

March 23 , 1926.

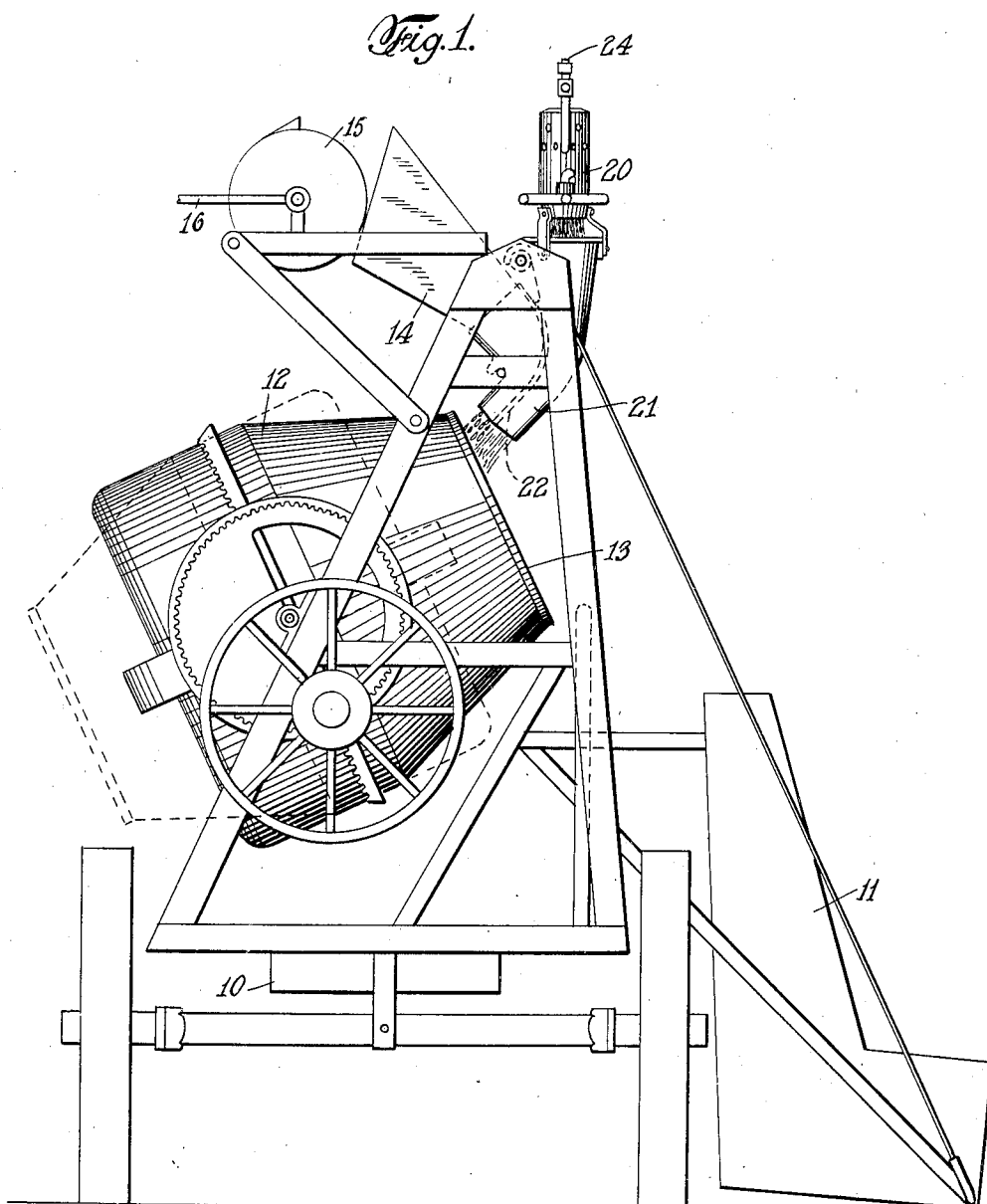
1,578,021

W. C. ELZE

HEATED CONCRETE MIXER

Filed Dec. 1, 1925

3 Sheets-Sheet 1



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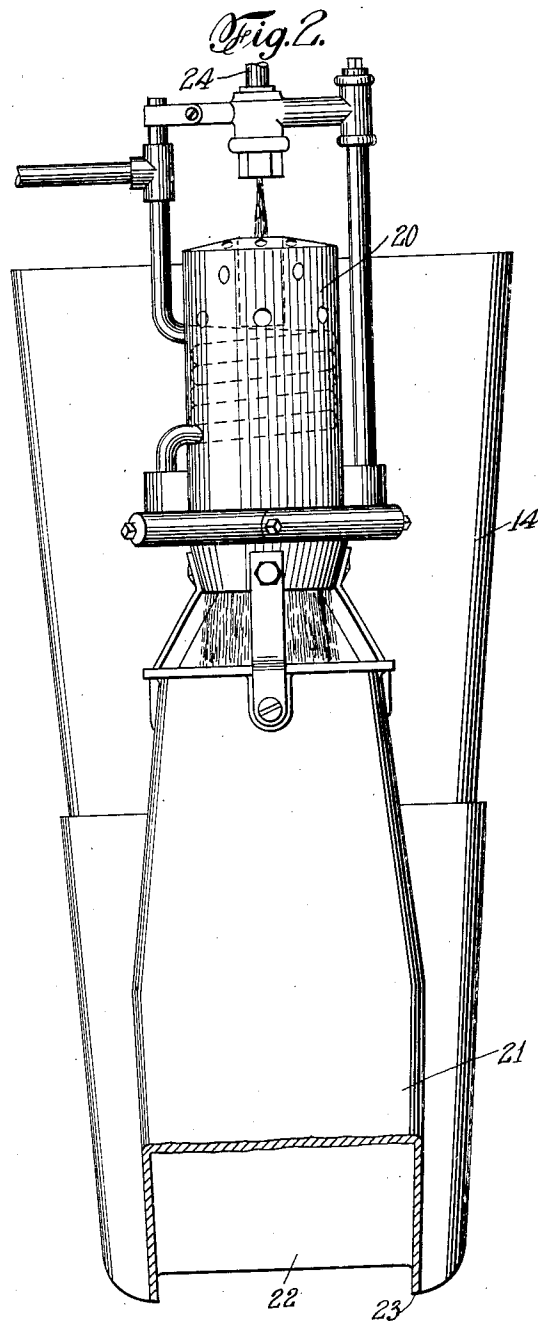
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HEATED CONCRETE MIXER

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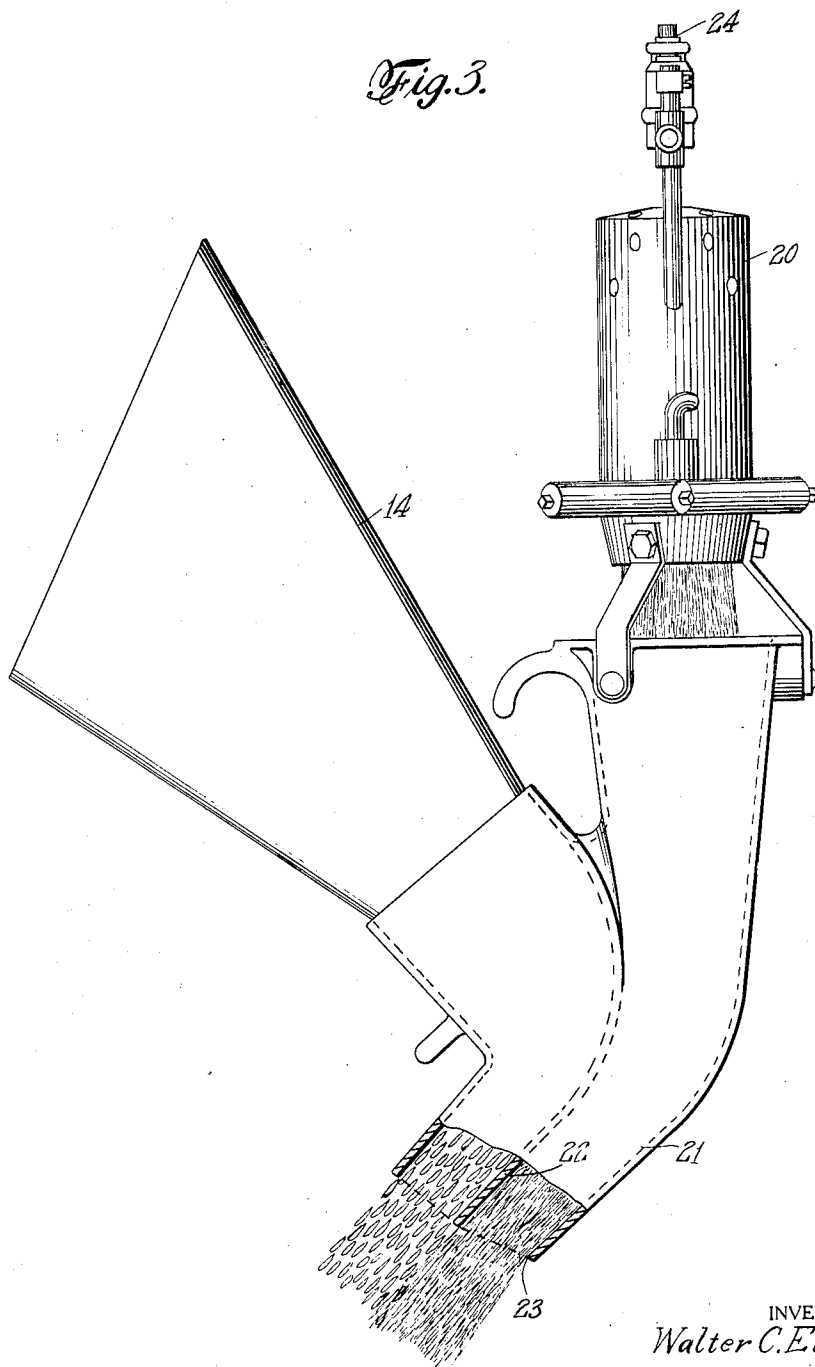
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Fig. 3.



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Patented Mar. 23, 1926.

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UNITED STATES PATENT OFFICE.

WALTER C. ELZE, OF FOREST HILLS, NEW YORK, ASSIGNOR TO HAUCK MANUFACTURING COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

HEATED CONCRETE MIXER.

Application filed December 1, 1925. Serial No. 72,439.

To all whom it may concern:

Be it known that I, WALTER C. ELZE, a citizen of the United States, residing at Forest Hills, in the county of Queens and State of New York, have invented certain new and useful Improvements in Heated Concrete Mixers, of which the following is a specification.

The invention relates to concrete mixers of the type wherein a batch of the materials is rotated in a suitable drum which is arranged to be then tilted to discharge the load. In operating such mixers during the colder seasons of the year, difficulty is experienced due to the lumping or balling of the materials employed because of the low temperatures to which the same are exposed and the discharged aggregate, also, often freezes before proper setting of the same has taken place.

It is the object of the present invention to obviate these difficulties by combining with a tiltable mixer means whereby the same will be rendered suitable for operation under the lowest temperature conditions likely to be met with and whereby the aggregate will be heated sufficiently to insure proper setting thereof when poured. To this end, the invention consists in associating with the mixer means which will direct thereto a flame jet for heating the drum portion prior to the introduction of the materials therein, while the same are being rotated and thoroughly mixed, and during the period the aggregate is being discharged from the drum, as well as for preheating the incoming water intended to be mixed with the solid ingredients of the aggregate.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which—

Fig. 1 is a side elevation of a concrete mixer of the portable, tilting-drum type and arranged in the novel manner for heating the drum and its contents.

Fig. 2 is a detail front view, and Fig. 3 is a detail side view, of the heating element and associated water chute.

Referring to the drawings, 10 designates by way of example a suitable wheeled truck for carrying the loading, mixing, water supply and heating devices with operating mechanism therefor, the loading and mixing devices being of the usual and well known

construction and design. The same comprise a loading bucket or hopper 11 to which the material to be mixed is delivered in the usual manner, whereupon it is to be elevated and discharged into a mixing drum 12 of the tilting type with mouth 13 thereof located to coast with the loading bucket and receive therefrom the contents of the same for mixing in the said drum 12, as is well understood. A water delivery chute 14 is also provided to deliver to the mouth 13 the water for the aggregate in the drum, water being arranged to be dumped into the chute, preferably, from an oscillatable tank or container 15 receiving in turn thru a pipe 16 the water from a suitable source (not shown). The apparatus hereinbefore described is of more or less standard design and forms no particular part of the present invention which relates more especially to a combination of the same with means for providing for the desired heating of the drum 12 and mixture contained with the same, as well as the heating of the water to be supplied thereto.

To this end, there is located in proximity to the chute 14, suitable heating means such as an oil burner 20 provided with a nozzle 21. The outlet of the latter is directed toward the drum 12; and when the drum is in its normal mixing position, indicated in full lines in Fig. 1 of the drawings, the position of the nozzle 21 relative thereto is such that the jet of flame therefrom enters thru the mouth 13 of the drum to play upon the rotating contents thereof. The flame is intended, also, to be directed therein preliminarily to the charging of the same to thereby reduce materially the time required to heat the material supplied thereto; and when the drum is being tilted over to the position for dumping its contents, as indicated by the dotted line position of Fig. 1, as well as when in said position, the flame plays over the exterior of the drum and continues to maintain a comparatively high temperature thereof.

Moreover, the said nozzle 21 is arranged adjacently of the chute 14 for the water to be supplied to the drum (the contiguous portions having preferably a common dividing wall or partition 22) and the water thereby abstracting heat from the nozzle 21 and serving thus also to reduce any tendency of the upper portion of the apparatus to be

come overheated. In addition, the water is arranged to be further heated thru the juxtaposed outlets of the respective nozzle and chute members in the intermingling of the flaring jet of flame and stream of water therefrom, so that by the time the water reaches the interior of the drum 12 it has already acquired an appreciable temperature. In order to provide against possible shutting off of a portion of the flame jet or even extinguishment of the same by the discharged stream of water, it is preferred to incline away slightly the outlet of the nozzle 21 as at 23 to divert thereby the jet of the flame somewhat to one side, but not to such an extent that the intermingling of said jet with the stream of water will be appreciably affected. It has been found, furthermore, in having the two said outlets juxtaposed as set forth, that a portion of the heated atmosphere surrounding the outlets will be drawn upwardly thru the water chute 14 when the water is not flowing therethru and thus heat any water stored in the tank 15. It will be understood, of course, that the water chute and burner may be built in with the mixer apparatus in the initial construction of the same, or may conveniently be attached to existing apparatus not thus equipped.

In operation, the burner 20 is first lighted to provide a jet of flame for heating the empty drum 12, fuel for example in the form of oil being supplied for this purpose to the said burner thru a pipe 24. Thereupon the platform or bucket 11 is loaded in the usual manner with the desired materials and the bucket elevated to discharge the said materials thru the mouth 13 into the drum 12 which has been set in rotation in the meantime and with flame directed therein. The necessary quantity of water is then delivered thereto by turning the container 15 to spill a sufficient amount thru the chute 14, being further heated in its passage therethru by the heating prevailing in the nozzle 21 as well as thru its direct contact as it leaves the said chute with the flame projected from the nozzle. The mixture is thus prepared at a temperature sufficiently high to obviate any of the usual difficulties encountered when working with the materials and aggregate under low temperature conditions, frozen materials, for example, being readily thawed out in this manner and the aggregate being in particularly suitable condition for application and subsequent setting.

I claim:—

1. The combination with concrete mixer

apparatus having a rotatable and tilting drum with single opening, and a movable hopper for supplying aggregate into the said opening; of a burner member carried by said apparatus for combustion external thereto and adapted to project a jet of flame to said drum in all of its positions.

2. The combination with concrete mixer apparatus having a rotatable and tilting drum with single opening, and a movable hopper for supplying aggregate into the said opening; of a burner member carried by said apparatus for combustion external thereto and adapted to project a jet of flame to said drum in all of its positions and into the interior of the said drum when the same is in its normal charging and mixing position.

3. The combination with concrete mixer apparatus having a rotatable drum, and means to deliver water thereto; of a burner member adapted to project a jet of flame to said drum and to heat the water prior to its delivery into the drum.

4. The combination with concrete mixer apparatus having a rotatable and tilting drum, and a chute for delivering water into the drum when the latter is in the non-tilted position: of a burner member carried by the mixer apparatus and having a nozzle directed toward the drum to project a jet of flame into said drum when the same is in its normal charging and mixing position, said nozzle being located also adjacently the said chute with respective outlets juxtaposed.

5. An attachment for concrete mixer apparatus, comprising: a water supply chute therefor, and a burner member provided with a nozzle whose outlet is juxtaposed to that of the chute and cut away at the far side.

6. An attachment for concrete mixer apparatus: comprising a water supply chute, means at the upper end thereof for storing a supply of water, and a burner member having a nozzle located adjacently the said chute.

7. An attachment for concrete mixer apparatus, comprising a water supply chute, means at the upper end thereof for storing a supply of water, and a burner member having a nozzle located adjacently the said chute, the respective outlets of nozzle and chute being juxtaposed.

In testimony whereof I affix my signature.

WALTER C. ELZE.