates, outwardly extending bolts on the plates, straps adapted to pass around cylinders when between plates at the levels of upper and lower bolts, the straps having holes to permit slipping them over the bolts, the bolts extending to points short of lines connecting outermost parts of adjacent cylinders when between plates, nuts on said bolts to retain the straps, a support on the upper part of the upright, a hand rail on the support for manipulating the holder, the hand rail being at the level of the valves to protect them and being completely within projections of straight lines between outermost parts of the cylinders when between plates.

3. In a holder comprising an upright, arms extending outwardly from said upright at different angles to points short of a straight line between outermost parts of adjacent articles which are adapted to be held by said holder, a strap connected to said arms and adapted to pass around the outside of an assembly of articles adapted to be held, and means to draw said strap toward an arm into position to hold an assembly of articles on said holder.

5. In a holder comprising an upright, arms extending outwardly from said upright at different angles to accommodate articles to be held between them, said arms extending to a distance less than the outermost parts of the articles adapted to be held, a strap connected to said arms and adapted to pass around said articles, and means to draw said strap in between said articles into position to hold said articles on said holder.