

(No Model.)

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APPARATUS FOR MIXING CONCRETE.

No. 420,453.

Patented Feb. 4, 1890.

FIG. 1.

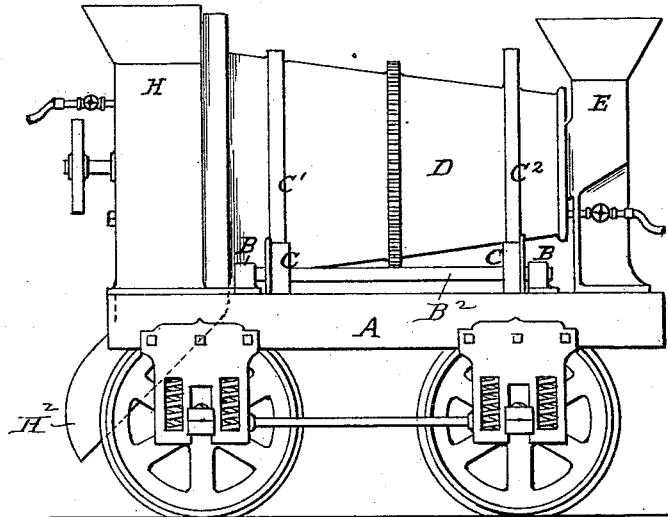
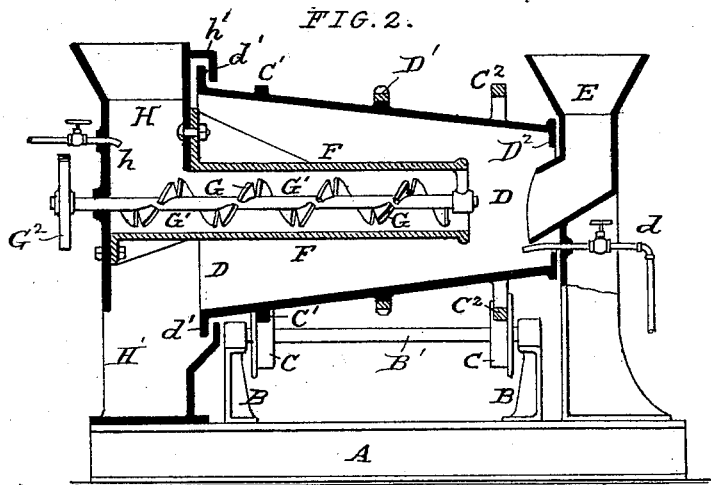


FIG. 2.



ATTEST:

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NELLIE M. HEWES, OF OAK PARK, ILLINOIS, ADMINISTRATRIX OF LESTER W. HEWES, DECEASED.

APPARATUS FOR MIXING CONCRETE.

SPECIFICATION forming part of Letters Patent No. 420,453, dated February 4, 1890.

Application filed September 23, 1889. Serial No. 324,842. (No model.)

To all whom it may concern:

Be it known that LESTER W. HEWES, deceased, late a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, did in his life-time invent certain new and useful Improvements in Apparatus for Mixing Concrete, of which the following is a specification.

The said invention relates to that type of machines used for mixing together sand, hydraulic cement, crushed stone, or other materials to form concrete for pavements, foundations, or other purposes.

It is the object of the invention to provide means whereby such operation may be rapidly, economically, and efficiently performed, comprising the advantages of securing with little labor a uniform proportion of the different materials; an effective intermingling and uniting of the same, and compactness and convenience in the arrangement of the different parts of the machine.

To this end the invention consists in the several parts and combinations thereof hereinafter particularly set forth and claimed.

In order that the invention may be clearly understood there is shown in the accompanying drawings means for carrying the same into practical effect, without, however, intending that the invention shall be confined to the particular details which are, for the sake of illustration, shown and described.

In said drawings, Figure 1 is a side elevation of an apparatus embodying the said invention mounted upon wheels, so as to be portable and adapted for use on cable roads and in other localities where it is frequently convenient to move the apparatus from place to place. Fig. 2 is a vertical longitudinal section of the same apparatus mounted upon a stationary or semi-portable frame.

Referring to the drawings, A indicates the base of the frame, which may be mounted upon wheels, as shown in Fig. 1, or adapted to rest upon the ground or any other flat surface, as shown in Fig. 2. This base is provided with standards B—preferably four in number—having bearings in which are journaled the ends of two or more shafts B' B², which are situated at substantially the same level, one at each side of the middle of the

base A. Upon said shafts are mounted rollers C, which are adapted to support circular rings or tracks C' C², and which are preferably flanged, as shown, so as to retain the tracks in place upon the rollers. The said tracks are formed with or attached to a mixing or combining chamber D, formed of suitable material, such as iron, which is thus supported and adapted to be easily rotated upon said rollers, as upon a horizontal or substantially horizontal axis.

The mixing-chamber D may be rotated by any suitable or well-known appliances—such as, for instance, a toothed pinion (not shown) actuated by any convenient power and gearing with a peripheral toothed wheel or rack D', which is rigidly secured to the chamber. The latter is preferably formed in the shape of a frustum of a cone, as indicated, whereby it furnishes in all positions an inclined plane to the material which is being acted upon. It thus serves, while mixing and combining the elements of the latter, to convey the mass rapidly to the point of delivery. At its smaller end the chamber D is provided with an inwardly-projecting flange D², which leaves a central eye or feed-opening, through which projects the lower end or chute of a feed-hopper E. This hopper is designed for the crushed stone, which is thus delivered to what may be termed the "higher" or "rear" end of the chamber, being that which is farthest from the delivery end. The inner surface of the chamber D may be plain, as shown, or it may be formed or provided with corrugations, ribs, or flanges of well-known character to assist in the mixing and conveying of the material.

F indicates the inner or auxiliary mixing-chamber, which is supported in any suitable manner independently of the chamber D and extends into the latter from its front or delivery end.

In the construction illustrated the chamber F is supported by being securely bolted to the walls of a feed-hopper H, which in turn rests upon the base A. The chamber F is open at its inner end, which terminates at or near the point of delivery from the hopper E, and is also open at its outer end, whereby it is adapted to receive sand and cement from

the hopper H. This auxiliary chamber is preferably cylindrical, and is provided with a central shaft G', having conveying blades or flights G of suitable character to forward the material supplied by the hopper H to the outer end of the auxiliary chamber to the inner or delivery end of said central chamber, where it falls upon the crushed stone supplied from the hopper E. By this means the sand and cement are completely mingled, united, and properly prepared by the aid of water, which is furnished by a valved pipe *h* before said materials reach the crushed stone. After the mortar thus formed has been added to the stone the whole mass is mixed and delivered by the chamber D, as already described.

In order that moisture may be furnished to the crushed stone or to the contents of the chamber D independently of the water which is brought by the mortar the hopper E or rear end of the chamber D is provided with a valved water-pipe *d*, which is adapted to be connected with a hose or other suitable source of supply. The shaft G' is provided with an external power-wheel G², through which it may be actuated from any suitable source of power.

At its rear side the hopper H is provided with a rearwardly and inwardly (by "inward" meaning toward the axes of the mixing-chambers) extending flange *h'*, which is adapted to inclose an outwardly-projecting peripheral flange *d'*, which is formed with or attached to the forward edge of the mixing-chamber D. Said flange *h'* extends down to and connects with a receiving-chute H', into which the mixed and united materials are delivered, and from which they may be removed by the workmen. In the construction shown in Fig. 1 said chute may be adapted, as shown at H², to deliver directly to the foundation or road-bed where the concrete is required, the apparatus being in the proper situation. To keep the latter in the proper place it may be readily moved, by reason of the manner in which it is mounted, intermittently or gradually, at a rate corresponding with the rapidity of the mixture and delivery of the concrete by the apparatus.

The mode of operation of the invention has been sufficiently set forth in connection with the above description of the construction and arrangement of its parts.

Having described the invention, what is claimed is—

1. In a concrete-mixing apparatus, the combination of a rotary conical mixing-chamber, an independent auxiliary mortar-mixing chamber adapted to deliver to the former, and independent feeding devices for said chambers, substantially as set forth.

2. In a concrete-mixing apparatus, a pair of mixing-chambers, one arranged within the other and fed from opposite ends, the one being adapted to mix the hydraulic cement, sand, and water, while the other is adapted to receive such mixture and incorporate the same with the crushed rock to form the concrete, substantially as set forth.

3. In a concrete-mixing apparatus, a pair of mixing-chambers, one arranged within the other and fed from opposite ends, the one being stationary and provided with a mixer and conveyer, whereby it is adapted to mix and deliver the hydraulic cement, sand, and water, and the other being rotary and adapted to receive such mixture and incorporate the same with the crushed rock to form the concrete, substantially as set forth.

4. In a concrete-mixing apparatus, the combination of the main mixing-chamber D, made conical or flaring toward its discharge end, rollers upon which said chamber is mounted and adapted to rotate, the stationary auxiliary mixing-chamber F, arranged within said chamber D, a conveyer and mixer within said chamber F, and independent feed-hoppers for said chambers, substantially as set forth.

In testimony whereof I have affixed my signature in the presence of two witnesses.

NELLIE M. HEWES,

Administratrix of the estate of Lester W. Hewes, deceased.

Witnesses:

FRANK E. BALLARD,
JNO. D. CALDWELL.