June 26, 1951 R. A. HAWKINSON 2,558,216

KEG HANDLING DEVICE FOR LIFT TRUCKS

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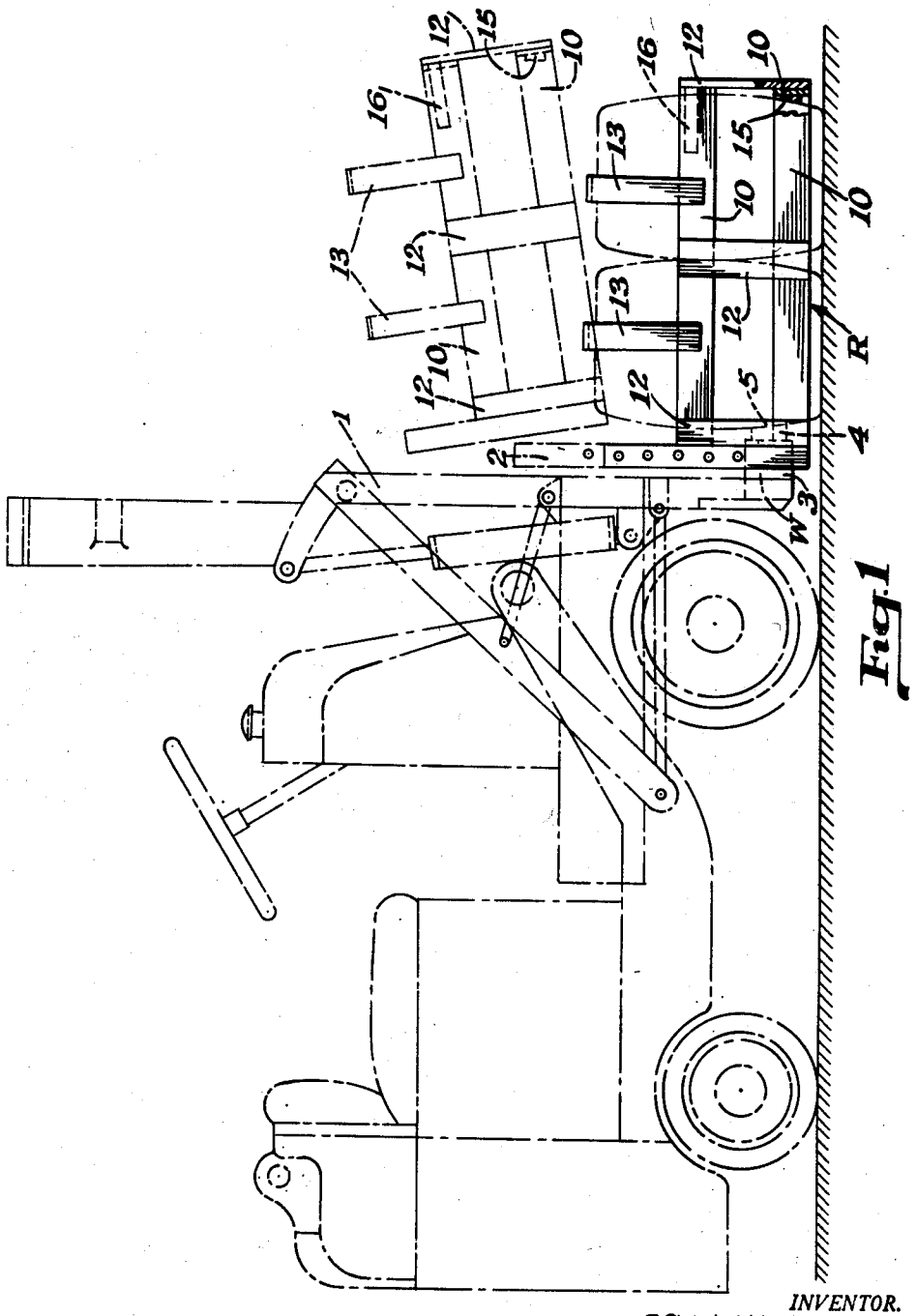


Fig. 1

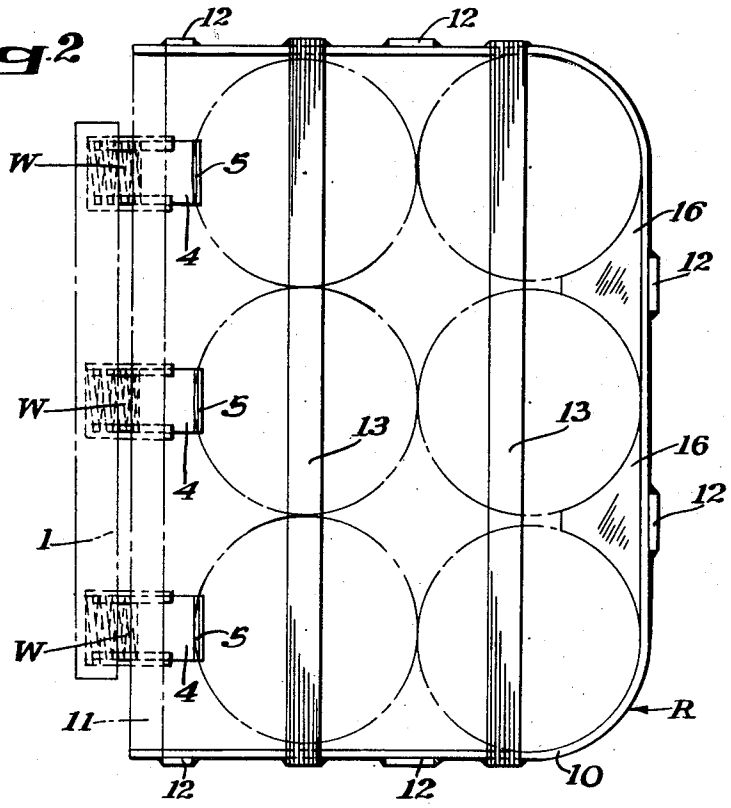
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Fig. 2



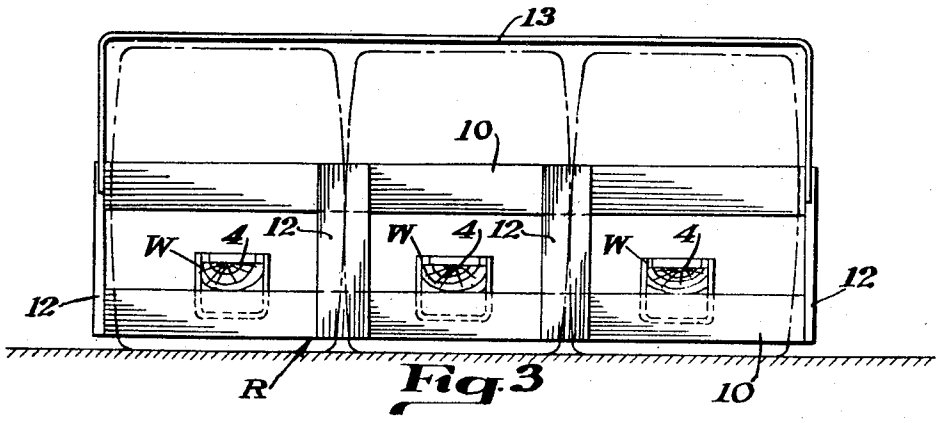


Fig. 3

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KEG HANDLING DEVICE FOR LIFT TRUCKS

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7 Claims. (Cl. 214—65)

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This invention relates generally to article-handling devices and more particularly to apparatus for lifting and transporting kegs and the like.

Lifting and transporting vehicles have been provided with devices of various sorts for handling many different articles but so far as I know only a small number of such devices has been devised for handling kegs and other articles of similar shape, and such devices have been complicated, expensive to construct and cumbersome and awkward to operate. The present invention provides a simple, inexpensive and yet highly effective and easy to operate device for lifting and transporting kegs and articles of similar shapes, which device depends upon the compressive strengths and not on the tensile strengths of the kegs.

In the drawings accompanying and forming a part of this specification,

Fig. 1 is a side elevational view of one form of apparatus embodying the present invention and showing the manner of its association with a conventional load-lifting and transporting vehicle;

Fig. 2 is a top plan view of the lifting device shown in full lines in Fig. 1; and

Fig. 3 is a front end elevational view of the lifting device of Figs. 1 and 2.

In Fig. 1 the dotted lines indicate a conventional load-lifting and transporting vehicle comprising a vertically movable, load-carrying member 1 and a horizontally reciprocable pusher 2 which is normally used to push a load off forks of the load-carrying member but in this instance is used to pull the lifting rack and articles to be lifted toward the vehicle.

The vertically movable load-carrying member 1 has a plurality of horizontal wedge devices W attached to the front side thereof near its lower end, each such device comprising a housing 3 and a wedge block 4 which is slidably movable in the housing and preferably is urged forwardly by a compressed spring in the housing back of the block. Each block 4 has its front surface 5 inclined upwardly and rearwardly toward the vehicle to correspond generally to the shape of the lower sides of the kegs or similar articles to be lifted. The blocks 4 may be made of wood or other suitable non-metallic material, but preferably are made of steel or other suitable metal.

A rack R cooperates with the wedge devices W to press a plurality of kegs therebetween with force enough to permit the lifting and transporting of the kegs. This rack comprises two vertically spaced horizontal bands 10 which are U-

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shaped in plan view and are connected together by similar horizontal strips 11 disposed adjacent and parallel to load-carrying member 1 of the vehicle. The horizontal strips 10 are connected together by vertical strips 12 and bands 13 connect the side portions of top strip 10 and are positioned and shaped to extend over the tops of kegs within the rack and close enough thereto to prevent substantial tilting of such kegs while they are being lifted or transported in the rack. The strips 10, 11 and 12 and bands 13 are preferably made of steel.

The rack is provided along the inner side of its front end with a plurality of inwardly extending wedge shaped projections 15 having rear surfaces inclined upwardly and forwardly to correspond generally to the side surfaces of the kegs near their lower ends. Rearwardly extending filler blocks 16 are attached to the rack near its upper edge along the front end thereof and have their rear surfaces curved to correspond to the curvature of the portion of the keg surface with which they may contact.

It will be seen from Figs. 2 and 3 that the illustrated and just described apparatus is suited to the lifting of six kegs. To that end the load-lifting member 1 is provided with three wedge devices W, each to engage against a keg aligned therewith with the inclined surface 5 thereof engaging with the upwardly inclined lower side surface of its keg. Similarly, there are three wedges 15 projecting inwardly from the front end of the rack and these wedges are also aligned with the rows of kegs, each to engage the lower inclined surface of its kegs. Also, the front end of the rack carries two filler blocks 16 which are positioned to extend between adjacent pairs of kegs and have their rear edges curved to conform to and engage the kegs circumferentially. It will be understood that two, four or six kegs may be carried by this device, i. e., that one or two of the longitudinal rows of kegs may be omitted but, as will be understood, it is necessary to have at least two kegs engaging, respectively, a wedge surface 5 and the opposite wedge 15 and the adjacent block 16 when kegs are to be lifted and transported.

The above described apparatus operates substantially as follows: Kegs to be lifted and transported are arranged as shown in Fig. 2. Then the vehicle is brought into position relative to the kegs with the load-carrying member 1 elevated and the pusher 2 extended outwardly so that when the load-carrying member R is lowered the wedges W fixed thereto will clear the rear sides

of the adjacent transverse row of kegs while the front end of the rack will clear the front sides of the front transverse row of kegs. The load-carrying member 1 is lowered and the vehicle is moved to bring the fixed wedges W on the load-carrying member against three adjacent kegs while the rack R moves to a horizontal position with the front end thereof out of contact with the adjacent row of kegs. Then the pusher 2 is pulled back toward the vehicle with resultant rearward movement of the rack R and engagement of wedges 15 and blocks 16 with the adjacent kegs. Continued rearward movement of the pusher pulls the rows of kegs into compressive contact with each other and binds all the kegs together and against fixed wedges W and 15. When the kegs are thus held in contact with each other and with the wedges with sufficient compressive pressure, the load-carrying member 1 may be lifted thereby lifting the kegs as a unit and the kegs may be transported, and stacked if desired. When the kegs are in the desired location they may be released simply by moving the pusher 2 forwardly which moves the wedges 15 and blocks 16 from the kegs and permits the fixed wedges W to be moved out of contact with the kegs. Then the load-carrying member with the fixed wedges and the rack may be lifted clear of the kegs.

It will be understood that the herein illustrated devices may also be used to carry one or more tiers of containers, such as kegs, on top of the kegs gripped in rack R between wedges W and 15. One such tier of kegs would mean that 4, 8 or 12 kegs were so carried. It will also be understood that by varying the size of the rack R from one to three transverse rows of kegs and the like may be transported. In this case each such row may consist of one, two or three kegs or the like. Furthermore, objects other than kegs and barrels may be transported by devices embodying this invention. By varying the shape of wedges W and 15 to correspond to the shape of the object to be transported, objects having a wide variety of shapes may be handled by this invention.

Although rack R and pusher 2 have been described herein above as separate devices, they may be integrally connected and considered as one unit.

While the present invention has been described in conjunction with the illustrated apparatus, it is to be understood that the invention is not to be limited to the specifically illustrated apparatus but is defined in what is claimed:

What is claimed is:

1. In combination with a vehicle having a vertically movable load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a fixed wedge secured to and extending forwardly horizontally from said member, and a rack to surround a keg to be transported and having a wedge extending rearwardly from the front side of the rack toward said fixed wedge, said rack being attached to and movable with said pusher toward said member for exerting compressive force on a keg between said opposed wedges sufficient for lifting the keg and away from said member for releasing the keg.

2. In combination with a vehicle having a vertically movable load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending forwardly horizontally from said member, and a rectangular rack to surround a plurality of kegs to be transported and having wedges extending rearwardly from the front side of the rack toward said fixed wedges, said rack being attached to and movable with said pusher toward said member for exerting compressive force on kegs engaging each other between said opposed wedges sufficient for lifting the kegs and away from said member for releasing the kegs.

3. In combination with a vehicle having a vertically movable load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending forwardly horizontally from said member, and a rectangular rack carried by and movable with said pusher for movement toward and away from said member, said rack comprising a pair of horizontal vertically spaced strips, vertical ties connecting said strips, and wedges extending rearwardly from the front side of the rack, said wedges having surfaces inclined to conform generally to the lower side surfaces of kegs engaging therewith.

4. In combination with a vehicle having a vertically movable load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending forward horizontally from said member and having front faces sloping upwardly and backwardly toward said member, and a rectangular rack carried by and movable with said pusher for movement toward and away from said member, said rack comprising a pair of horizontal vertically spaced strips, vertical ties connecting said strips, bands connected to the upper horizontal strip at opposite sides of the rack and extending upwardly therefrom to lie over the tops of kegs within the rack and horizontal wedges extending inwardly from the front side of the rack to engage the lower sides of kegs within the rack.

5. In combination with a vehicle having a vertically movable, load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending horizontally forwardly from said member and a lifting rack carried by and movable with said pusher for movement toward and away from said member, said rack being generally rectangular in plan view to surround a plurality of kegs and having wedges along its front end opposed to and extending rearwardly toward said fixed wedges, and filler blocks projecting rearwardly from the upper front part of the rack, said rack serving, when placed about a plurality of kegs and moved toward said vehicle, to move the filler blocks between adjacent kegs and to move the rack carried wedges toward the fixed wedges and thereby to press such kegs together and against said wedges with sufficient compressive force to permit lifting of the kegs by the rack.

6. In combination with a vehicle having a vertically movable, load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending horizontally forward from said member and a lifting rack carried by and movable with said pusher for movement toward and away from said member, said rack being generally rectangular in plan view to surround a plurality of kegs and having rearwardly extending wedges along its front end to engage with the lower side surfaces of kegs within the

rack, stay strips attached to the rack to extend over the tops of kegs therewithin, and filler blocks projecting inwardly from the front end of said rack to extend between such kegs, said rack serving, when placed about a plurality of kegs and moved toward said vehicle by said pusher, to move the said block between adjacent kegs and to move the rack carried wedges toward the fixed wedges and thereby to press such kegs together and against said wedges with sufficient compressive force to permit lifting of the kegs by the rack.

7. In combination with a vehicle having a vertically movable load-carrying member and a horizontally movable pusher, apparatus for transporting kegs comprising a plurality of fixed wedges secured to and extending horizontally forwardly from said member and a lifting rack carried by and movable with said pusher for movement toward and away from said member, said rack being generally rectangular in plan view to surround a plurality of kegs and having wedges along the lower part of its front end opposed to and extending rearwardly toward said fixed wedges, filler blocks projecting rearwardly from the upper part of the front end, and stay strips attached to the opposite sides of the rack to extend over the tops of kegs therewithin, said rack serving, when placed about a plurality of kegs and moved toward said vehicle by said pusher, to

move the filler blocks into position between adjacent kegs and to move the rack carried wedges toward the fixed wedges and thereby to press such kegs together and against said wedges with sufficient force to permit lifting of the kegs by the rack.

ROY A. HAWKINSON.

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