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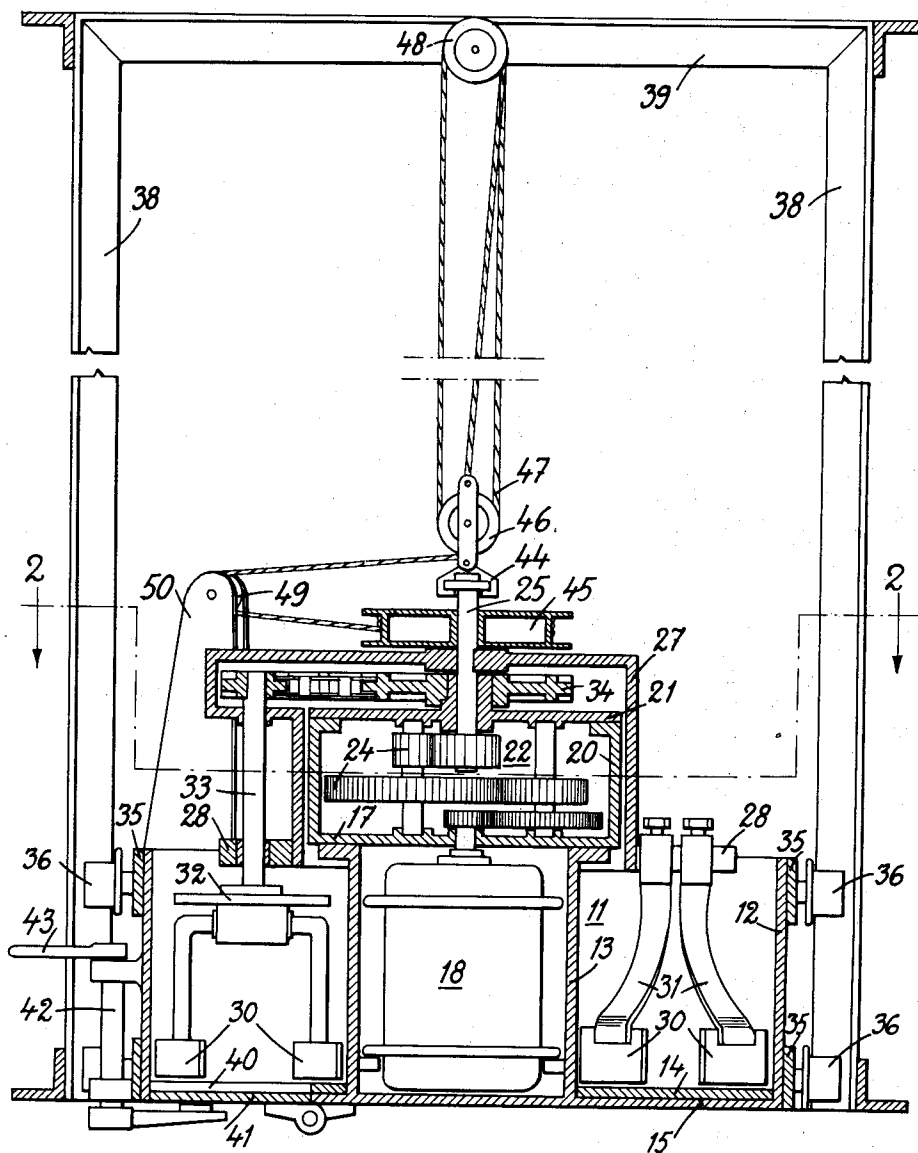
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MIXING MACHINES FOR MAKING CONCRETE OR THE LIKE

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2 Sheets-Sheet 1

Fig. 1.



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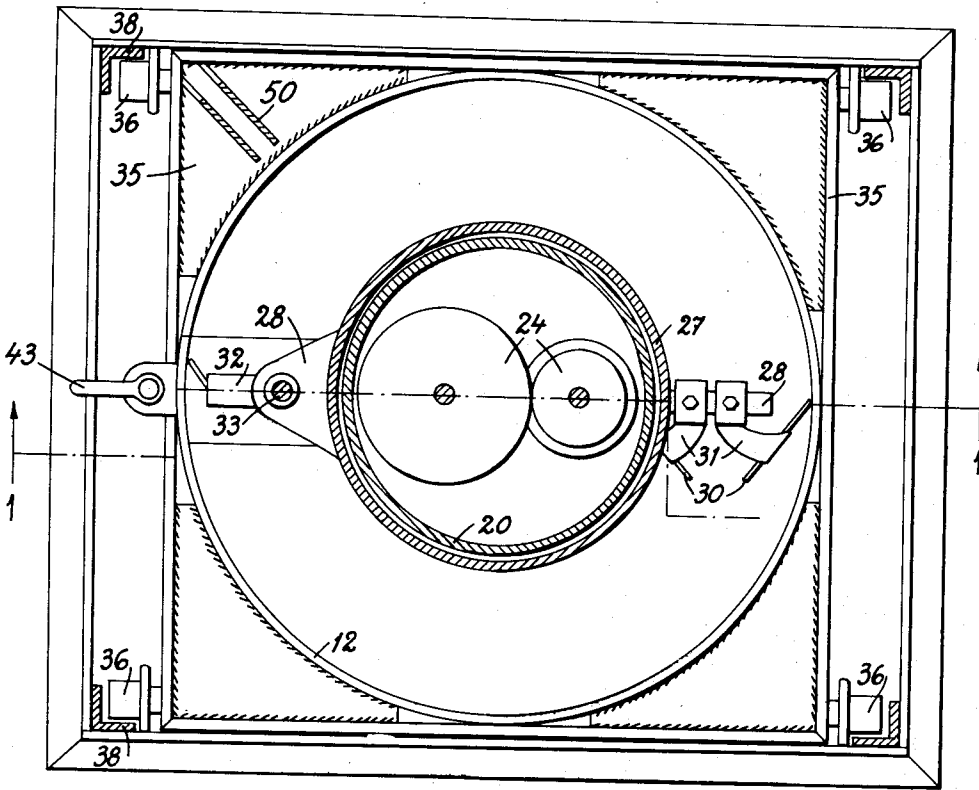
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Fig. 2.



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MIXING MACHINES FOR MAKING CONCRETE OR THE LIKE

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4 Claims. (Cl. 259—178)

This invention relates to a concrete, mortar or like mixing machine.

The main object of the invention is to provide a mixing machine in which there is no driving machinery or transmission gearing exposed to dirt and sludge, thereby eliminating the severe wear which commonly occurs with this kind of machine.

A further object is to provide a compact construction which is conveniently hoistable, whereby the materials to be mixed can be placed in the machine when the latter is on the ground, the mixed material being discharged directly from the machine by gravity when the machine has been hoisted, even while the mixing operation is still proceeding.

According to the invention, the mixing machine includes an annular tank which is open at the top and has, bounded (at least in part) by its inner wall, a closed space containing a prime mover which drives, through gearing if necessary, a vertical shaft sealingly extending through the top wall of the closed space, the shaft driving mixing devices which extend downwardly into the annular tank.

Preferably the shaft supports and drives an inverted cup-like casing surrounding the upper part of the closed space, the casing carrying arms from which the actual mixing devices are supported. The prime mover can be an electric motor driving step-down gearing in the said upper part of the closed space, which upper part partly overlaps the radially inner portion of the annular tank.

It is possible for such a machine to be mounted for vertical movement in a supporting structure (which latter may itself be adapted to be transported to a desired site), the annular tank having one or more closable openings in its lower wall through which the mixed material can be discharged by gravity while the machine is raised. Obviously the machine can be hoisted by any kind of hoisting winch without using any supporting structure.

In the accompanying drawings:

Figure 1 is a sectional elevation of one form of concrete mixer according to the invention, the section being taken on the line 1—1 of Figure 2, and

Figure 2 is a sectional plan taken on the line 2—2 of Figure 1.

The drawings show a stationary annular tank 11 bounded by outer and inner walls 12, 13 and having a replaceable liner 14 at the bottom, the whole being fast with a base plate 15. The inner wall 13 forms the boundary, with the base wall 15 and an upper wall 17, of a closed space which houses a prime mover, shown in the present instance as consisting of an electric motor 18.

The upper wall 17 forms with a cylinder 20 and a top wall 21 another closed space 22 which, it will be observed, is above the annular trough 11 and overlaps the radially-inner edge thereof, i. e., the inner wall 13. Mounted in this upper closed space 22 is a reduction gear train 24 driving to a vertical shaft 25 which extends sealingly through the top wall 21, the vertical shaft being journaled thereby.

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Fast with the vertical shaft 25 is an inverted cup-like casing 27 enclosing the upper space 22 and carrying arms 28. These arms are supporting the actual mixing devices which may be arranged in any desirable way without affecting the idea of the invention. Two such arms 28 are shown, but obviously there may be more than two. The actual mixing devices are shown as including paddles or blades 30 supported on one arm by resilient fingers 31 from the arm and on the other arm by an auxiliary arm 32 horizontally fitted on a vertical shaft 33 which is separately rotated in an opposite direction to the rotation of the shaft 25 by means of a chain gear 34 driven by the rotation of the auxiliary arm 32 and its vertical shaft 33 around the shaft 25 and the enclosed space.

Thus, when the mixing machine is on the ground, the concrete, mortar or other materials to be mixed can be poured into it and mixing will begin as soon as the electric motor is started. It should be noted that the motor and the step-down gearing 24 are entirely enclosed and are thus kept free of contact with the materials.

In the present instance, the external wall 12 of the annular trough carries upper and lower frame-works 35. Each of these frame-works is provided, on each of a pair of opposite sides, with rollers 36 journaled about parallel horizontal axes. The rollers are adapted to be guided by vertical rails 38 of a supporting structure 39 when the machine is being lifted or lowered. The machine is lifted in order to allow of the mixed contents of the annular trough being discharged by gravity, as by means of at least one opening 40 in the lining 14 which is closable by a member 41 controlled by a journaled shaft 42 and an actuating handle 43. During discharge the electric motor can continue to be operated, thus facilitating the complete discharge of the mixed material.

Any desired means may be provided for hoisting the machine. In the construction shown a hoisting winch 45 is mounted freely on the upper end of the shaft 25, the upper extremity thereof having a swivelled engagement, indicated at 44, with a hoisting sheave 46. This is connected by a cable 47, in a usual way, with a sheave 48 on the supporting structure 39, the cable being led from the two sheaves to the hoisting winch by way of a pulley 49 supported from the upper frame-work 35 by up-rights 50.

Thus, to effect hoisting of the mixing machine, it is only necessary to engage a clutch (not shown) for the winch 45. As is usual in an apparatus of this kind, a brake may be provided for holding the machine when hoisted, and for lowering it slowly when the motor is de-energised or the winch is declutched.

What we claim is:

1. A mixing machine for concrete or the like comprising an annular tank having an open top and having an inner annular wall, an outer wall and a base plate closing the bottom of the tank, mixing devices in the tank, a prime mover, gearing driven by said prime mover, a housing completely enclosing said prime mover and isolating it from the contents of the tank and comprising a portion of said base plate, said inner wall and an upper wall mounted on said inner wall, a casing completely enclosing said gearing and comprising a side wall and a top wall, the upper wall of said housing forming the bottom of said casing, and means connecting said gearing to said mixing devices for operating said mixing devices.

2. A mixing machine for concrete or the like comprising an annular tank having an open top and having an inner annular wall, an outer wall and a base plate closing the bottom of the tank, mixing devices in the tank, a prime mover, gearing driven by said prime mover, a housing completely enclosing said prime mover and isolating it from the contents of the tank and comprising a portion of said base plate, said inner wall and an upper

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wall mounted on said inner wall, a casing completely enclosing said gearing and comprising a side wall and a top wall, the upper wall of said housing forming the bottom of said casing, a shaft connected to and driven by said gearing and extending through and outwardly of said top wall and sealingly journaled therein, an inverted cup-like member fast on the outwardly extended portion of said shaft and rotated thereby, means on said member for supporting said mixing devices and revolving them therewith around said housing, and means for rotating at least one of said mixing devices with respect to said member and comprising a chain gear enclosed by said member.

3. A mixing machine for concrete or the like comprising an annular tank having an open top and having an inner annular wall, an outer wall and a base plate closing the bottom of the tank, mixing devices in the tank, a prime mover, gearing driven by said prime mover, a housing completely enclosing said prime mover and isolating it from the contents of the tank and comprising a portion of said base plate, said inner wall and an upper wall mounted on said inner wall, a casing completely enclosing said gearing and comprising a side wall and a top wall, the upper wall of said housing forming the bottom of said casing, a shaft connected to and driven by said gearing and extending through and outwardly of said top wall and sealingly journaled therein, an inverted cup-like member fast on the outwardly extended portion of said shaft and rotated thereby, means on said member for supporting said mixing devices and revolving them therewith around said housing, means for rotating at least one of said mixing devices with respect to said member and comprising a chain gear enclosed by said member, a stationary framework, means guiding said

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tank for vertical movement in said framework, a hoisting cable carried by said framework and connected to said tank, means driven by said shaft for operating said cable to raise said tank, and a closure controlled discharge outlet in the base plate of said tank through which the contents of the tank can be discharged when the tank is raised.

4. A mixing machine for concrete or the like comprising an annular tank having an open top and having an inner annular wall, an outer wall and a base plate closing the bottom of the tank, mixing devices in the tank, a prime mover, gearing driven by said prime mover, a housing completely enclosing said prime mover and isolating it from the contents of the tank and comprising said inner wall and an upper wall mounted on said inner wall, a casing completely enclosing said gearing and comprising a side wall and a top wall, the upper wall of said housing forming the bottom of said casing, and means connecting said gearing to said mixing devices for operating said mixing devices.

References Cited in the file of this patent.

UNITED STATES PATENTS

1,051,003	Peterson	Jan. 21, 1913
1,782,245	Parkhill	Nov. 18, 1930
2,345,163	Volbrath	Mar. 28, 1944
2,576,180	Hörth	Nov. 27, 1951

FOREIGN PATENTS

20,594	Austria	July 10, 1905
26,517	Norway	Jan. 3, 1916
123,653	Sweden	Dec. 21, 1948
263,154	Germany	Aug. 1, 1915