June 23, 1964 J. E. GRAY 3,138,273

BARREL OR TANK STAND

Filed May 5, 1961 2 Sheets-Sheet 1

FIG. 1

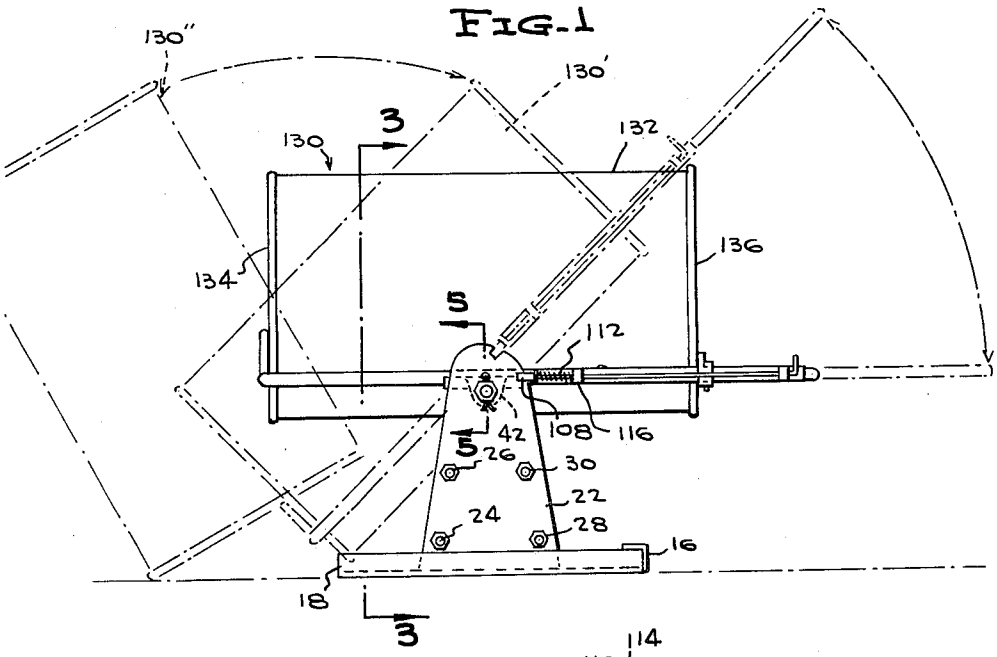


FIG. 2

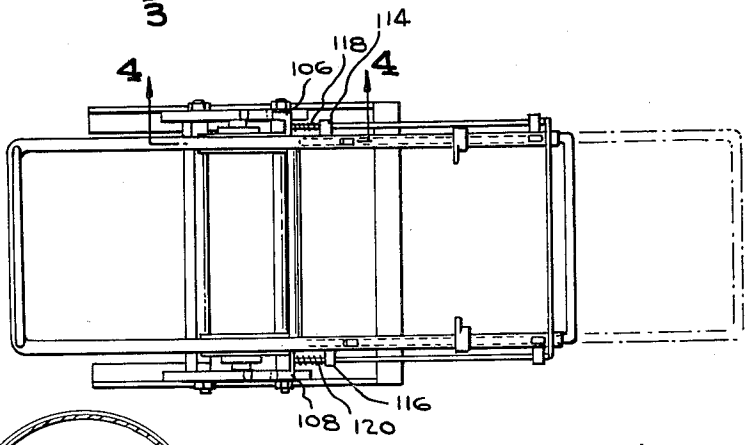


FIG. 3

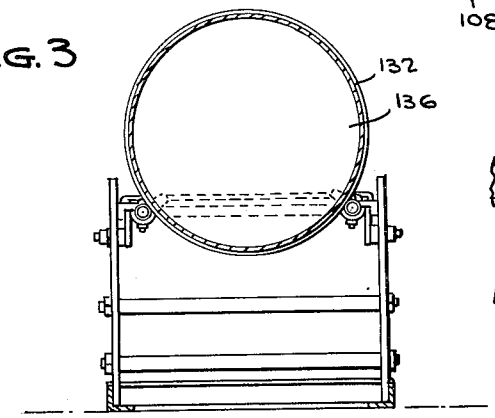
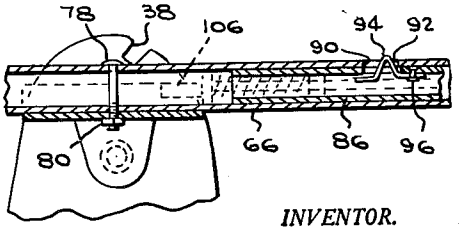


FIG. 4



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June 23, 1964 J. E. GRAY 3,138,273

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Filed May 5, 1961 2 Sheets-Sheet 2

FIG. 5

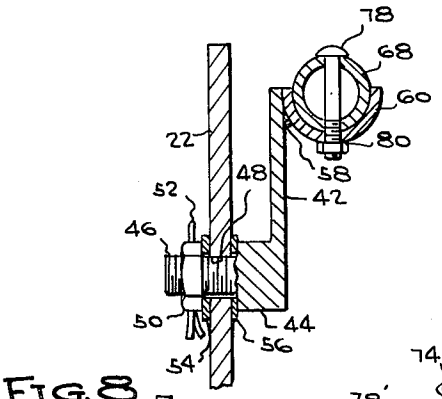


FIG. 6

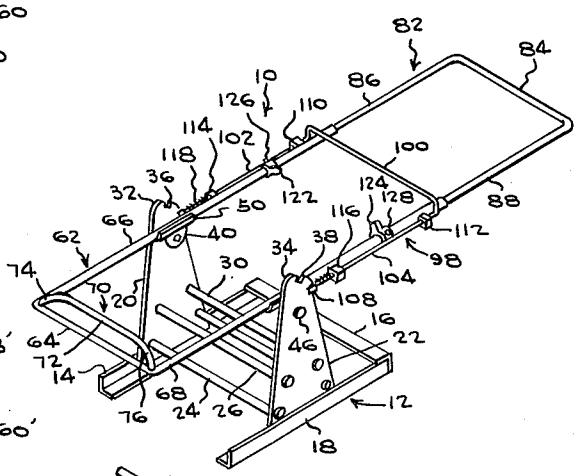


FIG. 8

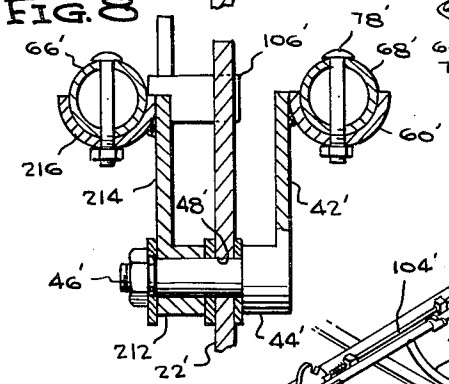


FIG. 7

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BARREL OR TANK STAND

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3 Claims. (Cl. 214—130)

This invention relates to supporting devices and, more specifically, the instant invention pertains to support means for holding in storage barrels, tanks, containers and similar receptacles for materials having considerable bulk.

One of the primary objects of this invention is to provide a stand for a barrel or container, the stand being of such type as to permit the container to normally rest thereon with the longitudinal axis of the container preferably disposed in the horizontal plane.

A further object of this invention is to provide a barrel, container, receptacle or tank stand with means for tilting the barrel from the position indicated in the immediately preceding paragraph to a substantially upright position to facilitate removal of the container from the stand.

Still another object of this invention is to provide, in conjunction with the stand referred to immediately above, means for facilitating the transportation of a barrel or container to or away from one or more of the stands.

This invention contemplates, as a still further object thereof, the provision of a plurality of barrel or tank stands, arranged en banc, to receive thereon barrels or tanks, and wherein the stands are pivotal in such a manner as to receive the barrels or tanks in a normally upright position and to subsequently tilt or pivot in such a manner as to dispose the longitudinal axes of the barrels in a substantially horizontal plane.

Still another object of this invention is to provide a barrel or tank stand which is pivotally supported and equipped with means for holding said barrel or tank in a plurality of preselected positions.

This invention has, as still another object thereof, the provision of a single or multiple barrel or tank stand which is non-complex in construction and assembly, inexpensive to manufacture, and durable in use.

Other and further objects and advantages of the instant invention will become more apparent from a consideration of the following specification when read in conjunction with the annexed drawings, in which:

FIGURE 1 is a side elevational view of a barrel or tank stand constructed in accordance with the present invention, FIGURE 1 illustrating the component elements of the invention as supporting a barrel or tank in such position that its longitudinal axis lies in a horizontal plane, and FIGURE 1 further illustrating in dotted lines, the position of the component elements of the invention and of the barrel or tank as the same is removed from the stand or placed thereon;

FIGURE 2 is a top plan view of the barrel or tank stand shown in FIGURE 1, the barrel having been removed therefrom;

FIGURE 3 is an end elevational view of the stand shown in FIGURE 1, FIGURE 3 being partly in cross-section and being taken on, substantially, the vertical plane of line 3—3 of FIGURE 1, looking in the direction of the arrows;

FIGURE 4 is an enlarged fragmentary detail cross-sectional view, FIGURE 4 being taken substantially on the horizontal plane of line 4—4 of FIGURE 2, looking in the direction of the arrows;

FIGURE 5 is an enlarged detail fragmentary cross-sectional view, FIGURE 5 being taken substantially on the vertical plane of line 5—5 of FIGURE 1, looking in the direction of the arrows;

FIGURE 6 is a perspective view of the stand shown in

FIGURE 1, FIGURE 6 illustrating the telescoped handle in its full-line extended position;

FIGURE 7 is a perspective view of a modification of this invention and showing the barrel or tank stand in conjunction with conveying rollers; and

FIGURE 8 is an enlarged detail cross-sectional view, FIGURE 8 being taken substantially on the vertical plane of line 8—8 of FIGURE 7, looking in the direction of the arrows.

Referring now more specifically to FIGURES 1 to 6, inclusive, of the drawings, reference numeral 10 designates, in general, a barrel or tank stand constructed in accordance with the teachings of this invention. The stand 10 is seen to comprise a substantially U-shaped base 12 formed of angle members 14, 16 and 18. Intermediate the ends of the angle members 14, 18, are fixedly and rigidly secured the bases of a pair of isosceles triangular supports 20, 22 which are held in rigid upright position by means of a plurality of spacer rods 24, 26, 28 and 30. As is seen in the drawings, the spacer rods 24, 26 and 28, 30 are vertically spaced from one another, and that the pairs of spacer rods 24, 26 and 28, 30 are disposed adjacent the opposed sides of the supports 20, 22. As is seen in the several figures of the drawings, the upper ends or apices of the supports 20, 22 are rounded as at 32, 34, respectively, and each of the supports, adjacent their respective apices, are provided with a plurality of slots 36, 38, respectively, which extend inwardly from the confronting adjacent pair of sides of the supports 20, 22.

Reference numerals 40, 42 denote a pair of substantially triangular bed-supporting plates from the apices of which laterally project hubs 44 (only one being shown), the bosses extending away from one another and terminating in reduced shanks 46. The shanks 46 extend through openings 48 (see FIGURE 5) formed in each of the supports 20, 22 and are retained therein by means of the nuts 50 and cotter pins 52. As is clearly seen in FIGURE 5, a washer 54 is interposed between the nut 50 and the adjacent side of the support 22, and a similar washer 56 is interposed between the hub 44 and the adjacent side of the support 22.

To the base ends of each of the bed-supporting plates 40, 42 is welded, as at 58, an elongated semicylindrical cradle 60.

Reference numeral 62 designates, in general, a substantially U-shaped bed formed from a single hollow tubular member. The bed 62 is seen to include a bight 64 from the remotely-disposed ends of which laterally project a pair of spaced, confronting and substantially parallel arms 66, 68. Reference numeral 70 denotes a substantially inverted U-shaped brace and barrel-retainer element which includes a bight 72 disposed in vertically-spaced relation with respect to the bight 64 and is parallel thereto. The opposed ends of the bight 72 terminate in downwardly turned arms 74, 76 which are rigidly secured by any conventional means to the corners of the bed 62 formed at the junction of the arms 66, 68 with the bight 64. As is seen in the several figures of the drawings, the arms 66, 68 are fixedly secured centrally of their respective opposed ends in the cradles 60 by means of the bolt 78 and nut 80.

Reference numeral 82 designates a substantially U-shaped hollow tubular handle member comprising a bight 84 from the opposed ends of which laterally project in confronting spaced and parallel relation, a pair of arms 86, 88 which are adapted to be telescopically received within the arms 66, 68. Referring to FIGURES 2 and 4, it is seen that each of the telescoped inner ends of the arms 86, 88 have an upwardly facing, longitudinally extending slot 90 formed therein which align with slots 92 formed in the arms 66, 68 when the handle 82 is in

its innermost position. With the handle 82 in its innermost position, a releasable detent 94 engages within the slots 90, 92 to releasably hold the handle 82 in its position shown in full lines in FIGURES 1 and 2. The detents 94 are secured to each of the arms 86, 88 as at 96.

Reference numeral 98 indicates, in general, a substantially U-shaped lock lever which comprises a bight 100 from the opposed ends of which project laterally offset, spaced, parallel and confronting arms 102, 104. The lever 98 is preferably formed of a solid metallic material and the arms 102, 104, at their outer free ends, terminate in offset substantially rectangular pawls 106, 108 which are adapted to releasably and selectively engage, respectively, within the openings 36, 38 formed in the supports 20, 22.

Reference numerals 110, 112 denote a pair of centrally apertured, substantially rectangular guide blocks which are rigidly secured to the arms 66, 68 adjacent the outer free ends thereof, and a second pair of guide blocks 114, 116 which are similarly constructed are secured to the arms 66, 68 intermediate the ends thereof. The guide blocks are adapted to receive therethrough and for reciprocation therein the arms 102, 104 of the lever 98.

Reference is again made to FIGURES 1, 2, 4 and 6, wherein it is seen that a helicoidal spring 118, 120 surround the arms 102, 104, respectively, of the lever 68 adjacent the free ends thereof and are interposed between the pawls 106, 108 and the immediate adjacent ones of the guide blocks 114, 116 whereby the pawls are constantly biased for movement toward the supports 20, 22.

To serve a purpose to be described infra-adjustable stop lugs 122, 124 are slidably mounted on the arms 66, 68, respectively, adjacent the free ends thereof. The lugs 122, 124 are held in adjusted position by means of set screws 126, 128, respectively.

As has been previously stated, the stand 10 has been especially designed to support barrels, tanks, containers and other types of receptacles thereon in a substantially horizontal position. Such a receptacle is illustrated in FIGURES 1 and 3 and is seen to comprise an elongated substantially cylindrical side wall 132 having a pair of opposed ends 134, 136. The receptacle or barrel 130 is axially elongated and is provided with an outside diameter greater than the lateral distance between the side arms 66, 68 of the bed 62. In the full line position shown in FIGURE 1, the end 134 is shown as abutting against the bight 64 and the base 70 with the side wall 132 extending parallel to the side arms 66, 68. The stop lugs 124, 126 have been moved into engagement with the end wall 136 and are secured in place by means of their respective set screws 126, 128. The container, tank or receptacle 130 is thus made secure on its bed 62.

Now let it be assumed that it is desired to remove the receptacle 130 from its bed 62. Preferably, the operator loosens the set screws 126, 128 and moves the stop lugs 122, 124 away from the container-receptacle 130 and thereafter grasps the bight 84 of the handle 82 and pulls the same outwardly to cause the arms 86, 88, to move in a direction away from the arms 66, 68. The force in effecting this movement is sufficient to cause the detent 94 to be depressed below the opening or aperture 92 due to the cam type configuration of the detent. With the handle extended to its full length position as shown in FIGURE 6 or the dotted line position shown in FIGURES 1 and 2, the operator then grasps the bight 100 of the locking means 98 and pulls the same towards the bight 84 to effect a disengagement of the pawls 106, 108 from the lowermost ones of the slots 36, 38. The handle 82 and bed 62 are now pivoted in a counterclockwise direction, reference being made to FIGURE 1 of the drawings, until the receptacle 130 reaches the position indicated at 130'. During this swinging movement, the pawls 106, 108 may ride on the apices 32, 34 of the supports until the pawls engage within the uppermost ones of the slots 36, 38 due to the tension of the springs 118, 120. The bed 62 is now locked in the dotted line position shown in FIGURE 1, and the receptacle is now illustrated at 130' as referred to above. The operator subsequently tilts the receptacle 130 to the dotted line position indicated at 130'', using the bight 72 as a fulcrum. The barrel is then rolled or otherwise disengaged from the bights of the tube by manual or mechanical means.

Thereafter, and if so desired, the arms 86, 88 of the lever or handle 82 may again be telescoped within the arms 66, 68.

To load the bed 62, it is only necessary to reverse the order of the steps set forth above.

FIGURES 7 and 8 illustrate a second embodiment of this invention and component elements thereof finding counterparts in the above first described embodiment have been assigned the same reference numerals to which a prime mark has been ascribed in order to differentiate therebetween.

In the second embodiment, reference numeral 200 designates, in general, an elongated substantially rectangular base frame which comprises a pair of longitudinally extending angle iron side frame members 202, 204 and a pair (only one being shown) oppositely disposed angle iron members 206 which serve as end frame members. The side and end frame members, respectively, are parallel with respect to each other. A third angle member 208 extends parallel to the frame members 202, 204 in laterally spaced relation and is closer to the angle member 204 than to the angle member 202. The base frame is completed through the provision of a plurality of intermediate angle members 210 which extend perpendicularly to the angle members 202, 204 and have their opposed ends rigidly secured thereto. As is ssen in FIGURE 7, the angle members 210 are arranged in longitudinally spaced relation with respect to the angle members 202, 208.

To serve a purpose to be described, a plurality of elongated cylindrical rollers 212 are rotatably supported between the angle members 204, 208 with their respective axes of rotation perpendicular thereto.

Fixedly secured to and projecting above the frame members 206, 210 are supports 20, 22 identically constructed with respect to the counterparts 20, 22. As before, the apices are notched at 36', 38'. The support 20' carries the same type of cradle 60' pivotally mounted thereon, but the supports 22' carry a different cradle construction.

Referring now to FIGURE 8, it is seen that the bed supporting plate 42' is formed with a hub 44' having an elongated shank 46' which extends through an opening 48' formed in the support 22'. The shank 46' extends beyond the opposite sides of the support 22' and receives thereon the hub 212 of the second bed supporting plate 214. To the plate 214 is secured a semi-circular cradle 216 having the same configuration as the cradles 60'. The cradles 60' and 216 are generally parallel, but since the plates 42', 214 are mounted for rotation relative to each other, the longitudinal axes thereof may be inclined relative to each other.

The embodiment of this invention shown in FIGURES 7 and 8 is designed to accommodate a plurality of containers, tanks, or receptacles, en banc. Hence, the same type of U-shaped beds 62' are provided, but in this instance the intermediate support plates 22' support the side arms 66', 68' of a pair of adjacent beds 62'. Also in this embodiment of the invention, the U-shaped handle 82 has been discarded in favor of an L-shaped handle member 218 having a leg portion 220 adapted to be telescoped within each of the side arms 68' and a foot portion 222 which is adapted to be grasped by the operator and extended or retracted in the manner described above.

Each of the arms 66', 68' is also provided with the stop lugs 124', 122', respectively, as described above, and each of the arms 68' is provided with a pair of longitudinally spaced guide blocks 112', 116' through which extends an elongated arm 104' of a lock lever 98'. The

arm 104, has, at one end thereof, a pawl 106' which is adapted to engage within one of the slots 36', 38' formed in the apices of the supports 20', 22', in the manner previously described. The other end of the arm 104' terminates in a handle 224 for manipulation in the same manner as the bight 100. A helicoidal spring 120' surrounds the arms 104' and is tangent to bias constantly the wall 106' into engagement with one of the slots 36', 38'.

Since the U-shaped handle 82 has been eliminated in the second embodiment of this invention, it is necessary to provide means for preventing the free ends of the arms 66', 68' from spreading under the influence of the weight of a barrel, tank or receptacle placed thereon. To this end, each pair of the arms 66', 68' is provided with a spanning, reinforcing rib 226 having a concave-convex configuration with the concave side thereof facing upwardly.

In operation, a selected one of the handles 222 is grasped by the operator and the arm 220 is moved to its extended position shown in FIGURE 7. The handle 224 associated with the selected handle 222 is operated to disengage the pawl 106', and the bed 62' is then pivoted to its upwardly inclined position, in the manner described above. The barrel or receptacle 30 is then removed, as before, but in this instance it comes to rest on the rollers 212 which afford easy transit to a given site. To load the bed 62' it is only necessary to reverse the steps.

Having described and illustrated two embodiments of this invention, it is to be understood that the same were offered only by way of example, and that this invention is to be limited only by the scope of the appended claims.

What is claimed is:

1. A stand for supporting barrels, tanks, receptacles and the like, said stand comprising a base including a pair of side arms and a substantially triangular support arising from each of said side arms and being disposed in spaced, parallel, confronting relation, said supports adjacent their respective apexes having a plurality of slots formed therein, a cradle for each of said supports, means pivotally supporting said cradles on their respective associated supports, an elongated substantially U-shaped article supporting bed, said bed including a bight from the opposed ends of which project a pair of laterally spaced substantially parallel arms, means fixedly securing said arms of said bed intermediate their respective ends to said cradles, a lock lever supported on said arms for reciprocation longitudinally with respect thereto, said lock lever including a pair of arms slidably mounted on said arms of said bed, and a pawl mounted on a pair of adjacent ends of said last-named arms for selective engagement within a preselected pair of said slots formed in said support.

2. A stand for supporting barrels, tanks, receptacles and the like, said stand comprising an elongated substantially rectangular base including a pair of side frame members disposed in laterally spaced and substantially parallel relation, and a pair of end frame members, a third frame member extending longitudinally between said

side frame members in spaced and parallel relation thereto, a plurality of rollers mounted between said last-named frame member and one of said side frame members, said rollers having their respective axes perpendicular to the longitudinal axes of said side frame members, a plurality of angle iron members extending between said last-named frame member and the other of said said side frame members, said angle iron members being disposed in longitudinally spaced relation relative thereto, a support arising from each of said end frame members and said angle members, a cradle mounted on each of said supports on said end frame members and a pair of cradles mounted on each of said supports arising from said angle members, said last-named cradles being disposed on opposite sides of said support, each adjacent pair of said cradles being movable independent of the others, an elongated substantially U-shaped receptacle bed for each pair of adjacent cradles, means for connecting said beds to said cradles intermediate the ends of the former, said beds having bight portions pivotal towards and away from said rollers, and means for limiting the pivotal movement of said beds.

3. A stand for supporting barrels, tanks, receptacles and the like, said stand comprising an elongated substantially rectangular base including a pair of side frame members disposed in laterally-spaced and substantially parallel relation, and a pair of end frame members disposed in longitudinally-spaced and substantially parallel relation, a plurality of angle iron members extending between said side frame members and having their opposed ends fixedly secured thereto, said angle iron members being disposed in longitudinally-spaced relation relative to said side frame members, a support rising from each of said end frame members and said angle members, a cradle mounted on each of said supports on said end frame members and a pair of cradles mounted on each of said supports rising from said angle members, said last-named cradles being disposed on opposite sides of said support, each adjacent pair of cradles being movable independently of the others, an elongated substantially U-shaped receptacle bed for each pair of adjacent cradles, and means for connecting said beds to said cradles intermediate the ends of the former.

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