

[54] **MULTI-PURPOSE RELEASABLE CONNECTOR**

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[22] Filed: **Oct. 24, 1972**

[21] Appl. No.: **300,183**

[52] U.S. Cl. **403/79, 403/91, 403/110, 403/158, 403/161**

[51] Int. Cl. **B25g 3/38**

[58] Field of Search 403/79, 91, 110, 145, 149, 403/157, 158, 161, 162, 163; 24/201 S, 201 SL, 230 LP, 248 SP, 243 B; 16/129, 149, 166

[56] **References Cited**

UNITED STATES PATENTS

150,091 4/1874 Smith 403/161 X

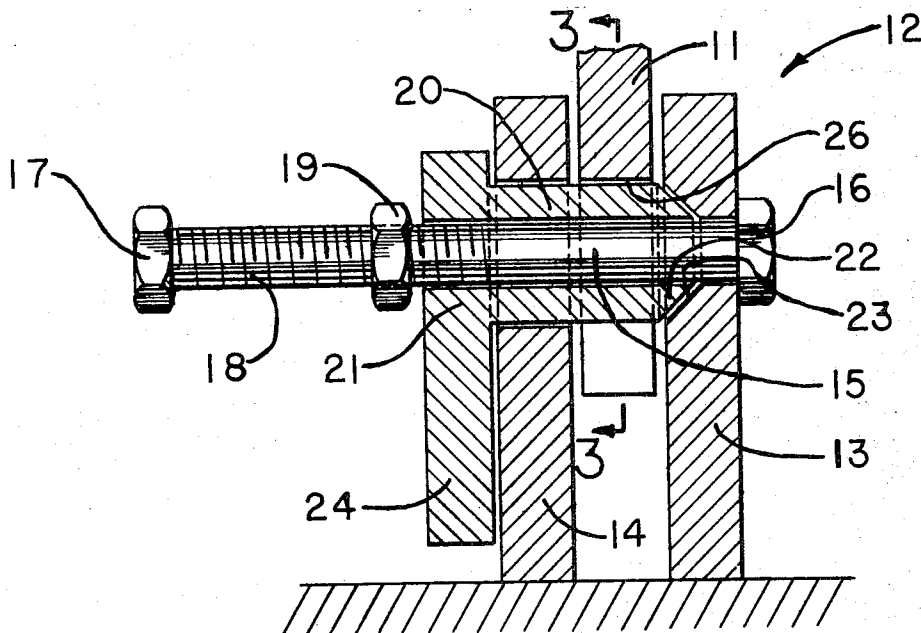
3,496,795 2/1970 Dinnendahl 403/158 X

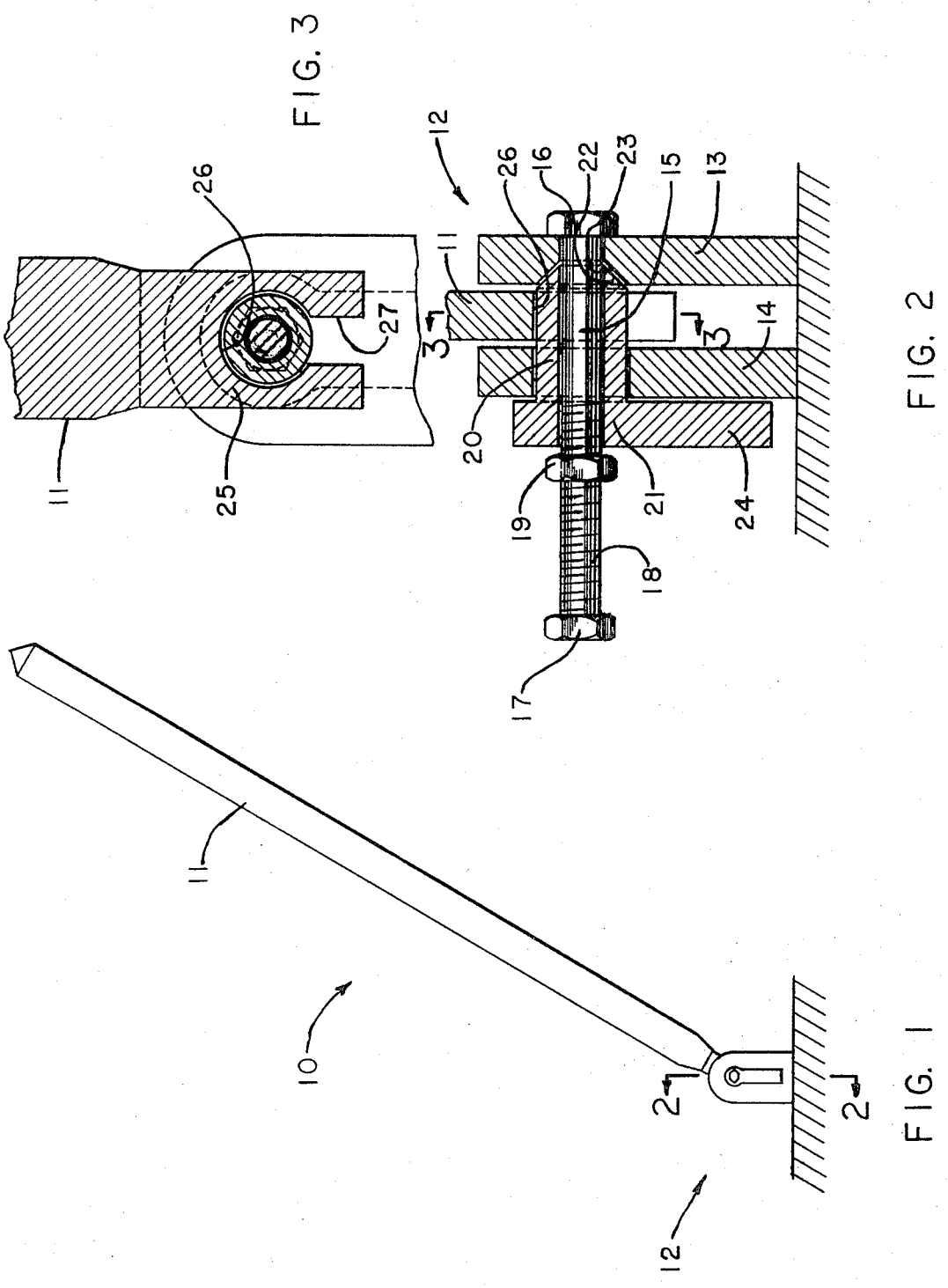
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[57] **ABSTRACT**

A releasable connector has the mast of a gin-pole derrick movably mounted thereon. The connector comprises a horizontally disposed pin mounted between laterally spaced support brackets and a bushing, loosely mounted on the pin. A lock nut is threadably mounted on the pin to permit selective axial movement of the bushing for removing the gin-pole mast therefrom.

8 Claims, 3 Drawing Figures





MULTI-PURPOSE RELEASABLE CONNECTOR

BACKGROUND OF THE INVENTION

A gin-pole derrick comprises a mast having guys secured to its upper end and arranged to permit the mast to lean in any desired inclination relative to ground level. A load may be raised or lowered by ropes leading through sheaves or blocks, also attached to the top of the mast. The lower end of the mast is normally attached to a support bracket by a removable pivot pin. A common problem with such conventional derricks is that the pin is oftentimes lost upon removal thereof for purposes of replacing the mast.

SUMMARY OF THE INVENTION

An object of this invention is to overcome the above, briefly described problem by providing an economical releasable connector adapted to expeditiously release an interchangeable, supported member while yet preventing the inadvertent removal of a supporting pin assembly from the connector. The connector comprises upstanding and laterally spaced support brackets having a pin mounted therebetween and a bushing mounted on the pin. Locking means normally retains the bushing in a fixed axial position relative to the pin. In the preferred embodiment the supported member, such as a gin-pole mast, has a keyhole slot suitably formed through a lower end thereof to permit removal of the member when the bushing is moved axially upon release of the locking means.

BRIEF DESCRIPTION OF THE DRAWING

Other objects of this invention will become apparent from the following description and accompanying drawings wherein:

FIG. 1 is a side elevational view of a mast for gin-pole derrick pivotally mounted on a releasable connector embodiment of this invention;

FIG. 2 is an enlarged, cross sectional view of the connector taken in the direction of arrows II—II in FIG. 1; and

FIG. 3 is a sectional view taken in the direction of arrows III—III in FIG. 2.

DETAILED DESCRIPTION

As shown in FIG. 1, a partially illustrated gin-pole derrick 10 comprises a mast 11 pivotally mounted on a releasable connector 12. In use, the connector can be mounted on the flat bed of a truck or at a dockside to have guys and sheaves or blocks attached to the top end of the mast for the purpose of raising or lowering loads therewith. However, it should be understood that the hereinafter described connector is adapted for use in many other applications wherein it is desired to releasably connect a supported member thereon.

Referring to FIGS. 2 and 3, the connector comprises upstanding and laterally spaced support brackets 13 and 14 having an elongated pin 15 mounted therebetween. The pin may take the form of a bolt having heads 16 and 17, one of which may comprise a fixed nut, secured on opposite ends thereof. Although the pin is loosely mounted on the brackets it could be secured at head 16 to bracket 13 if so desired.

A threaded portion 18 is formed on the bolt, adjacent to head 17. A lock nut 19, positioned exteriorly of and closely adjacent to bracket 14, is mounted on threads

18 to be moved axially thereon to provide releasable locking means for purposes hereinafter described. It should be understood that other forms of releasable locking means, such as a cotter pin (not shown) extending through pin 18, could be used in lieu of nut 19 for normally preventing a bushing 20 from moving axially relative to the pin.

The bushing is loosely mounted on pin 15 and has a length which is approximately equal to the lateral distance between brackets 13 and 14, but is substantially less than the length of the pin. An enlarged head 21 is formed on a first end of the bushing to normally abut the outside of bracket 14 and lock nut 19 when the connector is in its illustrated locked position. The second, opposite end 22 of the bushing may be conically shaped to mate with a conically shaped seat 23, formed on the inside of support 13. If so desired, a handle 24 may be secured to head 21 of the bushing to provide means for selectively moving the bushing axially upon release of lock nut 19.

As shown in FIG. 3, member 11 terminates at its lower end in a flange portion 25 having a keyhole slot formed therethrough. The slot comprises a circular aperture 26 having a diameter slightly larger than the outside diameter of bushing 20 and a coextensive slot portion 27 having a width slightly larger than the outside diameter of pin 15, but smaller than the diameter of aperture 26.

In operation, when it is desired to remove mast 11 from connector 12, a wrench is placed on lock nut 19 to move it axially leftwardly in FIG. 3. The lock nut is moved a distance at least totalling the combined width of flange portion 25 (FIG. 2) and the axial length of conical section 22 of bushing 20. The bushing is thereafter moved leftwardly a like amount to permit removal of member 20 from pin 15. As mentioned above, slot 27 has a width (FIG. 3) which is slightly greater than the outside diameter of pin 15 to permit the member to be removed therefrom. The above procedure would be reversed for the mounting of another mast on the connector.

What is claimed is:

1. A releasable connector comprising upstanding and laterally spaced support brackets, a pin mounted between said support brackets, a bushing mounted on said pin, and locking means for normally retaining said bushing in a fixed axial position relative to said pin and for selectively releasing said bushing to permit it to be moved axially a substantial distance relative to said pin,

said locking means comprising a nut threadably mounted on said pin and positioned exteriorly of and closely adjacent to one of said brackets and wherein a first end of said bushing comprises an enlarged head positioned between said nut and said one bracket.

2. The invention of claim 1 wherein a second, opposite end of said bushing is conically shaped to normally engage a conically shaped seat formed in a second one of said brackets.

3. The invention of claim 1 wherein said head has a handle secured thereon.

4. The invention of claim 1 wherein said bushing is loosely mounted on said pin and has a length which is approximately equal to the lateral distance between

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said brackets, but is substantially less than the length of said pin.

5. The invention of claim 1 wherein said pin constitutes a bolt having an axial length substantially greater than the lateral distance between said brackets.

6. The invention of claim 5 wherein said bolt has a head secured on each end thereof.

7. The invention of claim 1 further comprising a member pivotally mounted on said bushing and having

means forming a keyhole slot at a lower end thereof, said slot comprising a circular aperture having a diameter slightly larger than the diameter of said bushing and a coextensive slot portion having a width slightly larger than the diameter of said pin, but smaller than the diameter of said bushing.

8. The invention of claim 7 wherein said member constitutes a gin pole mast.

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