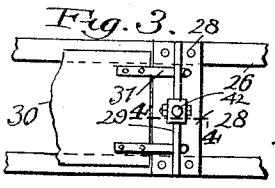
Nov. 24, 1925. 1,562,570

S. R. McKAY

CONCRETE MIXING AND DISTRIBUTING MACHINE

Filed June 9, 1920



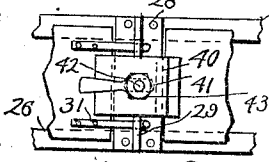


Fig. 3a.

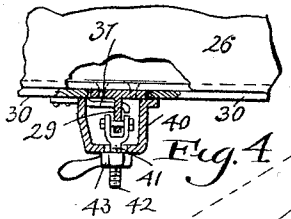


Fig. 4

Fig. 1.

Fig. 6.

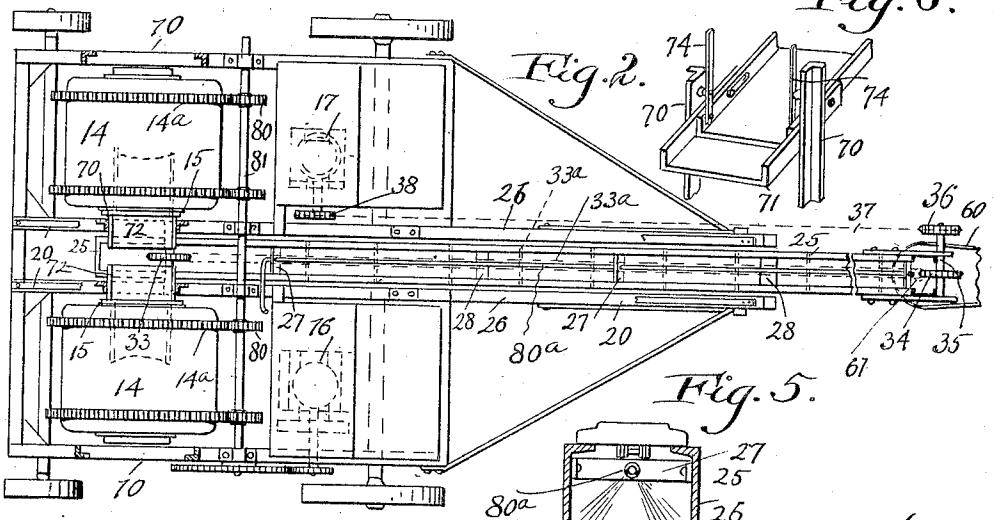
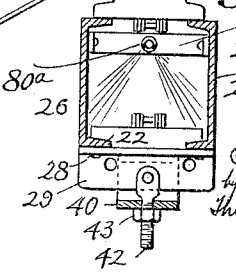


Fig. 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

STEWART R. McKAY, OF CLEVELAND, OHIO.

CONCRETE MIXING AND DISTRIBUTING MACHINE.

Application filed June 9, 1920. Serial No. 387,590.

To all whom it may concern:

Be it known that I, STEWART R. McKAY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Concrete Mixing and Distributing Machines, of which the following is a full, clear, and exact description.

This invention is particularly contrived for reducing the cost of laying concrete foundations for buildings; although, obviously, it is not restricted to that particular use.

The invention includes a wheel truck which may be easily moved in any desired relation to the place where the concrete is to be poured, and on this truck are various coacting instrumentalities for mixing materials to form the concrete slurry, and for conveying the same to and discharging it into the molds or forms.

The invention consists in the construction and combination of parts shown in the drawing and hereinafter described and pointed out definitely in the appended claims.

In the drawings, Fig. 1 is a side elevation of the machine; Fig. 2 is a plan view of the machine; Fig. 3 is a bottom view of the trough showing the means for supporting the drop bottoms of the trough; Fig. 3ª is a bottom plan view of the construction shown in Fig. 4; Fig. 4 is a sectional side elevation in the plane of line 4—4 on Fig. 3; Fig. 5 is a perspective view of the trough, and Fig. 6 is a perspective view of the means for delivering the slurry from the mixer into the trough.

The machine includes a wheel truck 10 on which the other parts are supported. On this truck, located side by side, are two concrete mixers 14 having their discharge ends 15 facing each other. Obviously, one of these mixers could be omitted without any more serious results than reducing the capacity of the machine.

In front of these two mixers on the truck are two motors 16, 17, the former for operating the mixers, and the latter for operating the conveyor to be presently described. Each mixer as shown is a rotatable drum, having two external gears 14ª, which are in mesh with pinions 80 fixed to a shaft 81 which is driven by motor 16.

A derrick 20 is secured to the truck and extends upward and forward therefrom so that its front end overhangs the front end of the truck.

Between the two side members 21 of the derrick is a trough 25 which at its lower end extends between the mixers in position such that they may be made to discharge into it, and the lower end of this trough is pivoted on a horizontal transverse axis to the truck. Adjacent the upper end of the trough the derrick and trough are connected by block and tackle mechanism 23, by which the front upper end of the trough may be raised or lowered as required.

At the front end of the derrick are two vertical frame members 22 which are suitably connected at their lower ends and a castor wheel 22ª is carried by the lower ends of these two frame members for the purpose of engaging the ground and stabilizing the apparatus, especially when the truck is being moved down hill.

These two frame members 22 have numerous holes 22ᵇ in them for the reception of pins or a rod 24 upon which the front end of the trough may be supported and thereby the block and tackle mechanism will be relieved from constant strain.

The trough is formed of two channel iron side members 26 which are arranged in paralel relation with their flanges projecting toward one another, that is, inside the trough. The side members, near their upper edges, are connected at suitable intervals by cross bars 27. Also cross plates 28 extend between and are connected to the bottoms of said side members and lie between the adjacent ends of certain hinged bottom plates. Each cross plate 28 is formed with downwardly extended ribs 29, and in these ribs are holes for the reception of the hook-shaped arms 31 which are fixed to the under side of the front end of each bottom plate 30, whereby the front end of said bottom plate is hinged to and supported by the adjacent plate 28.

A U-shaped clamping bar 40 is provided for engaging the adjacent ends of two bottom plates. These clamping bars have in their bottoms slots 41 which extend lengthwise of the trough. Bolts 42 supported by the flanges 29 go through these slots 41. A nut 43 having a convenient operating handle is screwed onto the lower end of these bolts

42 and by engaging clamping bar 40 when it is in the proper position force it upward, and by engaging with the adjacent ends of the two bottom plates 30 force them into engagement with the bottom flanges of the trough members 21.

To permit the lower end of any bottom plate to swing down to form an opening in the bottom of the trough, one unscrews the nuts 43 and then moves the clamp bar 40 rearward until the front upper end of said clamp bar becomes disengaged from the lower edge of the bottom plate 30, the downward movement of the clamp bar 40 also carries the rear upper edge thereof sufficiently below the lower bottom plate, that it may swing when its lower end is released.

An endless flight conveyor belt is provided in this trough and it is formed with flight wings which fit the trough and near their ends the flight wings engage and slide upon the inwardly directed lower flanges 22 of the two side members of the trough, and the parts of said wings between said flanges slide upon the bottom plates 30. At the lower end of the trough there is an idler sprocket 33 over which this conveyor belt runs. At the upper end of the trough there is a driving sprocket 34 fixed to a shaft 35 to which also is secured a sprocket 36. A sprocket chain 37 runs over this sprocket and over a sprocket 38 which is adjacent to and has a driving connection with the motor 17. By this power transmitting mechanism the upper or driving sprocket 34 is rotated, and therefore the lower reach of the conveyor belt is drawn upward in the trough and is kept straight. The upper reach of said belt rides on the tops of the side members 26 of the trough, and any looseness in the conveyor belt is in the upper reach thereof.

At the upper end of the trough a spout 60 is secured by any suitable means, although preferably it is hung on a stud 61 carried by the trough so that the spout may be swung into any desired position relatively to the upper discharge end of the trough for discharging the concrete slurry into the molds or forms. Associated with each mixer is an extension spout 72 for delivering the mixed concrete slurry into the lower end of the trough 25. This extension spout has a lower fixed member 71 which is secured at the proper downward inclination to two posts 70 fixed to the truck. The upper member of the trough is slidable upon the lower member by means of levers 74, and this upper member may lie outside of the mixer or it may project through the mixer discharge opening 15 into the mixer and to such a position that the mixed concrete will drop into it and will slide down the spout and will be delivered into the trough 25.

The conveyor will carry this slurry up the trough 25 and discharge it from its upper end into the spout 60 down which it will run into the molds prepared to receive it.

If at any time, and for any reason, the conveyor or its operating mechanism ceases to act, and comes to need repairs, it is necessary to immediately clean out of the trough the concrete slurry therein which otherwise would harden and render the conveyor permanently inoperative. To enable this to be done the trough bottoms are made so that their lower ends may be swung down as stated to allow this slurry to run out. In this trough 25 also extending from the bottom to the top thereof is a flushing pipe 80 having numerous perforations in its sides. This pipe goes through holes in the cross bars 22 and is thereby supported. When it is desired to clean the trough and the parts therein of the concrete slurry so that it shall not harden in the trough, water is forced through this pipe and is discharged into the trough, and in a short time will wash the trough and the conveyor clean of the concrete slurry.

Having described my invention, I claim:—

1. In a device of the character described, the combination of a wheeled truck, a derrick thereon, an inclined trough pivoted to the truck, a concrete mixer on said truck, means to discharge material from the mixer into said trough, means carried by the derrick to support the front end of the trough, an endless flight conveyor in said trough, means to actuate said conveyor, a perforated water pipe connected to the trough extended lengthwise thereof and arranged to discharge into said trough.

2. In a device of the character described, the combination of a wheeled truck, a derrick thereon, an inclined trough pivoted to the truck, a concrete mixer on said truck, means to discharge material from the mixer into said trough, means carried by the derrick to support the front end of the trough, an endless flight conveyor in said trough, means to actuate said conveyor, said trough having bottom plates hinged thereto, and means for supporting the unhinged ends of said bottom plates.

3. In a device of the character described, the combination of a wheeled truck, a concrete mixer thereon, a trough pivoted to the truck in position to receive material discharged from said mixer and extending upward at an angle from its pivot, a derrick connected to the trough adjacent its forward end to said truck, means thereon to support the upper end of said trough, an endless flight conveyor movable in said trough, and means to actuate said conveyor.

4. In a device of the character described, the combination of a wheeled truck, a derrick thereon, an inclined trough pivoted to the truck, means carried by the derrick, to

support the front end of the trough, an endless flight conveyor in said trough, sprocket wheels mounted on said trough at both the upper and lower ends thereof for actuating said flight conveyor, a motor, and driving connections from the motor to the upper one of said sprocket wheels.

5. In a device of the character described, the combination of a wheeled truck, an inclined derrick structure which overhangs the front end of the truck, a member of said derrick structure connected with the front end of said structure extending downward therefrom, a supporting wheel carried by the lower end of said member, a trough pivoted to the truck and extending upwardly and forwardly therefrom, means carried by said derrick structure for adjustably supporting the front end of said trough, a flight conveyor extending from one end of the trough to another having its lower reach within the trough, and means for actuating said conveyor.

6. In a device of the character described, the combination of a wheeled truck, a trough pivoted thereto and extending in an upwardly inclined direction therefrom, said trough having its bottom formed in part of plates pivoted at their upper ends to said trough, means for drawing the lower ends of said bottom plates up into closed position, a conveyor operable in said trough, and means for discharging concrete slurry in the lower end of said trough.

7. In a device of the character described, the combination of a wheeled truck, a trough pivoted thereto and extending in an upwardly inclined direction therefrom, which trough has its bottom formed in part of hinged bottom plates, and means to hold them in the closed positions, means for discharging concrete slurry into said trough, a conveyor operable in said trough to move the slurry up to and discharge it from the upper end of said trough, and perforated water pipe supported in said trough near the upper edges thereof.

8. In a device of the character described, the combination of a wheeled truck, a trough pivoted thereto and extending therefrom in an upwardly inclined direction said trough comprising channel bar side members arranged with their flanges on the inside of the trough, cross members arranged at intervals connecting said side members near their upper edges, cross plates arranged at intervals connecting the bottoms of said side members, each of said plates having a downwardly extended longitudinal rib in which are holes, bottom plates for said trough each having hooks at their upper ends which pass loosely through the holes in said ribs whereby the bottom plates are hinged to said cross plates, transverse clamp bars engaging the unhinged ends of said bottom plates, and means carried by said cross plates for operating said clamping bars to draw said bottom plates into closed position.

9. In a device of the character described, the combination of a wheeled truck, a trough pivoted thereto and extending therefrom in an upwardly inclined direction, said trough comprising channel bar side members arranged with their flanges on the inside of the trough, cross members arranged at intervals connecting said side members near their upper edges, plates arranged at intervals connecting the bottoms of said side members, each of said plates having a downwardly extended longitudinal rib in which are holes, bottom plates for said trough each having hooks at their upper ends which pass loosely through the holes in said flanges whereby the bottom plates are hinged to said cross plates, transverse clamp bars engaging the unhinged ends of said bottom plates, said clamping bars having slots extending lengthwise of the trough, and bolts carried by said cross plates passing through said slots, and nuts on the ends of said bolts.

In testimony whereof, I hereunto affix my signature.

STEWART R. McKAY.