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Johansson et al.

[11] **3,799,601**

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[54] **SPREADER FOR CARGO CONTAINERS**

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[30] **Foreign Application Priority Data**

May 4, 1971 Sweden 5743/71

[52] **U.S. Cl.** ..... **294/81 SF**, 294/67 DA

[51] **Int. Cl.** **B66c 1/66**

[58] **Field of Search** ..... 294/67 R, 67 DA, 81 SF; 24/221 R, 221 A; 105/366 R, 366 B, 366 C, 366 E; 248/119 R, 361 R; 287/2, 103 R; 296/35 R, 35 A

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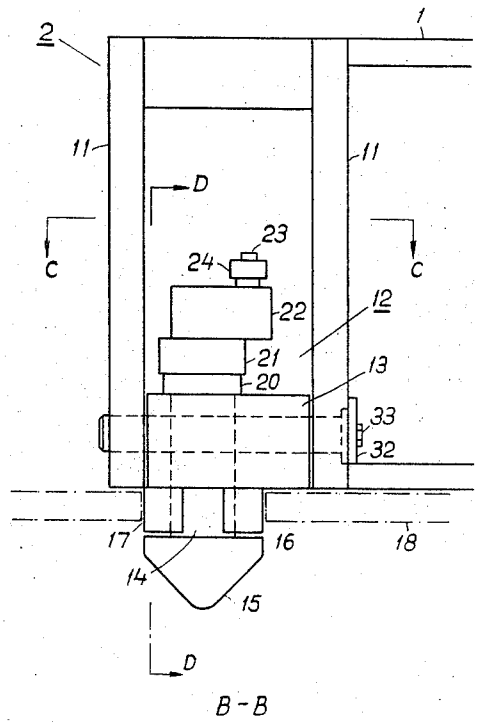
Primary Examiner—Richard E. Aegerter

Assistant Examiner—Johnny D. Cherry

[57] **ABSTRACT**

A spreader for handling unit containers includes a frame with recesses in the corners, and an exchangeable unit secured within each of the recesses with a pivotable, vertical lifting latch for insertion into a hole in a corner fitting in a container. The pivotable latch is turnable in a block which is adjustable in both horizontal directions with respect to the recess. The latch has a cross piece at its bottom for engagement beneath the top wall of the container after passing through an opening therein.

6 Claims, 5 Drawing Figures



B-B

Fig. 1

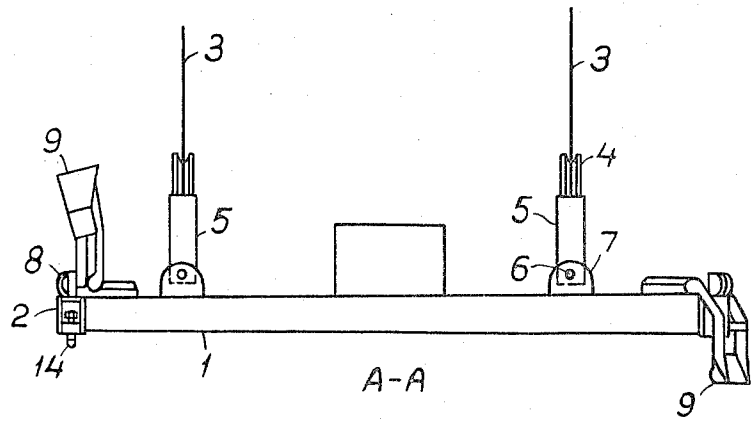


Fig. 2

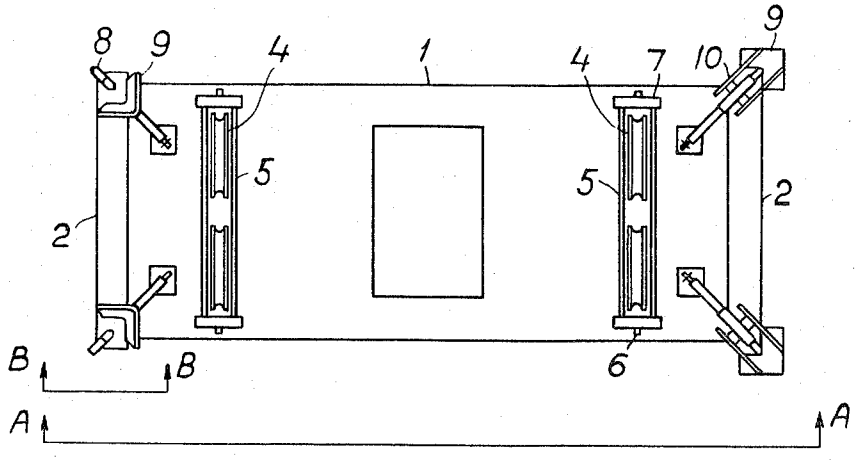
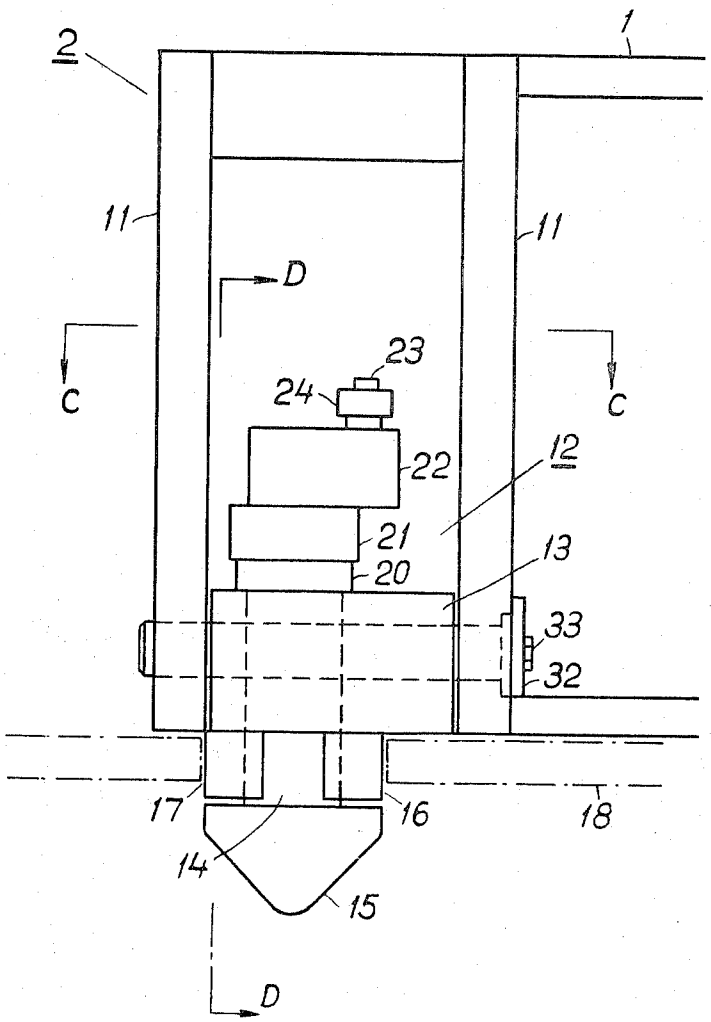
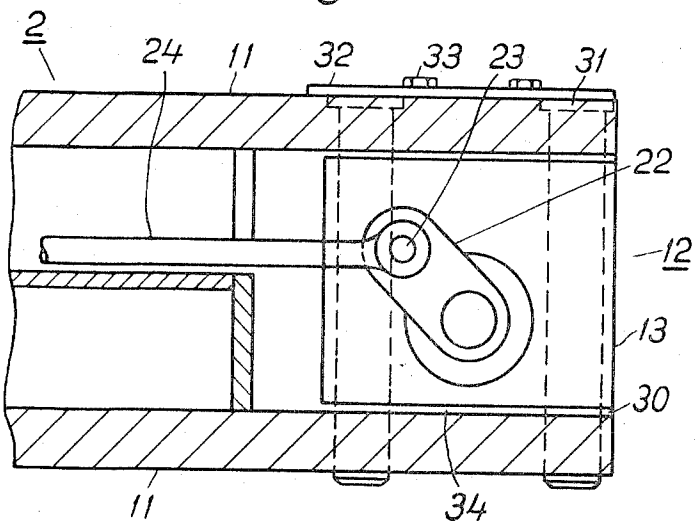


Fig.3



B - B

Fig. 4


2
24
11
32
33
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31
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12
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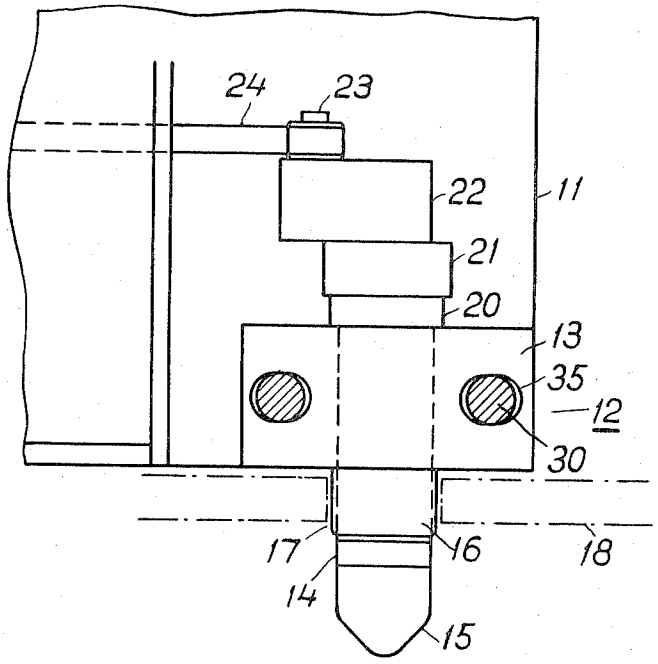
11
34

c-c

Fig. 5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SPREADER FOR CARGO CONTAINERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a spreader for handling unit containers with holes in the corner fittings.

2. The Prior Art

A cargo container is a unit container designed in such a way that it can easily be handled with various mechanical aids. So that it can be handled by crane the container is usually provided with corner fittings having three elongated holes. When the containers are being moved by cranes in ports and storage places they are usually handled with the help of spreaders provided at the corners with vertical lifting latches having a T-shaped end, which are inserted into the top holes of the corner fittings and turned so that the T-shaped points of the latches keep together spreader and container. The containers are standardised. Swedish standard SIS 842101 corresponds to ISO R 668 and ISO DR 1019.

Unfortunately approximately half of the cargo containers in use are not designed in accordance with this standard. For example, the distance between the holes in the corner fittings differs slightly. For this reason lifting yokes are used having latches placed in different positions for containers designed according to different standards. The spreaders are relatively expensive and duplication is therefore a not inconsiderable extra expense for the handling equipment. Furthermore, exchanging spreaders involves both costs and loss in time.

SUMMARY OF THE INVENTION

The present invention relates to a spreader for handling cargo containers which are provided with lifting holes in which latches having T-shaped ends are inserted and then turned so that spreader and container are connected together. So that the spreader can be used for containers having different distances between the lifting holes in the corners, the frame of the spreader is provided with an exchangeable corner unit having a vertically journalled, pivotable latch pin. The corners of the spreader frame may have a slit with two vertical walls between which said corner unit can be inserted and locked with bolts or lock which can easily be inserted or operated. It may, for example, consist of a plate in which the latch is journalled. The plate may have two horizontal holes and be fixed between the vertical walls in the frame of the spreader by horizontal bolts inserted through holes in the walls and holes in the plate. This connection of the exchangeable corner unit is particularly favourable with respect to the space requirement. Particular characteristics of the invention are the provision of an arrangement by which the unit may be adjusted in both horizontal directions with respect to the frame recess in which it is mounted.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be further described with reference to the accompanying drawings. FIGS. **1** and **2** show a spreader seen from the side and from above, respectively, FIG. **3** shows on a larger scale a side view of a corner according to B—B in FIG. **2**, FIG. **4** a section according to C—C in FIG. 3 and FIG. **5** a section on the line D—D in FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the drawings **1** designates a frame having transverse beams **2** at the short sides. The spreader is suspended in cables **3** in a crane, not shown. The cables run over pulleys **4** journalled in holder **5** which by means of shafts **6** are journalled in lugs **7** in the frame **1**. The spreader is provided at the corners with guiding rollers **8** to guide the spreader when it is lowered into a ship cell structure. It is also provided with guides **9** which are flexibly journalled about shafts **10** in the spreader frame and can be operated between the position shown in the lefthand part of FIGS. **1** and **2** and the position shown in the righthand parts of said Figures.

The outermost parts of the end beams **2** have two vertical walls **11**. Between these a corner unit **12** can be inserted. This consists of a plate **13** in which a latch **14** having a T-shaped lower part **15** is pivotably journalled. The plate **13** is provided with two projecting guides **16** which partly surround the cylindrical part of the peg **14** projecting below the plate **13**. These guides are shaped to substantially fill the elongated holes **17** in the corner fittings **18** of a container. They support and protect the latches **14** during the connection procedure and prevent the latches **14** from being displaced so that the point **15** catches into the corner fitting **18** when the spreader is to be released from the container. The latch **14** is provided with a ring **20** which transfers the lifting force from the latch **14** to the plate **13**. The ring **20** is locked with a ring **21**. The latch **14** is also joined with a crank lever **22** having a pin **23** for connection of an operating rod **24** operated by means of an actuating mechanism, not shown. By means of this crank lever, the latch **14** can be turned 90° between the position shown in the drawings and the other position in which the T-shaped end of the latch grips against the inner surface of the corner fittings at the side of the elongated holes. The corner unit **12** is connected to the walls **11** by means of two bolts **30** provided at one end with a head **31**. The bolts are locked by means of a locking plate **32** which is attached on one of the walls **11** by means of bolts **33**. Between the plate **13** and the walls **11** is a gap **34**. The unit **12** can thus be moved to a limited extent between the walls **11**. The holes **35** for the bolts **30** are slightly elongated. The unit **12** is therefore also slightly movable perpendicular to the longitudinal axis of the bolts.

In the most usual cargo containers the difference in distance between the top holes of the corner fittings is relatively limited. By means of the invention it is possible to use the same spreader for different cargo containers by exchanging the units **12** intended for one container type for the unit **12** for another container type. This involves a considerable saving. Four extra connection units cost only a fraction of the cost of an extra spreader. The difference between the units for the various types of containers is the positioning of the latch **14** in the plate **13**. The size of the plate **13** and the distance between the walls **11** must of course be adjusted so that desired variations in measurement can be obtained.

We claim:

1. Spreader for handling unit containers comprising a frame provided with a recess in each of its corners, a plurality of removable units each composed of a car-

rier plate and a vertical latch pivotably journalled in each carrier plate about an axis fixed with respect to the carrier plate, and locking means for releasably securing one of the units in each of the recesses, whereby different spacing of the latches in the frame can be accomplished by using carrier plates with different locations of the latches therein.

2. Spreader according to claim **1,** in which means are provided permitting the exchangeable unit to move to a limited extent in at least one horizontal direction in relation to the frame structure.

3. Spreader according to claim **1,** in which the corners of the frame of the spreader have two vertical walls between which the unit is inserted constituting such recesses.

4. Spreader according to claim **3,** in which said locking means comprises bolts attaching the unit to the frame of the spreader, said bolts passing through said walls and the plate of the unit.

5. Spreader according to claim **4,** having between the plate and the walls sufficient clearance to permit the unit to be moved to a limited extent along the bolts.

6. Spreader according to claim **5,** in which the plate is provided with holes of elongated cross-section permitting the unit limited movement perpendicular to the bolts.

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