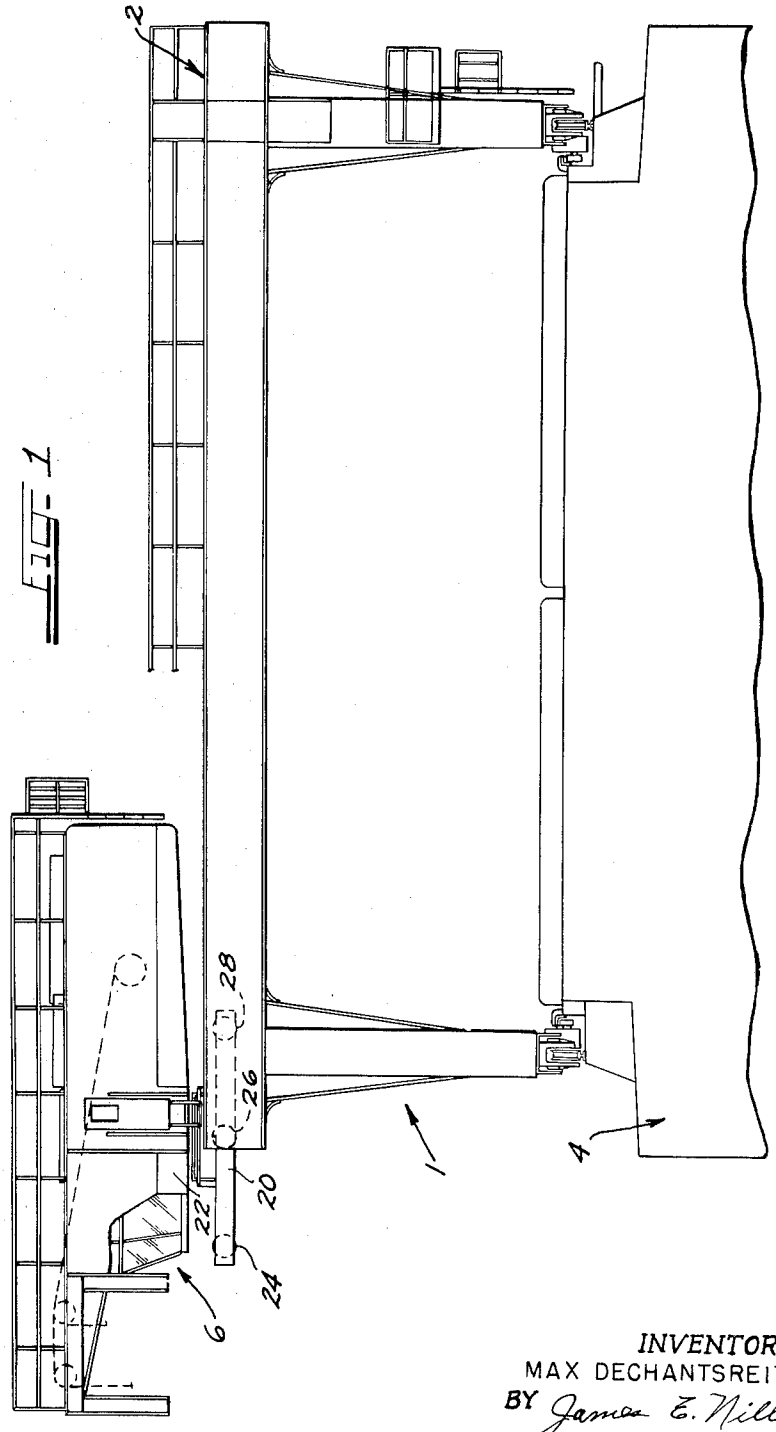
April 26, 1966 M. DECHANTSREITER 3,248,487

SHIPBOARD CARGO TRANSFERRING APPARATUS HAVING AN ELECTRICAL CABLE SUPPORTING MEANS

Original Filed July 11, 1963 2 Sheets-Sheet 1

FIG. 1



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FIG. 2

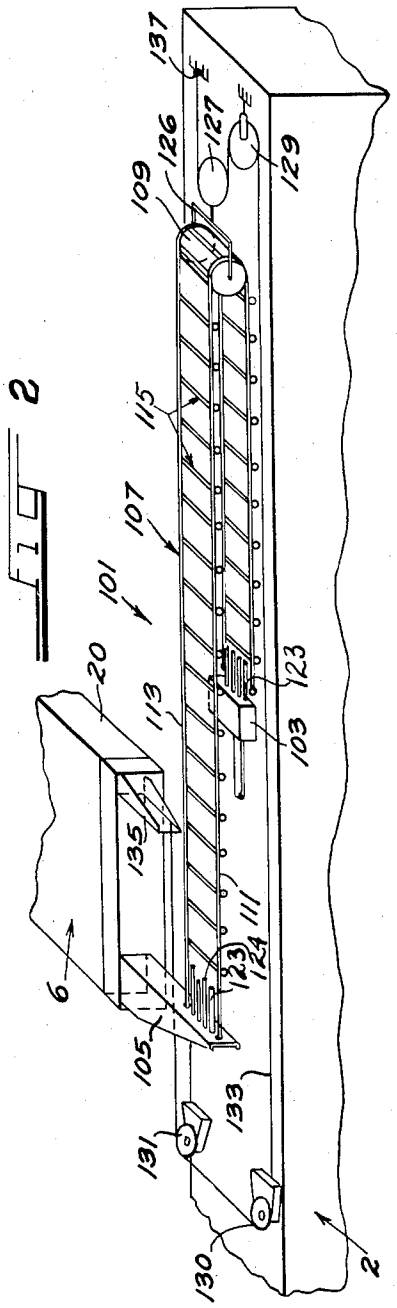
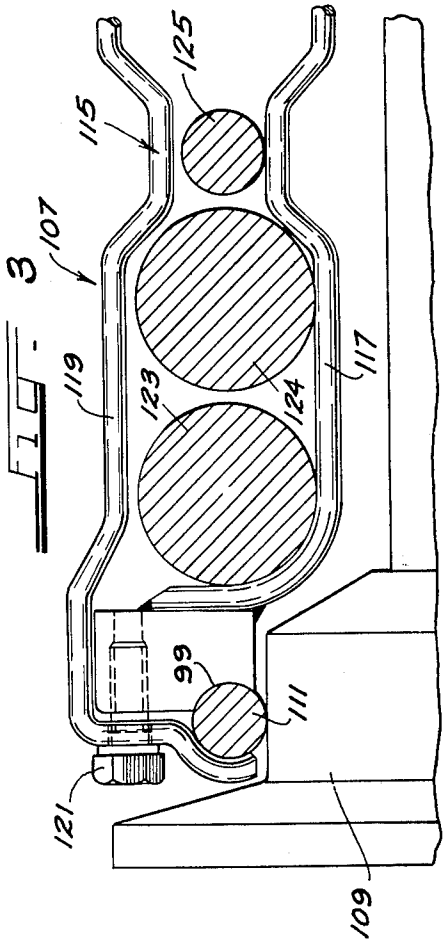


FIG. 3



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SHIPBOARD CARGO TRANSFERRING APPARATUS HAVING AN ELECTRICAL CABLE SUPPORTING MEANS

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Original application July 11, 1963, Ser. No. 294,329, now Patent No. 3,190,456, dated June 22, 1965. Divided and this application Dec. 28, 1964, Ser. No. 421,412
3 Claims. (Cl. 191—12)

This invention relates generally to shipboard cargo transferring apparatus and more particularly to such an apparatus of a travelling U-type gantry construction which is capable of fore and aft translational movement relative to the vessel and which is provided with a rotatable trolley designed for athwartship port and starboard translational movement so as to load and unload containers at any desired point of the vessel and on either side thereof.

This is a divisional application of our co-pending U.S. Serial No. 294,329 filed July 11, 1963, entitled "Shipboard Cargo Transferring Apparatus" which issued on June 22, 1965, as Patent Number 3,190,456.

An object of the present invention is to provide a shipboard cargo transferring apparatus of the above type having a power loop cable carrying system which maintains the electrical cables interconnecting the movable trolley and the relatively stationary gantry crane in a tensionless, non-wearing disposition.

Other objects, advantages and features of the subject invention will hereinafter appear, and, for purposes of illustration, but not of limitation, an exemplary embodiment of the subject invention is shown in the appended drawings, in which:

FIGURE 1 is a transverse elevational view from aft to fore of a deck of a vessel equipped with a shipboard cargo transferring apparatus constructed in accordance with the subject invention;

FIGURE 2 is a schematic diagram of a power loop arrangement for handling the electrical cables leading to the trolley; and

FIGURE 3 is an enlarged fragmentary schematic view of a cable carrier employed in the power loop system.

General arrangement

With reference to the drawings, the numeral **1** generally designates a shipboard cargo container transferring apparatus produced in accordance with the subject invention. The apparatus **1** comprises a travelling U-type gantry crane **2** which is mounted on the deck **4** of a ship for movement relative thereto. The gantry crane **2** is adapted for fore and aft translational movement relative to the deck **4** and a trolley assembly **6** is mounted on the crane **2** for athwartship port to starboard translational movement relative to the deck **4** and for rotational movement to face either the port or starboard sides.

Translatable lower trolley frame

The trolley assembly **6** comprises a lower trolley frame **20** which is adapted for athwartship port to starboard translational movement and an upper revolvable trolley frame **22** for rotational movement relative to the lower trolley frame **20**, as hereinafter described. The opposite ends of the lower trolley frame **20** are provided with suitably journalled pairs of rim-wheels **24, 26, 28.**

Power loop system

In accordance with the present invention, means are provided for feeding electrical cables between the relatively stationary gantry crane **2** (FIGURES 1, 2) and the moving trolley assembly **6.** In the described embodiment, these means, which are illustrated in FIGURES 2 and 3, comprise a junction box **103** which is affixed to the gantry crane **2** and a junction box **105** which is affixed to the lower frame **20** of the trolley assembly **6.** A ladder-like cable carrier assembly **107** is affixed to the junction boxes **103** and **105** and is trained about a loop drum **109.** The assembly **107** comprises two parallelly aligned cables **111** and **113** with a series of interconnecting cable carriers **115.**

As best seen in FIGURE 3, the cable carriers **115** each comprise a lower cable support member **117** and an upper cable support member **119** which are interclamped, as by a bolt assembly **121.** The members **117** and **119** are also secured to the cables **111, 113,** as indicated at **99** in FIGURE 3. In this manner, flexible electrical cables, such as the cables **123–125** schematically illustrated in FIGURE 3, may be sandwiched between the members **117, 119** for appropriate connection to the respective junction boxes **103** and **105.**

A bail **126** is connected to the loop drum **109,** and a bridle sheave **127** is affixed to the bail **126.** Dead-end sheaves **129, 130,** and **131** are each affixed to the gantry crane **2.** A tension cable **133** is affixed at one end to an extension **135** of the trolley assembly **6** and is trained about the successive sheaves **131, 130, 129,** and **127,** and is dead-ended on the gantry crane **2,** as indicated at **137.**

In this manner, translational movement of the trolley assembly **6** relative to the gantry crane **2** will provide for self-adjusting tensioning of the carrier assembly **107** since the tension on the cable **133** (and therefore the tension on the sheave **127**) is a function of the relative positioning of the trolley assembly **6** and the gantry crane **2.** It should be noted that virtually no tension is placed on the supported cables **123–125** themselves, since all the tensile load is carried by the cables **111, 113.** Also, wear and abrasion of the cables **123–125** is minimized in the supported state since no slippage of the cables relative to the carriers **115** is evidenced, notwithstand the tensioned repositioning of the assembly **107** as the trolley assembly **6** moves relative to the gantry crane **2.**

As the trolley assembly **6** is thus moved in the port or starboard directions, the power loop system provided by the present invention and illustrated in FIGURES 2 and 3 maintains electrical connection between the junction box **105** of the trolley assembly **6** and the junction box **103** of the gantry crane **2** without imposing tension upon the connecting electrical cables themselves and without affording any opportunity for slippage of the electrical cables relative to a wear surface.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. A power loop system for feeding flexible cables between a stationary and a movable member comprising:

a junction box on the stationary member;

a junction box on the movable member;

a cable carrier assembly interconnecting the said junction boxes and comprising two parallelly aligned tension cables and a series of cable carriers extending transversely therebetween;

flexible electrical cables interconnecting the respective junction boxes and loosely supported by the said cable carriers;

a loop drum, the said cable carrier assembly being trained about the loop drum;

a bridle sheave;

means connecting the loop drum and the bridle sheave;

sheave means dead-ended on the stationary member; and

a tension cable which is dead-ended at one end at the movable member and at its opposite end at the stationary member and which is trained about the sheave means of the stationary member and about the bridle sheave attached to the loop drum;

whereby self-adjusting non-tensioned feed of the carried electrical cables may be achieved.

2. Shipboard cargo transferring apparatus comprising, a gantry crane and a trolley movable in respect thereto, a power loop system for feeding flexible cables between said crane and movable trolley comprising:

a junction box on the crane member;

a junction box on the trolley member;

a cable carrier assembly interconnecting the said junction boxes and comprising two parallelly aligned tension cables and a series of cable carriers extending transversely therebetween;

flexible electrical cables interconnecting the respective junction boxes and loosely supported by the said cable carriers;

a loop drum, the said cable carrier assembly being trained about the loop drum;

a bridle sheave;

means connecting the loop drum and the bridle sheave;

sheave means dead-ended on the crane member; and

a tension cable which is dead-ended at one end at the trolley member and at its opposite end at the crane

member and which is trained about the sheave means of the crane member and about the bridle sheave attached to the loop drum;

whereby self-adjusting non-tensioned feed of the carried electrical cables may be achieved.

3. Apparatus as set forth in claim 2 including means for clamping said cable carriers to said tension cables to hold said tension cables in properly spaced apart relationship whereby said carriers support said electrical cables for travel with said tension cables and with no relative slippage between said electrical cables and said carriers.

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