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Container Lift System

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The handling of containers doesn't pose a particular problem when suitable infrastructures such as cranes, straddle carriers, reach-stackers or large forklifts are available, for example in hubs such as train yards, container terminals and large distribution centers. However this heavy duty equipment is typically capital intensive and is not always suited, or able to be efficiently transported, to the many locations ay which containers are packed, unpacked or otherwise handled.

Various mobile equipment is used to facilitate container transport to and handling at these locations. Mainstream examples of this equipment include:

- specialised self-loading container trailers
- truck cranes
- tilt bed or tilt deck trailers

All of the heavy duty container handling equipment described above suffers from a variety of limitations, which may include:

- high cost
- lack of portability
- high tare weight
- inability to handle heavy containers
- inability to handle all container types
- requirement of a high or wide space in which to operate
- requirement of a concrete or other reinforced surface on which to operate

And recognising that conventional container handling equipment is typically big, heavy and expensive, New Zealand-based BISON has introduced a compact, portable and more economical alternative aimed at extending the benefits of intermodal logistics to new frontiers.

A portable container lift system includes a hydraulic linear actuator and a mounting arrangement for mounting the actuator to a shipping container. The system P32 includes a number of portable components that can be handled by a single worker (Figure 1).

The BISON P-32 is easily transported between sites, sets up in minutes and allows containers of all sizes and weights up to 32 tons (70,000 lb.) to be lifted on and off trailers safely and efficiently.

In its simplest form, the system P32 can attach to the four corners of a container and lift a container a small height off the ground, enabling the weight at each corner of the container to be measured by sensors.

The convenience and efficiency provided by the use of ISO standardized containers for freight handling has led to their ubiquitous use throughout the world, on ocean, railroad and road.

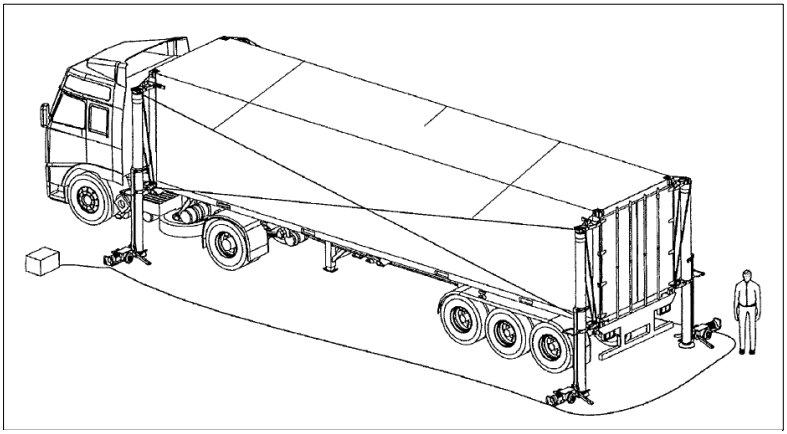

Figure 1 – A shipping container lift system, mounted to a shipping container which is located on a truck-trailer

It provides specialized lifting legs, which are attached to standard features of containers, such as the corner fittings in ISO containers, and enable the container to be raised vertically to a height that allows a truck-trailer to be positioned or removed from under the container.

A portable container lift system includes weighing system, which include a hydraulic linear actuator and a mounting arrangement for mounting the actuator to a shipping container. The system may provide a means for weighing the container. The weight of containers and containerized freight can be measured using industrial weighting equipment or the P32 lift system [1].

A key part of the P32 design is BISON's patent pending lift and lock mechanism, which reduces the size of the hydraulic system considerably, but still, enables heavy containers to be elevated 1.65 meters (65 inches) off the ground. This in turn reduces the size, weight and cost of the system. Importers and exporters can lift and ground containers more economically in factories or warehouses. Military, aid and project logistics operators can use the P32 to get containers in and out of remote locations more easily, avoiding reliance on local infrastructure.

References:

1. Mark, J.F. Container lift and / or weighing system / J.F. Mark, H.M. Carsten. – Patent. – No.: WO 2015/026246 A2.