

March 6, 1928.

1,661,244

C. J. WESTLING

LOADER FOR CEMENT MIXERS

Filed Feb. 18, 1924

3 Sheets-Sheet 1

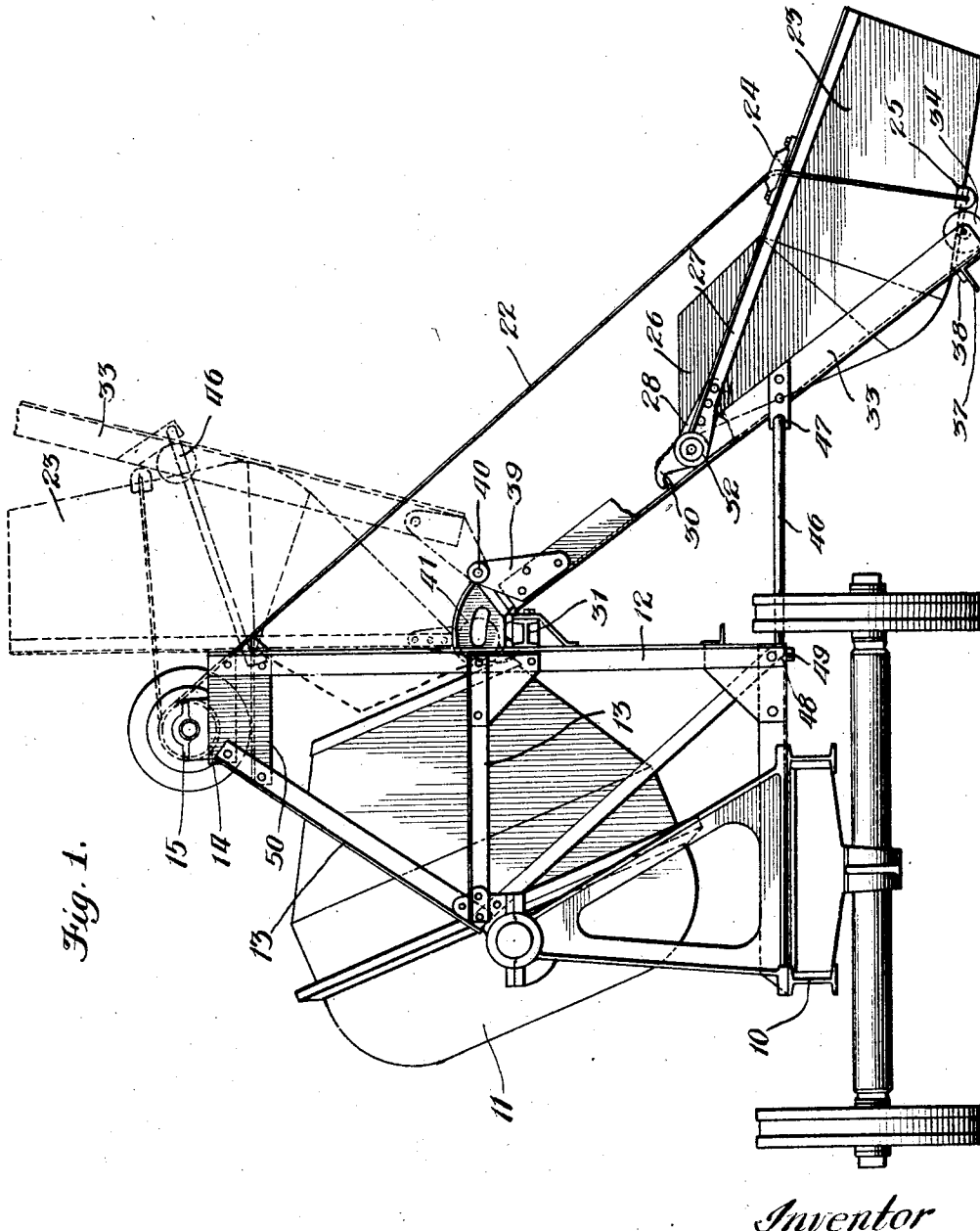


Fig. 1.

Inventor
Carl J. Westling
By Vissers & Crane attys.

March 6, 1928.

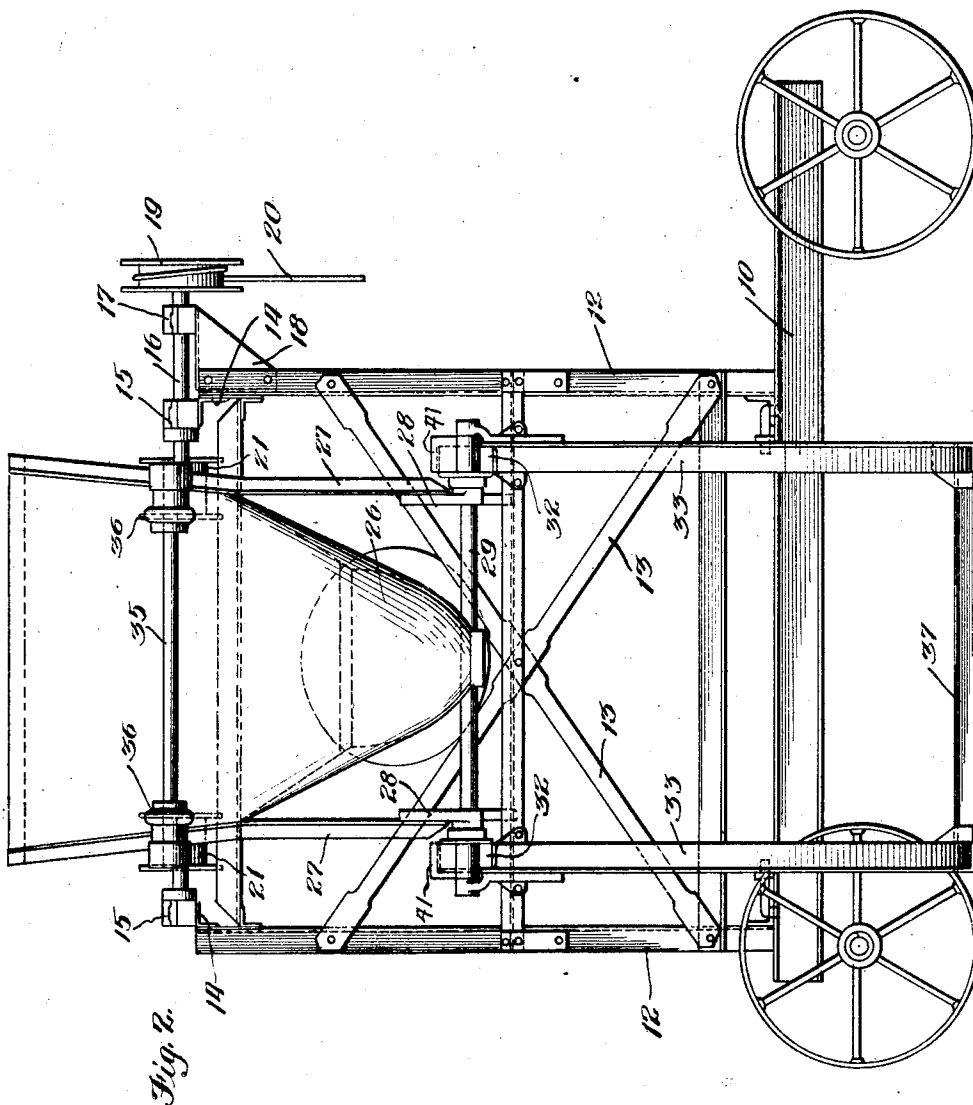
1,661,244

C. J. WESTLING

LOADER FOR CEMENT MIXERS

Filed Feb. 18, 1924

3 Sheets-Sheet 2



Inventor
Carl J. Westling
By Nissen & Grant Attys.

March 6, 1928.

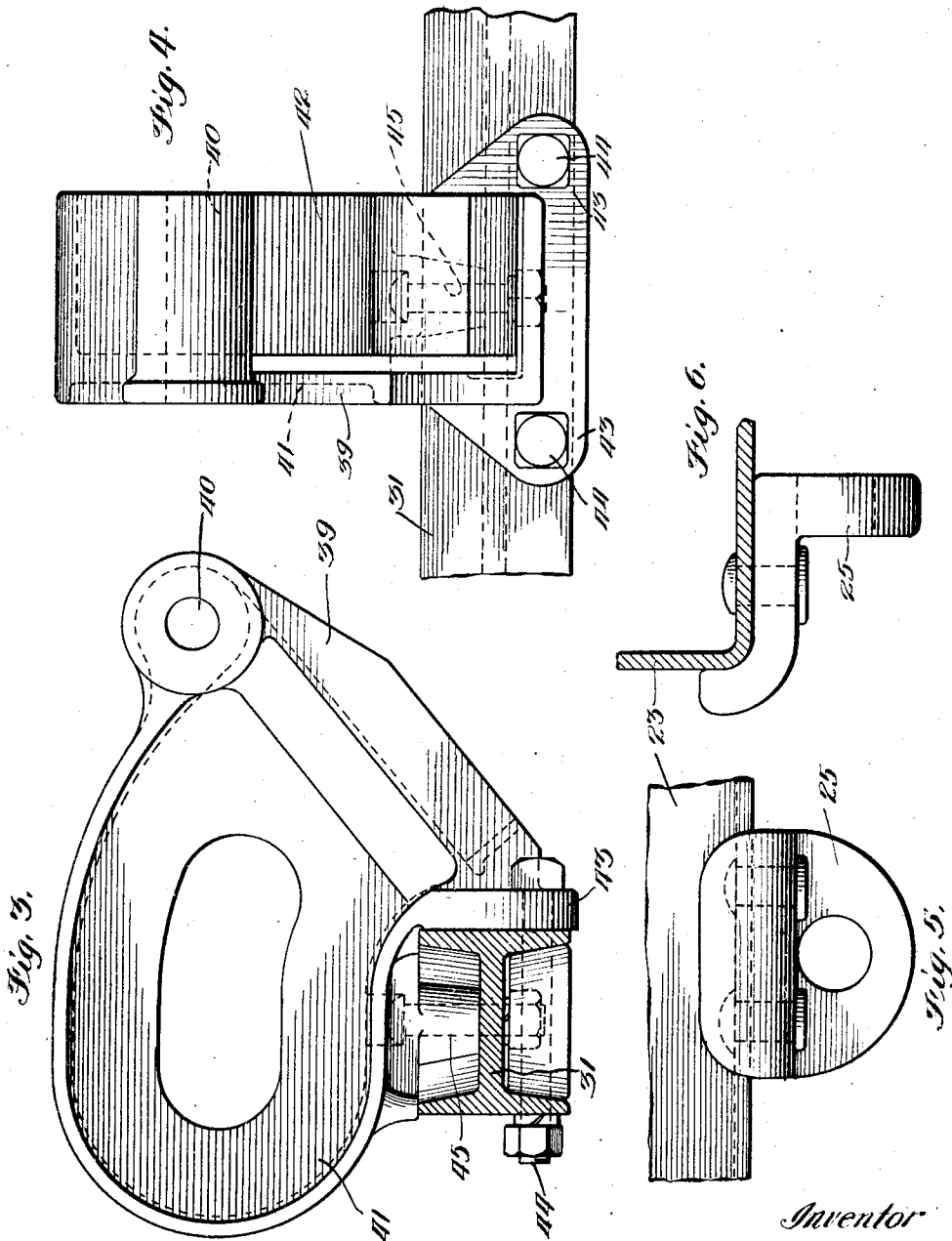
1,661,244

C. J. WESTLING

LOADER FOR CEMENT MIXERS

Filed Feb. 18, 1924

3 Sheets-Sheet 3



Inventor
Carl J. Westling
By Nissen & Crane Attys.

UNITED STATES PATENT OFFICE.

CARL J. WESTLING, OF WATERLOO, IOWA, ASSIGNOR TO CONSTRUCTION MACHINERY COMPANY, OF WATERLOO, IOWA, A CORPORATION OF IOWA.

LOADER FOR CEMENT MIXERS.

Application filed February 18, 1924. Serial No. 693,408.

This invention relates to a hoisting device for charging cement mixers and has for its object the construction of such a device which shall be simple and economical to manufacture and which may be easily adjusted for transportation, and which shall be of improved construction and operation.

The invention is exemplified in the combination and arrangement of parts shown in the accompanying drawings and described in the following specification, and it is more particularly pointed out in the appended claims.

In the drawings—

15 Fig. 1 is an end elevation of a truck having a cement mixer mounted thereon and shows the charging device in side elevation; Fig. 2 is a view looking from the right in Fig. 1 with the skip in elevated position; 20 and

Figs. 3, 4, 5 and 6 are fragmentary drawings showing details.

As illustrated in the drawings, the numeral 10 designates a truck body having a 25 cement mixer 11, which may be of any approved construction, mounted thereon. A pair of uprights 12 are supported on the frame 10 at the loading side of the cement mixer and these uprights have suitable bracing members 13 to provide the necessary 30 strength and rigidity to the structure. At the top of each upright 12 there is secured an angle bar 14 which carries a bearing 15 for the hoisting shaft 16. A supplemental bearing 17 is provided at one end of the 35 shaft supported by a bracket 18. A drum 19 is secured to the end of the shaft adjacent the bearing 17 and is provided with a cable 20 by means of which the shaft 16 is rotated.

40 Any suitable hoisting mechanism, not shown, is mounted on the frame 10 for winding the cable 20 to rotate the drum 19 and shaft 16. A pair of drums 21 are secured to the shaft 16 and a cable 22 has its opposite 45 ends attached respectively to the drums 21. The central portion of the cable 22 is looped beneath the hoisting skip 23 and is guided through fair leaders 24 at each side of the skip and through eyelets 25 secured to the 50 lower corners of the skip, as shown in Figs. 5 and 6. The skip 23 has its forward end 26 inclined upwardly to provide a discharge

spout and is preferably provided with reinforcing angle bars 27 secured to the skip along its top lateral edges.

55 At the forward end of each angle bar 27 is a bearing member 28 in which a transverse shaft 29 is journaled. It will be seen from Fig. 2 that the spout portion 26 of the bucket is inclined inwardly away from the forward 60 ends of the angle bars 27. The bearing members 28 are extended forwardly to form hooks 30 which engage the inner face of a cross-bar 31 to prevent rearward movement of the forward end of the skip when it is in 65 dumping position, as shown in broken lines in Fig. 1.

The shaft 29 is provided with a pair of rollers 32 which travel on track members 33. 70 These track members consist of a pair of angle bars, the lower flange of which constitutes the runway for the rollers and the side flange constitutes the guide. The track is open at the top and is inclined at an angle 75 to permit the skip to travel on the track without the necessity of any retaining flange for the top of the rollers. A second set of rollers 34 is mounted on a transverse shaft 35 journaled in bearings 36 secured to the 80 bottom of the skip slightly in front of the guides 25 for the cable 22. The cable 22 is disposed sufficiently close to the front of the skip that force on the cable will cause the bucket to ascend the trackway so long as it is free to do so without tipping upwardly 85 about the front end.

The lower ends of the tracks 33 are connected by a cross-bar 37 and the bottom of the skip is provided with a stop 38 to limit the downward movement of the skip-bar. 90 The upper ends of the tracks 33 are provided with brackets 39 which are pivoted at 40 to stops 41 for engaging the rollers 32 and arresting their upward movement. The construction of the stops is best shown in 95 Figs. 3 and 4, each stop being provided with a curved flange 42 which forms a pocket for receiving the roller 32 at the upper extremity of its travel. The stops are provided with flanges 43 which fit against the cross-bar 31 and bolts 44 and 45 are used to secure 100 the stops in place on the cross-bar.

It will be seen from Fig. 2 that when the skip reaches its upper limit of movement it

will be arrested by the stops 41 and further tension on the cable 22 will swing the skip into the broken line position shown in Fig. 1 to discharge its contents into the mouth of the mixer 11. After discharge of the skip the tension on the cable 22 is released and the skip returns to its lower filling position. During the discharging operation the forward end of the skip is held against outward movement away from the stop 41 by the hooks 30 which are swung inwardly and downwardly into contact with the inner face of the cross-bar 31.

A pair of rods 46 are pivoted at 47 onto each of the track rails 33 and the inner ends of the rods are hooked into engagement with the support for the bars 12, as shown at 48. Cotter pins 49 may be passed through the hooked portions of the rods to retain them in position. When it is desired to transfer the mixer to another location the skip 23 is raised to its upper position and the rods 46 are unhooked permitting the track 33 to be swung upwardly into the broken line position shown in Fig. 1. The rods 46 are then hooked into the projecting ends of angle bars 50 connected to the uprights 12 near their upper ends. The tracks will then be held in their elevated position and prevent descent of the skip 23 so that the entire device may be readily transported to a new location.

In order that the parts will function properly on an open track the center of gravity of the skip whether full or empty is between the line of pull of the cable 22 and the track and may be in the rear of the lower roller. The line of pull of the cable is substantially parallel with the track or slightly converging toward the track at its upper end. The point of application of force to the skip, in order to cause both rollers to travel on the track until the top rollers are stopped by abutments 41 is such that the moment of the rope pull about the axis of the rear rollers is greater than the moment of the weight of the load backwardly about said axis. At the same time the moment of the weight of the load about the axis of the front wheels is greater than the moment of the force of the cable so that the skip travels up the track and is not turned about the front axis until the front rollers are stopped by the abutments 41. It will be seen from Fig. 1 that when the skip is turned into discharge position the point of attachment of the cable 22 is brought up to and substantially on a level with the top winding surface of the drums. At the same time the discharge opening of the skip is brought into registration with the mouth of the mixer but does not project into the mouth. If desired the openings in the fair leader 24 may be elongated to permit the cable to assume a straight line when the skip is in discharge position. It will be also apparent that the tracks 33 may be elongated

if occasion requires, or provided with detachable extensions for loading from below grade.

I claim:—

1. The combination with a supporting frame having a cement mixer mounted thereon, of a loading device for said mixer comprising a pair of spaced angle bars each having one end thereof connected with said frame and the other end thereof inclined outwardly and downwardly away from said frame to constitute a track, a skip mounted to travel on said track, said skip having spaced front and rear rollers, a cable attached to said skip in the rear of the forward rollers thereof, a stop for arresting the forward end of said skip adjacent said cement mixer to cause said skip to swing about the axis of the forward rollers thereon to discharge material from said skip into said mixer, and interlocking means on said skip and track to retain said track in position for transportation with the rollers resting on their respective tracks.

2. The combination with a frame having a cement mixer mounted thereon, of an inclined track having its upper end attached to said frame, a skip having rollers for traveling on said track, winding mechanism mounted on said frame above the upper end of said track, and a hoisting cable having its opposite ends attached to said winding mechanism and having its central portion looped about said skip.

3. The combination with a frame having a cement mixer mounted thereon, of an inclined track having its upper end attached to said frame adjacent said cement mixer and having its lower end spaced outwardly and downwardly, a skip arranged to travel along the upper face of said track, said skip having forward and rear rollers, hoisting mechanism mounted on said frame above the upper end of said track, and a cable having its opposite ends attached to said hoisting mechanism and having its central portion looped about said skip, said skip having fair leaders for said cable adjacent the upper side thereof and having guides for said cable at the lower corners of said skip.

4. The combination with a frame, of an inclined track having its upper end secured to said frame, a skip arranged to travel on said track, rollers on said skip, means for arresting the forward rollers of said skip to cause said skip to swing into discharge position, a hook member attached to the forward end of said skip, and means on said frame for engaging said hook member when said skip is swung into discharge position to prevent rearward movement of said skip.

5. The combination with a frame, of an inclined track having its upper end secured to said frame, said track comprising a pair of angular bars having flanges to provide

runways and fittings mounted on said frame adjacent the upper ends of said angle bars, said fittings having flanges arranged to register with the flanges on said angular bars, the flanges on said fittings being curved upwardly to provide stops, and a skip having rollers arranged to travel on the flanges on said angle bars and to engage the stop flanges on said fittings to arrest the upward movement of said skip and cause said skip to swing about the axes of said rollers into discharge position.

6. The combination with a frame, of a pair of spaced fittings secured thereto and having flanges thereon, said flanges being curved upwardly to provide stops, and track rails pivotally connected one to each of said fittings, said track rails having flanges arranged to register with the flanges on said fittings when said track rails are in a position extending outwardly and downwardly from said fittings.

7. The combination with a frame having a cement mixer mounted thereon, of a cross-bar secured to said frame adjacent said cement mixer, a pair of fittings mounted on said cross-bar, each fitting having a flange thereon curved upwardly to provide a stop, a pair of angle bars pivoted onto each of said fittings, said angle bars having flanges forming runways which register with the flanges on said fittings when said angle bars extend outwardly and downwardly from said fitting, a skip having rollers at its forward end for travel on the flanges on said angle bars, a pair of spaced hoisting drums mounted on said frame above said fittings, a cable having its opposite ends attached to said hoisting drums and having its central portion looped about said skip, and means for rotating said drums to wind the ends of said cable thereon to raise said skip along said angle bars and to swing said skip into discharge position about the axes of said rollers when said rollers engage the stop flanges on said fittings.

8. The combination with a truck having a frame mounted thereon, of a cement mixer mounted on said truck, a track comprising a pair of angle bars open at their tops to provide a runway, said angle bars being pivoted to said frame, a skip having rollers arranged to travel on said track, means for hoisting said skip into an upper discharge position, said track being arranged to swing about its pivot into position to engage the rollers on said skip when in its upper position, and means for securing said track in its elevated and operative positions.

9. The combination with a truck having a frame thereon, of an inclined track pivoted to said frame, and a securing device

for detachably holding said track in its inclined position, said device being arranged to hold said track in an upper inoperative position for transportation.

10. The combination with a vehicle frame having a cement mixer mounted thereon, of a pair of upright members at one side of said frame, a cross-bar secured to said members, a pair of spaced fittings secured to said cross-bar and having flanges thereon curved upwardly at their inner ends to form stops, a pair of angle bars pivoted to said fittings and having flanges arranged to register with the flanges on said fittings when said angle bars extend outwardly and downwardly forming an inclined track, a skip having rollers arranged to travel on said track, the top of said track being open to permit upward movement of said rollers away from said track, a pair of winding drums mounted on said frame above said fittings, a cable having its ends attached to said drums and having its central portion looped about said skip, means for rotating said drums to raise said skip along said track and to tilt said skip about its forward end to discharge material therefrom into said mixer, a catch mounted on the forward end of said skip for preventing backward movement of said skip when in discharging position, and a spacer bar for retaining said tracks in their inclined position, said bar being removably connected with said frame and arranged to engage said frame above said fittings to hold said track in an upper inoperative position.

11. The combination with a concrete mixer of an inclined track leading thereto and open at its top face, a skip having longitudinally spaced rollers arranged to travel on said track, a cable attached to said skip for hoisting the same, the point of attachment being spaced above said track to produce a forward and upward moment about the axis of the rearmost roller to prevent backward tipping of the skip and to cause the skip to ascend the track, and a hook for preventing rearward movement of said skip while the latter is rotated about its forward rollers into a dumping position.

12. The combination with a truck having a cement mixer mounted thereon, of a track pivotally connected with said truck, a skip arranged to travel on said track, means for raising said skip into elevated position, and means for securing said track in an elevated position against said skip to hold said skip in elevated position for transportation.

In testimony whereof I have signed my name to this specification on this 15th day of February, A. D. 1924.

CARL J. WESTLING.