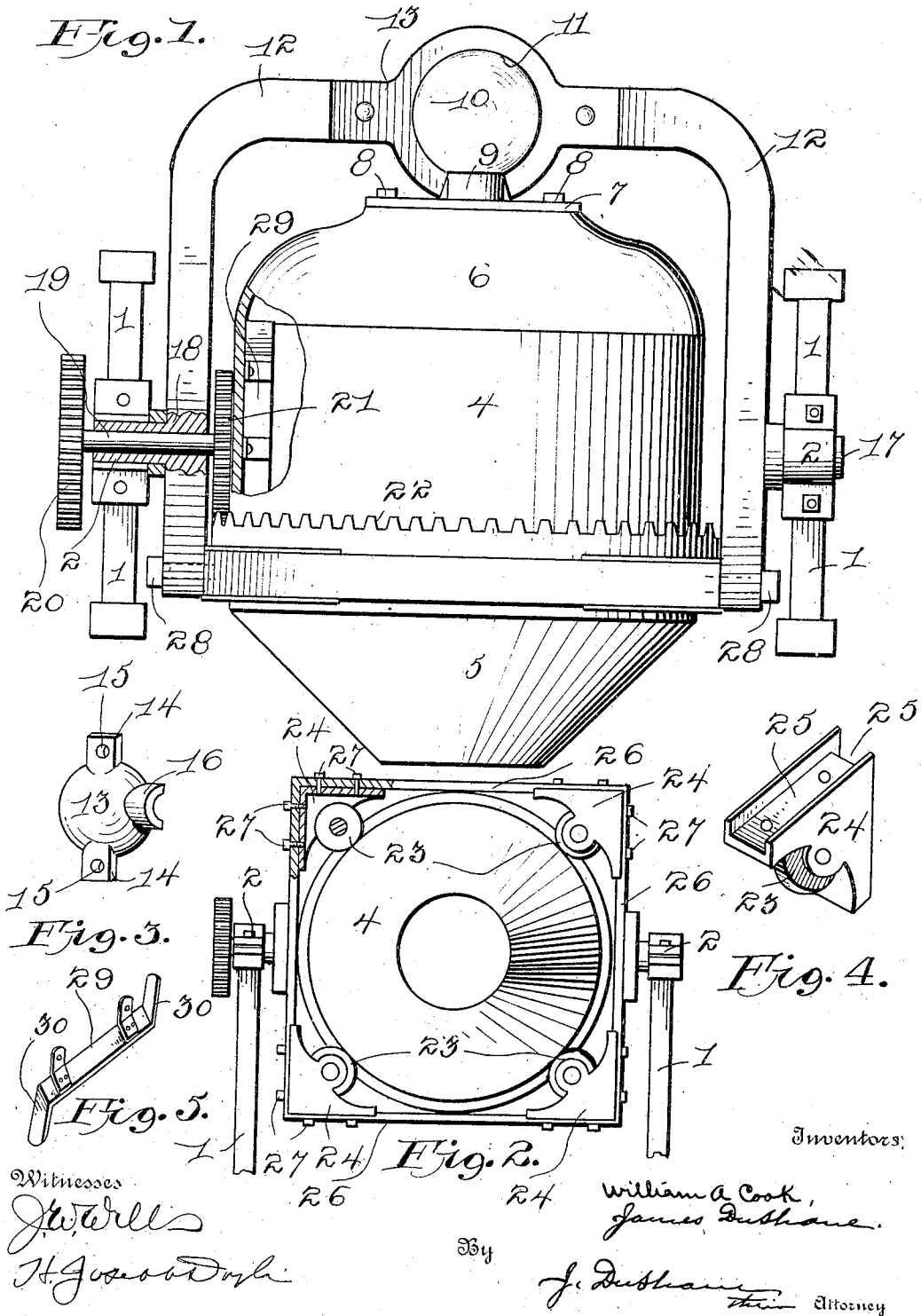


W. A. COOK & J. DUSHANE.
CEMENT MIXER.
APPLICATION FILED JULY 12, 1909.

952,606.

Patented Mar. 22, 1910.



UNITED STATES PATENT OFFICE.

WILLIAM A. COOK AND JAMES DUSHANE, OF SOUTH BEND, INDIANA.

CEMENT-MIXER.

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Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed July 12, 1909. Serial No. 507,107.

To all whom it may concern:

Be it known that we, WILLIAM A. COOK and JAMES DUSHANE, citizens of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Cement-Mixers, of which the following is a specification:

This invention relates to certain new and useful improvements in cement mixers of that class in which is provided a mixing receptacle or drum mounted for rotation within a suitable support and also mounted for tilting motion to discharge the contents.

The present invention has for its objects among others to provide an improved and simplified construction embodying a yoke with which the drum has a ball and socket connection, designed to act as a compensating bearing for wear or irregularities in the rollers or front bearing of the drum. At the same time, it controls the drum in any position whether for loading or turning over on the trunnions to discharge the contents of the drum. This is very essential as the drum is kept continually revolving; no matter what its position on the horizontal axis or whether loaded or unloaded.

A further object is to provide efficient means within the drum so constructed as to assist in working the material back into the drum when loading, and aiding to discharge the material when the drum is turned over into a discharge position.

We aim further at improvements in the details of construction whereby better results are attained and the device rendered less liable to get out of order, but, at the same time, easily repaired and economical in its construction.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a plan with a portion of the drum broken away and parts shown in section. Fig. 2 is an end elevation looking at the front end of the drum with parts in section. Fig. 3 is a perspective view of the cap of the spherical bearing removed. Fig. 4 is a perspective view of one of the corner

brackets and its roller. Fig. 5 is a perspective view of one of the mixing vanes removed.

Like numerals of reference indicate like parts throughout the several views.

Referring to the drawings, 1 designates a portion of the supporting frame which may be of any of the well-known or suitable forms of construction, 2 being suitable bearings for the trunnions of the drum.

4 is the drum open at one end through the truncated cone 5 and closed at its other end by suitable means, as a spherical member or portion 6 having a head 7 removably retained thereon by suitable means, as the bolts or the like 8. Extending from this removable head or cap piece 7 is a stem 9 terminating in a ball 10 which rests and has a bearing in a correspondingly shaped portion 11 of the yoke 12. This ball is held in place and readily accessible by removal of a cap 13 having lugs 14 with openings 15 for the passage of its securing means. This cap is provided with the substantially semi-cylindrical lug 16 to embrace the stem 9 which carries the ball, as will be readily understood upon reference to Figs. 1 and 3. This lug 16 does not constitute a bearing but is extended over the stem as a shield for the same to keep off the sand. It does not fit snugly to the stem. This yoke is provided with trunnions 17 and 18 mounted in the bearings 2 on the standards or upright portions of the frame, the trunnion 18 being hollow, as seen in Fig. 1, through which passes a shaft 19, as seen in Fig. 1. On the outer end of this shaft is a member 20 which may be either a belt pulley or a toothed wheel, to which motion is given by proper connection with some suitable source of power, not shown. Upon the inner end of this shaft is a pinion 21 which meshes with a rack 22, as seen in Fig. 1, which is carried by the drum; said pinion being disposed within the yoke and in direct engagement with said rack, which latter is, as shown in Fig. 1, secured to the outside of the drum near its conical open end.

The front end of the drum is supported on rollers 23 mounted to revolve freely in the corner brackets 24 which are, preferably, channeled, as seen at 25, to receive the right angled corner portions of a frame 26, as seen in Fig. 2, to which the corner brackets are bolted by suitable means, as bolts or the like 27, as seen clearly at the upper

left hand corner of Fig. 2. The side members of this frame are secured to the front ends of the yoke 12 in any suitable manner, as by bolts or the like 28, as seen best in Fig. 1, by which means the yoke carries the entire load of the drum on the two bearings, the ball 10 at one end and the rollers 23 at the other. By the employment of this ball, especially in connection with the bearing at the front end, we are enabled to compensate for all irregularities in the motions of the drum, regardless of the cause of such irregularities, whether it be due to wear, lack of perfect rotundity of the drum or proper centering of the front bearing on the drum. The ball forms a sort of universal joint and by reason of its removable cap and the removable head to the drum carrying said ball, the parts are readily disassembled for repairs or inspection. This construction also provides economy in the first cost of the device.

To the inner surface of the drum are secured a plurality of vanes 29, one of which is seen detached in Fig. 5. These vanes are designed to extend across the drum parallel with its axis but are given reverse bends, as seen at 30 and 31, in Fig. 5, at the ends. The effect of these bends is to work the material back into the drum when loading the same, but they will also tend to discharge the material when the drum is turned over into a discharge position.

It is to be observed that the mixer or drum is open at one end and controlled by its end bearing, while it is freely supported near its front end. This gives a sort of balanced drum which may be revolved with a minimum power and yet most satisfactory results attained.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. In a machine of the class described, a revoluble drum open at one end, a roller bearing for said open end, a universal joint support for the other end and a trunnioned yoke in which said bearings are supported and by which the entire load is carried and a support for said yoke.

2. In a machine of the class described, a revoluble drum open at one end, a roller bearing for said open end, a universal joint

support for the other end, a trunnioned yoke in which said bearings are supported and by which the entire load is carried, a support for said yoke and means mounted in said yoke and intermediate said bearings for revolving the drum.

3. In a machine of the class described, a revoluble drum open at one end, roller supports for said open end, a yoke, a support therefor, a universal joint upon which the other end is supported, and trunnions projecting from said yoke intermediate the front and rear bearings.

4. In a machine of the class described, a revoluble drum open at one end, roller supports for said open end, a yoke, a support therefor, a universal joint upon which the other end is supported, trunnions projecting from said yoke intermediate the front and rear bearings, and a driving shaft extending through one of said trunnions.

5. In a machine of the class described, a yoke mounted on trunnions, a drum revolvably mounted and supported by the yoke, a universal joint support for one end of said drum, a frame carried by the yoke and in which said universal joint support is mounted, corner brackets in said frame, rollers carried by said brackets and engaging the drum, a support for said yoke and means intermediate the front and rear bearings of the drum for rotating the same.

6. In a cement mixer, a drum, a yoke mounted on trunnions and in which said drum is supported, a support for said trunnions, roller bearings for the front end of the drum, a universal joint support for the other end, means for revolving the drum, and vanes upon the interior of the drum having reverse bends adjacent their ends.

7. In a machine of the class described, a yoke, a drum mounted intermediate its ends on trunnions in said yoke and having a stem at one end terminating in a ball resting in a bearing in said yoke, a support for said yoke and a removable cap having a lug extending over said stem to protect the same.

In testimony whereof we affix our signatures, in presence of two witnesses.

WILLIAM A. COOK.
JAMES DUSHANE.

Witnesses:

EDW. F. DUFALL,
HARRY G. SCHOCK.