No. 646,544. Patented Apr. 3, 1900.

H. MISCAMPBELL.

CONCRETE MIXER.

(Application filed July 5, 1899.)

(No Model.)

Fig. 1.

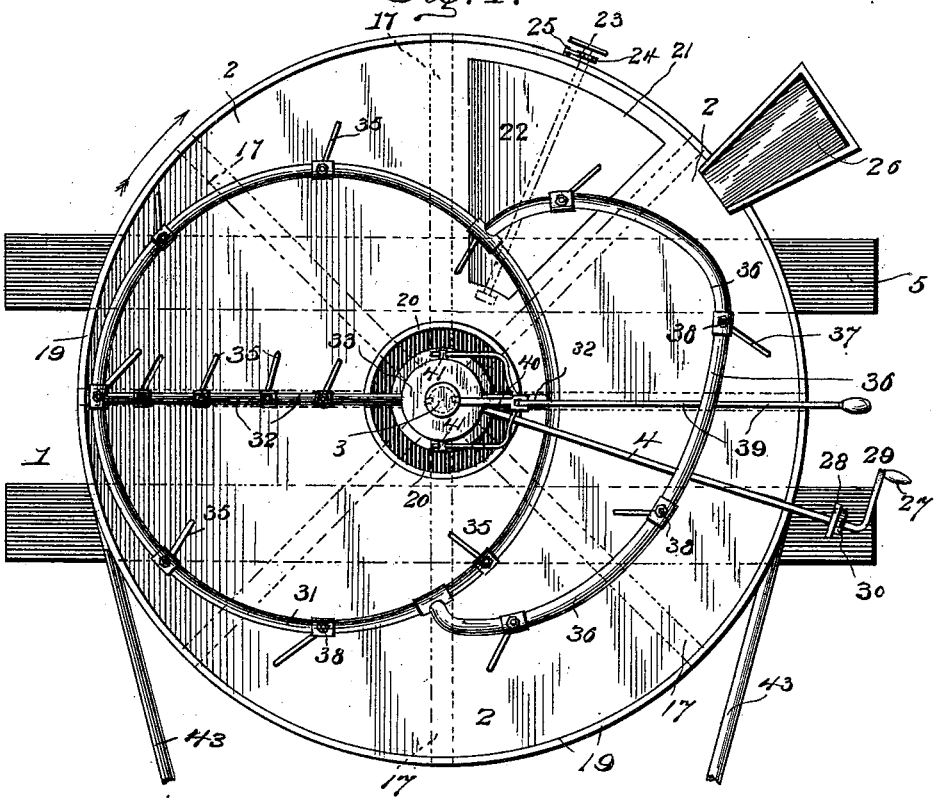
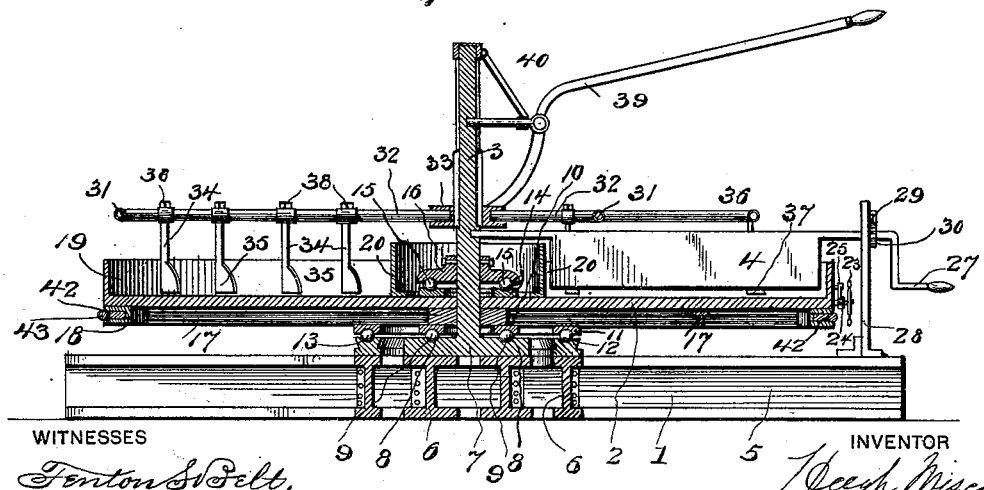


Fig. 2.



WITNESSES

Fenton S. Pelt,

Allan N. Fuss.

INVENTOR

Joseph Miscampbell
by his Attys
Mason Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

HUGH MISCAMPBELL, OF DULUTH, MINNESOTA.

CONCRETE-MIXER.

SPECIFICATION forming part of Letters Patent No. 646,544, dated April 3, 1900.

Application filed July 5, 1899. Serial No. 722,823. (No model.)

To all whom it may concern:

Be it known that I, HUGH MISCAMPBELL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Concrete-Mixers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in mixing-machines, and particularly to that class of machines which are adapted to mix concrete and similar substances.

It consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a top plan view of a concrete-mixer made in accordance with my invention, and Fig. 2 represents a vertical central section through the same.

1 in the drawings represents a base upon which is revolubly mounted a platform 2.

3 is a vertical shaft or standard, and 4 a scraper.

In carrying out my invention I form the base 1 preferably of a series of beams, as 5 5, and cross connecting-beams 6 6, having their upper surfaces flush with each other. Upon the said frame 1 and about centrally thereof I mount a standard or shaft 3, having a pedestal or foot portion 7, adapted to have a broad bearing upon the base 1. Above the pedestal 7 a revolving floor is arranged at a suitable height from the base 1 and having preferably ball-bearings interposed between it and the said base and between it and the said pedestal. The pedestal 7 is preferably provided with an annular groove or recess, as at 8, adapted to receive antifriction-balls 9, said balls 9 also engaging a ball race or groove 10, secured to the under side of the floor 2. A second ball-race, as 11, is secured to the bottom of the floor and engages balls, as 12, said balls running in a groove or ball-race 13, mounted upon the frame 1. In order to still further steady the floor 2, it is provided upon its upper surface with a ball-race 14, carrying balls 15, which engage an annular groove in the collar 16 upon a vertical shaft 3. This arrangement of bearings gives a proper support to the table and prevents the table from tipping in one direction.

The floor 2 is preferably formed of an under framework composed of radial bars or beams 17 17, preferably of T-irons, and a circumferential ring portion, as 18, secured to the outer ends of the said radial beams 17 17. The floor proper rests upon the framework and is provided with upwardly-turned flanges at its outer edge, as 19, to hold the material upon the floor. An inner drum or flange 20 is also secured upon the floor 2, surrounding the collar 16 and ball-bearings beneath it, to prevent the concrete from coming in contact with these parts. The floor 2 is also provided with a trap, as at 21, the door 22 of which is pivotally mounted, so that the trap may be opened at any suitable time for discharging the contents of the floor. The shaft carrying the door 22 extends to the periphery of the floor 2 and is provided with a hand operating-wheel, as 23. The said shaft also carries a ratchet-wheel 24, which is adapted to be engaged by a pawl 25 upon the floor 2, the said pawl controlling the movement of the shaft through the agency of the ratchet-wheel 24.

The material may be supplied to the floor by means of a suitable chute or trough, as 26, which extends over the edge of the floor, but does not touch the same.

In order to even the material placed upon the floor, I provide an evening or spreading board 4, which has shaft extensions at its ends, one of said extensions finding a bearing in the standard 3, while the other extension is provided with a handle 27, by which the board may be raised or lowered upon its bearings. The shaft extension on the outer end of the board finds a suitable bearing in a standard 28, secured to the base-frame 1. A pawl 29 upon the said standard 28 engages a ratchet-wheel 30 on the shaft extension, so as to control the position of the evening and shaping board. It will be apparent that after the material has been placed upon the floor 2 by lowering the evening-board 4 it may be better spread over the surface of the floor.

After the contents of the floor have been thoroughly mixed and is in condition to be discharged the trap 21 may be opened and the board 4 lowered to a still greater degree, so as to scrape everything from the board out through the trap 21. It will of course be borne in mind that the spreading-board 4 is stationary, while the floor 2 rotates.

In order to thoroughly mix the material placed upon the floor, I preferably mount a rod or circular bar 31 31 eccentrically with respect to the floor, as clearly seen in Fig. 1 of the drawings. The ring or circular rod 31 is supported by means of bars or rods 32 32, which are carried by means of a collar 33, movably mounted upon the standard 3. The said collar is preferably splined upon the said shaft, so that, although it may be moved vertically for raising and lowering the ring-bar, it will not rotate upon the said standard. Secured to the circular rod 31 are a series of downwardly-extending arms 34 34, carrying at their lower ends mixing-blades or stirring paddles or plows 35. These mixing-blades may be secured at intervals around the circular rod 31 and set at different angles, as indicated in Fig. 1 of the drawings, so as to completely come in contact with the material upon the floor 2 and thoroughly mix the same. As an additional mixing means an auxiliary rod or bar, as 36, may be secured to the ring 31, the said auxiliary bar being also provided with a series of stirrers or mixing-paddles, as 37 37. The arms 34 of the mixing-blades are preferably adjustably secured to their supporting-bars, being clamped thereon by means of suitable nuts, as 38 38, so that by loosening the nuts 38 the standards may be arranged so that the blades will extend in any desired angle, and by tightening the nuts again they will be held in their adjusted positions.

In manipulating the machine it is desirable to have means for raising the mixing-blades from the floor at certain times, and for this purpose I mount a lever, as 39, upon a bracket 40, secured to the upper end of the standard 3. The lower end of the lever 39 is preferably bifurcated and adapted to engage projections or studs 41 41 upon the collar 33. By depressing the outer end of the lever 39 the collar 33 will be lifted and the blades thus carried to the desired height above the floor 2. The said blades of course can be lowered at any time by lifting the outer end of the lever 39.

It is desirable to rotate the floor 2 with respect to the mixing-blades so as to completely stir up and mix the material on the said board, and for this purpose I preferably provide a groove around the outer periphery of the floor 2, as at 42. The groove may be made of wood or of metal or any desired material and may be engaged by an actuating-cable, as 43, which receives its motion from any suitable source of power. It will be apparent that cog-teeth might be substituted for the groove 42 and the said cog-teeth be engaged by suitable gear-wheels for rotating the floor 2 without departing from the spirit of my invention. It will be seen that instead of rotating the platform 2 the standard 3 might be rotated, the floor being held stationary, thus moving the stirring-blades through the material to be mixed.

In using the concrete-mixer the mixing-blades would be raised from the floor at first. The materials necessary for the composition will then be placed upon the floor 2 and the spreading-board 4 lowered sufficiently to spread the same evenly over the floor. The mixing-blades will next be lowered, so as to thoroughly stir the contents of the floor as may be desired. After the material has been completely mixed the trap 21 is opened and the scraping-board 4 is lowered its full extent, so as to completely scrape all the contents of the said floor through the trap 21. While thus mixing the material, water or liquids which may be necessary can be safely sprayed upon the floor during the operation of the mechanism until the desired consistency of the concrete or other material which may be mixed is attained.

It will be apparent that a machine of this kind is completely within the control of the operator both as to mixing the material and distributing the same from the floor.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a concrete-mixer, the combination with a suitable base, of a revolving floor mounted thereon, the said floor being provided with a trap for discharging the concrete at a suitable time, a spreading-board provided above the floor, its axis being arranged radially thereto, the said board passing over the said trap and being adapted to spread the material evenly upon the whole of the floor, and being also adapted when lowered sufficiently, to scrape the concrete carried by the floor, through the trap therein, substantially as described.

2. In a concrete-mixer, the combination with a suitable base, of a revolving floor mounted thereon, said floor being provided with an outer peripheral flange, and an inner peripheral drum for retaining the concrete upon the floor, an evening scraping-board pivotally mounted above the said floor, means for raising and lowering the same, a suitable frame mounted above the said floor and carrying a series of stirring-blades, and means for raising and lowering the said frame and blades with respect to the said floor, substantially as described.

3. In a concrete-mixer, the combination with a base, of a standard mounted thereon, a revolving floor adapted to rotate about the said standard, an adjustable frame mounted upon the said standard, a splined collar for

holding the said frame thereon, the said frame comprising a ring-bar and an auxiliary bar, blades adjustably secured on the said bars and extending downwardly so as to thoroughly mix the material upon the floor, and means for raising or lowering the said frame, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HUGH MISCAMPBELL.

Witnesses:
JAMES T. WATSON,
A. C. VOLK.