

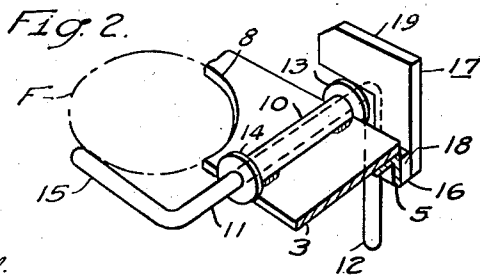
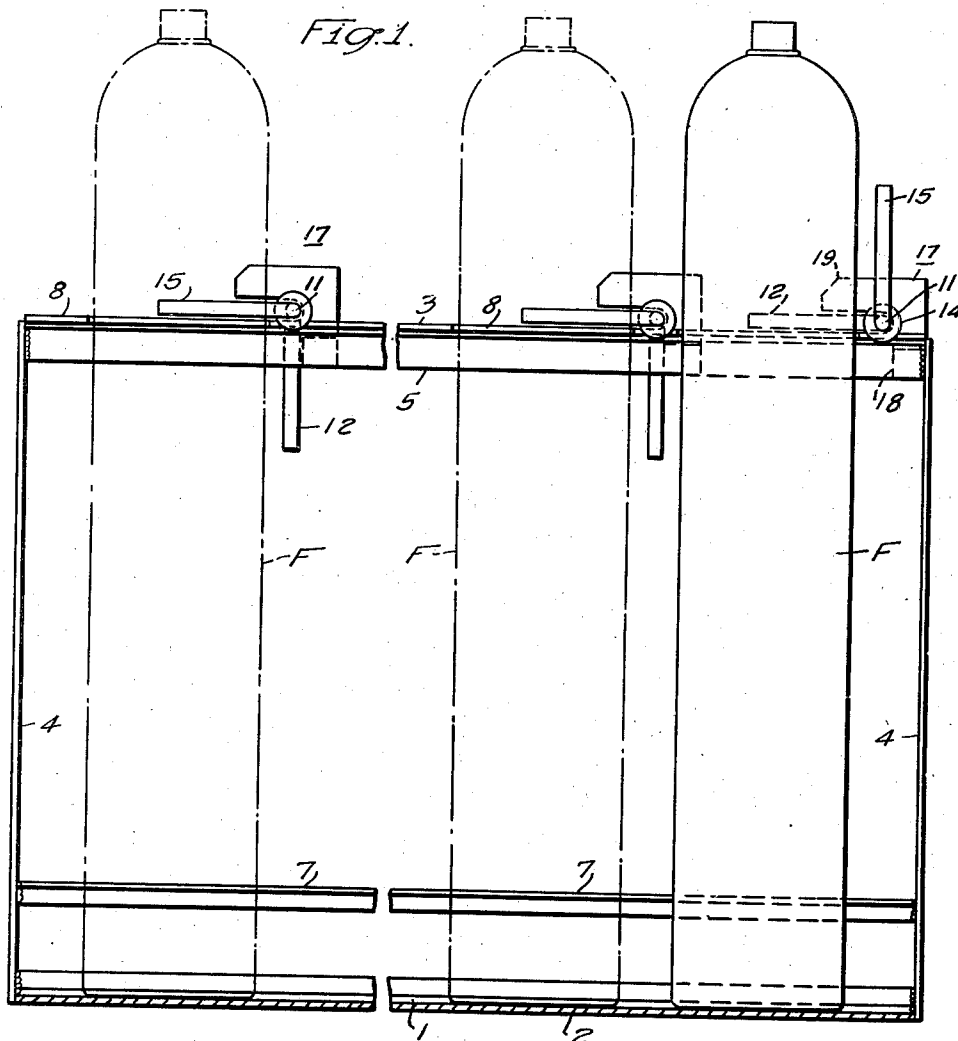
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BOTTLE HOLDER

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BOTTLE HOLDER

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My invention relates to a safety device and more particularly to a device for safely storing relatively heavy metallic or non-metallic cylinders, bars, or explosive tanks as high pressure gas flasks or tanks charged with explosive material.

To obtain a better understanding of my contribution to the art some discussion of the prior practice is essential.

In many places in industry gas, as oxygen, hydrogen, and other gases, is used in considerable quantities. This gas is supplied to the manufacturer in metal tanks or high pressure flasks. Often a whole bank of from six to eighteen, or more of such tanks or flasks are stored along a wall for ready use. In use all or groups of these flasks are often interconnected by suitable conduits and valves to provide a large capacity of gas under substantially constant pressure.

The flask storing rack, built of rather heavy metal, has a bottom plate provided with a plurality of arcuate cut-out portions, slightly less than semi-circular, the plate being positioned about six inches above the floor. A similar plate is fixed in the rack about three and a half feet above the bottom plate so that the arcuate cut-out portions are in vertical alignment. The bottles are positioned in the cut-out portions of the bottom and top plate. Since these high pressure flasks are usually some five feet in length, have considerable weight and are explosive, the suppliers of the racks provide a retaining chain for each flask.

This retaining chain is swivelly secured to the top plate at the right of the cut-out portion and to retain the flask is hooked into a hole in the plate at the left of the cut-out portion. This arrangement is satisfactory, considered from a standpoint of safety alone, if the chain is always hooked into place, but it seems as though no amount of cautioning will teach workmen the unfailing habit of hooking the chains into place after changing flasks. Such chains are usually unhooked.

One broad object of my invention is the provision of fool-proof safe storing means for heavy objects.

A more specific object of my invention is the provision of semi-automatic retaining means in a rack for cylinders containing explosive materials.

A still more specific object is a simple, cheap fool-proof high-pressure gas flask retaining rack wherein the flasks are held in vertical position.

The objects recited are merely illustrative.

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Other objects and advantages will become more apparent from a study of the following specification and the accompanying drawing, in which:

Figure 1 is a front view of a flask storing rack embodying my invention; and

Fig. 2 is a perspective view of the elements, in a tank storing rack, constituting my contribution to the art.

In Fig. 1 the flask storing rack is shown to have a base angle iron 1 to which the relatively wide floor plate 2 is rigidly secured. Disposed at a height of about two thirds the length of the high pressure gas flasks to be stored, the top plate 3 is disposed. This top plate has a reinforcing angle iron 5 secured thereto. The top plate 3 and base structure comprising the base channel 1 and floor plate 2 are rigidly secured to each other by triangular metal plates 4 disposed at each end. The triangular plates 4 are so disposed that the shorter legs are at the bottom, welded to the floor plate 2 and angle iron 1, and the longer legs vertical, the plate 3 and angle iron 5 being rigidly secured to plates 4 at the upper end. The flasks are to rest on the floor plate 2 which is rather wide to thus provide a stable portable rack.

Disposed substantially in vertical alignment with the deepest portion of the arcuate cut-out portions in plate 3, the angle iron 7 is rigidly secured to the plates 4.

To safely store the flasks I provide the top plate 3 and angle iron 4 with my special retaining means at each of the generally semi-circular cut-out portions 8 in the top plate 3. A description of one will suffice.

At the right-hand side of the semi-circular cut-out portion 8 is disposed a bearing 10. This bearing may be merely a gas pipe of suitable internal diameter having a length slightly greater than the width of the top plate 3. This bearing is spot-welded to the top surface plate 3.

A rod 11 is rotatably mounted in the bearing. The rear end 12 of the rod just beyond the rear edge of plate 3 is, as shown in Fig. 2, bent downwardly at right angles to the rod. A snugly fitting washer 13 is spot-welded to the rod 11 just to the front of the bend between rod 11 and the end 12 to prevent axial forward movement of the rod. A similar washer 14 is similarly secured to the rod 11 at a distance from washer 13 slightly greater than the length of bearing pipe 10. Washer 14 prevents axial backward movement of the rod 11. At a distance from washer 14 slightly greater than the radial dimension of the flask F

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to be retained, the rod 11 is bent toward the left, thus forming the flask retaining end 15. The axis of end 15 is normal to the axis of rod 11 and the axis of end 12 is normal to the axis of rod 11. The intersecting axes of end 15 and rod 11 define a plane that is normal to the plane defined by the intersecting axes of rod 11 and end 12.

To the rear surface of the angle iron 4 through a suitable spacer 16 if such is necessary, the block 17 having the general shape of a carpenter's square is rigidly secured. This block 17 has one of its legs 18 disposed vertically, and the other of its legs 19 disposed horizontally toward the left.

The end 12 lies in the plane of block 17, and the block 17 is so disposed with reference to the axis of rod 11 that end 12 may be moved from the vertical position shown in Fig. 2 to the horizontal position shown at the right in Fig. 1. The legs of block 17 thus act as stops for end 12 in its arcuate movement.

When a flask is to be positioned in the cut-out portion the end 15 is lifted to a vertical position till end 12 contacts the leg 19. After the flask is in position, the end 15 need merely be released. The rod 11, because of the weight of ends 12 and 15, will rotate counterclockwise till the end 12 engages leg 18. When end 12 is in such end position, end 15 will, of course, be in a horizontal position to retain the flask F in the rack.

It will be noted that my device will not permit the positioning of the flask in the rack except end 15 be moved clockwise through ninety degrees. Once the flask is in position, no further positive act is required of the attendant. My device automatically takes over the task of retaining the flask in the rack. Accidents from falling and possibly exploding flask because of such falling are completely eliminated.

While I have shown my special safety device as positioned at the right of the cut-out portion, it is, of course, clear that the device could be at the left for left-handed people without departing from the spirit of my invention.

I claim as my invention:

1. In a rack for storing elongated objects in a vertical position on a base and within a recess in the front of a horizontally disposed member forming part of the rack, in combination, a shaft disposed for rotary motion on the horizontal member on an axis substantially normal to the member, a pendulous depending projection on the rear end of the shaft rigidly secured thereto and tending to hold the shaft in a given angular position, a pendulous arm projecting at right angles from the front end of the shaft, said arm falling in a plane normal to the plane defined by the shaft and the pendulous depending projection, said pendulous arm when in horizontal position falling in front of the recess in the horizontal member, and means for limiting the rotation of the shaft through a right angle so that when the pendulous arm is in horizontal position the pendulous depending projection is in a vertical position and when the pendulous arm is in a vertical position, so that an object may be inserted in the recess, the pendulous depending projection is in a horizontal position.

2. In a rack for storing elongated objects in a vertical position on a base and within a recess in the front of a horizontally disposed member forming part of the rack, in combination, a bell crank lever pivoted for rotation on a horizontal axis normal to the horizontal member, one crank

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arm, designated the rear crank arm, being disposed behind the horizontal member and the other crank arm, designated the front crank arm, being disposed a selected distance in front of the horizontal member, means for limiting the angular motion of the rear crank arm from a vertically downward position to a horizontal position, the relation of the crank arms to each other being so chosen that the limits of movement of the rear crank arm from a vertically downward position to a horizontal position limit the movement of the front crank arm from a horizontal position to a vertically upward position in the order recited, whereby said front and rear crank arms, normally because of their weights and moment arms, take horizontal and vertically downward positions, respectively, said front crank arm, when in its horizontal position being disposed in front of the recess in the horizontal member to thus retain within the recess, any elongated object vertically disposed in the recess.

3. In a rack for storing elongated objects in a vertical position on a base and within a recess in the front of a horizontally disposed member forming part of the rack, in combination, a bell crank lever pivoted on a horizontal axis on the horizontal member, the crank arms being off-set so that one crank arm is disposed at the back of the horizontal member and the other is disposed in front of the recess, when in a horizontal position, a distance sufficient to fall in front of the object being stored in the recess, and means for limiting the movement of the bell crank lever so that the front crank arm may take either a vertical position, to permit insertion of an object in the recess, or a horizontal position to retain the object in the recess, said rear crank arm being positioned with reference to the front crank arm to bias the front crank arm to a horizontal position.

4. In a rack for storing and securing elongated objects within aligned positions in a pair of parallelly disposed members forming part of the rack, in combination, a bell crank lever pivoted on an axis normal to one of the parallelly disposed members and having its crank arms falling in parallel planes spaced from each other at a distance slightly greater than one of the parallelly disposed members so that one crank arm falls behind and the other crank arm falls in front of the member to which the bell crank lever is pivoted, the pivotal positioning of the bell crank lever being such that the crank arm falling in front of the member when in one position also falls across the recess in one of the parallelly disposed members so that any elongated object disposed in the recess is held in the recess, the crank arms being angularly so disposed with reference to the pivot axis that the front crank arm is always biased to said one position.

5. In a rack for retaining objects in position in a recess on a bar forming part of the rack, in combination, a bearing sleeve disposed adjacent the recess and transverse of the bar, a crank shaft mounted for rotation in the bearing, crank arms projecting from the shaft at each end of the bearing sleeve, the direction of projection of the crank arms with reference to the bearing axis and with reference to each other being such that one crank arm is biased to fall across the recess in the bar to hold any object disposed therein in position, and means for limiting the rotation of the crank shaft in the bearing to an angle of ninety degrees so that the crank arm coacting with the recess

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may be moved from in front of the recess to permit insertion of an object in the recess.

6. In a rack for storing elongated cylindrical objects in a vertical position on a base and within generally semi-circular recesses in the upper of a pair of vertically spaced parallelly disposed horizontal bars comprising an upper bar and a lower bar and forming part of the rack in combination, a bearing sleeve rigidly secured to the upper bar and disposed adjacent the generally semi-circular recess in the upper bar and having its axis at right angles to the upper bar, a rod disposed for rotation in the bearing sleeve, said rod having its rear end just beyond the rear end

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of the bearing sleeve bent downwardly at right angles to the bearing axis and having its front end, at a distance from the upper bar slightly greater than the radius of the cylindrical object to be stored, bent in a horizontal direction to fall over the recess in the upper bar to thus retain within the recess any object that may be disposed in the recess, means for limiting the angular motion of the rear downwardly bent end from a vertical position to a horizontal position to thus limit the movement of the front bent end from a horizontal position to a vertical position.

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