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Stone et al.

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[45] **Sept. 25, 1973**

[54] **LIFTING DEVICE FOR CEMENT MIXERS AND THE LIKE**

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[73] Assignee: **Stone Construction Equipment, Inc.,** Honeoye, N.Y.

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[21] Appl. No.: **158,942**

[52] **U.S. Cl.** **254/94**

[51] **Int. Cl.** **B66f 7/22**

[58] **Field of Search** ..... 254/94, 131, 129, 254/120; 214/1 QE; 280/34 B, 47.12; 248/143

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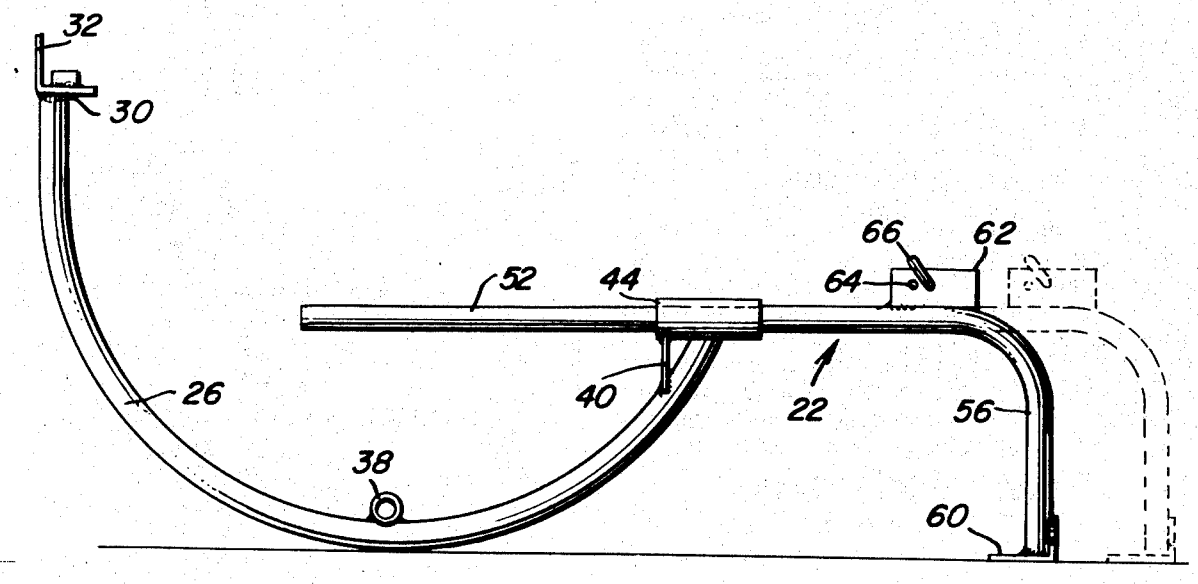
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[57] **ABSTRACT**

An adjustable lifting assembly for cement mixers and the like, said assembly comprising a pair of oppositely disposed, compoundly curved tubular supports each rigidly affixed at one end thereof to a first angular mounting bracket for a cement mixer, the opposite end of each tubular support being attached to a rigid member having a pair of spaced collars thereon, a telescopic framework including a pair of parallel tubular members having straight portions which are slideably received in the collars, and a second mounting bracket straddling the tubular members and adapted to engage a portion of a cement mixer. The tubular members each have a bend therein forming a leg portion which is generally perpendicular to the straight portion extending through the collar, the ends of each leg portion being welded to an angular bracket adapted to rest on the ground when a cement mixer is in the raised position.

11 Claims, 8 Drawing Figures



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SHEET 1 OF 2

Fig. 6

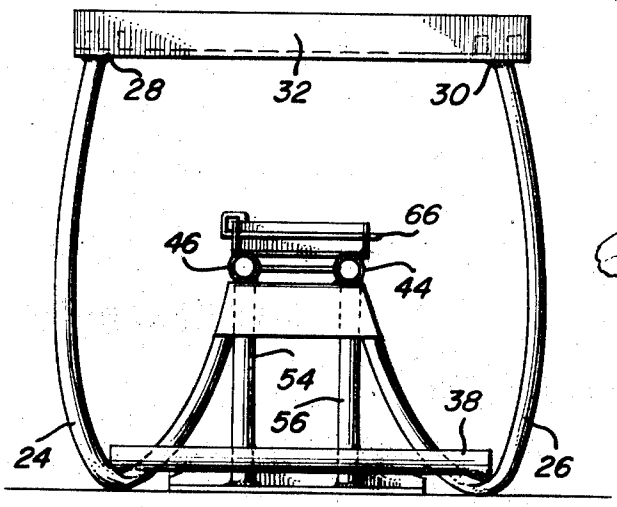


Fig. 7

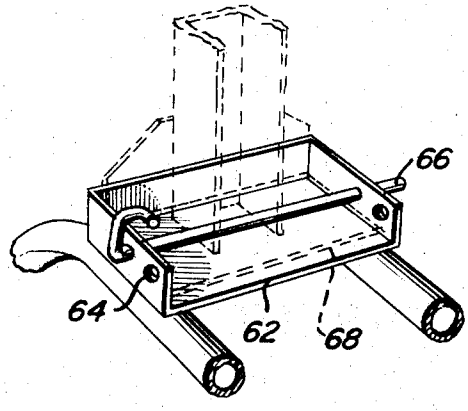


Fig. 1

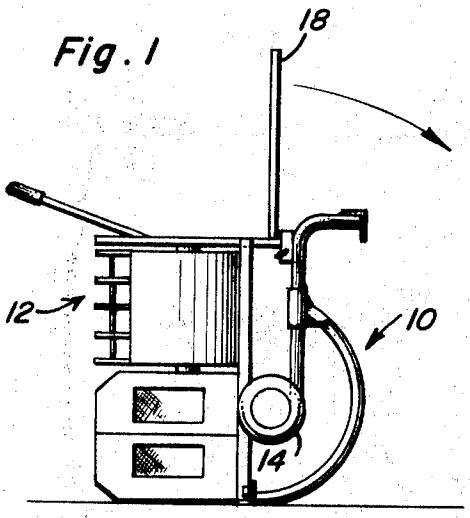


Fig. 2

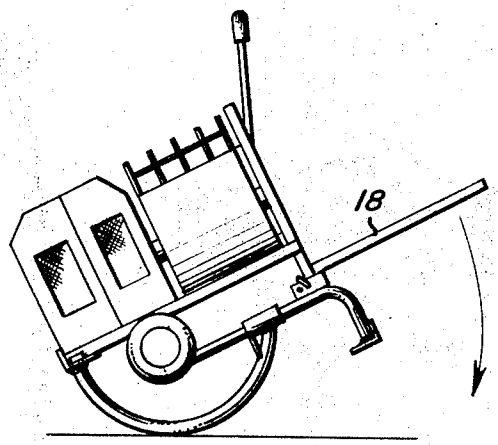
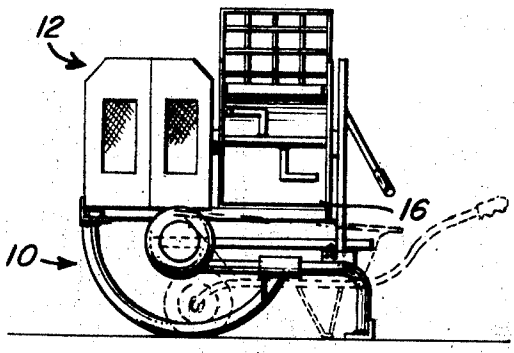


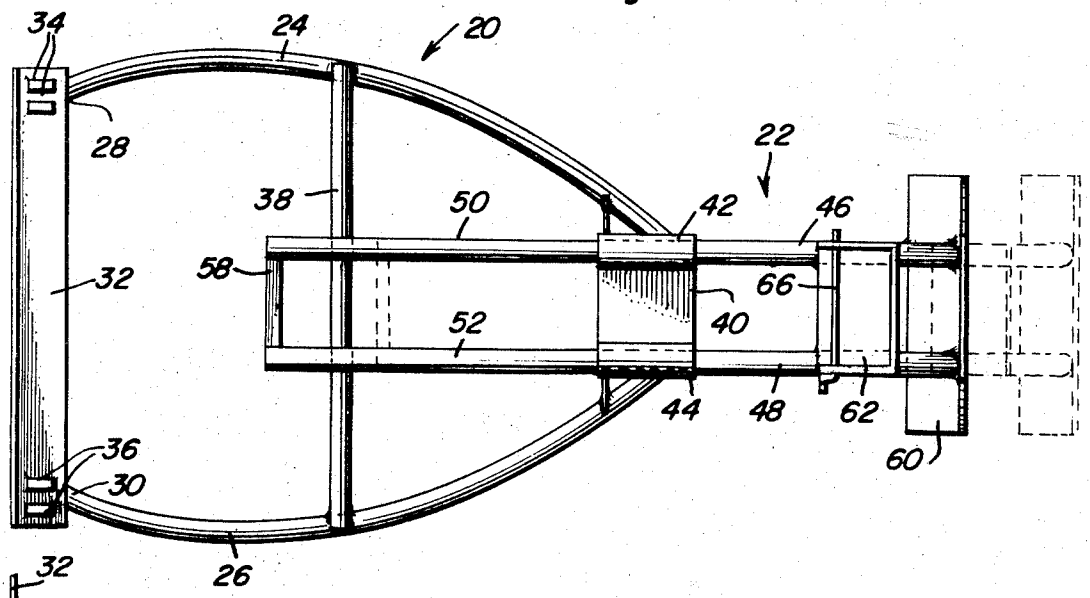
Fig. 3



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Fig . 4



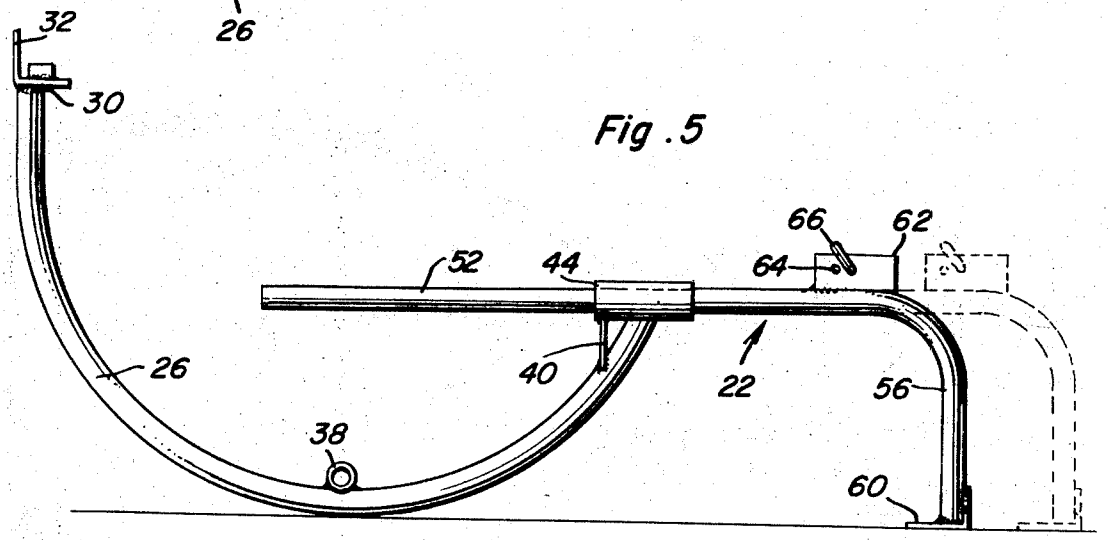
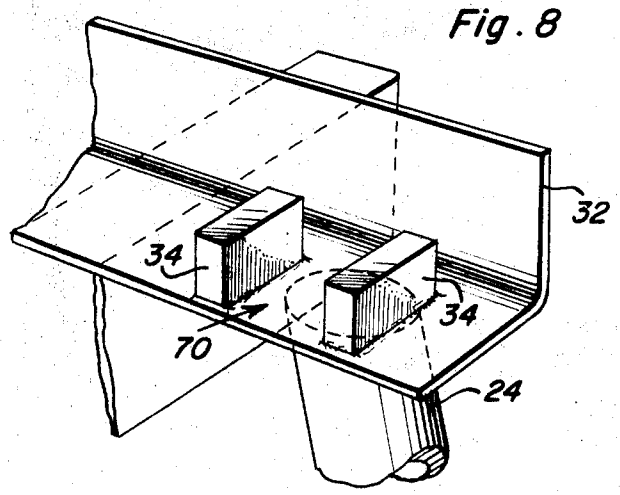


Fig . 5

Fig . 8



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LIFTING DEVICE FOR CEMENT MIXERS AND THE LIKE

The present invention is generally related to lifting devices, and, more particularly, to lifting devices for raising small-capacity cement mixers, and the like. Many cement mixers are available which have a relatively small capacity of approximately 3–10 cubic feet. These mixers are intentionally designed with narrow dimensions to permit easy passage through doorways and the like. Further, in order to maintain adequate stability when towed on the highway, these mixers are built relatively low to the ground. As a result, the discharge chutes for such mixers are too close to the ground to permit unloading into most conventional wheelbarrow constructions. In the past, it was necessary that such mixers be manually lifted by several workers or by a powdered vehicle for placement on building blocks or the like to achieve the necessary height for unloading the wheelbarrows. Such a task was strenuous, time-consuming and impractical.

It is an object of the present invention to provide a novel lifting device for small cement mixers and the like which provides a convenient means of raising a mixer and which may be operated by a single worker in a matter of seconds to provide adequate clearance for unloading into conventional wheelbarrow constructions.

Another object of the present invention is to provide a unique lifting device for cement mixers which includes a telescopic construction adapted to accept a variety of cement mixer sizes for conveniently raising to a desired height.

It is a further object of the present invention to provide a versatile cement mixer lifting device which includes a rocker framework to rock and tilt a cement mixer from a vertical position to a horizontal position and at the same time raise the mixer to a desired height above the ground.

Still another object of the present invention is to provide a lifting device for cement mixers and the like which is comprised of a minimum number of parts, yet is able to accommodate a variety of mixer sizes, and is rugged, long lasting and relatively inexpensive to manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is an elevational view showing a typical cement mixer connected to the lifting device of the present invention in the vertical position.

FIG. 2 is an elevational view illustrating movement of the cement mixer and lifting device shown in FIG. 1.

FIG. 3 is an elevational view illustrating the cement mixer and lifting device of the present invention in the horizontal position with a phantom view of a typical wheelbarrow alongside for loading purposes.

FIG. 4 is a plan view of the lifting device of the present invention with a phantom view showing an alternate telescopic position.

FIG. 5 is a side elevational view of the lifting device as shown in FIG. 4.

FIG. 6 is an end view of the lifting device shown in FIG. 4.

FIG. 7 is a partial perspective view of one of the mounting brackets of the lifting device of the present invention with a phantom view of a corresponding part of a typical cement mixer.

FIG. 8 is a partial perspective view of a second mounting bracket of the present invention with a phantom view of a corresponding part of a typical cement mixer.

Referring now, more particularly, to FIGS. 1 through 3 the lifting device of the present invention is generally indicated by the numeral **10** and is adapted to be connected to a typical small-capacity cement mixer generally referred to by the numeral **12.** The mixer is provided with a pair of wheels **14** which are used for transportation purposes and which are positioned in such a manner that the mixer normally assumes a position which is relatively close to the ground. As such, there is normally inadequate clearance for unloading the mixer through its chute **16** into a conventional wheelbarrow or the like. The purpose of lifting device **10** is to conveniently increase the height of the mixer or easy unloading into conventional wheelbarrows. This is achieved by tipping the mixer to a vertical position as shown in FIG. **1,** connecting it to the lifting device as hereinafter explained, and rocking it as illustrated in FIG. **2** to a raised horizontal position as shown in FIG. **3.** Rocking movement may be achieved through manipulation of a tow pole **18** which is generally a part of the cement mixer and which provides adequate leverage to permit a single worker to carry out the operation.

The lifting device is comprised of two sections, a rocking framework **20** and a telescopic support framework **22** as illustrated in FIGS. **4** through **6.** The rocking framework is comprised of a pair of rocker members **24** and **26** each of which is compoundly curved in both the horizontal and vertical planes. The curve in the vertical plane is substantially circular as shown in FIG. **5** and provides a circular rocking surface which ultimately achieves the lifting operation. Preferably, rocker members **24** and **26** are of tubular construction and have first ends **28** and **30,** respectively, which are welded, or otherwise fastened, to a first mounting bracket **32.** Mounting bracket **32** is comprised of a rigid elongated angle iron which is provided with two pairs of upwardly extending tabs **34** and **36** adapted to accept corresponding connecting parts of the cement mixer. A tubular cross support **38** is welded to the midpoints of rocker members **24** and **26** to provide additional support to the rocker framework. Members **24** and **26** bow inwardly and terminate in a rigid collar assembly **40** firmly held in place by welding or similar fastening means. A pair of collars or sleeves **42** and **44** extend in a direction substantially perpendicular to first mounting bracket **32** and are adapted to slideably receive telescopic framework **22.**

The telescopic framework is comprised of a pair of spaced, parallel tubular members **46** and **48** each of which is bent at an intermediate area to define straight sliding portions **50** and **52,** and leg portions **54** and **56.** The ends of sliding portions **50** and **52** are connected to each other by way of a straddle plate **58,** while leg portions are interconnected by way of a rest plate **60** of angle iron construction. A second mixer mounting bracket **62** is welded to telescopic members **46** and **48** and includes a plurality of aligned apertures **64** adapted to receive a mounting pin **66.**

Referring to FIG. 7, the details of mounting bracket 62 can be seen more clearly. The mounting bracket includes three side walls which are adapted to surround a footplate 68 of the mixer unit. After the footplate has been properly positioned, mounting pin 66 is inserted in overlying relation to the plate such that it is held in position during the rocking operation explained above and illustrated in FIGS. 1 through 3. It is not essential that the connection between the mixer footplate and mounting bracket 62 be a close-fitting connection, so long as the footplate is restrained against dislodgement by pin 66. Since a plurality of apertures 64 are provided, a variety of mixer sizes may be accommodated.

The details of mounting bracket 32 may be more fully appreciated by referring to FIG. 8. A pair of upwardly extending tabs or fingers 34 define a channel 70 which is adapted to receive a framework member associated with the mixer unit. The tabs serve to prevent transverse movement of the mixer unit while the end wall of bracket 32 prevents longitudinal movement relative to the lifting device. Of course, when desired the location and number of mounting tabs or other fastening means may be provided. The spacing between mounting brackets 32 and 62 may be adjusted by slideably adjusting the position of the telescopic framework through collars 42 and 44. Thus, a variety of mixers of different overall length may be accommodated by a single lifting device with the above described telescopic features. It should be noted that pin 66 and mounting bracket 62 are such that a conventional lock may be used to prevent theft of the mixer when attached to the lifter.

Preferably, the present invention is of all-steel rigid construction. However, when desired, light-weight materials such as aluminum may be likewise utilized. Also, it is possible to manufacture the lifting device from framework members other than the round tubular members illustrated in the drawings and described above. It will be appreciated from the foregoing description that the lifting device of the present invention is comprised of a minimum number of moving parts, yet is able to accommodate a variety of mixer sizes through a simple telescopic adjustment. Furthermore, the construction is rugged, durable and long lasting, yet relatively inexpensive to manufacture. The lifting device provides an extremely convenient means of raising conventional mixer units to a more desirable height for unloading into wheel-barrows and the like without sacrificing the low profile stability characteristics intentionally incorporated into such mixer constructions. The present invention provides a solution to the long recognized problem of small-capacity cement mixer unloading without the need of sophisticated lifting equipment.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A lifting device for cement mixers and the like, said device comprising a rocker framework and an adjustable support framework slidably connected to said rocker framework, said rocker framework including first bracket means for connection to one portion of a cement mixer framework, said adjustable support framework including second bracket means for connection to another portion of a cement mixer framework, said lifting device being movable between a vertical position and a horizontal position to raise a mixer to a desired height above a support surface, said rocker framework including a pair of elongated rocker members having first ends connected to said first bracket means and opposite ends connected to a collar assembly which slidably engages said adjustable support framework, each of said elongated rocker members being compoundly curved with a generally circular curve in a vertical plane for rocking movement of said lifting device and with oppositely bowed curves in a horizontal plane to provide lateral strength to said lifting device.

2. A lifting device for cement mixers and the like, said device comprising a rocker framework and an adjustable support framework slidably connected to said rocker framework, said rocker framework including first bracket means for connection to one portion of a cement mixer framework, said adjustable support framework including second bracket means for connection to another portion of a cement mixer framework, said lifting device being movable between a vertical position and a horizontal position to raise a mixer to a desired height above a support surface, said rocker framework including a pair of elongated rocker members having first ends connected to said first bracket means and opposite ends connected to a collar assembly which slidably engages said adjustable support framework, said adjustable support framework including a pair of spaced parallel support members slidably received in said collar assembly for selective reciprocal adjustment relative thereto, said support members each including a straight sliding portion slidably received by said collar assembly and connected to said second bracket means and a leg portion extending at an angle to said straight portion to cooperate with a support surface when said lifting device is in said horizontal position.

3. The structure set forth in claim 2 wherein said second bracket means is attached to said sliding portions of said support members such that adjustment of said support members adjusts the position of said second bracket means relative to said first bracket means to accommodate mixers of different longitudinal dimension.

4. The structure set forth in claim 2 wherein said adjustable support framework includes a resting plate connecting the ends of said leg portions and adapted to engage a support surface when said lifting device is in said horizontal position.

5. The structure set forth in claim 2 wherein said collar assembly includes a pair of parallel open-ended collars, said support member straight portions extending through each of said collars.

6. The structure set forth in claim 5 wherein said first mounting bracket includes an elongated angle bracket which lies in a plane substantially perpendicular to said collars and to said support member straight portions.

7. The structure set forth in claim 6 wherein said second bracket means a mounting plate which straddles said parallel support members and is fastened thereto at a location adjacent to said bends such that a substan-

tial length of the sliding portions are available for adjustment purposes.

8. The structure set forth in claim **7** wherein said first mounting bracket includes a plurality of spaced tabs adapted to position a portion of a mixer framework.

9. The structure set forth in claim **2** wherein said elongated rocker members are curved in a generally circular configuration to provide a circular support surface for rocking said lifting device between said vertical position and said horizontal position.

10. A lifting device for cement mixers and the like, said device comprising a rocker framework and a support framework adjustably connected to said rocker framework, said rocker framework including first bracket means for connection to one portion of a cement mixer framework, said support framework including second bracket means for connection to another portion of a cement mixer framework, said lifting device being movable between a vertical position and a horizontal position to raise a mixer to a desired height above a support surface, said rocker framework including at least one curved rocker member having a first end connected to said first bracket means and an opposite end slidably connected to said adjustable support framework to selectively adjust the spacing between said first and second bracket means, said adjustable support framework including at least one support member with a straight portion slidably connected to said rocker framework for selective reciprocal adjustment relative thereto and a leg portion extending at an angle to said straight portion to cooperate with a support surface when said lifting device is in said horizontal position.

11. The structure set forth in claim **10** wherein said device includes a collar assembly attached to said opposite end of said rocker member and slidably engaging said straight portion of said support framework.

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