

M. E. CRANDALL.
CONCRETE MIXER.
APPLICATION FILED NOV. 29, 1911.

1,023,724.

Patented Apr. 16, 1912.

2 SHEETS-SHEET 1.

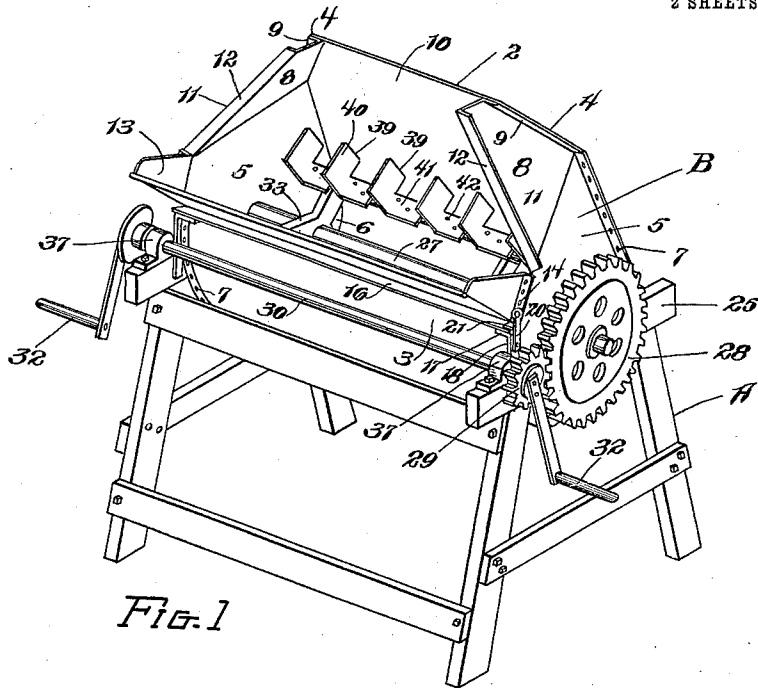


FIG. 1

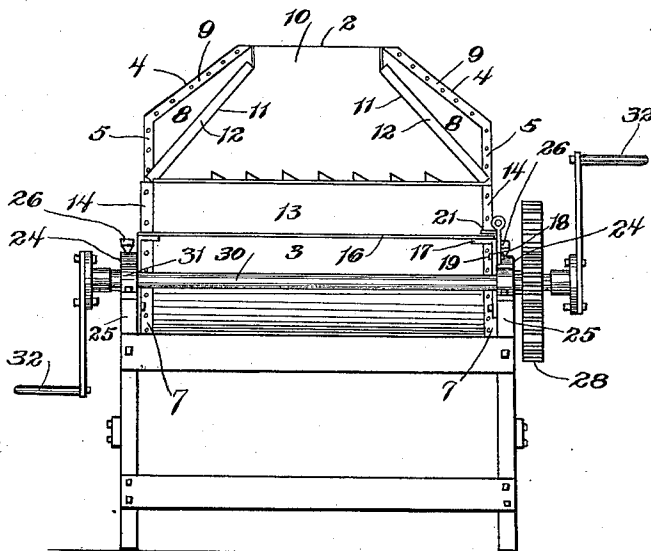


FIG. 2

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Witnesses

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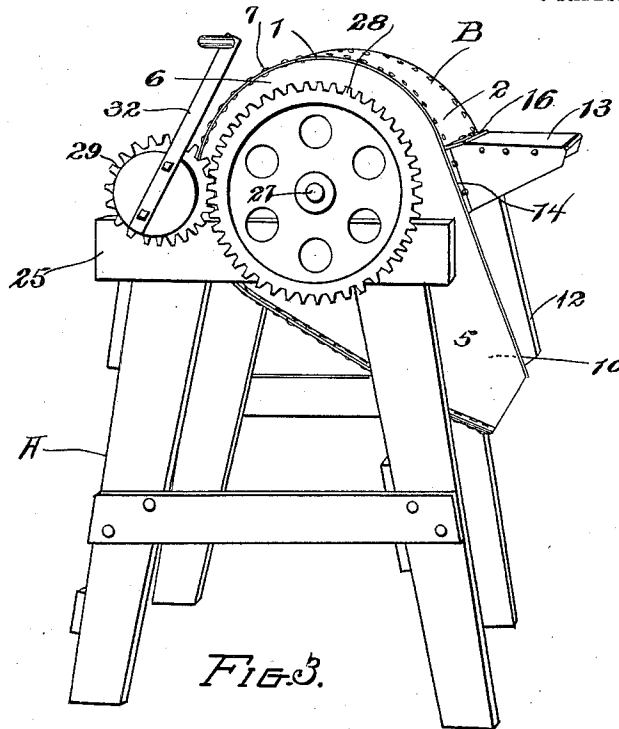


FIG. 3.

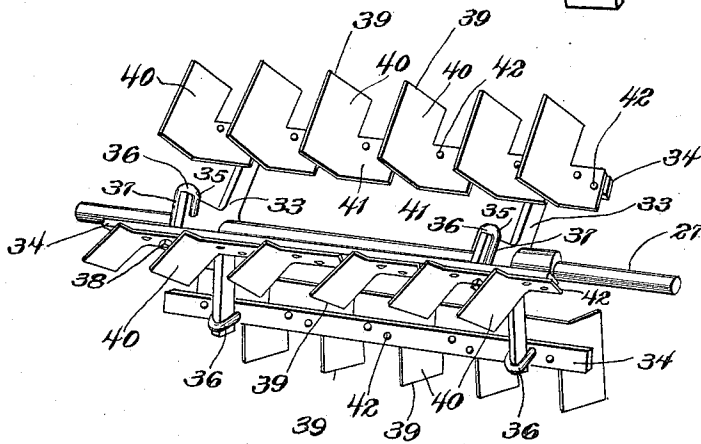


FIG. 4.

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UNITED STATES PATENT OFFICE.

MELVIN E. CRANDALL, OF NORTHFIELD, MINNESOTA.

CONCRETE-MIXER.

1,023,724.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed November 29, 1911. Serial No. 663,062.

To all whom it may concern:

Be it known that I, MELVIN E. CRANDALL, a citizen of the United States, residing at Northfield, in the county of Rice and State of Minnesota, have invented new and useful Improvements in Concrete-Mixers, of which the following is a specification.

This invention relates to certain novel and useful improvements in an apparatus for mixing concrete, cement, mortar and similar material.

In carrying out my invention, it is my purpose to provide a mixing apparatus which shall include a trough formed of a plate bent in such manner as to constitute the back, bottom and the front of the trough, a delivery chute being attached to the trough to facilitate the discharge of the material therefrom. It is also my purpose to provide a mixing apparatus of the class above described which shall include a frame, and a trough mounted on the frame and capable of swinging movement thereon, a supply chute being connected to the trough and provided with means adapted to cooperate with means upon the frame to lock the trough against movement.

With the above-recited objects and others of a similar nature in view, the invention consists in the construction, combination and arrangement of parts, set forth in and falling within the scope of the appended claims.

In the accompanying drawings:—Figure 1 is a perspective view of a concrete mixer embodying my invention. Fig. 2 is a view in side elevation, showing the trough in its upright or mixing position. Fig. 3 is a perspective view, looking from one end, showing the trough in its dumping position. Fig. 4 is a perspective view of the rotatable mixing device.

Referring now to the accompanying drawings in detail, the letter A designates the supporting frame of the device, which may be of any suitable construction and character.

The mixing trough which is indicated as an entirety by the letter B is of peculiar construction and is formed of a plate bent or curved centrally, as at 1, into approximately semi-circular form, the side extensions 2 and 3 forming the front and rear of the trough, respectively, the rear wall 2 being relatively longer or higher than the front wall 3 and is formed with the converging inclined edges 4—4 at the top there-

of. The side walls of the trough are shown at 5—5, each side wall comprising approximately semi-circular sections 6—6 adapted to be bolted as at 7 to the bottom and front and rear walls of the trough, the end sections 8—8 of the sides being bent inwardly toward each other and are bolted as at 9 to the inwardly converging edges 4 of the back or rear of the trough, so that a discharge chute is formed in the space 10 between the adjacent edges of the plate sections 8—8, the downwardly converging edges 11 of said plate sections 8 being flanged as at 21. It will be seen that the main body portion of the trough is formed of two sections of sheet metal or other suitable material, this being my preferred form. A feed chute 13 is bolted as at 14 to the trough and communicates with the interior thereof so that the material may be fed to the trough, while directly beneath this chute is a longitudinal flange 16 adapted when the trough is in its upright position, to bear against the flange 17 of the strut 18, which is fastened to the side of the frame. Pivoted to this strut at 19 is an arm 20 carrying a horizontal latch 21 adapted to extend above the flange 16 to prevent the accidental tilting of the trough B, having a handle by means of which the arm may be swung upon its pivot 19 to release the latch and permit the tilting of the trough as hereinafter described.

The sides of the trough carry trunnions or hubs 23—23, mounted in the boxings 24—24 on the top of the cross bars 25—25 of the frame, so that said trough may be tilted or turned to dump the load. Suitable oil cups 26—26 are provided for lubricating the bearings.

The numeral 27 designates the shaft which extends longitudinally and centrally through the trough and the bearings at the end thereof, and carries at one end a gear wheel 28, splined thereon, with which meshes the gear pinion 29 fast on the power shaft 30, the latter being journaled in bearings 31 on the bars 25 of the frame, while 32 indicates cranks for rotating the shaft to transmit motion through the pinion 29 to the gear wheel 28 for the purpose of rotating the mixing or agitator shaft. Keyed to the agitator shaft within the casing and suitably spaced apart from each other are the spiders 33—33 the ends of said arms carrying the longitudinal bars 34, said bars being secured in position through the medium

of the bolt hooks 35, the hooked ends 36 of which engage with the adjacent spider arms, the shanks 37 of the bolt extending through the bars and being secured in position by means of nuts 38. Each of these bars carries a plurality of mixing blades 39, the blades of one bar being arranged in staggered relation to the blades of the adjacent bars. Each mixing blade 39 comprises a rectangular mixing section 40 and an attaching plate 41 formed integral with and arranged at an angle to the mixing section of the blade, the plate sections 41 being adapted to be attached to the adjacent bar through means of bolts or other securing means 42, the construction and arrangement of the mixing blades being clearly shown in Fig. 5.

From the above description, taken in connection with the accompanying drawings, the construction and manner of employing my improved concrete mixer will be readily apparent.

When it is desired to employ the mixer, the trough is tilted, so that the discharge opening is uppermost, with the feeding chute extending upward and outward and in position to receive the material to be mixed. The latter have been deposited in the trough through the feeding chute, and such trough being locked against tilting by means of the latching device engaging with the longitudinal flange below the feed chute, the crank 32 of the power shaft 30 is actuated to impart motion to the pinion and gear wheel, thereby rotating the agitating or mixing device within the casing. The actuation of said device is continued until the materials within the trough are thoroughly mixed, when the trough may be dumped by releasing the latching device and tilting the trough into the position shown in Fig. 4, the material flowing out through the narrow or contracted mouth of the discharging chute. It will be noted that by forming the discharge chute as heretofore described, the contracted mouth enables the material to be directed to a small receptacle or box.

It will be noted that I have provided a

simple, convenient and efficient form of mixer, wherein the parts are relatively few and so constructed and arranged that the liability of the same getting out of order or becoming easily injured is obviated.

While I have herein shown and described one particular embodiment of my invention, I wish it to be understood that I do not limit myself to all the precise details of construction herein set forth, as modification and variation may be made without departing from the spirit of the invention or exceeding the scope of the appended claims.

I claim:—

1. In a mixing apparatus, the combination with a frame, of a trough mounted thereon comprising a body portion formed of a plate bent to constitute the back, bottom and front of the trough, the edges of the plates at the back converging toward each other, side walls for said trough having the ends thereof bent inward and attached to the inwardly converging edges of the back of the trough to form a delivery chute, a supply chute for the trough, means for holding the trough in a non-tilting position, mixing devices within the trough, and means for actuating the mixing devices.

2. In a mixing apparatus, the combination with a frame, of a strut on the frame provided with a flange, a trough mounted upon the frame, a supply chute for said trough, said chute being provided with a longitudinally extending flange adapted to engage the flange on said strut in one position of the trough, an arm pivoted to the strut and provided with a latch adapted to engage the flange on the chute to lock the latter against movement, mixing devices within the trough, and means for actuating the mixing devices.

In testimony whereof I affix my signature in presence of two witnesses.

MELVIN E. CRANDALL.

Witnesses:

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C. W. PYE.