Nov. 4, 1969 F. COWLISHAW ETAL 3,476,275

TRANSPORTABLE LOAD-CARRYING APPLIANCES

Filed March 27, 1968 3 Sheets-Sheet 1

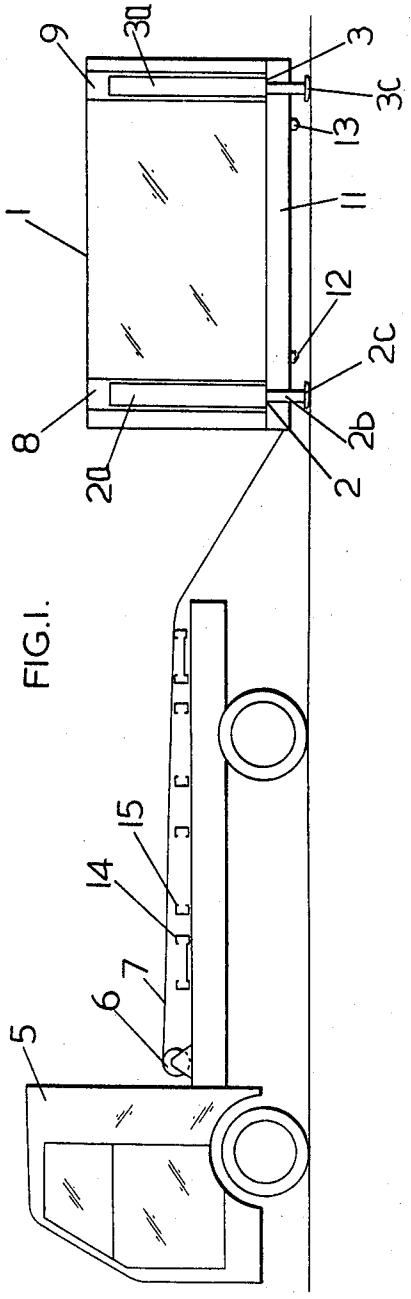


FIG. 1.

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TRANSPORTABLE LOAD-CARRYING APPLIANCES

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FIG.2.

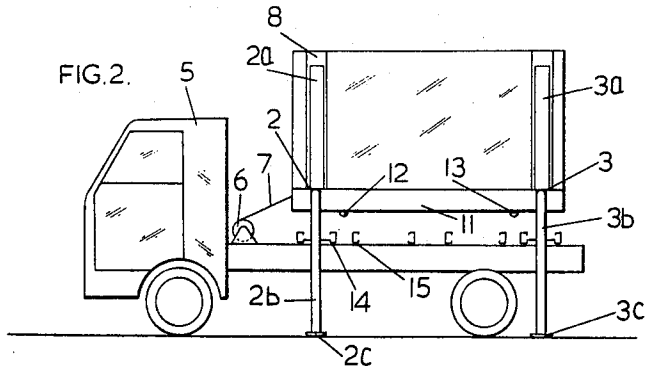
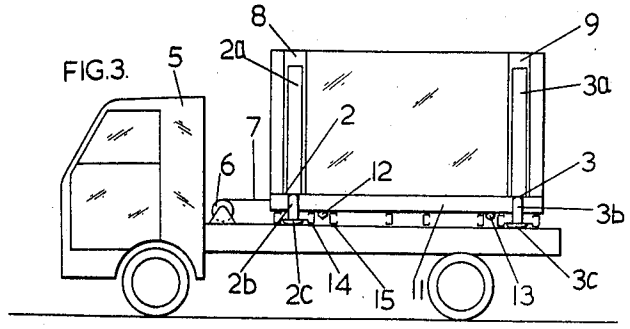



FIG.3.



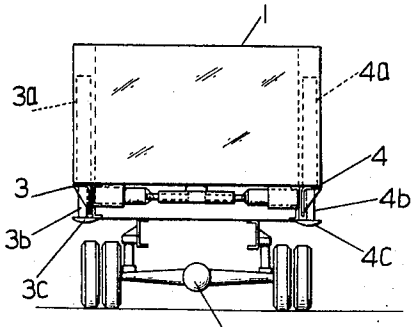




FIG.6.

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TRANSPORTABLE LOAD-CARRYING APPLIANCES

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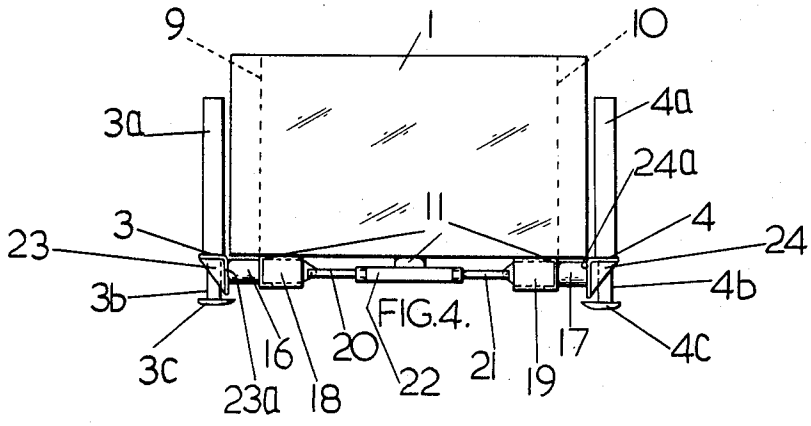


FIG.4.

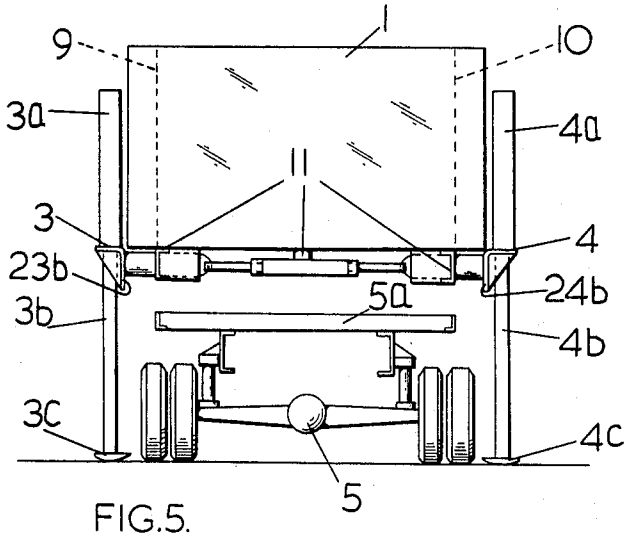


FIG.5.

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3,476,275

# TRANSPORTABLE LOAD-CARRYING APPLIANCES

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Int. Cl. B60p *1/64;* B66f *7/26*
U.S. Cl. 214—517 7 Claims

## ABSTRACT OF THE DISCLOSURE

A transportable load-carrying appliance having legs enabling loading onto and unloading from a transport vehicle and comprising a body structure having hydraulically extendible and contractable legs, with non-rotatable slide and slideway means such as squared shafts and sockets mounting the legs for slidable displacements between inner and outer side positions, and hydraulic or other power operated actuator means connected between the slides and the body structure for effecting the displacements during which the legs remain upright, with abutments on the slides for sideways location of the appliance on the vehicle and feet on the legs for holding the appliance down on the vehicle, and the body structure being a base frame, platform, chassis, container, or room, and when either a container or room the inward movement of the legs is into recesses.

This invention is for improvements in or relating to transportable load-carrying appliances of the kind adapted to be removably received on the chassis of a transport vehicle and having a body structure provided with a plurality of extensible legs at each of the two opposed sides, which legs, when extended, support the body structure from the ground at such a height, and in such manner, that the chassis of the vehicle can be inserted, and withdrawn from, beneath the body structure.

Since a number of individual operations are to be performed of extending and contracting each of the extensible legs, and it is required for the legs to be displaced between operative and inoperative positions, together with operation of locating means for the body structure, it is highly desirable for all these operations to be performed with a minimum amount of time and labour being involved.

An object of the invention is to provide a transportable load-carrying appliance of such improved construction as to fulfill these highly desirable requirements.

The invention provides a transportable load-carrying appliance of the type specified, having the legs hydraulically extensible and contractable, slide and slideway means mounting the legs for slidable displacements between inner inoperative positions and outer operative positions, power operated actuator means for effecting said displacements, rotation-inhibiting means adapting the mounting means to hold the legs substantially upright before, after and during the displacements. The body structure may be a base frame, platform or chassis or a container or room.

By "inner operative positions" there is meant positions which the legs occupy during transport of the appliance by the vehicle; by "outer operative positions" there is meant positions which the legs occupy when they are extended, or are to be extended to support the appliance from the ground.

Conveniently locating means are displaceable with the legs, and are arranged to cooperate, in the inoperative positions of the legs, with abutments on the vehicle to locate the appliance on the latter. The locating means may be arranged to locate the appliance sideways in



relation to the vehicle chassis. Conveniently the locating means are arranged to hold the appliance down onto the vehicle chassis. The actuator means may be transverse hydraulic jack means incorporated in a hydraulic circuit with the hydraulic legs whereby the legs are displaced and locating means are operated hydraulically.

In one arrangement the locating means may comprise abutments depending from the outer ends of the slides for locating the appliance sideways in relation to the vehicle, and inwardly projecting feet on the legs for holding the appliance down onto the vehicle.

In one arrangement, transverse hydraulic jack means are mounted on the underside of the body structure, the legs are connected to slides which are connected to the transverse hydraulic jacks, the slides are mounted in slideways, and the slides and slideways are of square section or are otherwise inhibited from the relative rotation. Conveniently the lower ends of upper cylinder components of the legs are connected to the slides thereby enabling the body structure to be lowered to the ground. Conveniently also the connections between the legs and the slides are angle brackets which have downwardly projecting locating abutments for sideways location of the appliance.

In the instance of a container, this is formed with upright recesses into and out of which the legs are displaced.

The above and other features of the invention set out in the appended claims are incorporated in the constructions which will now be described, as a specific embodiment with reference to the accompanying drawings in which:

FIGURE 1 is a side view of a transportable load-carrying appliance according to the invention behind a lorry.

FIGURE 2 is a similar side view to FIGURE 1 with the appliance raised on legs and the lorry platform backed under the appliance between the legs.

FIGURE 3 is a similar view to FIGURES 1, 2 with the appliance lowered onto the lorry platform.

FIG. 4 is an end view of the appliance of FIGURE 1.

FIGURE 5 is an end view of FIGURE 2.

FIGURE 6 is an end view of FIGURE 3.

Referring to FIGURE 1 a transportable load-carrying appliance comprises in this instance a container body **1** having legs, such as **2**, **3**, and **4** in FIGURE 4, of vertical hydraulic jack form. The container is for loading primarily onto a lorry **5** having a reel **6** of flexible hydraulic hose **7** powered from the lorry and for attachment to the container for control of the legs.

The leg cylinders such as **2***a*, **3***a*, **4***a* are disposed opposite vertical recesses such as **8**, **9**, FIGURES 1 to 3, and **10**, FIGURES 4 to 5.

The leg rams such as **2***b*, **3***b*, **4***b* have feet members **2***c*, **3***c*, **4***c*.

On the underside of a framework **11** under the container body **1** are tapered lugs such as **12**, **13** for engaging between girders such as **14**, **15** on the lorry.

Referring to FIGURE 4 the leg cylinders such as **3***a*, **4***a* are connected to slides such as **16**, **17** mounted in slideway sleeves such as **18**, **19** secured to the framework **11**.

The inner ends of the slides **16**, **17** are connected to outer ends of transverse hydraulic jacks **20**, **21**, a central common cylinder **22** of which is secured to the framework **11**.

The connections between the leg cylinders such as **3***a*, **4***a* and the slides such as **16**, **17** are through the medium of angle brackets such as **23**, **24**.

Vertical walls **23***a*, **24***a* of the angle brackets depend below the level of the underside of the frame **11**.

In the starting position of FIGURES 1 and 4, the legs are contracted with the transverse hydraulic jacks extended to dispose the legs in an outer position clear of the recesses

such as **8**, **9**, **10** and wider apart than the overall width of the lorry.

When required, the legs are extended, FIGURES 2, 5, to raise the container body **1** to a sufficient height from the ground to allow backing of the lorry platform under the container body and between the legs, as shown.

The legs are then contracted to lower the container body onto the lorry platform, during which the tapered lugs **12**, **13** engage between the girders such as **14**, **15**.

Continued contraction of the legs causes the leg rams to raise clear of the ground and when they reach a height above the lorry road wheels, the transverse hydraulic jacks are contracted.

By this means the leg cylinders are caused to enter into the recesses such as **8**, **9**, FIGURE 3 so as not to project from the sides of the container body which can be therefore of maximum permissable width.

The feet members **2***c*, **3***d*, **4***d*, eventually engage the underside edges of the lorry girders such as **5***a*, and the depending plate extensions **23***b*, **24***b* eventually engage the side edges of the lorry girders such as **5***a*.

It will be appreciated that final contraction of the transverse hydraulic jacks **20**, **21** will pull the container body **1**, if it is off centre, into centralized position on which it becomes firmly fixed, and the final raising of the leg rams will lock the container down onto the lorry platform.

It will be appreciated without further detailed description how, by suitable reversal of the operations, the container can be unloaded from the lorry.

The hydraulic jacks are provided in a hydraulic circuit constructed and operated as disclosed for example in our copending application, Ser. No. 702,269 to which reference is directed for full details.

The container may be also adapted for running on rails in the manner also disclosed in said patent.

Instead of a container the body structure may be a caravan or other room, or a platform or chassis, or a base frame such as further disclosed in said patent and which may carry a shed, greenhouse or the like.

What we claim is:

**1.** A transportable load-carrying appliance having legs enabling loading onto and unloading from a transport vehicle comprising; a body structure having hydraulically extendible and contractable legs, slide and slideway means mounting the legs on the body structure for non-rotatable displacement between inner and outer side positions, power operated actuator means for effecting said displacements, abutments on the slide means for centrally locating the body structure sideways on the vehicle and inwardly projecting feet on the legs for holding the appliance down onto the vehicle in the loaded position.



**2.** An appliance according to claim **1** wherein the body structure is a base frame, platform, chassis, container, or room.

**3.** An appliance according to claim **1** wherein the actuator means are hydraulic jacks incorporated in a hydraulic circuit with the hydraulic legs whereby the hydraulic legs are displaced and the locating means are operated hydraulically.

**4.** An appliance according to claim **1** wherein the transverse hydraulic jack means are mounted on the underside of the body structure, the legs are connected to slides circuit with the hydraulic legs whereby the hydraulic legs the slides are mounted in slideways, and the slides and slideways are of square section or are otherwise inhibited from the relative rotation.

**5.** An appliance according to claim **1** wherein the lower ends of upper cylinder components of the legs are connected to the slides thereby enabling the body structure to be lowered to the ground.

**6.** An appliance according to claim **1** wherein the connections between the legs and the slides are angle brackets which have downwardly projecting locating abutments for the sideways location of the appliance.

**7.** An appliance according to claim **1** wherein said body structure is a container and formed with upright recesses into and out of which the legs are displaced.

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U.S. Cl. X.R.

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