

C. C. TURNER.
CONCRETE MIXER.
APPLICATION FILED FEB. 16, 1908.

995,047.

Patented June 13, 1911.

2 SHEETS-SHEET 1.

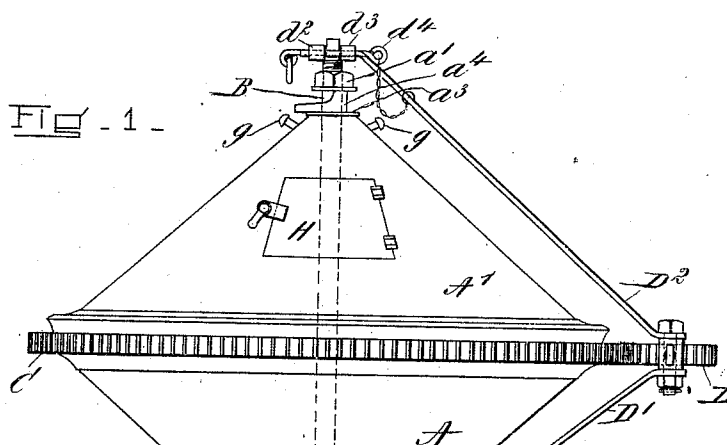
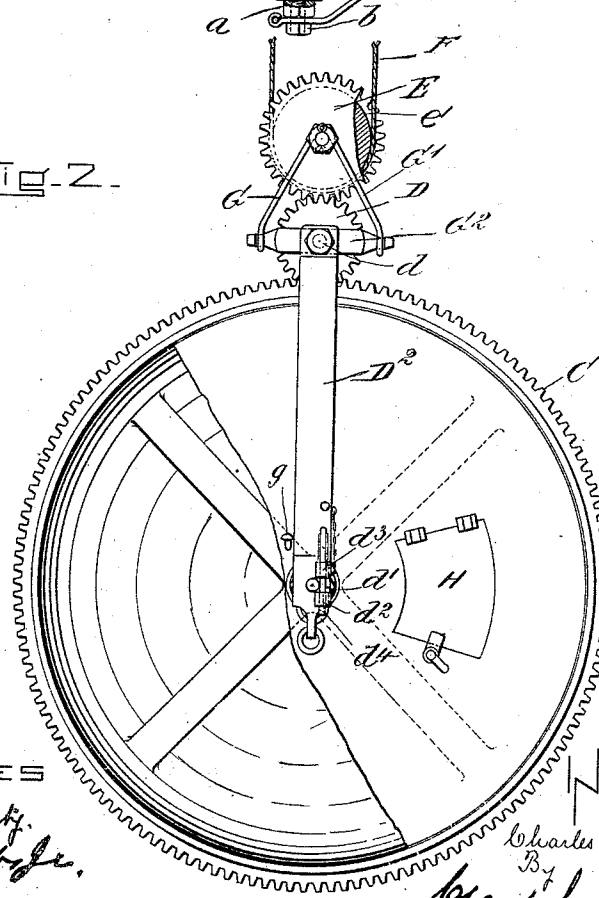


Fig. 2 -



WITNESSES

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CHARLES C. TURNER, OF SALEM, MASSACHUSETTS.

CONCRETE-MIXER.

995,047.

Specification of Letters Patent. Patented June 13, 1911.

Application filed February 15, 1908. Serial No. 416,003.

To all whom it may concern:

Be it known that I, CHARLES C. TURNER, of Salem, in the county of Essex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Concrete-Mixers, of which the following is a specification.

My invention relates especially to that type of rotatable concrete mixer in which power is applied to rotate the mixer through the instrumentality of the hoisting rope and consists in certain details of construction both of the mixer itself and the means by which it is hung.

My invention will be understood by reference to the drawings in which one convenient form of mixer embodying my invention is shown, Figure 1 being an elevation of the apparatus lying upon its side out of commission. Fig. 2 is an end-elevation of the apparatus while in operation, a portion of one end being broken away to show the interior construction, and Fig. 3 is a side elevation showing the operation of dumping a load.

The mixer in the form shown comprises two hollow conical portions A, A¹. These hollow cones may be made of wrought iron or steel or any other suitable material and are mounted upon a central spindle B which passes through the apex of each cone. The cone A is attached to the end of this spindle by means of the nut a; and the cone A¹ is attached to the farther end of the spindle B by means of the nut a¹. The spindle B is provided with a suitable shoulder to receive the cone A, and the cone A¹ fits down upon the outer edge of the cone A. A rubber or other washer a² is preferably provided to form a tight joint between the two cones. The apex of the cone A¹ is provided with a washer a³ which rests upon it and between it and the nut a¹ is a wedge piece a⁴ which when the nut is screwed down tight against the thickest portion of the wedge piece as shown in Fig. 1, confines the cone A¹ in place against the cone A so as to make a tight joint therewith.

Around the larger end of the cone A and fast thereto I provide a gear C and in mesh with this gear C I preferably provide a pinion D mounted on a pin d passed there-through and through two braces D¹, D²

which form a bail on which the pin d is provided. The other end of the brace D¹ is perforated and through it passes one end of the spindle B, a nut b holding this end of the brace in place. The free end of the brace D² is provided with a slot d¹ which fits over the other end of the spindle B, the side walls of this slot terminating in eyes d², d³ through which passes a pin d⁴ which holds this brace D² in place on the end of the spindle B. Thus the two braces serve as bearings in which the mixer may be rotated and with the pinion D the means by which the mixer may be held in the position shown in Fig. 2. A sheave gear E running upon a rope F, which may be hoisting rope of a derrick, carries on its axle two depending hooks G, G¹, the eyes in the ends of these parts hooking over the ends of a cross-bar G² which also is held in place by the pin d these hooks forming a bail for the cross-bar G². By this means the gear E is attached to the mixer or may be easily detached therefrom when desired. The gear E I have called a gear sheave. Its periphery is divided into three sections, two of them e being gear sections which mesh with the gear D and the third of which e¹ lies between the two gear sections e and serves as a sheave bearing for the rope F. This rope is the ordinary hoisting rope such as usual in apparatus of this kind, one end being fixed to an eye on the derrick or other suitable fixture while the other end passes over one or more pulleys and runs to the hoisting engine. This feature is so well understood in the art that further explanation seems unnecessary. To explain in the first place this portion of my invention: The mixer when it is to be filled is laid on its side, as in the position shown in Fig. 1. Being opened, by removing the brace D² and nut a¹ and other parts at that end of the spindle B to allow the cone A¹ to be removed, it is filled with the necessary proportions of stones, sand, cement and water, and is then closed, the cone A¹ being put in place, one end of the spindle B passing through it. The washer a³ is then put in place and on that the thick end of the wedge a⁴ and nut a¹ which is screwed home. Then the brace D² is put in place and the pin d⁴ driven home to hold it there. The gear G

then being attached to the cross-bar in the way above described, the derrick rope F is pulled by the engine or other means to lift the mixer which assumes the position shown in Fig. 2 and then to hoist it. It will be seen that during the rotation of the gear G caused by the hoisting rope its motion is transmitted through the pinion D to the gear C and mixer and thus the mixer is continually rotated during any hoisting or lowering action of the derrick and should the normal lowering or hoisting not be sufficient to accomplish the necessary mixing a few extra rotations may be given by causing the engine to wind and unwind the rope F a few times upon its drum.

The mixer having been conveyed to the place where the load is to be dumped the workman with a hammer strikes the wedge a^1 driving its thick part out from under the nut a^1 and thus releasing the pressure which holds the cone A^1 upon the cone A, the weight of the contents of the mixer falls out through the opening indicated in Fig. 3, where the parts are shown in dumping position. By giving the mixer a turn while in this position any of the concrete which has a tendency to stick to the interior wall of the mixer will fall out. The mixer is then conveyed back to its original position and laid on its side as shown in Fig. 1. The parts being released by the removal of the brace D^2 and nut a^1 the hooks on the gear G will be disengaged from the cross-bar G^1 and may be engaged with the pins g when the top of the cone A^1 and the cover may be lifted off, and, where there are several of these mixers in use, conveyed to another mixer the portion A of which has been filled with the necessary proportions of the necessary materials, when it is put in place, and that mixer started on its travels, this operation causing its contents to be mixed in the manner before stated.

In some cases it may be desirable to introduce the material into the mixer without taking the cover off. For this purpose I have provided a door H in the side of the cone A which may be hinged thereto and locked by suitable hand-screws or otherwise and utilized wherever desirable. Where the periphery of such a mixer is circular or approximately so, instead of the gear C the hoisting rope may pass around the mixer which may be provided with a suitable groove for the purpose so that the mixer becomes a hollow sheave which during the process of transmission, hoisting or lowering, is rotated in the manner described.

It is of course evident that the rope F instead of being a hoisting rope may be a horizontal rope or a track along which the mixer when filled and placed thereon may

run so that the gear sheave will receive its rotary motion by engagement therewith instead of by the reeving around it of a hoisting rope, the main feature of my invention consisting in the combining in the one device of a rotary mixer and conveyer.

Other modifications of my invention will occur to any mechanic skilled in the art.

What I claim as my invention is:—

1. The mixer above described comprising a hollow casing made in two sections and means for temporarily clamping said sections together whereby they may be separated for filling and emptying, one of said sections carrying one member of a rotating means in combination with a hoisting means adapted in the act of hoisting said mixer to engage said rotating member and cause the rotation of said mixer, as described.

2. The mixer above described comprising a hollow sectional casing, the sections of which are separable to receive and discharge material, and means for hoisting it comprising a hoisting rope, and connections between said hoisting rope and one of the sections of said mixer whereby said rope in the act of hoisting will rotate the mixer, as described.

3. The mixer above described consisting of a hollow casing comprising two sections, a central spindle and means for detachably attaching one of said sections thereto, and a lock carried by said shaft whereby the other of said sections is temporarily attached thereto and may be released from such attachment to dump the load as described.

4. The mixer above described comprising a hollow sectional casing one section of which carries a peripheral gear, means engaging said gear whereby said mixer may be simultaneously rotated and hoisted, and means for separably clamping said sections together whereby said casing may be opened without interfering with said rotating means, as described.

5. In a mixer of the kind described, a sectional casing having a peripheral gear and an axis at right angles to said gear, bearings for said axis comprising braces, a pinion, the axis for said pinion being also provided with bearings in said braces, one of said braces being provided with locking means whereby it may be temporarily attached to the end of the said axis as set forth.

6. In a mixing apparatus, the combination with a rotary mixing chamber comprising two similar parts movable relative to each other in the axial direction, of means for suspending said chamber, and means carried by the suspended portion of said apparatus for holding said parts against

separation in the axial direction to control the discharge of the mixture from the center of the chamber.

5 7. In a rotary sectional mixer, means for locking the two parts thereof comprising a spindle one end of which is permanently attached to one of said sections, the other end of the spindle carrying a wedge piece

slidable thereon and means also located on said spindle between which said wedge 10 piece may slide to lock said mixer, as described.

CHARLES C. TURNER.

In the presence of—

GEORGE O. G. COALE,
M. E. FLAHERTY.

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