Feb. 24, 1959 W. A. REES, JR 2,874,855

PERSONNEL OR OBJECT TRANSFER APPARATUS AND METHOD

Filed July 2, 1957

Fig. 1.

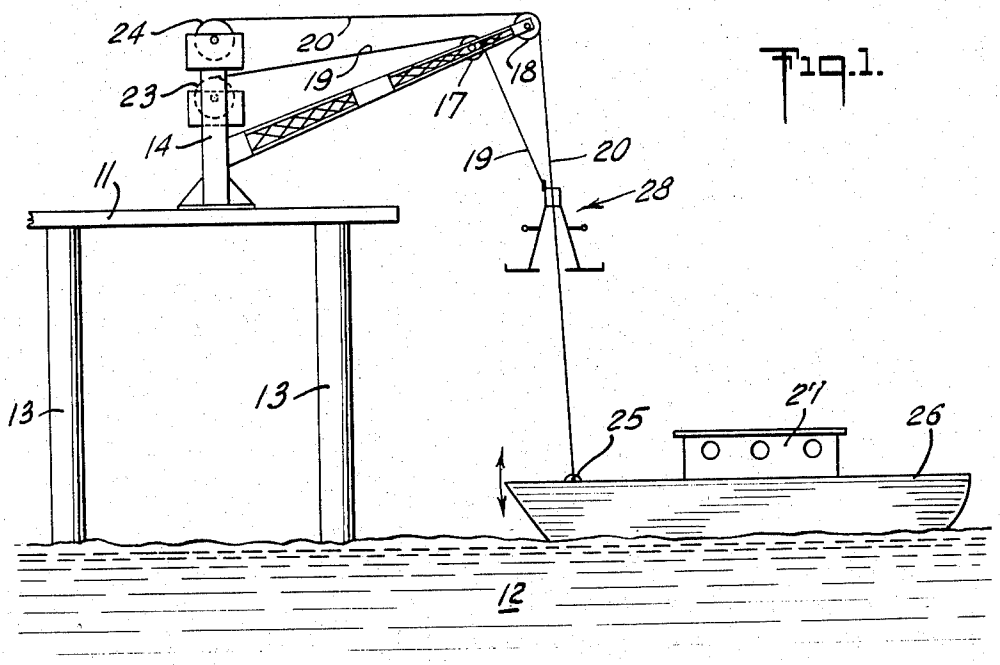



Fig. 2.

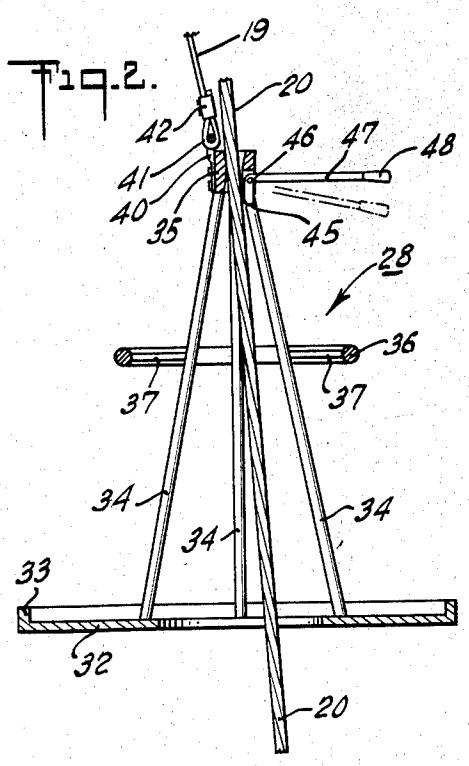
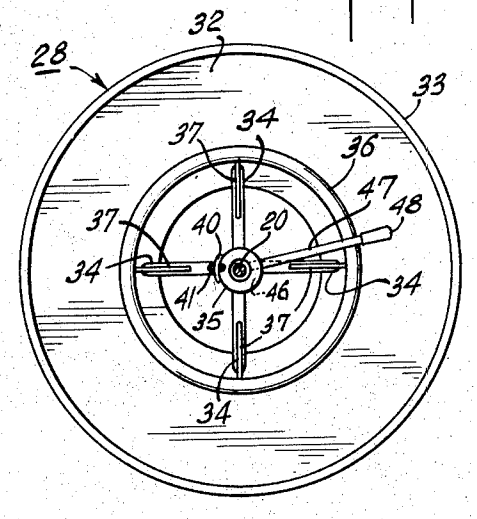



Fig. 3



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# PERSONNEL OR OBJECT TRANSFER APPARATUS AND METHOD

Warren A. Rees, Jr., Liberty, Tex., assignor to The Texas Company, New York, N. Y., a corporation of Delaware

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8 Claims. (Cl. 214—14)

This invention is concerned with an apparatus and method for transferring personnel, or goods, from a relatively stationary to a moving object or the reverse. More specifically, the invention concerns apparatus for hoisting and guiding a vehicle (which may carry personnel), from a relatively stationary object or location, and guiding the same to a definite spot on a moving object. In addition, the arrangement is such that the transfer is rendered quite simple and extremely safe, by providing for a transference of the support of the personnel carrying vehicle from the hoist to the guide, and thereafter easing the vehicle gradually into gentle contact with the moving object.

Heretofore, particularly in offshore drilling operations, there have been many different types of more or less makeshift arrangements employed in transferring personnel from drilling rigs to boats and vice versa. In such operation, there is considerable danger involved and the accident rate has been relatively high. Such transfer of personnel from the bobbing deck of a boat to the drilling platform which is situated quite high off the water involves a ticklish operation in that the movements of the boat are erratic and include both vertical and horizontal motion. Furthermore, the boat deck is relatively small; and, where a boxlike carrier or vehicle is employed for such transfers, there is relatively great chance of damaging the superstructure of the boat in addition to causing an upset of the personnel vehicle with attendant likelihood of injuries to the personnel.

Consequently, it is an object of this invention to overcome the above-indicated difficulties in transferring personnel or materials from a stationary platform to the deck of a relatively small boat in rough water.

Another object of the invention is to provide improved apparatus for transferring personnel or goods between two relatively moving objects, as well as between a stationary and one moving object.

Another object of the invention is to provide a personnel transfer device that is simple in structure and operation, while at the same time being relatively inexpensive to construct, and also providing for safe and sure operation.

Still another object of the invention is to teach a method of safely transferring personnel to or from a moving object.

Briefly, this invention is concerned with a personnel or object transfer device for transferring from a relatively stationary structure to a moving object. This device comprises in combination a support means for carrying said personnel, and a hoist means for raising and lowering said support means. The device additionally comprises a guide means detachably fastened to said moving object and extending to said structure. The device also includes a means for applying tension force to said guide means of a magnitude greater than the gross weight of said support means when fully loaded, and means for transferring lift of said personnel support means from said hoist means to said guide means.



The invention may be also briefly described as to its teaching concerning a method. The invention is concerned with certain steps to be applied in a method of transferring personnel from a relatively stationary locale to a moving object. Such method is one wherein said personnel are hoisted from said stationary locale by a vehicle, and said vehicle is guided toward said moving object by a flexible guide means attached to the moving object. The invention is concerned with such a method which includes the steps of: applying tension to the guide means sufficient to at least support the gross load of said loaded vehicle; transferring support of the vehicle from the hoist to the guide means; and gradually lowering the vehicle along the guide means, into gentle contact with the moving object.

The foregoing and other objects and benefits of the invention will be apparent to anyone skilled in the art, and in connection with the disclosure set forth more fully below and illustrated in the drawings, wherein:

Fig. 1 is a schematic showing of a drilling rig platform with a personnel carrying boat alongside, and showing the transfer apparatus in operation;

Fig. 2 is an enlarged longitudinal cross-section view showing the personnel transfer platform or vehicle in detail; and

Fig. 3 is a plan view of the personnel platform illustrated in Fig. 2.

Referring to Fig. 1, a specific illustration of an application of the invention will be described.

There is shown a platform **11** that is supported from the floor of a body of water **12**, by means of pilings or other support structures **13**. Carried on platform **11**, there is a conventional utility crane or hoist **14**. Hoist **14** has a pair of pulleys or sheaves **17** and **18**, over which pass respectively a hoist cable **19** and a guide line **20**.

Pulleys, **17** and **18**, are shown quite far apart on the boom of hoist **14**. This has been done merely for purposes of clarity in the illustration and explanation of the invention. Thus, these pulleys may be located side by side on a common shaft, or otherwise situated in any convenient manner.

Cable **19** is reeled in or out in any feasible manner, such as by means of a power drum **23**, schematically illustrated. Similarly guide line **20** may be reeled in and out by means of a power drum **24** illustrated. In addition, at drum **24** there must be provided a slip clutch drive (not shown), or other arrangement in connection with the reeling in of line **20**; so that a desired amount of tension force may be applied to line **20**, and maintained at a given magnitude. It will be understood that the operator of the hoist could manually adjust the tension applied to the line **20** in order to accomplish the desired results; but if desired, an automatic constant tension drive arrangement might be provided. In either case, the line **20** will of necessity move up and down with the movements of the deck of the boat **26**.

The free end of line **20** is detachably fastened to any convenient fastening fixture **25**, that is bolted or otherwise strongly attached to the deck of a personnel-carrying boat **26**. It will be noted that the boat **26** includes, as part of its super-structure, a cabin **27**. Furthermore, the size of the deck space near the bow of boat **26** is relatively small in comparison with the overall size of a personnel-carrying platform, or vehicle, **28**, that is illustrated.

Referring to Figs. 2 and 3, it will be noted that the personnel platform, or vehicle, **28** includes a round base or platform **32** which has a low foot railing **33** around the outer edge thereof. Firmly attached to the platform **32**, there are four upstanding support members **34**, which extend upward toward one another and are integrally, or otherwise securely attached to a collar **35**

situated at the top of the main structure of the vehicle or personnel platform **28**. At a convenient height, part way up on the support members **34**, there is a hand rail **36** that is fastened to the support members **34** by four horizontal braces **37**.

The collar **35** has firmly attached thereto a supporting loop **40**, to which the end of the cable **19** is attached in any convenient manner, e. g., cable **19** may be looped through the support loop **40** to form an eye **41** in the cable **19**, that will be held in place by means of a cable clamp **42**.

There is an additional element attached to the collar **35** for applying variable frictional engagement between the guide line **20** and the collar **35**. This element could take numerous different forms, but is here illustrated as being a pivoted dog **45** supported by a pivot pin **46** that is securely held in the body of the collar **35**, e. g., by means of a press fit in the collar **35**. There is a lever **47** that is integrally formed with the dog **45**, and that consequently likewise pivots about pivot pin **46**. In addition, there may be a handle portion **48** attached to the extremity of the lever **47**.

Again referring to Fig. 1, the apparatus, in addition to the method of this invention, will become entirely clear upon an explanation of the operation thereof. It is to be noted that even though the invention has been herein illustrated and described in connection with a specific application that concerns transfer of personnel or goods from a stationary location, e. g., an off-shore drilling rig platform to a relatively moving object, such as a boat or the like; the invention is equally applicable to various other applications such as that of transferring personnel from a large ship to a relatively small boat, or any transfer operation between relatively moving objects. Thus, it is contemplated that the invention applies equally well to transfers made between two moving objects or locations, even though the preferred application of the invention, that has been described herein, is concerned with transfers from a stationary location to a moving object.

The operation will be described in the order of transferring from the stationary platform **11** to a moving object, such as the boat **26**. However, it should be understood that the reverse procedure of transferring from the movable boat **26** to the stationary platform **11**, may be carried out by reversing the procedure, generally speaking. Since the most difficulty has been encountered heretofore with transferring from the stationary locale to a moving object, it is this order of transfer with which this invention is especially concerned. Therefore, this order of transfer will be considered in the explanation of operation which follows.

Beginning with the personnel transfer vehicle, or platform **28** located on the drilling rig platform **11**, the operation for a transfer of the personnel would be carried out as follows:

After the personnel has stepped onto platform **32** of the vehicle **28**, it will be hoisted and swung out over the side of the rig platform **11**, and held suspended there while the guide line **20** is lowered (through collar **35**) down to the deck of the boat **26**. Then the free end of line **20** will be hooked or otherwise fastened onto the fixture **25** on the deck of the boat **26**. After this, the line **20** will be reeled in until taut; and thereafter sufficient tension will be applied to this guide line **20** to at least keep the line taut until the personnel vehicle **28** has been lowered to within the near vicinity of the boat **26**. The suspended vehicle **28** will be stopped allowing sufficient clearance to avoid any contact with the superstructure of the boat, as it moves about on the waves. Now, a next step will be to shift the suspension of the vehicle **28** from the cable **19** to the guide line **20**. However, before a transfer of the suspending force applied to personnel vehicle **28** is accomplished, the tension on guide line **20** must be applied, or increased, to sufficient amplitude so that the personnel vehicle **28** may be suspended from line **20** with its entire load of goods or personnel. Next, the brake carried by personnel vehicle **28**, which includes the dog **45**, will be applied as the hoisting tension on cable **19** is slacked off. This will cause transfer of the suspending force for personnel vehicle **28**, from cable **19** to the friction braking action that is applied between the collar **35** and the guide line **20**, by reason of the wedging action of dog **45**.

After this transfer has been carried out, the vehicle **28** will be moving up and down in unison with the deck of the boat **26**, while it is suspended above the deck by friction gripping action on guide line **20**. Finally, the remaining distance to the deck of boat **26** may be traversed, by merely releasing the gripping action caused by the dog **45**, sufficiently to allow personnel vehicle **28** to slide smoothly down into gentle contact with the deck of boat **26**. It will be observed that this final gentle lowering of personnel vehicle **28** may be accomplished at any desired speed so as to provide a smooth and gentle contact with the deck of the boat **26**. Such gentle contact is made possible by reason of the suspension of the personnel vehicle **28** from guide line **20** in a frictional manner so that the personnel vehicle **28** is continuously moving in exact synchronism with movements of the deck of the boat **26**, while superimposed upon this synchronous movement is the gradual lowering of the personnel vehicle **28**, by the controlled release of the frictional engagement with the guide line **20**.

It is pointed out that the method of this invention is not limited to the illustrated and described apparatus above, but may be carried out with many other and non-equivalent forms and designs of apparatus with equal facility. Furthermore, many widely different designs of apparatus for carrying out this invention, will become apparent to anyone skilled in the art upon an understanding of the present disclosure.

While certain embodiments of the invention have been shown and described above with particularity, in accordance with the applicable statutes, this is not to be taken as in any way limiting the invention, but merely as being descriptive thereof.

It is claimed:

1. A personnel or object transfer device for transferring from a relatively stationary structure to a moving object, comprising in combination support means for carrying said personnel, hoist means for raising and lowering said support means, guide means detachably fastened to said moving object and extending to said structure, means for applying tension force to said guide means of a magnitude at least equal to the gross weight of said support means when fully loaded, and means for transferring lift of said personnel support means from said hoist means to said guide means.

2. A personnel or object transfer device for transferring from a relatively stationary structure to a moving object, comprising in combination support means for carrying said personnel, hoist means for raising and lowering said support means, flexible guide means detachably fastened to said moving object and extending to said structure, means for applying tension force to said guide means of a magnitude at least equal to the gross weight of said support means when fully loaded, means for frictionally engaging said flexible guide means to transfer lift of said personnel support means from said hoist means to said guide means, said frictional means being adjustable in order to permit controlled descent of said support means while moving in unison with movements of said moving object.

3. A personnel or object transfer device for transferring from a relatively stationary structure to a moving object, comprising in combination platform support means for carrying said personnel, hoist means for raising and lowering said support means, a guide line, means for

detachably fastening one end of said line to said moving object, means for applying tension force to the other end of said line including means for permitting movement of said line in unison with said moving object, and means associated with said platform for frictionally engaging said guide line to support the platform thereby and allow controlled descent of the platform while moving in unison with movements of said moving object.

4. A personnel or object transfer device for transferring from a relatively stationary structure to a moving object, comprising in combination a platform for carrying said personnel, upstanding support members centrally located on said platform, hoist means for raising and lowering said support means including a cable, a guide line, means for detachably fastening one end of said line to said moving object, a guide-way carried by said support members near the top thereof and cooperating with said guide line to determine the path of travel of the platform when near the moving object, means for applying tension force to the other end of said line including means for permitting movement of said line in unison with said moving object, said tension force being at least equal to the gross weight of said platform when fully loaded, friction gripping means associated with said guide-way for engaging said guide line, and means for adjusting the frictional engagement of said gripping means to permit controlled descent of said platform to said moving object while moving in unison therewith.

5. A personnel or object transfer device for transferring from a relatively stationary structure to a moving object, comprising in combination a platform for carrying said personnel, upstanding support members centrally located on said platform, hoist means for raising and lowering said support means including a cable, means for attaching said cable to said support members near the top thereof, a guide line, means for detachably fastening one end of said line to said moving object, a collar fastened to said support members near the top thereof and adapted to have said guide line pass therethrough to determine the path of travel of the platform when near the moving abject, means for applying tension force to the other end of said line including means for permitting movement of said line in unison with said moving object, said tension force being at least equal to the gross weight of said platform when fully loaded, a pivoted dog cooperating with said collar for wedging said guide line



into frictional engagement with said collar, and a handle for actuating said dog to adjust said wedging action to permit controlled descent of said platform to said moving object while moving in unison with the object in superimposed relation to the descending motion.

6. In a method of transferring personnel from a relatively stationary locale to a moving object, wherein said personnel are hoisted from said stationary locale by a vehicle and said vehicle is guided toward said moving object by a flexible guide means attached to the moving object, the steps of applying tension to the guide means sufficient to at least support the gross load of said loaded vehicle, transferring support of the vehicle from the hoist to the guide means, and gradually lowering the vehicle along the guide means into gentle contact with the moving object.

7. An improved method of transferring personnel from a relatively stationary locale to a moving object, wherein said personnel are hoisted from said stationary locale by a vehicle, including the steps of guiding said vehicle in its descent towards said moving object, transferring support for the vehicle from the hoist to the guide, and gradually releasing said support from the guide to allow a gentle descent with no superimposed relative motion between the vehicle and the moving object.

8. An improved method of transferring personnel or goods from a given location to a relatively moving location, including the steps of interconnecting said relatively moving locations by a flexible guide, attaching one end of said guide immovably relative to one of said locations, applying tension force to the other end of said guide at least equal to the gross transfer load, hoisting the load from one location toward the other, transferring support for the load from the hoist to the guide while between the locations, and releasing the support on the guide sufficiently to allow gentle contact with the other location.

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