July 30, 1940. M. H. STEVENS 2,209,359

TOY CRANE

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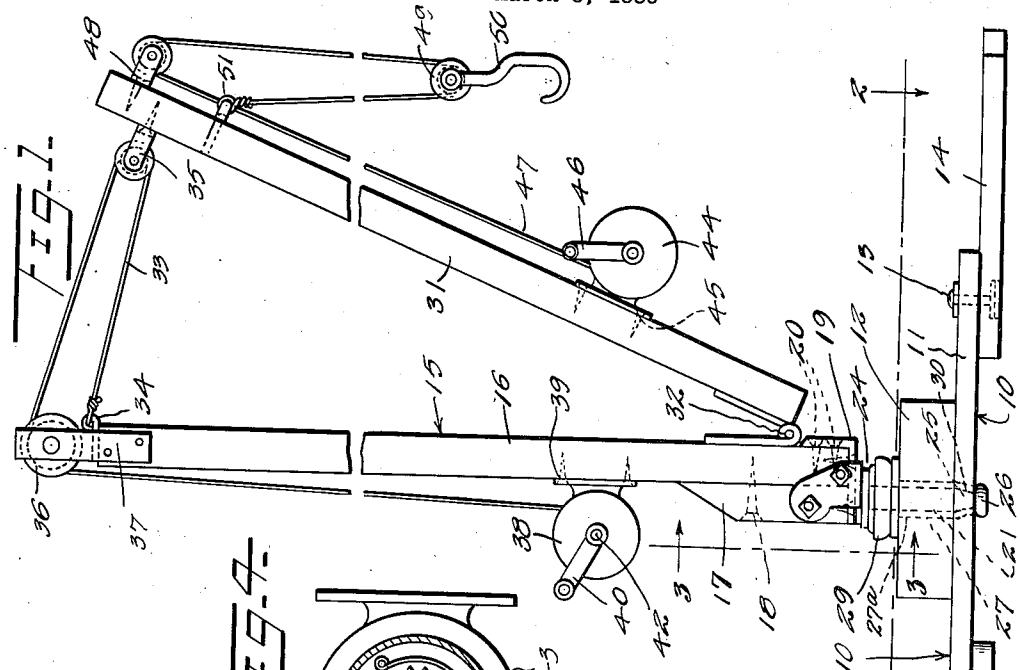


Fig. 1.

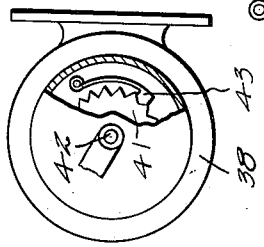


Fig. 4.

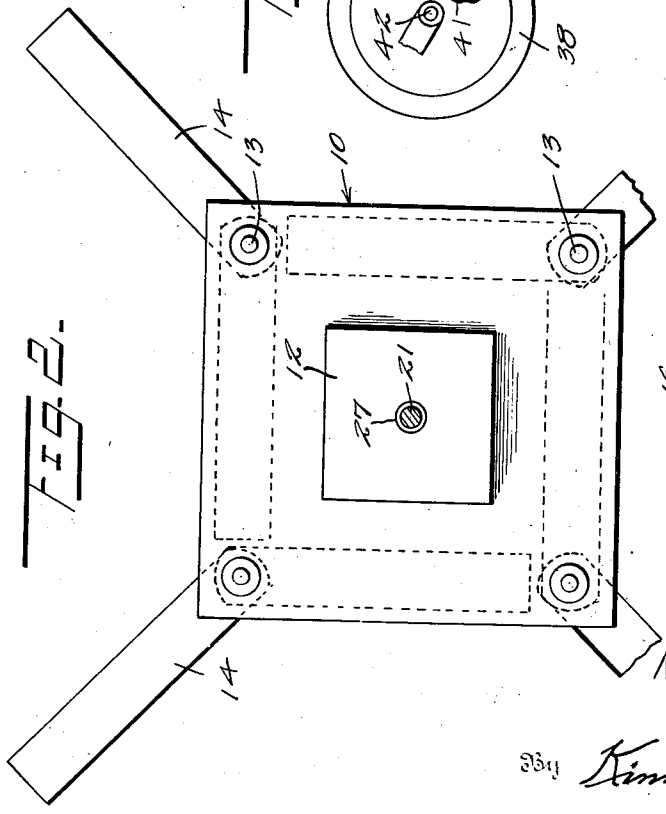


Fig. 2.

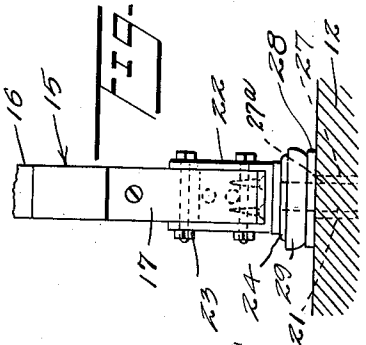


Fig. 3.

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TOY CRANE

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3 Claims. (Cl. 46—40)

This invention relates to a toy, and more particularly to a toy crane.

An object of this invention is to provide a crane which may be constructed at a relatively small cost, and which embodies parts which may be manufactured or produced at a relatively small cost, but which at the same time may be made fairly substantial so that the device will withstand fairly rough usage by a child.

Another object of this invention is to provide a toy crane of this type which embodies substantially the same features as are embodied in larger cranes, so that the toy will be capable of operation and use in a manner similar to a relatively large crane, but which embodies features different from a large crane.

A further object of this invention is to provide a crane structure of this kind which is capable of being produced or sold in knock-down condition so that the structure may be assembled by a child.

Embodying the objects aforesaid and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing, wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a detail side elevation partly broken away of a toy crane constructed according to an embodiment of this invention,

Figure 2 is an enlarged sectional view taken on the line 2—2 of Figure 1,

Figure 3 is an enlarged fragmentary sectional view taken on the line 3—3 of Figure 1, and

Figure 4 is a detail side elevation partly broken away of one of the winding drums used with this device.

Referring to the drawing, the numeral 10 designates generally a base structure comprising a substantially rectangular or square base plate 11 having a block 12 secured to the upper surface thereof in substantially the center thereof. The base 10 includes a plurality of foldable and extendible feet 14 constructed in the form of elongated bars which are pivotally secured by means of pivotal members 13 to the corners of the base plate 11. The pivotal members 13 have their lower portions countersunk within the legs or supporting feet 14 and when in collapsed position, the supporting members 14 are adapted to be swung inwardly as shown in dotted lines in Figure 2 so as to be positioned within the area defined by the base member 11.

A vertically disposed mast 15 extends upwardly from the base 10 and comprises a standard 16 and a block or lateral extension 17 secured by means of screws or other fastening devices 18 to the lower end terminal portion of one side and flush with the bottom of standard 16. A substantially L-shaped plate 19 is secured as by fastening devices 20 at the lower end of the mast 15 and has one leg thereof extending vertically along the opposite side of the standard 16 and the other leg thereof extending across the lower ends of the standard 16 and the extension 17 as shown in Figure 1.

The mast 15 is swivelly or rotatably connected with the base 10 by means of a downwardly extending shaft or spindle 21 which at its upper end is secured to a substantially U-shaped strap or fastening member 22 secured to the lower end of the mast 15 by means of bolts or fastening members 23 connected to the standard 16 and to the extension 17. The shaft 21 is provided at the upper end thereof with a bearing race 24 and at the lower end thereof with a reduced portion 25 terminating in a head 26. The shaft 21 is arranged in and extends above and below the base 10 axially of the latter, and it is connected to said base by a means to be referred to. The head 26 of shaft 21 is arranged below plate 11.

The plate 11 and block 12 axially thereof have arranged therein a vertically disposed substantially cylindrical combined retaining and bearing forming member 27 through which passes the shaft 21. The member 27 is formed of an upper portion 27a of uniform diameter and a lower yieldable portion 30 gradually decreasing in diameter to the lower end of said member 27. The portion 30 is of tapered contour and has its lower end flush with the lower face of plate 11. The portion 30 is of less length than the portion 27a and corresponds in length and contour to the reduced portion 25 of shaft 21. The member 27, at its upper end, is formed with a laterally extending annular flange 28 seating on the upper surface of block 12. The flange 28 carries a lower annular bearing ball race 29 coacting with the race 24 for the purpose of rotatably supporting the mast 15 from the base 10. The portion 30 of the member 27 is for the purpose of encompassing the portion 25 of shaft 21. The lower end of said portion 30 is to abut the upper face of head 26 whereby shaft 21 is connected to the base 10. The portion 30, in connection with

the flange 28, secures the member 27 to the plate 11 and block 12.

A boom 31 is swingably secured as by a hinge structure 32 to the standard 16 of the mast 15 adjacent the lower end of the standard 16. The boom 31 is adjusted relative to the mast by means of a flexible adjusting member 33. The flexible member 33 has one end thereof secured as at 34 to the upper end of the standard 15 and is trained through a sheave 35 secured to the upper end and the upper side of the boom 31. A sheave 36 is secured as by a U-shaped strap 37 to the upper end of the standard 16 and the flexible member 33 is trained through this sheave 36 and then extended downwardly along one side of the standard 16. The flexible member 33 is then wound about a winding drum 38 secured as by fastening members 39 to the aforesaid side of the standard 16. The winding drum 38 is constructed in the form of a reel having a bell crank 40 providing an operating handle to rotate the drum or reel 38. Preferably, the reel or drum 38 has a ratchet 41 secured to the shaft 42 thereof and a spring pressed pawl 43 is adapted to engage the ratchet 41 so as to hold the reel or drum 38 against rotation and thereby maintain the boom 31 in desired elevated or lowered position.

The boom 31 has a reel 44 secured as by fastening members 45 to the front underside thereof and the drum or reel 44 has a bell crank or operating handle 46 and is otherwise constructed similar to the drum or reel 38. A flexible member in the form of a cord 47 is wound about the drum 46 and is trained through a sheave 48 secured to the front or under side of and at the outer end of the boom 31. A sheave 49 is suspended in the cord or flexible member 48 and is provided with a hook 50 to which articles may be attached so that winding or unwinding of the reel 44 will elevate or lower the hook 50. The flexible member 47 has the free end thereof secured to a staple or fastening member 51 which is secured to the under side of the boom 31 adjacent the outer end thereof.

In the use and operation of this toy the device may be easily and quickly assembled by a child, it only being necessary to insert the shaft or spindle 21 in the socket 27. This will position the mast 15 in an upright position and then the hook 50 may be engaged with a suitable article with the boom 31 in a lowermost position. The elevating drum 38 for the boom 31 may then be operated by the handle 40 so as to elevate the forward end of the boom 31 and if desired, at the same time the reel or drum 44 may be operated so as to raise the hook 50. The entire crane structure may then be rotated on the base 10 by swinging the boom 31 and partially rotating the mast 15. When this crane is in an operative position, the supporting legs 14 are preferably disposed as shown in Figures 1 and 2 so that a sufficiently large base structure is provided which will prevent the crane from tipping over. This crane may be constructed at a relatively small cost and due to the exceedingly simple construction thereof, the crane may be operated by a small child and may be roughly handled without causing injury thereto.

What I claim is:

1. In a toy crane a horizontally revoluble mast including a standard and a laterally disposed extension secured against the lower end terminal portion of the rear side of said standard, an angle-shaped plate having a horizontal leg secured against the bottom of the standard and extension and a vertical leg secured to the lower terminal portion of the front side of the standard, a U-shaped member having its bight arranged against said horizontal leg and its sides arranged against corresponding opposite sides of the extension and standard, means for securing the sides of said member to the standard, means for securing the sides of said member to the extension, a base having a vertical opening, a bearing secured in said opening and formed with a flange seated on the base and bordering the upper end of the opening, a shaft depending from said bight through said opening and having means correlated with the base to arrest the upward movement of the shaft, an adjustable elevating and lowering boom, means for hinging the lower end of the boom to the standard above the lower end of the latter, and means correlated to the standard and to the boom for elevating and lowering the latter.

2. In a toy crane a mast having a horizontal lower end terminal portion of greater dimensions than its remaining portion, reinforcing means for and secured to the bottom and front of said lower end terminal portion, a U-shaped member positioned against a part of said means and secured to said lower end terminal portion, a base structure, a controllable boom hinged at its inner end to the front of said lower end terminal above said reinforcement, said member and structure having correlated means for revolubly connecting the mast on the base structure, and a controllable lifting structure carried by the front of the boom.

3. In a toy crane a mast having a horizontal lower end terminal portion of greater dimensions than its remaining portion, reinforcing means for and secured to the bottom and front of said lower end terminal portion, a U-shaped member positioned against a part of said means and secured to said lower end terminal portion, a base structure, a controllable boom hinged at its inner end to the front of said lower end terminal above said reinforcement, said member and structure having correlated means for revolubly connecting the mast on the base structure, and a controllable lifting structure carried by the front of the boom, said coacting means including a flanged bearing and a shaft extending through the bearing and having a head abutting a portion of the lower face of the base structure, the said bearing and shaft having tapered lower parts.

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