Nov. 4, 1969 G. K. CHRISTIANSEN 3,475,851

TOY CRANES

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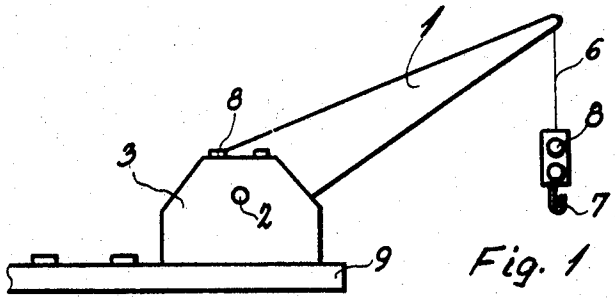


Fig. 1

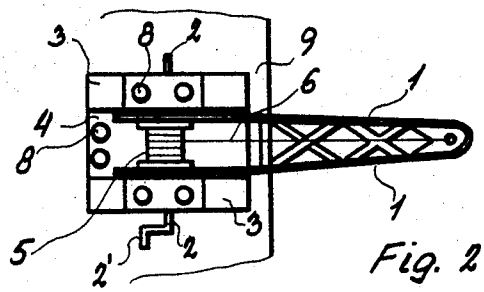


Fig. 2

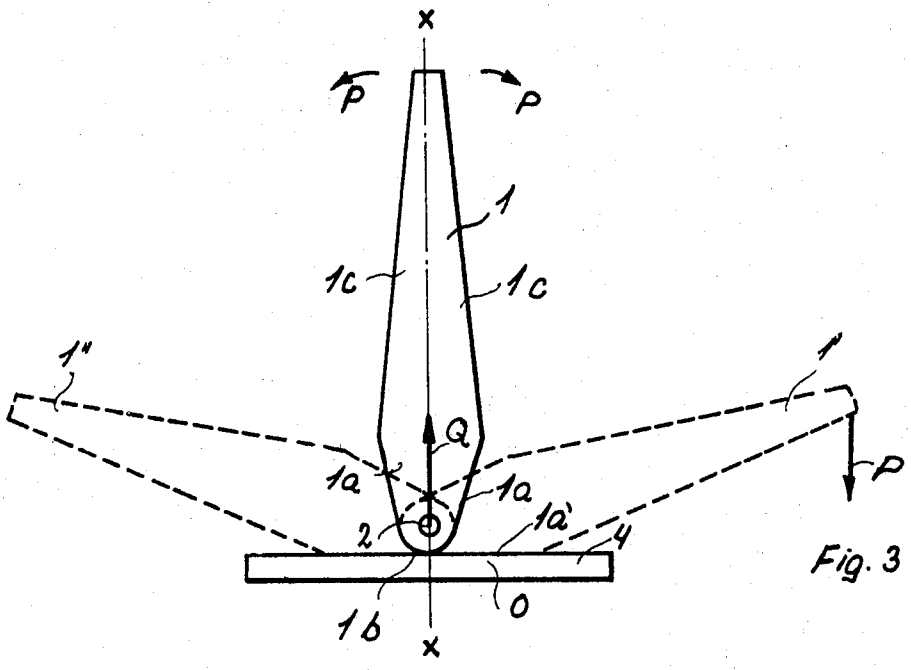


Fig. 3

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TOY CRANES

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ABSTRACT OF THE DISCLOSURE

A toy crane comprising a horizontal reel shaft mounted in a frame and a jib swingably mounted in the frame around the reel shaft, the lower end of the jib being provided with at least one contact face arranged so as to contact the upper face of the base of the crane in at least one extreme position of the jib, thereby causing a load on the outer (top) end of the jib to exert a braking pressure on the reel shaft.

This invention relates to a toy crane of the type having a horizontal reel shaft mounted in a frame and a jib pivotable in the vertical plane.

Such a toy crane may be adapted particularly to be mounted at the rear body or platform of a toy truck to make it represent a crane truck.

It is an object of the invention to adapt the crane to be self-locking in one or in both the extreme positions when loaded, so that the load is retained in said position or positions.

This has been achieved according to the invention by a toy crane in which the jib is mounted by its lower end swingably around the reel shaft and has at least one contact face which on engagement with the crane base in the extreme position of the jib will cause a braking pressure to be exerted on the reel shaft when the outer end of the jib is loaded.

The contact face or faces, which on engagement with the base will cause a braking pressure to be exerted on the reel shaft, may, for all practical purposes, be arranged in various ways. In a preferred embodiment of the invention the lower end of the jib contour is defined by an arc, concentrically disposed with respect to the axis of the reel shaft, and by two inclined contact faces forming an acute angle with the longitudinal axis of the jib.

The invention will be explained here with reference to the drawings, in which:

FIG. 1 and FIG. 2 illustrate a crane according to the invention viewed in side elevation and in perspective, while

FIG. 3 presents a schematic view of the construction of the jib showing the contact faces, by which the desired effect has been achieved.

The toy crane illustrated by the drawing comprises a jib pivotable in the vertical plane and formed, as shown in FIG. 2, by two identical halves connected by a grating. The jib **1** is pivotable about a fulcrum pin **2** mounted in two side members **3** and serving also as shaft for a reel **5** for winding the cord **6** carrying the crane hook **7**.

The side members **3**, which form the frame of the crane, are mounted on a base **4**. This base **4** and the side members **3** may be provided with coupling studs **8**, and, moreover, the bottom of the base may be provided with secondary coupling studs enabling the crane to be mounted on elements of a building set with corresponding coupling means, such as a base plate **9** of a building set. The base plate **9** may form part of the body of a truck so that the crane may be mounted at the rear of the truck to make it

represent a crane truck. One end of the reel shaft **2** is provided with a handle **2'** for winding the cord **6** onto the reel **5**.

The jib **1** may be swung in the vertical plane about the shaft **2** between two extreme or lowered positions, indicated by the dotted lines in FIG. 3 and designated **1'** and **1''**, respectively. In these extreme positions the reel shaft **2** is pinched and therefore locked to prevent shaft rotation and to retain the load in raised position. In this context, as is apparent from the drawings, the extreme or lowered position is the position assumed by the jib when it is swung over as far as possible in one direction (due either to the weight of the load or manual manipulation by the operator) so that one of the contact faces thereof touches the base member.

This locking effect has been achieved by shaping the jib **1** as shown in FIG. 3. The configuration of the lower end of the jib is defined by an arc **1***b* which is concentric with the reel shaft **2** and by two inclined contact faces **1***a*. The upper part of the jib is similarly defined by two edges **1***c* converging towards the upper end of the jib. The two halves of the jib **1** are symmetrical with respect to a longitudinal axis *x*—*x*.

In FIG. 3 the jib is indicated in full lines in the vertical central position, from which it may be swung out into one of the extreme positions, as indicated by the arrows *p*.

In each of the extreme positions means in the form of one of the faces **1***a* will engage the upper face of the base **4**, as indicated at **1***a'* to cause the jib to exert braking pressure on the reel shaft. When the jib is loaded in one of these extreme positions, as indicated at the arrow *p* at the right hand side of FIG. 3, it will act as a two-arm lever with an imaginary fulcrum O, subjecting the shaft **2** to an upwardly directed component force Q which will exert a braking pressure on the shaft **2**.

What I claim is:

1. A toy crane comprising a base, a pair of side members mounted on said base, so as to constitute a frame, a jib pivotally mounted in said frame, so as to be swingable in a vertical plane, a reel shaft pivotally mounted in said frame, and a reel mounted on said shaft intermediate said side members of said frame, the lower part of said jib adjacent the frame being pivotally mounted on said reel shaft and having means including at least one contact face adapted to contact the upper face of said base in at least one extreme position of the jib relative to the frame and arranged in such a manner as to cause said contact face to contact said base and thus cause said jib to exert a braking pressure on said reel shaft when said jib is in an extreme position.

2. A jib for a toy crane, as defined in claim **1**, comprising a pair of interconnected arms, means for pivotably mounting said arms on a reel shaft of said crane, the contour of the lower part of said jib adjacent said shaft being defined by an arc co-axially disposed with respect to the axis of said shaft and by a pair of contact faces diverging from said arc in the lengthwise direction of the jib.

3. A jib, as defined in claim **2**, in which the said contact faces are disposed symmetrically with respect to the longitudinal axis of the jib.

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