T. L. SMITH.

CONCRETE MIXER.

APPLICATION FILED SEPT. 22, 1909.

1,145,171. Patented July 6, 1915.

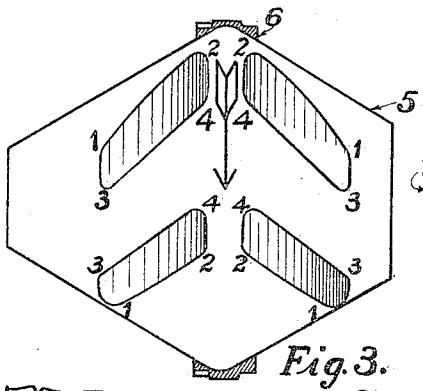


Fig. 3.

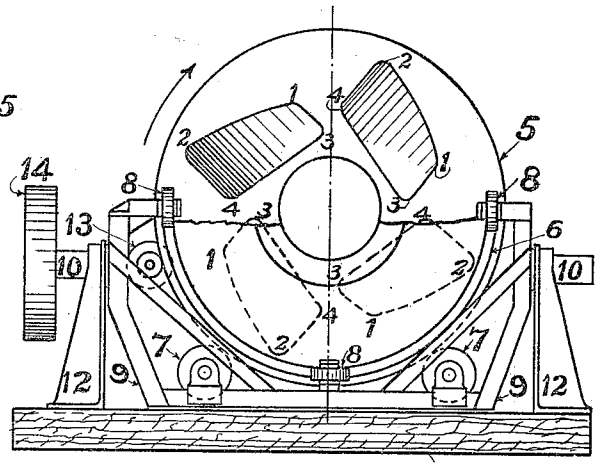


Fig. 1.

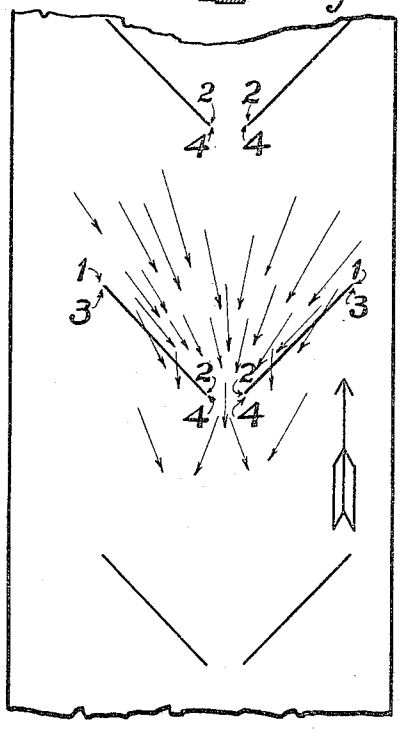


Fig. 4.

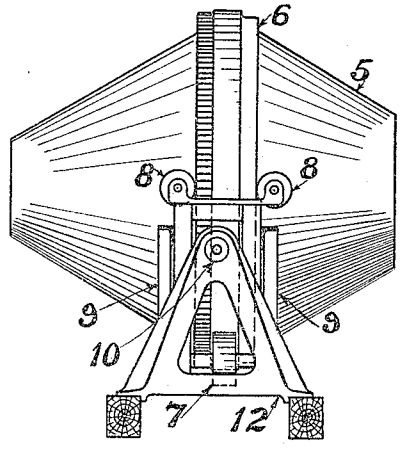


Fig. 2.

WITNESSES:

Lloyd Draeger.

Dromeyer.

INVENTOR

Thomas L. Smith

BY

Albert E. Smith.

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS L. SMITH, OF MILWAUKEE, WISCONSIN.

CONCRETE-MIXER.

1,145,171. Specification of Letters Patent. Patented July 6, 1915.

Application filed September 22, 1909. Serial No. 519,044.

To all whom it may concern:

Be it known that I, THOMAS L. SMITH, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Concrete-Mixers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to improvements in concrete mixers and the object of my invention is to improve the rapidity and efficiency of the mixing operation and at the same time to reduce the tendency of the fluid concrete to spill out at the open ends of the drum or mixing receptacle.

In the accompanying drawing, Figure 1 is a side view of a concrete mixer embodying my invention, the upper front half of the drum being broken away to show the blades; Fig. 2 is an end view of the mixer shown in 1; Fig. 3 is a central longitudinal section through the mixing receptacle, and Fig. 4 is a diagrammatic view showing the relative position of the blades as they would appear in a development of the drum, assuming it to be a cylinder.

The concrete mixer embodying my improvements consists in the well known double cone drum 5, the guiding and driving gear ring 6, which is supported on rollers 7, and guided by rollers 8. These rollers are mounted on a structural iron cradle which has trunnions 10, 10, on which said cradle swings, and is supported by means of the pedestals 12, 12. The drum is revolved by the gearing 13, which is driven through one of the trunnions by the pulley 14. All of this construction is old and is well known as the Smith mixer.

My present invention consists in the arrangement of blades in the mixing receptacle. The blades are in pairs, one blade of each pair being attached to each cone. The leading edges of the blades as the drum is rotated are 1—3, and the following edges are 2—4. The top edges that is those nearest the axis of rotation are 1—2, and the edges secured to the shell of the mixing receptacle are 3—4. As the drum revolves in the direction of the arrow, Fig. 1, the leading edges 1—3 of the blades gather the material in the drum between them and the inclination of the blades forces this material toward the median plane of the drum. There is a tendency of movement toward the middle of the drum due to the double conical form thereof, and this tendency is augmented and made positive by the disposition of blades above described. The quantity of the mixing material at the side of the drum that is moving upward is increased owing to part of it being carried upward while it is flowing through the relatively narrow opening between the two edges 2—4 of each pair of blades, and it is this movement through the narrow openings of material gathered from each end of the drum that constitutes the most efficient mixing operation. All tendency of the wet mixture to spill or flow out of the feed and discharge openings of the mixing receptacle is avoided. I have also found in practice that a mixing drum with blades placed according to my invention will hold 25% more of the mixture without any spilling, than can be held by the same drum with the blades arranged in alternate positions, not opposite each other. The two advantages are thus obtained of gathering the materials from near the ends of the drum and forcing them together and through the narrow orifice, thus producing the most efficient mixing, and also of preventing the material spilling at the open ends of the mixing receptacle.

What I claim as my invention is:

1. In a concrete mixer, a rotatable mixing drum consisting of two truncated cones attached together at their larger ends, a plurality of pairs of opposed and oppositely inclined blades attached to the interior of said drum, one blade of each pair being on one cone and its opposite blade on the other cone, the inner ends of the opposed blades being spaced apart at the medial plane of the drum to afford an unobstructed opening there between, the blades extending on their outer ends substantially to the ends of the drum, said blades being adapted and arranged to gather the materials from each end of the drum and force them in equal and opposing quantities toward the medial plane of the drum.

2. In a concrete mixer, a rotatable mixing drum having normally open axial feed and discharge openings therein and means for tilting said drum to discharge, a plurality of pairs of opposed and oppositely inclined blades attached to the interior of said drum, one blade of each pair being on one side of the medial plane of the drum and its opposite blade on the other side thereof, the inner

opposed ends of the blades of each pair being spaced apart at the medial plane of the drum to afford an unobstructed opening there between, the blades extending on their outer ends substantially to the ends of the drum, said blades being adapted and arranged to gather the materials from each end of the drum and force them in equal and opposing quantities toward the medial plane of the drum.

In testimony of which, I hereunto affix my hand in the presence of two witnesses.

THOMAS L. SMITH.

Witnesses:

E. O. MAUKTELOW, [L. S.]
H. H. GERLACH. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."