Nov. 23, 1954 R. S. PRINGLE, JR 2,695,109

DRUM HANDLING HAND TRUCK EQUIPMENT

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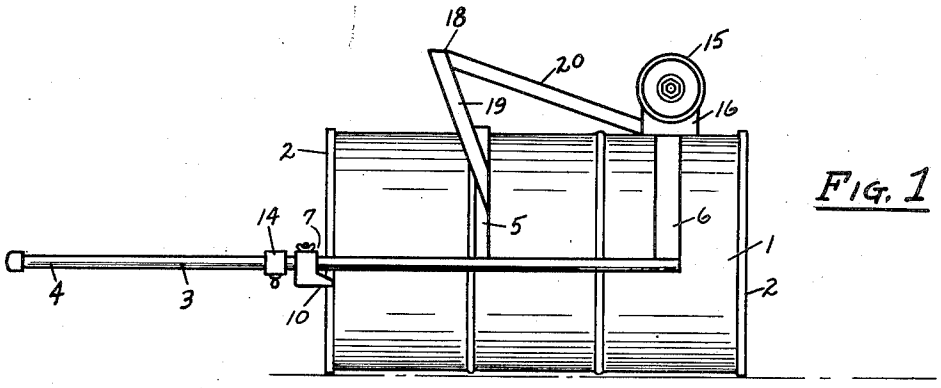


FIG. 1

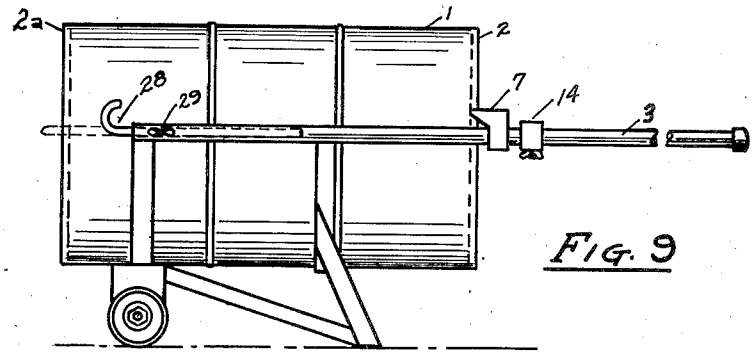


FIG. 9

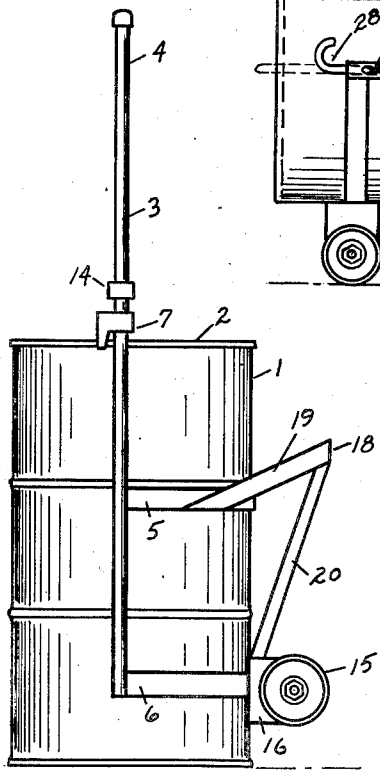
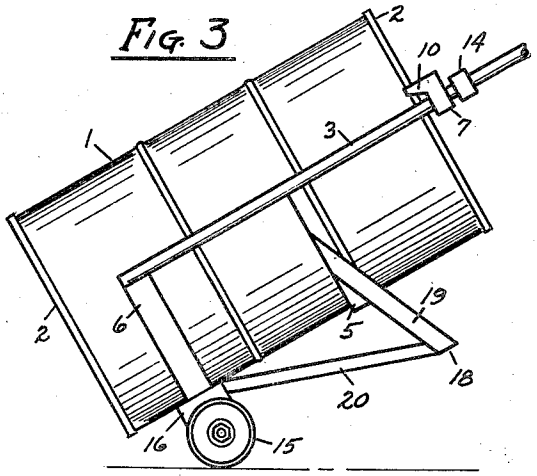


FIG. 2

FIG. 3



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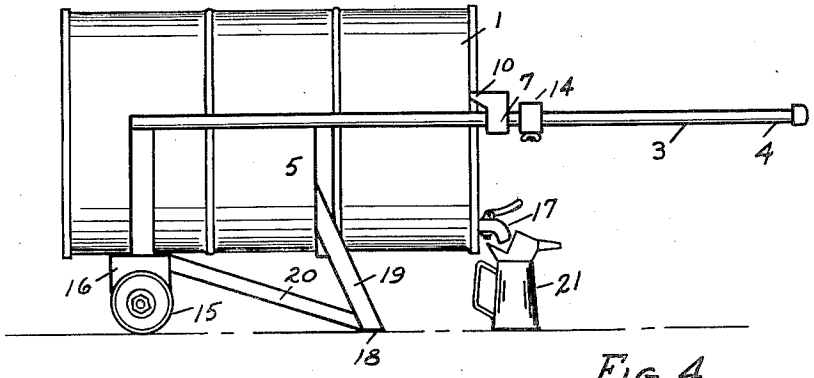


FIG. 4

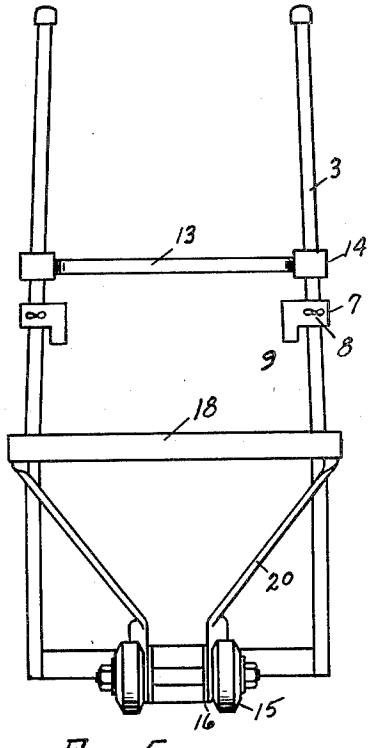


FIG. 5

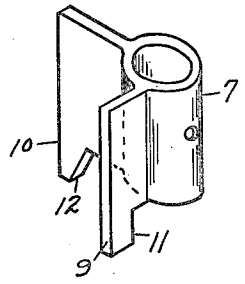


FIG. 6

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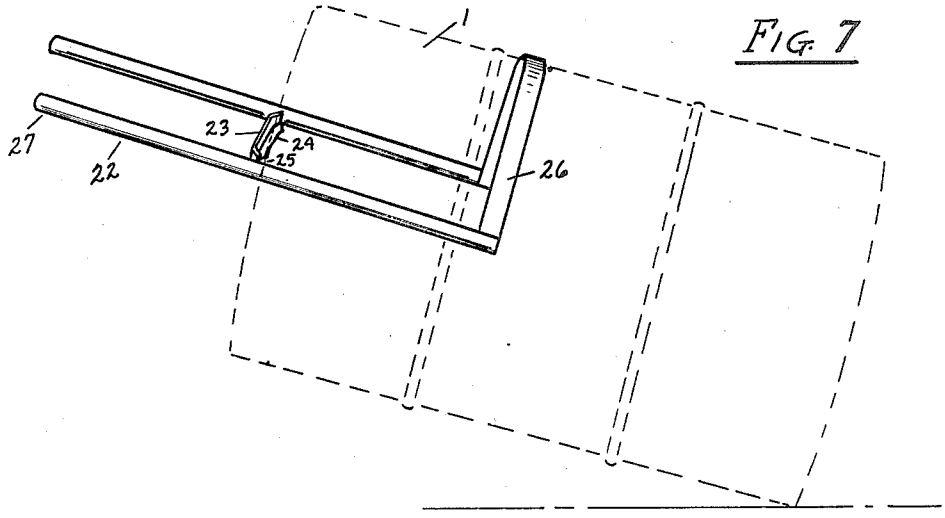


FIG. 7

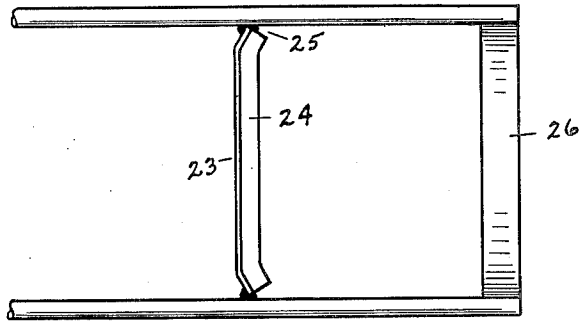


FIG. 8

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DRUM HANDLING HAND TRUCK EQUIPMENT

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Application July 5, 1951, Serial No. 235,200

1 Claim. (Cl. 214—383)

In the handling of drums such as used for oil and chemicals, there is frequent need for upending the drums from a horizontal position. This invention is intended to produce one-man-equipment for such purpose. In a preferred form, the equipment can further be used to truck the upended drum about and to support the drum in a horizontal position for draining, all without changing the grip of the equipment on the drum. Further objects and advantages appear in the specification and claim.

In the drawings, Fig. 1 is a side elevation of the equipment in position to upend a horizontal oil drum, Fig. 2 is a side view of the upended drum, Fig. 3 shows the drum in the trucking position, Fig. 4 shows the drum in the draining position, Fig. 5 is a bottom view of the equipment, Fig. 6 is a perspective of one of the fittings having lugs for alternatively gripping the chimes of chemical and oil drums, Fig. 7 is a side view of a simple form of the equipment in position to upend an oil drum, and Fig. 8 is a top view of the Fig. 7 equipment, and Fig. 9 is a side view of a modification shown with a drum in the draining position.

In the drawings, 1 indicates a standard 55-gallon oil drum which when full weighs 4–500 lbs. While in the horizontal position, it can be rolled about but before the contents can be drained it is usually necessary that the drum be upended to attach the spigot and then returned to a horizontal and somewhat elevated position for draining. The weight and shape of the drum makes the upending difficult even for two men. The space from the chimes 2 to the head of the drum is so shallow that it will accommodate only the tips of the fingers. Such an inadequate grip makes the upending operation extremely difficult.

In Fig. 1, the equipment is shown arranged on the drum in position for upending. The equipment comprises rails 3 which extend along each side of the drum. The rails have handles 4 which project beyond the front head of the drum so as to provide leverage. The other ends of the rails are connected by arcuate hoops 5 and 6, which extend over the top of the drum. As shown more clearly in Fig. 5, each of the rails has a fitting 7 fixed thereto by a set screw 8 and having a lug 9 or a lug 10 which grips the chime of the drum. The lug 9 has a right angle gripping surface 11 and the lug 10 has a tapered gripping surface 12 which permits effective gripping of chimes of different contour. For the purpose of accommodating variations in the diameters of the chimes, a cross bar 13 is provided connecting the rails 3. The cross bar is beyond and opposite the end of the drum and provides the rigid structure necessary for upending. The cross bar has right and left hand threads into fittings 14 so that by turning the cross bar, the spacing of the lugs 9 or 10 can be adjusted to accommodate the drum to be upended. Ordinarily, the cross bar 13 will seldom have to be adjusted.

When the drum is to be upended, the equipment is placed over the top of the drum and the lugs 9 or 10, as the case may be, are slipped under the chimes 2 at the end nearest the operator. By lifting up on the handles 4, the drum can easily be upended, since the equipment provides a mechanical advantage of between 3 and 4 to 1. When the drum is upended, it occupies the position shown in Fig. 2 and the operator at the end of the upending operation will be to the left of the drum, as viewed in Fig. 2. By walking around

to the opposite side of the drum and pulling downward on the handles 4, the drum can easily be moved to the trucking position shown in Fig. 3. In this position, the drum can be wheeled about on wheels 15 carried in brackets 16 closely spaced apart at the center of the hoop or band 6. The brackets 16 are located so that the drum is tilted a substantial distance from the vertical position before the wheels strike the floor. This makes it easier to move the drum to the trucking position. Because the wheels are closely spaced in the center of the drum, the drum can be more easily trucked. The spacing permits the drum to be trucked along a plank placed over soft ground. In going around corners, it is relatively easy to shift the weight to one of the wheels and thereby permit easier turning of the corner.

While the drum is in the upended position shown in Fig. 2, a spigot 17 may be inserted into the top of the drum. When the drum reaches the point at which the liquid contents are to be drained, the equipment is lowered to the horizontal position shown in Fig. 4. In this position, a stand or foot 18 supported by bars 19 extending to the band 5 and cross braced by bars 20 extending to the brackets 16, supports the front end of the drum, that is, the end of the drum adjacent the handles 4. The drum in the horizontal position is stably supported by the foot 18 and by the wheels 15 in position so that a container 21 can be placed under the spigot 17.

All of the operations so far described are those customarily necessary in handling oil drums and the like. All of these operations can be carried out without changing the position of the equipment on the drum. From one aspect, the bands 5 and 6, which form a cradle when the drum is in the trucking position, are placed on the drum in an inverted position when the drum is to be upended. After upending, the drum is then tilted so that it rests on the cradle provided by the bands 5 and 6 and remains cradled in these bands while being trucked about as indicated in Fig. 3, and while the contents of the drum are being drained as indicated in Fig. 4. The equipment can easily be removed from the drum by returning it to the upended position shown in Fig. 2.

For cases where it is desired that the drum be returned from the draining or upended positions to a horizontal storing position, the modification shown in Fig. 9 is utilized. In this modification there are hooks 28 telescoped into the ends of the rails 3 and adjustably locked by set screws 29. The hooks 28 are adapted to engage the chimes 2*a* at the end of the drum opposite the lugs 7 and when locked in place securely hold the rails 3 along the sides of the drum so that it can be moved from the position shown in Fig. 2 to the horizontal position shown in Fig. 1. The hooks 28 keep the bands 5 and 6 from moving away from the drum. When the drum reaches the horizontal storing position the set screws 29 are loosened to release the hooks 28 after which the equipment is easily lifted off the top of the drum.

The equipment by reason of the lugs 9 and 10 and the adjustment provided by the cross bar 13 can accommodate any of the standard drums now in use for oil or chemicals and the like.

In Figs. 7 and 8 is shown a simpler form of the equipment which is designed primarily for upending drums. This equipment comprises side rails or handles 22 connected by a rigid angle or cross bar 23 having a flange 24 notched at 25 adjacent its ends to receive the chimes of a drum. The cross bar 23 is adjacent the end of the drum and extends in a chord across the periphery of the drum. The rails extend along each side of the drum as indicated in Fig. 7 and at their ends near the middle of the drum are connected by a hoop 26 which extends over the top of the drum. The opposite ends of the rails provide handles 27 by means of which the drum may be upended. As the handles 27 are lifted, the notches 25 are wedged into the chimes of the drum and the band 26 is brought snugly down against the top of the drum to limit further movement of the rails 22. In Fig. 7, the drum is shown on its way to being

upended. By stopping the drum at an intermediate position, it is possible to roll the drum on the chime in contact with the floor. The handles 27 provide sufficient leverage to permit this to be easily done if the drum is not to be moved too great a distance. This, of course, is not as convenient a method for moving the drum long distances as is the truck shown in Figs. 1 to 6 inclusive. However, when the drum is in a horizontal position, it can easily be rolled so that the equipment shown in Figs. 7 and 8 has substantial advantages for handling drums. Because of the simplicity of the Figs. 7 and 8 equipment, the notches 25 are cut to handle one type of drum. Ordinary variations in the shape of the chimes of the drums or in the diameter of the drums is accommodated by a slight up or down shift in the position of the rails as the handles 27 are being lifted.

In both constructions, the lifting force is applied to the drum at each side of center so that there is little likelihood of the drum rolling as it is being upended. This materially facilitates the upending operation, which is ordinarily one of the more difficult operations to be performed on drums.

What is claimed as new is:

Handling equipment for upending and trucking oil drums and the like comprising a pair of rails extending along the sides of a horizontal drum and having handles projecting beyond one end of the drum, the rails terminating short of the other end of the drum, a cradle structure rigidly connecting the side rails and extending in an inverted position over the top of a portion

of the drum intermediate its ends, wheels on the cradle extending above the cradle in its inverted position adjacent the end of the drum opposite the handles, a rigid cross-member connecting the rails beyond and opposite said one end of the drum and radially within the periphery thereof, and lug means receiving the chimes of said one end of the drum on each side of the center of the drum.

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