

1,369,870.

J. G. WYNN.
CONCRETE MIXER.
APPLICATION FILED DEC. 20, 1915.

Patented Mar. 1, 1921.
3 SHEETS—SHEET 1.

Fig. 2

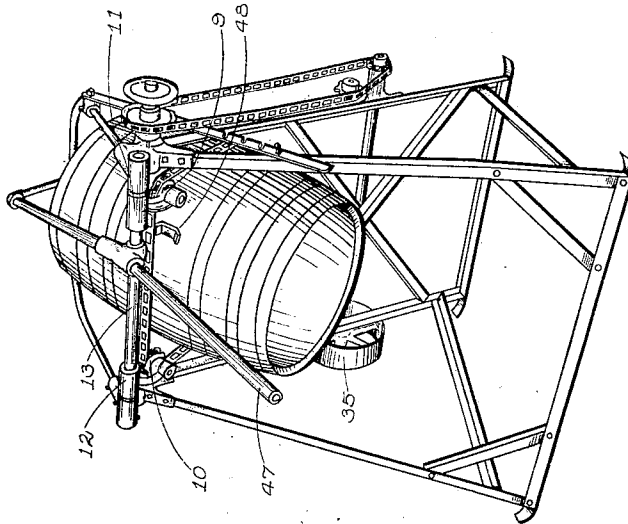
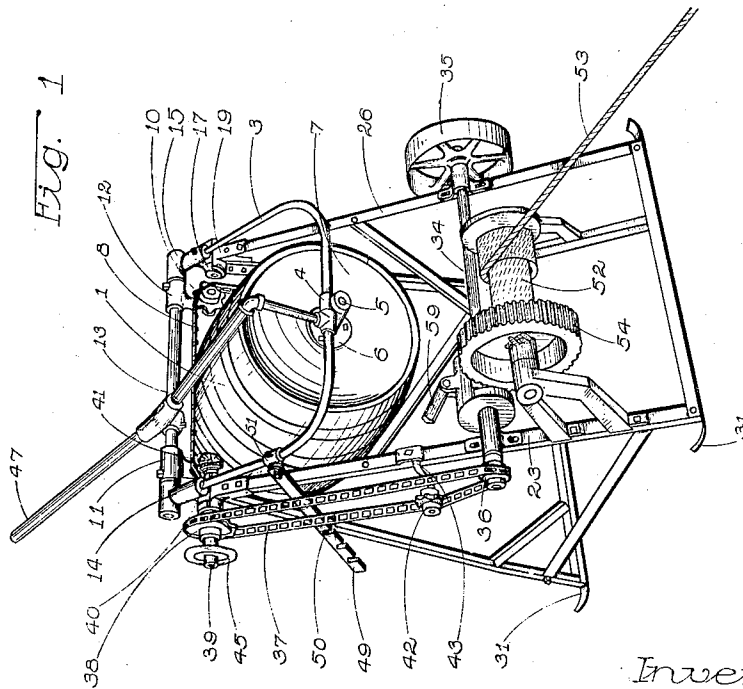


Fig. 1



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Fig. 3

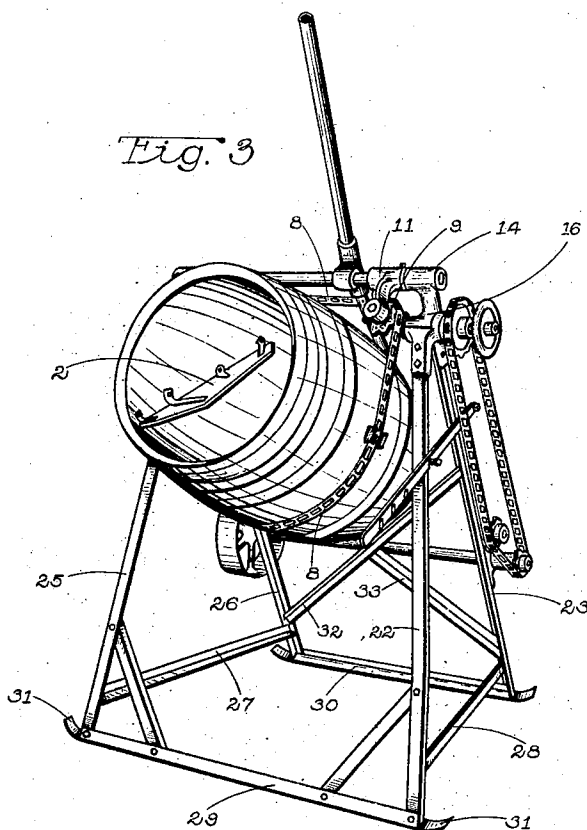


Fig. 4

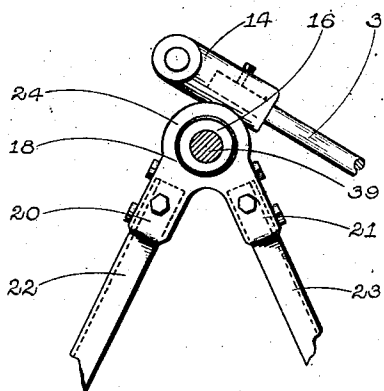
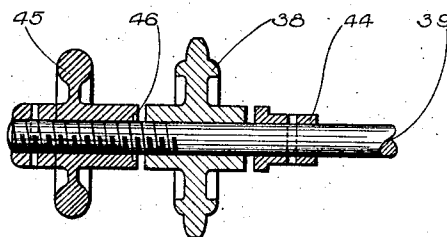


Fig. 5



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3 SHEETS—SHEET 3.

Fig. 6

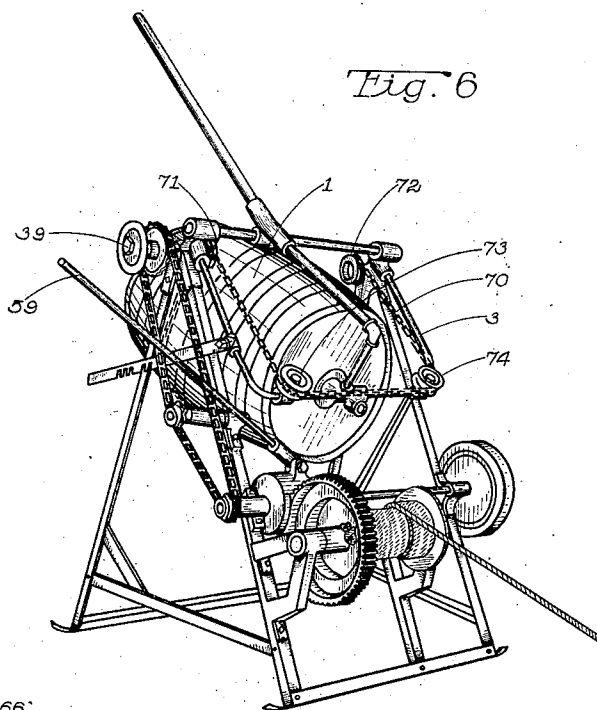
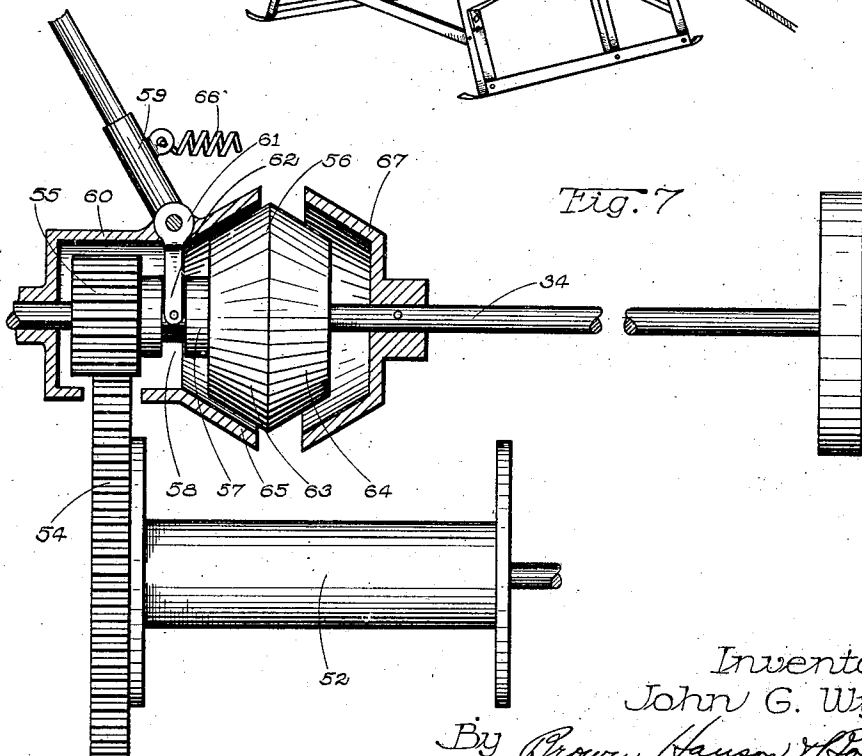


Fig. 7



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UNITED STATES PATENT OFFICE.

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CONCRETE-MIXER.

1,369,870.

Specification of Letters Patent.

Patented Mar. 1, 1921.

Application filed December 20, 1915. Serial No. 67,696.

To all whom it may concern:

Be it known that I, JOHN G. WYNN, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented a certain new and useful Improvement in Concrete-Mixers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to concrete mixers. The object of my invention is to provide an inexpensive and efficient concrete mixer for mixing small batches of concrete.

It is often desirable to mix small batches of concrete, as for instance in building concrete silos for farm purposes. As the mixer is to be hauled from place to place, it is desirable that the same be made as light as possible without sacrificing efficiency or reliability.

It is well known that the strength and durability of concrete depends very greatly upon proper mixing. It is with a view to satisfying the above condition that I have devised the present invention.

The accompanying drawings which form a part of the present specification illustrate the manner in which my invention may be carried out—

Figure 1 is a perspective view of a concrete mixer embodying my invention—this view is taken from the left rear quarter;

Fig. 2 is a similar perspective of the same taken from the left front quarter showing the mixer in dumping position;

Fig. 3 is a similar view showing the mixer in mixing position;

Fig. 4 is an elevational view showing the arrangement of the trunnion for varying the mixing dial;

Fig. 5 is a cross section of the clutch mechanism;

Fig. 6 is a perspective view showing a modification; and

Fig. 7 is a cross sectional view illustrating the hoisting mechanism which is used in connection with the dumping mechanism.

In building silos and in other building operations, it is often necessary to hoist the

concrete to a considerable height after it is mixed. To provide for such use, I employ a windlass connectible to the main driving shaft. This is shown in Figs. 1 and 6 but has been omitted for the sake of clearness from Figs. 2 and 3.

The mixer comprises the barrel, 1, which I prefer to consist of a wooden barrel of a staunch and water tight construction. The interior of the barrel 1 is provided with a number of baffles or mixing plates 2, one of which is shown clearly in Fig. 3. It is to be understood that a number of these baffles are employed and that they are of such a character as to produce thorough and complete mixture of the concrete. The barrel 1 is supported in a yoke or U-shaped frame 3, which supports a bearing 4 at the bottom thereof for receiving a stud shaft 5 which is secured by means of the flange 6 to the head of the barrel 7, which forms the bottom of the mixer.

In the form shown in Figs. 1, 2 and 3, the front part of the barrel is supported by a flat link chain 8 which passes under the body of the barrel and is supported by a pair of sprockets 9 and 10, which are suitably supported by means of the brackets 11 and 12 from a cross bar 13, which is joined to the frame 3 by means of the castings 14 and 15. These castings are provided with trunnions 16 and 17 which are rotatable in suitable saddles 18 and 19 respectively.

The saddle 18, which is shown in Fig. 4, comprises a pair of lugs 20 and 21, which are secured to suitable corner posts 22 and 23, which form a part of the framework upon which the structure is supported. Each of the saddle castings 18 and 19 is provided with a yoke 24 extending over the outer end of the trunnion 16 or 17, as the case may be. This is to prevent the trunnion leaving the saddle when the barrel is tilted to discharge the concrete therefrom. The yoke casting 18 is secured to the angle iron corner posts 22 and 23 and the casting 19 is secured to the corner posts 25 and 26. These posts which are made of angle iron are secured together by the braces 27 and 28 and by the bearing shoes 29 and 30. These bearing

shoes are also formed of angle iron with one side of the angle cut out and the other side thereof bent up as shown at 31 to form shoes or runners so that the mixer may be slid
 5 along the ground sidewise in order to facilitate handling and setting. The posts 23 and 26 are further braced by diagonal braces 32 and 33 to increase the strength of the frame. It is obvious that any form of brace
 10 that is found advantageous may be employed. A driving shaft 34 has bearings upon the corner posts 23 and 26 and is provided at one end with a pulley 35 so that the same may be driven by an engine or
 15 other suitable source of power. The opposite end of the shaft 34 is provided with a driving sprocket 36 which sprocket is connected by means of the square link chain 37 to the sprocket 38. The sprocket 38 is
 20 mounted loosely on a shaft 39 which passes through and has bearings in the trunnion member 16. Upon the inner end of the shaft 39 a miter or bevel gear 40 is secured. This gear meshes with a similar gear 41
 25 which is secured to the sprocket 9 (see Fig. 3) for driving the chain 8 which rotates the barrel 1. A suitable idler 42, which is mounted upon the bracket 43 serves to keep the driving chain 38 sufficiently tight at all
 30 times to prevent the same from jumping off of the sprocket. The shaft 39 is provided with a collar 44 (see Fig. 5) which is keyed thereto. The outer end of the shaft 39 is threaded and a threaded hand wheel 45
 35 serves to clamp the driving sprocket 38 to the collar 44 to cause the shaft 39 to revolve and thus to transmit motion to the barrel 1 for mixing the concrete. The face of the hand wheel 45 is relieved, as shown at 46, to
 40 reduce the contact between the two so as to reduce friction between the hand wheel 45 and the sprocket wheel 38. A suitable lever 47 is secured to the frame 3 and the cross bar 13 so that the barrel 1 may be tilted up
 45 into the position shown in Fig. 2 to dump the concrete therefrom. A number of small clips or guides 48 are secured to the side of the barrel in such position that the chain 8 will run therethrough. This is to prevent
 50 the chain 8 from slipping down along the side of the barrel in case the same be raised accidentally. The barrel 1 may be held in the tilted position by means of a notched arm 49 which coöperates with a pin 50
 55 mounted upon the framework. The arm 49 is pivoted at its inner end to the frame 3 by means of the shafting 51. The hoisting mechanism which is mounted upon the corner posts 23 and 26 comprises the windlass
 60 52 upon which may be wound a suitable cable or rope 53. The drum 52 has a gear 54 which meshes with a gear 55 which is rotatably mounted on the shaft 34. The gear 54 is secured to a double faced cone member
 65 56 by means of a collar 57, which is pro-

vided with a groove 58 for moving the gear and cone member axially on the shaft 34. A lever 59 is pivoted to the casing 60 at the pivot 61 and is provided at its lower end with a yoke 62 which has pins projecting
 70 into the slots 58 to move the gear and cone member as aforesaid. The cone member 56 is provided with two faces 63 and 64, the face 63 being normally held against the inside of the flaring part 65 of the casing 60,
 75 which casing 60 is held stationary by being secured to the corner post 23. The face 63 is held in engagement with the flared portion 65 by means of the spring 66 so that when the operator releases the handle 59, the drum
 80 52 will be held against movement. A co-operating clutch member 67 is secured to the shaft 34 and when the hoisting drum 52 is to be driven, the operator throws the cone member 56 so that the face 64 will engage
 85 the hollow member 67, thereby connecting the driving pulley 35 with the drum 52. When the article which is to be hoisted, is lowered, the operator merely releases the pressure between the cone member 56 and
 90 the stationary clutch member 65.

In the modification which I have illustrated in Fig. 6, the chain 8 which passes directly around the barrel and over the sprockets 9 and 10, is replaced by a round
 95 link chain 70 which passes under the barrel 1 and over a pair of sprockets 71 and 72 which are secured to the trunnion members of the frame which support the barrel 1. The chain then passes over the corner pulleys 73 and 74, which are secured to the bottom of the U-shaped frame member 3. It is to be understood in this form the sprocket member 71 is secured to the shaft 39 so that it forms a driving sprocket for moving the
 105 chain 70 and rotating the barrel 1. In other respects, the modification shown in Fig. 6 is the same as that shown in the other figures.

It will be noted in the form of device shown in Figs. 1, 2, and 3, that the driving
 110 chain 8 is driven through the bevel gears 40, 41 by means of a shaft 39 which lies on the axis of the trunnions 16 and 17 so that no matter in what position the barrel 1 is tilted, the driving connection will always be opera-
 115 tive. In the form shown in Fig. 6, the driving chain passes over the driving pulley or sprocket 71 which is secured directly to the shaft 39 so that in this structure also the driving connections are not disengaged even
 120 though the barrel is tilted to any desired degree.

In operation, the barrel is set with the open end tilted upward and is so held by means of the adjusting rod 49 and the pin
 125 50. The pulley 35 is driven by means of a belt from a gasoline engine or the like. After the cement, sand, gravel or the like, for a proper charge, are placed in the barrel 1, the hand wheel 45 is screwed up
 130

against the sprocket wheel 38 to grip it between the hand wheel and the collar 44 thereby causing the shaft 35 to drive the chain 8 through the medium of the sprockets 36, 38 and the bevel gears 40, 41. It is to be understood that the hoisting mechanism is normally out of gear. When the charge has been properly mixed, a wheel barrow is run into the open frame beneath the barrel 1 and the holding rod 49 is released and the barrel tilted down into the position shown in Fig. 2. The barrel is rotated in the meanwhile so that the entire contents are poured out into the wheelbarrow.

The wheelbarrow is then withdrawn and the barrel again tilted upward to receive a fresh charge. Rotation of the barrel may be stopped by disengaging clutch 45, 38, 44 so that the sprocket wheel 38 idles on the shaft 39.

When it is desired to hoist a bucket full of concrete or a similar object, the same is attached to the cable 53 and the clutch controlling handle 59 is moved downward to throw the movable clutch member 56 into engagement with the driving member 67 to operate the hoisting drum 52. Release of the handle 59 allows the spring 66 to withdraw the clutch member 56 from engagement with the member 67 and to throw it into engagement with the stationary member 65 so that the article may be held in any position, or may be released and lowered by disengagement of the clutch member 56 from both of the cups 65 and 67.

It will be apparent from the above that I have provided a combination mixer and hoist of light but substantial construction, and of a special utility for light work.

I employ the term barrel to designate a cylindrical receptacle with one closed end and not as limiting myself to a wooden barrel.

It is apparent that changes and modifications will suggest themselves to those skilled in the art and I desire that the same be construed as coming within the spirit and scope of the appended claims.

What I claim is:

1. In combination, a frame-work, an auxiliary frame pivotally mounted on said frame-work, a barrel mounted on said auxiliary frame, a bearing on said auxiliary frame for the bottom of said barrel, a driving chain supporting one end of said barrel and having supporting means on said auxiliary frame, and driving means mounted on said frame-work for rotating said barrel in said auxiliary frame.

2. In combination a U-shaped frame, a bar connecting the top of said frame, bearings secured to said frame adjacent said cross bar, a barrel, a bearing for said barrel at the bottom of said U-shaped frame, and a driving chain passing under said barrel,

and over a pair of guiding pulleys or sprockets mounted adjacent to the top of said U-shaped frame.

3. In combination, a main frame, a driving shaft mounted on said main frame, an auxiliary frame pivotally mounted to tilt on said main frame, a barrel rotatably mounted in said tilting frame, means for supporting the barrel in said auxiliary frame for driving the barrel from said main shaft, said barrel being disposed so that the major axis thereof is located out of alignment with and normally below said pivotal mounting.

4. In combination a main frame comprising a plurality of corner posts, a pair of saddles secured to said posts, an auxiliary frame having trunnions bearing in said saddles, said saddles having means for preventing dis-engagement of said trunnions with said saddles, a barrel rotatably mounted in said auxiliary frame, and a chain passing under said barrel and over a pair of pulleys or sprockets, said pulleys or sprockets being mounted on said auxiliary frame.

5. In combination, a main frame, a tilting frame pivoted on said main frame, a barrel rotatably mounted in said tilting frame, a chain passing under said barrel to support and drive the same below the pivotal mounting of said auxiliary frame, supporting sprockets for said chain, said sprockets being mounted on said tilting frame, and means mounted on said first mentioned frame for driving one of said sprockets and to cause rotation of the barrel regardless of the position of the auxiliary frame relative to the main frame.

6. In combination, a main frame, a tilting frame pivoted on said main frame, means for holding said tilting frame in the desired position, a barrel having a closed end mounted in said tilting frame, a bearing for the closed end of said barrel, means to rotate said barrel, said means comprising a chain passing under the intermediate portion of the barrel to support the open end thereof, and means to tilt said frame.

7. In combination, a main frame having bearings and a tilting frame operable in said bearings, a rotatable mixing receptacle carried by the tilting frame, a bearing in the tilting frame for one end of the receptacle, the axis of said receptacle being below that of the tilting frame, driving sprockets, and a chain driven by said sprockets and encircling the intermediate portion of the receptacle to support and drive the same.

8. In combination, a main frame having bearings, a tilting frame operable in said bearings, a receptacle mounted for rotation on said tilting frame, a bearing in said tilting frame to support one end of the receptacle, and a flexible supporting and driving element disposed below the receptacle at

the intermediate portion thereof to rotate and support the same.

9. In combination, a main frame, a tiltable frame having an axis on first said frame, a rotatable mixing receptacle carried by the tiltable frame and having a bearing in said tiltable frame below said axis, flexible supporting and driving means for

the free end of the receptacle and means for driving said means from said main frame 10 regardless of the angular position of said auxiliary frame in said main frame.

In witness whereof, I hereunto subscribe my name this 2nd day of December A. D. 1915.

JOHN G. WYNN.