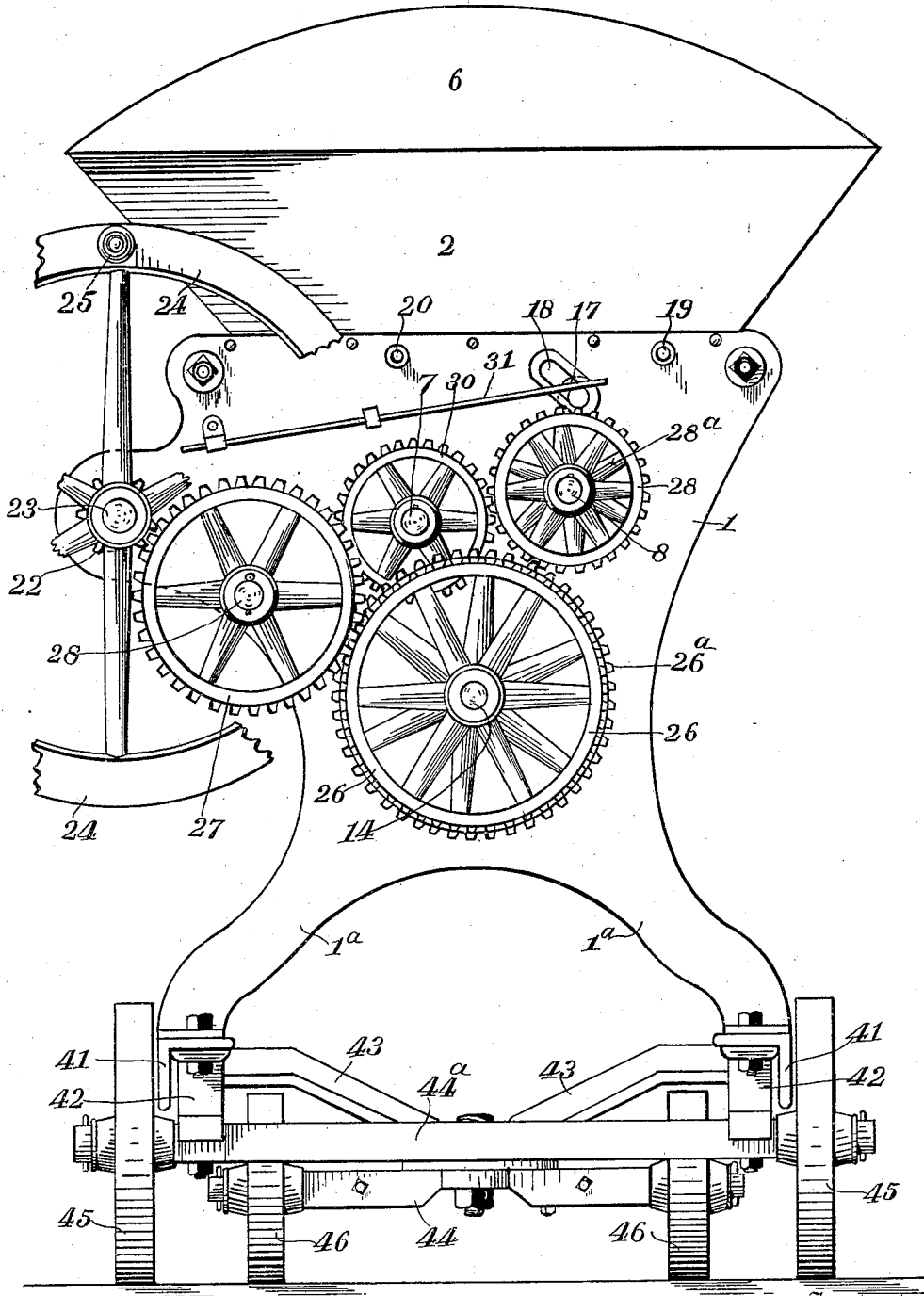


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 FEED REGULATOR.
 APPLICATION FILED MAR. 27, 1909.

929,279.

Patented July 27, 1909.
 3 SHEETS—SHEET 1.



Witnesses

Minnie Johnson.
H. O. Van Antwerp

Fig. 1.

Inventors

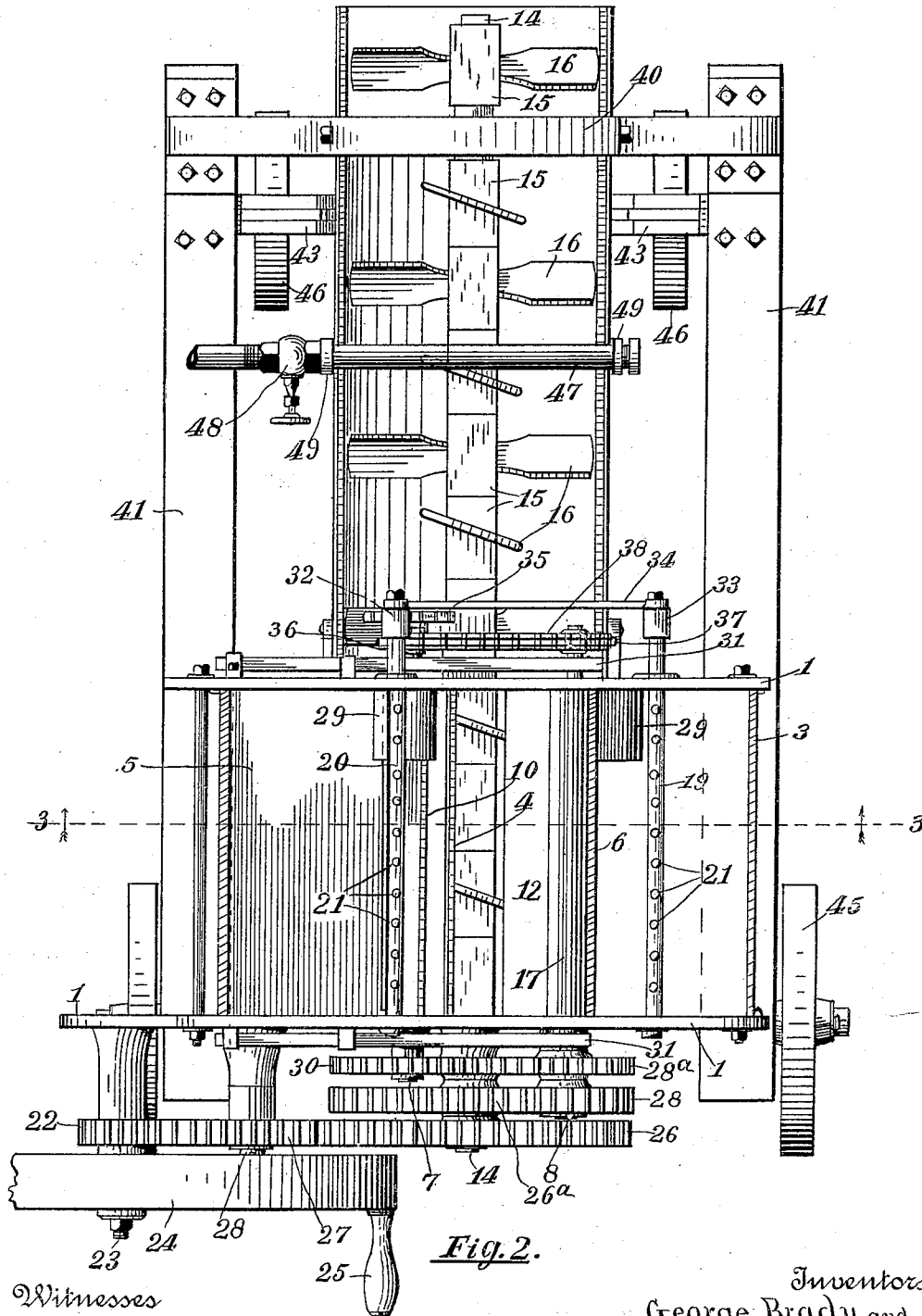
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3 SHEETS—SHEET 3.

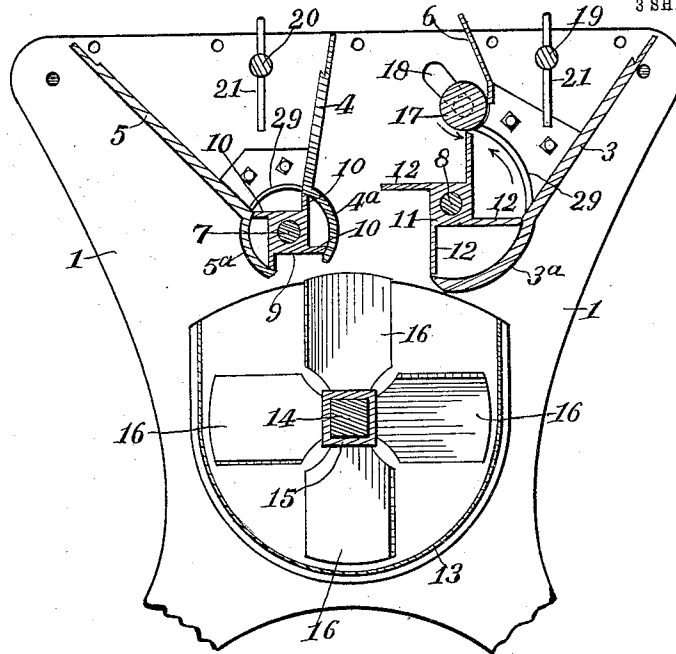


Fig. 3.

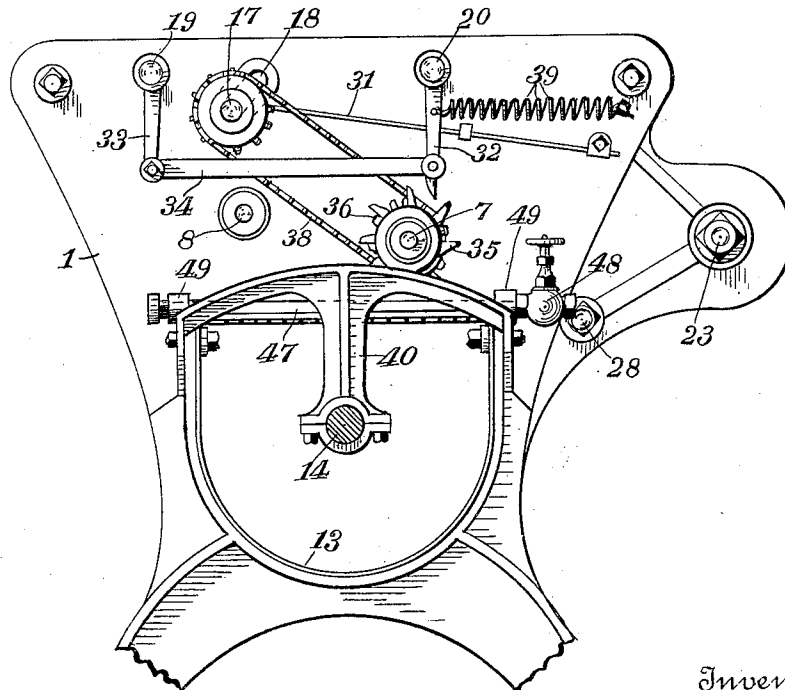


Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE BRADY AND HARRY F. ABBOTT, OF JACKSON, MICHIGAN.

FEED-REGULATOR.

No. 929,279.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed March 27, 1909. Serial No. 486,167.

To all whom it may concern:

Be it known that we, GEORGE BRADY and HARRY F. ABBOTT, both citizens of the United States of America, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful improvements in Feed-Regulators; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in feed regulators for mixing machines, and its object is to provide a feed regulator that will accurately apportion the ingredients; that may be changed to vary the proportions of the same; that will operate continuously and positively; that will not clog or break by the passage of stones therethrough; and to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:

Figure 1. is an end elevation of a device embodying our invention with a portion of the fly wheel broken away; Fig. 2. a plan view of the same with the hopper extensions removed; Fig. 3. a sectional detail on the line 3—3 of Fig. 2.; and, Fig. 4. an end elevation of a part of the machine taken opposite to Fig. 1.

Like numbers refer to like parts in all of the figures.

1 and 1 represent the end plates forming a portion of the case, which plates are arranged in parallel vertical planes and spaced apart. Between the upper part of these plates are arranged transverse inclined partitions 3, 4, 5 and 6 which form with the plates 1 the lower part of the hoppers to respectively receive the sand and cement; 2 represents extensions of these plates forming the upper part of the hoppers. The oppositely inclined partitions 3 and 6 constitute the opposite sides of the hopper to receive the sand and the oppositely inclined partitions 4 and 5 constitute the opposite sides of the hoppers to receive the cement. The bottom portion of the partition 3 is provided with a concave 3^a concentric with the axis of a shaft 8 journaled in the case, and on which shaft is mounted the sand feeder having pockets and a square central portion 11 from the respective angles of which por-

tions extend plates or wings 12 in the plane of the respective sides of the central portion. The edges of these wings traverse the concave 3^a, which concave is of sufficient width to close the space or pocket between two of these wings. Directly above one of the wings 12, when the same is vertical, is arranged a roll 17 journaled in elongated openings 18 in which openings the roll is movable away from the feeder. The partition 6 extends downward close to this roll at the side thereof next the sand, and a space is left between the path of the wings 12 and the lower edge of this partition sufficient to permit the passage of any small stone that may be in the sand, which sand is previously passed through a screen (not shown) to remove the larger stones. This roll 17 normally closes this opening and is yieldingly held in place by springs 31 secured to the plates 1 and engaging the journals of said roll. The roll 17 is also positively rotated with its lower side moving oppositely to the wings of the feeder, whereby any stone engaged by the roll will be moved backward and upward over the edge of the approaching wing and deposited in the next pocket of the feeder.

Beneath the cement hopper and journaled in the case is a shaft 7 on which is mounted a pocketed cement feeder consisting of a square central portion 9 and wings or plates 10 similar to the sand feeder except of less size, and this feeder rotates between concaves 4^a and 5^a on the lower edges of the partitions 4 and 5. These concaves are sufficiently wide to close the openings between two of the wings on the feeder. To adjust the capacity of the respective feeders, detachable concaves 29 extend across the openings in the bottom of the hoppers and are of such length as to partially close the said opening and have flanges at one end by which they are secured in place by screws or bolts inserted through the flanges and plate 1. These concaves may be removed and others substituted of different length to vary the capacity of the respective feeders as occasion may require.

To receive the sand and cement and thoroughly mix the same, a trough 13 is located below the respective feeders and extends a considerable distance to permit of properly mixing the various ingredients as hereinafter described. In the axis of this trough is journaled a shaft 14 supported at one end

by a hanger 40 mounted on the trough and journaled in the outer plate 1 at the other end. This shaft is preferably square and on it are mounted the mixer blades 16 which
 5 are arranged radial to the shaft and inclined thereto transversely and also provided with square hubs having square openings through which the shaft 14 extends. To supply water to the sand and cement after the same has been thoroughly mixed, a
 10 pipe 47 having perforations in its under side extends transversely above the conveyer trough 13 about the middle thereof and is supported in place by hangers 49 mounted
 15 on the trough. This pipe is also provided with a valve 48 to regulate the flow of water therethrough, and is connected by any convenient means to any suitable water supply or reservoir.

20 To prevent clogging of the sand and cement in the hoppers, agitators are provided consisting of shafts 19 and 20 having radial arms 21 which arms stir and break up the sand and cement when the agitators are oscillated.

25 To operate the various shafts, a driving pinion 22 is journaled on a stud 23 and has attached thereto a fly wheel 24 provided with a crank 25 whereby the device may be manually operated. Obviously the fly wheel and crank may be displaced by a pulley or other means of driving as occasion may arise.

30 Engaging the pinion 22 is an idler gear 27 journaled on a stud 28 and engaging a gear 26 keyed to the shaft 14 to drive the same. The shafts 7 and 8 are driven from the shaft 14 by means of a train of gears 26^a, 28, 28^a and 30. The roll 17 is rotated by means of a sprocket wheel 36 on the shaft 7 connected
 40 to a sprocket wheel 37 on the shaft of the roll, by means of a sprocket chain 38. The agitator shafts 19 and 20 are oscillated in one direction by means of a tappet wheel 35 on the shaft 7, which wheel engages an arm
 45 32 on the shaft 20 to move the arm in one direction, and a spring 39 is attached to the arm 32 to move the same in the opposite direction. An arm 33 is attached to the shaft 19 and the arms 32 and 33 are connected by
 50 a rod 34 whereby the shafts 19 and 20 are simultaneously oscillated by the tappet wheel and spring.

For convenience in moving the device from place to place, the case is provided with
 55 legs 1^a and mounted upon sills consisting of angle bars 41. These bars are connected at one end by a bolster 43 beneath which bolster is pivotally arranged the front axle 44 having journaled thereon the front wheels
 60 46. Beneath the other end of the sills are brackets 42 mounted upon the rear axle 44^a on which are journaled the rear wheels 45.

In operation, the feeders receive the cement and sand in the pockets between the
 65 wings except where covered by the concaves

29. The concaves 4^a and 5^a prevent the escape of the cement until the feeder has turned a half revolution, and also keep any cement from flowing past the feeder. The sand is carried over the feeder in the pocket
 70 ets between the wings and the roll prevents any excess from flowing over the top of the feeder. In case a stone engages or jams between a wing 12 and the roll, the latter will either rise and let the stone pass over, or the
 75 positive rotation of the roll will rotate the stone and thus turn it back off the wing into the next pocket of the feeder. If the roll rises, the edge of the plate 6 prevents the sand from following too freely and thus prevents
 80 unequal feeding of the sand. The concave 3^a prevents any sand from passing below the sand feeder.

The herein described mixing mechanism is reserved for a separate application in accordance with the requirement of division
 85 by the office.

What we claim is:

1. In a feed regulator, a case having slots in the sides, a hopper having a side terminating at the bottom in a concave and an opposite side terminating above the concave and at a distance therefrom, a rotary feeder having pockets and located above the concave and below the last named side and moving at
 90 a distance therefrom, a roll normally closing the space between the feeder and said side and journaled in the slots in the case, springs engaging the journals of the roll, and means for positively rotating the feeder and the
 95 roll in opposite directions at their adjacent sides.

2. In a feed regulator, plates forming the end walls or a hopper, a cylinder having pockets and journaled therein, means for rotating the cylinder, an inclined wall to the hopper and terminating in a concave located beneath the cylinder, an opposite wall to the hopper terminating above the cylinder and spaced apart therefrom, a roll closing the
 105 space between the said last named wall and the cylinder, and a second concave extending from the first named concave to the roll and partially closing the bottom of the hopper, and means for detachably securing the second
 110 and concave in place.

3. In a feed regulator, the combination of a hopper, a rotary feeder having pockets and located below the hopper, a rock shaft in the hopper, radially projecting arms on the
 120 shaft, an arm fixed on the end of the shaft, a tappet wheel and a spring oppositely engaging the arm, and means for rotating the wheel and feeder.

4. In a feed regulator, the combination of two hoppers, two rotary feeders having
 125 pockets and located below the hoppers, a rock shaft in each hopper, radially projecting arms on each shaft, an arm fixed on the end of each rock shaft, a rod connecting the
 130

arms, a spring attached to an arm, a tappet wheel engaging an arm, and means for rotating the wheel and feeders.

5 5. In a feed regulator, the combination of a hopper having a side opening and a bottom concave, a rotary feeder having pockets and located above the concave, a movable roll above the feeder, a second hopper having a bottom opening and side concaves, a rotary
10 feeder having pockets and located between said concaves, a rock-shaft in each hopper, radial arms in each shaft, arms fixed on the ends of the rock shafts, a rod connecting said
15 arms, a spring attached to one arm, a tappet wheel engaging one arm and mounted on a feeder shaft, sprocket wheels and a chain connecting one feeder shaft and the roll, and
20 means for rotating the feeders.

6. In a feed regulator, a hopper having a side opening and a bottom concave, a rotary

feeder having pockets and located opposite the lower part of said opening and above the concave, a roll above the feeder and opposite the upper part of said opening, a second hopper having a bottom opening, a rotary feeder 25 having pockets and located below said opening, concaves at opposite sides of said feeder, an oscillating agitator in each hopper, arms mounted on the agitators, a rod connecting the arms, a spring and a tappet wheel op- 30 positively engaging one arm, and means for rotating the feeders the roll and tappet wheel.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE BRADY.

HARRY F. ABBOTT.

Witnesses:

D. C. SAUER,

WILL HOWARD.