Sept. 19, 1933. A. W. RYBECK 1,927,447

CEMENT MIXER

Filed March 28, 1928 2 Sheets-Sheet 1

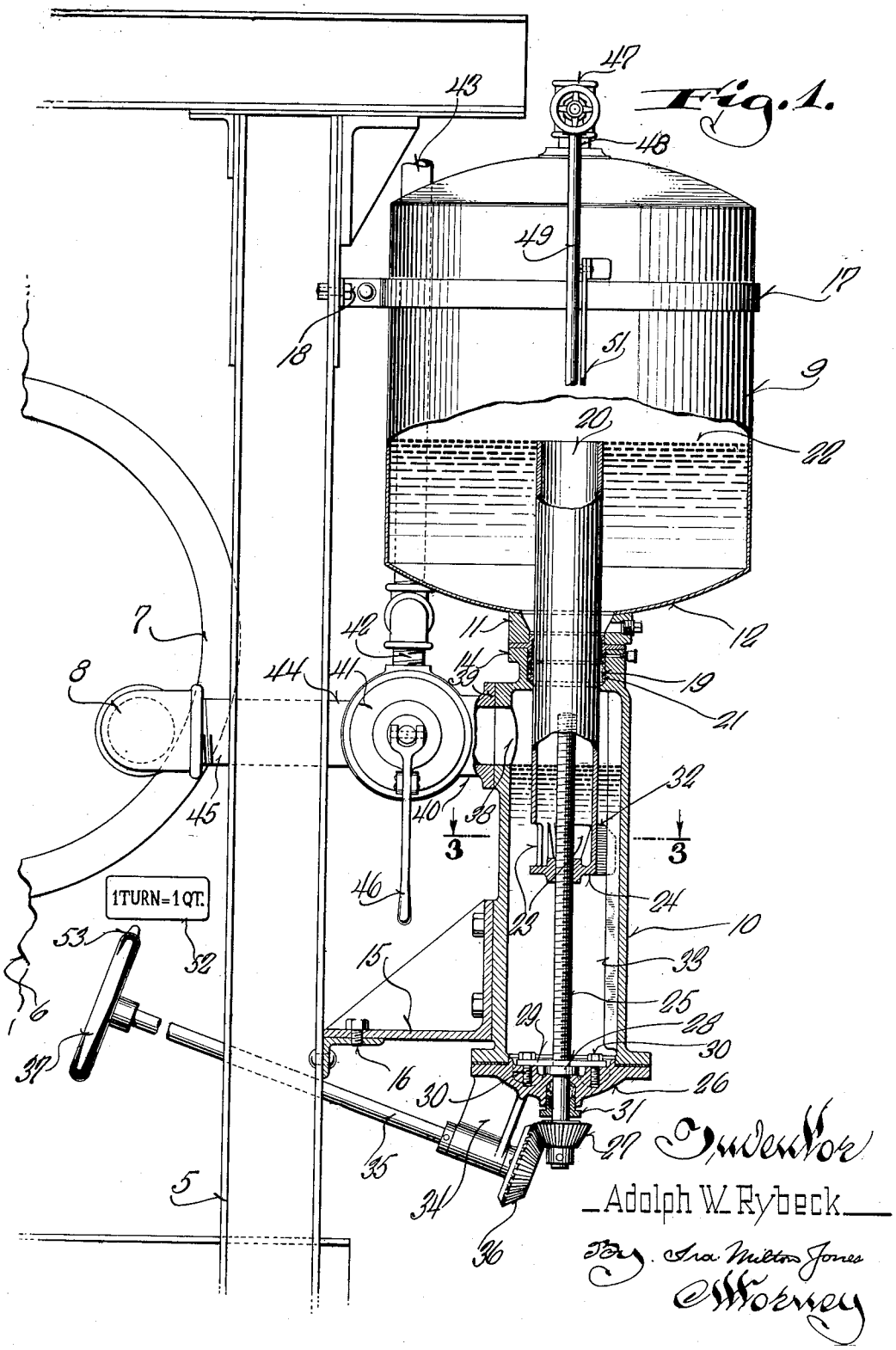


Fig. 1.

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Filed March 28, 1928 2 Sheets-Sheet 2

Fig. 2.

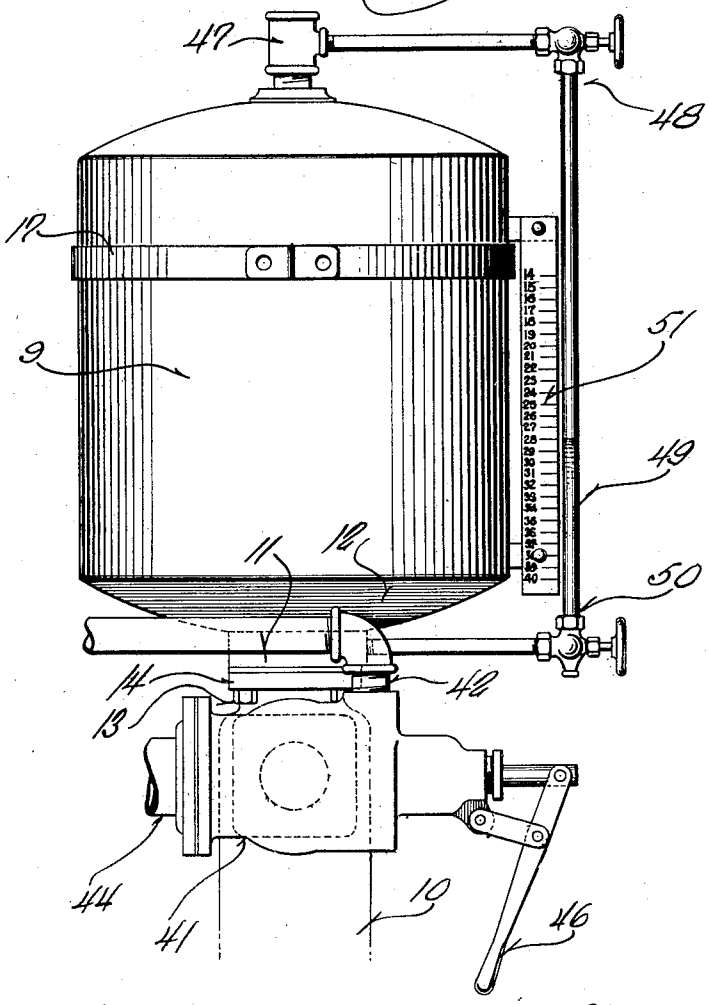
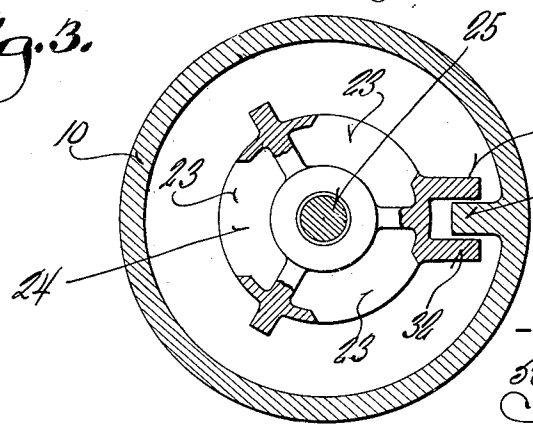


Fig. 3.



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CEMENT MIXER

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Application March 28, 1928. Serial No. 265,301

4 Claims. (Cl. 221—95)

This invention relates to certain new and useful improvements in cement mixers and refers more particularly to a device for measuring and supplying the water to the batch being mixed.

Heretofore, great difficulty has been experienced in providing a water measuring device for cement mixers of sufficient accuracy, as frequently the machines are disposed considerably out of plum due to the unevenness of the ground they are sometimes set up on and, as a result, the water supply varies as much as two gallons, which is objectionable as it materially affects the constituency of the mix.

Therefore, a primary object of this invention is to provide an improved water supply for cement mixers which is extremely accurate and which is substantially unaffected by the angulariity of the machine, the possible error being less than one quart.

Another object of this invention resides in the provision of an improved water measuring and supply device for cement mixers consisting of a drum or tank having a tubular discharge sleeve adjustable therein and operable from a point close to the operator's platform whereby the same may be readily manipulated to deliver any predetermined quantity of water directly into the mixing drum.

And a further object of this invention resides in the provision of a device of the character described which is of extremely simple construction, having but few parts rigidly mounted whereby the possibility of disabling of the device is reduced to a minimum.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a view, partly in section and partly in elevation, of a water supply and measuring device embodying my invention and illustrating the same as mounted on the frame of a concrete mixer;

Figure 2 is a side elevational view taken at right angles to Figure 1 and illustrating the duplex valve for controlling the flow of water to and from the tank or container and the gauge means therefor, and

Figure 3 is a transverse sectional view taken through the discharge casing and metering sleeve control on the plane of the line 3—3 of Figure 1.

Referring now more particularly to the accompanying drawings in which like numerals designate like parts throughout the several views, 5 designates vertical supports of a concrete mixing machine frame structure mounting a mixing drum 6 in the conventional manner. But a fraction of the drum 6 is illustrated in the accompanying drawings, as its structure forms no part of the present invention and secured to one of the supports 5 in the manner later described, is a water supply device which is arranged to discharge into the drum at its opening 7 through a discharge duct 8 which extends therein as illustrated in Figure 1.

The water supply device consists of a tank or receptacle 9 which is supported on the upper end of a vertical discharge casing or housing 10 by a collar 11 welded or otherwise fixed to the bottom wall 12 of the tank and bolted, as at 13, to a flange 14 on the upper end of the discharge casing. An angular bracket structure 15 is secured to the housing and to one support 5, as at 16, to rigidly mount the same and the tank 9 has a strap 17 secured thereabout and bolted or otherwise fixed to one of the supports 5, as at 18, whereby the structure is rigidly mounted from the vertical upright 5 and assumes the same angle as the machine at all times.

The casing 10 is slightly restricted in diameter at its upper end 19, and a metering sleeve 20 is disposed therein with its upper open end extensible into the interior of the tank 9, there being a suitable packing or water tight gland 21 surrounding the sleeve at the restricted area of the casing so as to prevent the passage of the water 22 within the tank to the interior of the casing 10, except through the sleeve 20 which is provided with a series of ports 23 in its lower end. The bottom or end wall 24 of the sleeve has an elongated screw shaft 25 threaded therein, the outer end portion of the shaft being journaled in the end cap 26 of the casing 10 with its outer end extended therebeyond to receive a pinion gear 27.

The screw shaft 25 has a flange or collar 28 fixed thereto to bear against the inner surface of the cap 26 and a flange or plate 29 engages the collar 28, as illustrated in Figure 1, said plate being bolted to the cap, as at 30, to leave the

screw shaft free for rotation but prevent axial movement thereof, there being a stuffing box or gland 31 to prevent the loss of water from the casing 10 about the shaft 25. The lower end portion of the sleeve 20 has a pair of spaced lateral lugs 32 which straddle a vertical rib or guide 33, extended from the wall of the casing 10 throughout its length, to hold the sleeve against rotation while the shaft 25 is being threaded into or out of the sleeve depending upon its direction of rotation to project or retract the sleeve from the tank.

An angular bracket arm 34 carried by the cap 26 has a shaft 35 journaled therein on the lower end of which a pinion 36 is fixed to mesh with the gear 27, the shaft extending upwardly to a position convenient to the operator's platform, not shown, and having a wheel 37 whereby the shaft may be readily rotated to adjust the sleeve in the manner described.

An apertured flange 38 is located at the upper end of the casing 10 to receive the flange 39 of one side 40 of a three-way valve structure 41, the inlet 42 of the valve being connected with a source of water supply through a pipe 43 and the outlet end 44 of the valve being connected with the duct 8 by a pipe 45. The valve 41 may be of conventional design and construction and, therefore, is not shown or described in detail, and has an operating handle 46 which, when in one position, connects the supply 43 with the side 40 of the valve so that the tank 9 is filled, and when in its other position connects the sides 40 and 44 so that the water may discharge from the casing 10 through the duct 8, as will be later described.

A vent or overflow 47 having a check valve, not shown, therein to permit the escape of air therepast, but not water, is preferably connected with the top of the tank 9. The upper end 48 of a water column 49 is connected with the vent, inwardly of the check valve, not shown, the lower end 50 thereof being connected with the lower portion of the tank 9 through the collar 11, as illustrated in Figure 2, a suitable gauge 51 being mounted adjacent the water column 49 so that the contents of the tank 9 may be readily ascertained at any time.

Mounted convenient to the operator is a suitable plate 52 having proper instructions as to the volume of water obtained each complete turn of the wheel 37 which preferably has a projection or indicator 53 so that the degree of turn of the wheel may be readily ascertained. Assuming each turn of the wheel 37 delivers a quart of water and the operator requires one more gallon for the particular batch being mixed, the three-way valve is closed and the wheel 37 rotated four complete turns, causing the sleeve 20 to be withdrawn within the casing 10 to position its upper open end below the level of the water 22. When the valve 41 is opened to connect the duct 8 through the valve, the water within the tank discharges down to the level of the top or upper end of the sleeve 20 and the water within the sleeve is discharged to a point level with the lower portion to the aperture in the flange 38, the casing 10 at all times being substantially filled.

With the structure illustrated, the inclination or tilt of the container 9 has substantially no effect on the accuracy of the device as substantially the same volume of water will at all times be above the top end of the metering sleeve and the operator may obtain any desired volume of water by the adjustment of the handle 37 in accordance with the directions on the plate 52.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art to which an invention of the character described appertains, that I provide a greatly improved and simplified device for supplying and measuring water for cement mixers and one which has but a few parts and is consequently very reliable in operation.

What I claim as my invention is:

1. A water metering and supply device for cement mixers and the like, comprising a water storage receptacle, a tubular housing member having one end bored to register with an opening in the receptacle, a sleeve having a sliding but non-rotatable fit in said bore to project its upper open end into the receptacle, an outlet from said housing to a point of discharge, means for moving the sleeve into and out of the receptacle to meter the volume of water withdrawn from the receptacle through the sleeve housing and outlet comprising, a screw shaft extended into said casing and having a threaded connection with the sleeve, said shaft having an end extended outwardly of the casing, and means connected with the screw shaft and operable from a remote point to turn the same.

2. In a device of the character described, a water storage receptacle, an elongated housing having an upper restricted end connected with the bottom wall of the receptacle in register with an aperture therein, a tubular sleeve mounted within said housing and having its upper open end projectable into the receptacle through said restricted bore, means surrounding the sleeve at the restricted bore of the housing to prevent leakage of water around the outside of the sleeve, an outlet leading from the housing to a point of discharge, a screw shaft extended into the housing with its inner end in threaded connection with said sleeve, means for restraining the sleeve against rotation, and drive means connected with the screw shaft exteriorly of the housing to rotate the shaft and adjust the position of the sleeve in said housing and consequently the position of its upper end with respect to the water level to meter the water to be withdrawn from the receptacle.

3. In a device of the character described, a water storage receptacle, an elongated housing having an upper restricted end connected with the bottom wall of the receptacle in register with an aperture therein, a tubular sleeve mounted within said housing and having its upper end projectable into the receptacle through the restricted open end of the housing, an outlet leading from the housing adjacent its upper end, a screw shaft rotatably but non-longitudinally movably mounted in the housing and threaded in the lower end of the sleeve, means restraining the sleeve against rotation, and drive means for the screw shaft whereby it may be actuated from a point remote from the housing to adjust the height of the open upper end of the sleeve with respect to the water level to meter the water to be withdrawn.

4. In a device of the character described, a fluid storage receptacle having a centrally disposed substantially vertical axis, an elongated tubular housing supporting the storage receptacle having an end connected with the bottom wall of the receptacle in register with an aperture therein the axis of said housing lying on said vertical axis, an axially adjustable tubular sleeve concentrically mounted with respect to said housing and

having its upper open end vertically projectable into the receptacle, the diameter of said sleeve being less than that of the housing whereby to provide a space between the housing and housing walls, an outlet member associated with the tubular sleeve and leading to a point of discharge, means operable exteriorally of said housing for adjusting the relative position of the sleeve to the housing and to adjust the position of the sleeve open end with respect to the fluid level in the receptacle and control the discharge of fluid from the receptacle through said outlet member, and means to fill the receptacle through the outlet member.

ADOLPH WM. RYBECK.

CERTIFICATE OF CORRECTION.

Patent No. 1,927,447. September 19, 1933.

ADOLPH W. RYBECK.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 4, claim 4, for "housing" first occurrence, read sleeve; and line 6, for "sleeve" read housing; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of November, A. D. 1933.

F. M. Hopkins
Acting Commissioner of Patents.

(Seal)