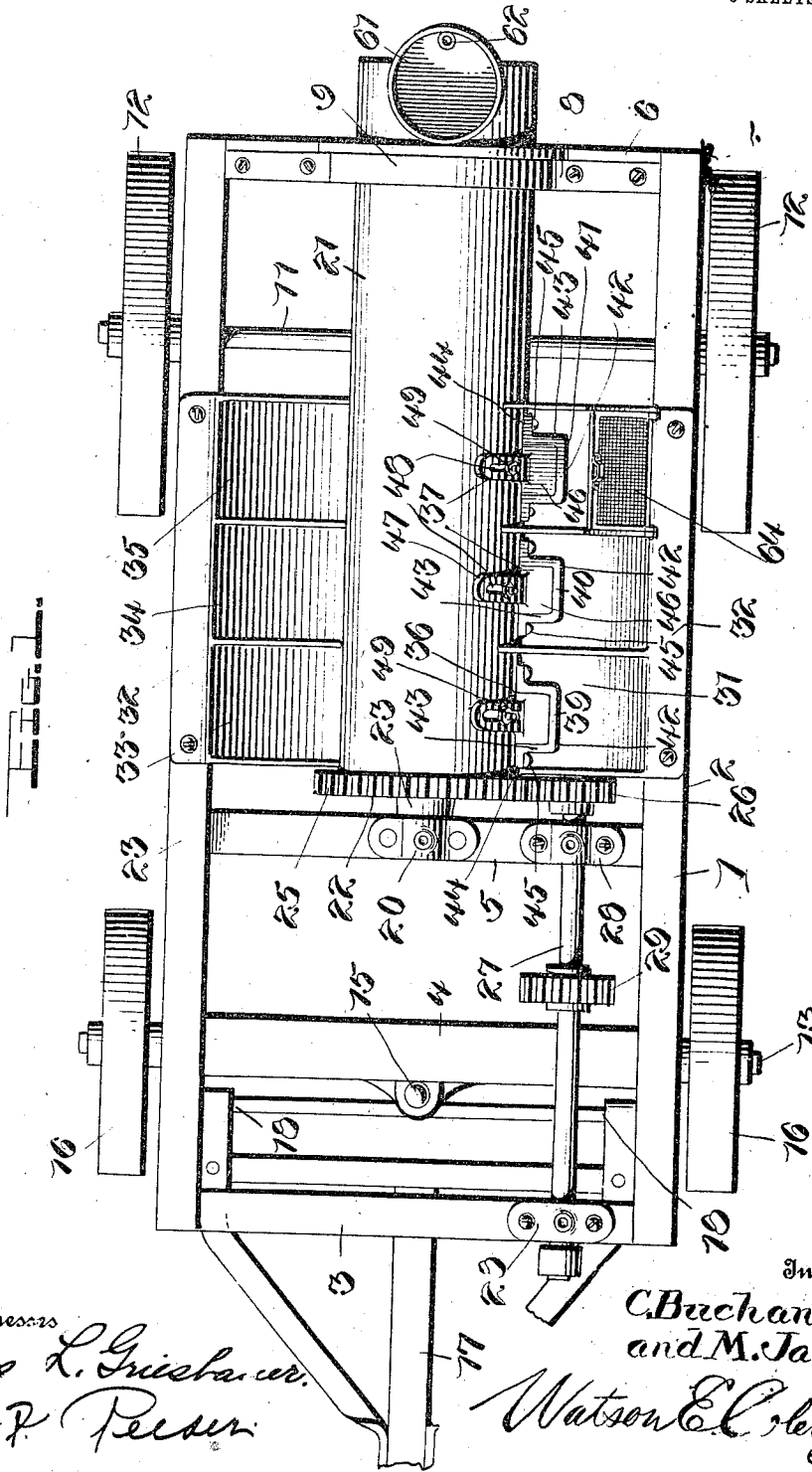


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 APPLICATION FILED NOV. 4, 1910.

1,001,729.

Patented Aug. 29, 1911.  
 3 SHEETS—SHEET 1.

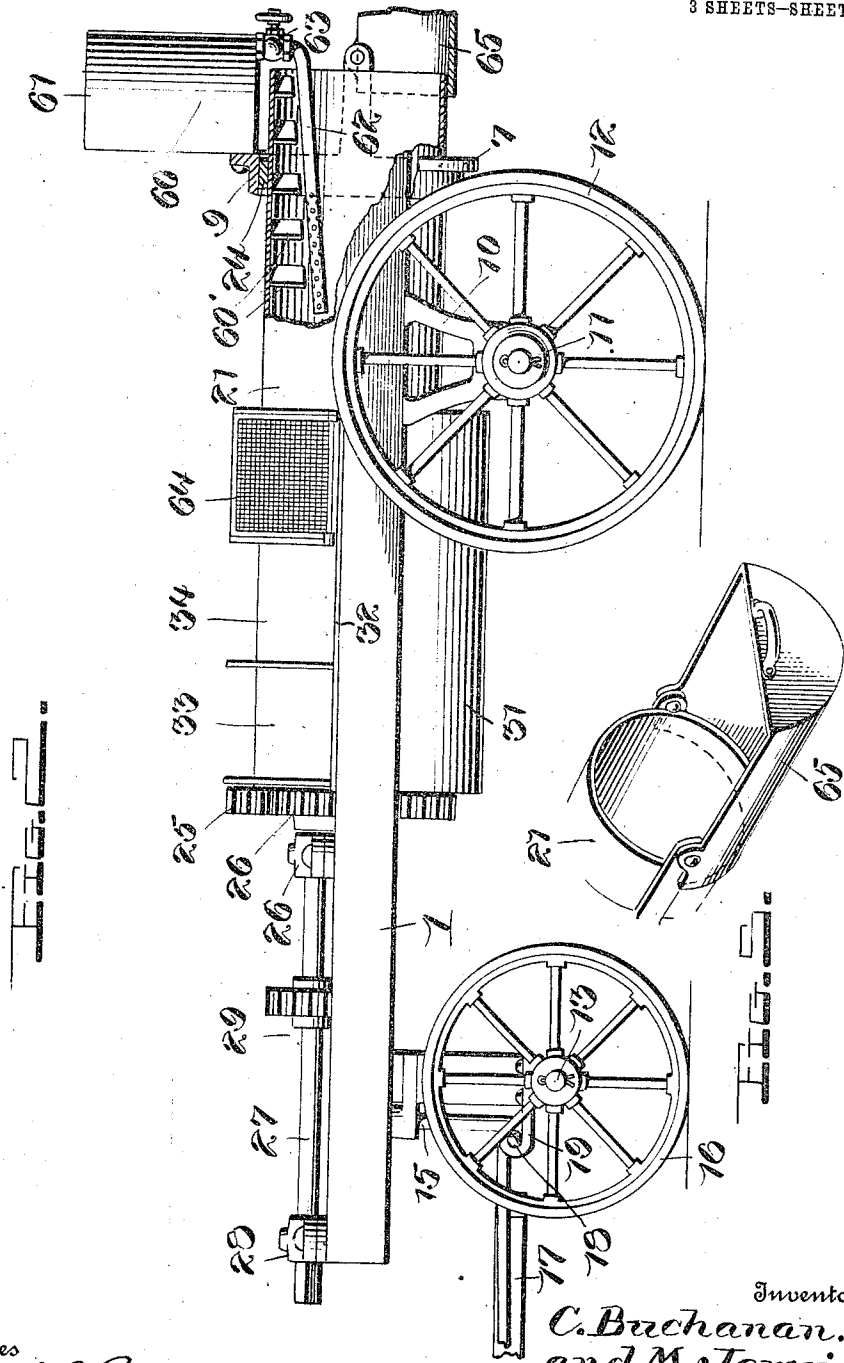


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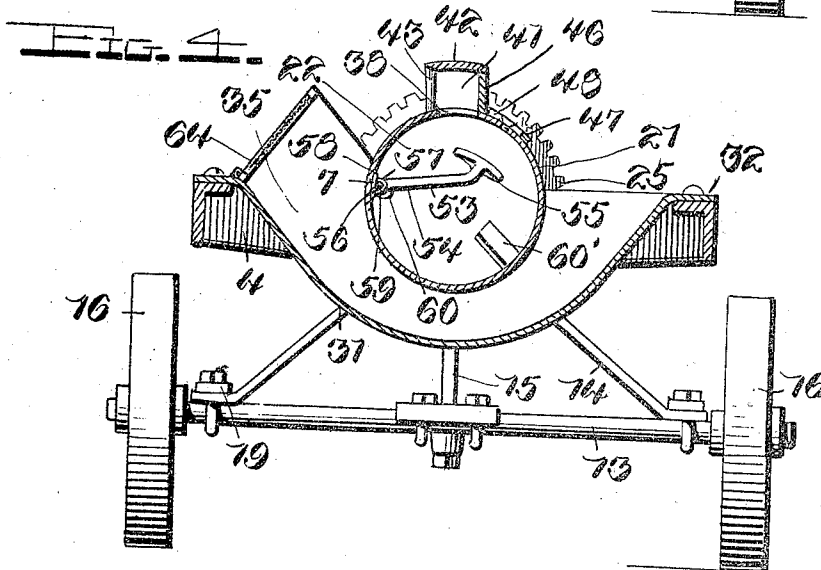
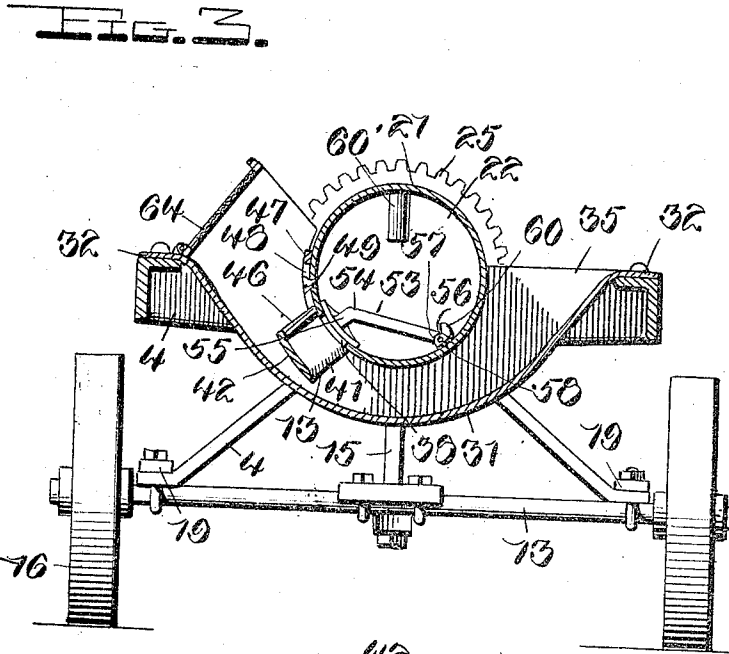
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# UNITED STATES PATENT OFFICE.

CHARLES BUCHANAN, OF ASHLAND, AND MARION JARVIS, OF CRESTLINE, OHIO.

CONCRETE-MIXING MACHINE.

1,001,729.

Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed November 4, 1910. Serial No. 590,745.

To all whom it may concern:

Be it known that we, CHARLES BUCHANAN and MARION JARVIS, citizens of the United States, residing, respectively, at Ashland and Crestline, in the counties of Ashland and Crawford and State of Ohio, have invented certain new and useful Improvements in Concrete-Mixing Machines, of which the following is a specification, reference being had to the accompanying drawings.

Our invention is an improved concrete mixing machine for mixing cement, sand and crushed rock, or other integrates in any desired proportion, the invention consisting in the construction, combination and arrangement of devices hereinafter described and claimed.

One object of our invention is to provide improved means for automatically feeding the material to the mixing cylinder.

A further object is to provide improved means for regulating the amount of material entering the feed openings of the mixing cylinder so as to cause the material in any desired proportions to be supplied to the mixing cylinder.

A further object is to provide automatically acting means for closing the cylinder feeders and for discharging the contents thereof into the cylinder at a certain point in the rotation of the cylinder.

In the accompanying drawings—Figure 1 is a plan of a concrete mixing machine constructed in accordance with our invention. Fig. 2 is partly an elevation and partly a longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view of the same. Fig. 4 is a similar view of the same showing the parts in another position. Fig. 5 is a detail perspective view showing the hood pivotally mounted at the discharge end of the mixing cylinder.

In the embodiment of the invention here shown, a truck 1 is provided on which the operating parts of our improved concrete mixing machine are mounted. The frame of the truck comprises a pair of side bars 2, a front cross bar 3, intermediate cross bars 4, 5, and a rear cross bar 6, the said cross bars connecting the said side bars. The rear cross bar 6 is provided with a semi-cylindrical drop portion 7. A yoke bar 8 is bolted on the said cross bar 6, and is provided with an upstanding semi-cylindrical por-

tion 9. A pair of brackets 10 are secured to the side bars at a suitable distance from the rear ends thereof, and in the said brackets is mounted the rear axle 11 on the spindles of which are mounted the rear supporting wheels 12. The front axle 13 is provided with a bolster 14, and together with the said bolster is pivotally mounted under the cross bar 4 by a suitable king bolt 15. The front wheels are indicated at 16. A draft pole is indicated at 17, pivotally connected as at 18 to plates 19, which project forwardly from the front axle. A bearing 20 is mounted on the center of the cross bar 5. The mixing cylinder 21 which is horizontally disposed or substantially so, has its front end closed as at 22, and its rear end open, and is provided at its front end with a concentrically disposed trunnion 23 which is mounted in the bearing 20. The rear portion of the mixing cylinder is provided with a ring 24 which is mounted in the bearing formed by the semi-cylindrical portions of the cross bar 6, and yoke bar 8. The cylinder is provided at its front end with spur teeth 25 which are engaged by a spur gear 26, which is secured on the rear end of a shaft 27, the said shaft being mounted in suitable bearings 28 on the cross bars 3, 5, being provided with a gear 29 whereby it may be driven by a suitable engine, and caused to rotate the mixing cylinder. Any other suitable means may be employed for turning the shaft and the mixing cylinder. A hopper 31 of semi-cylindrical form extends transversely of the truck frame and under the front portion of the mixing cylinder, and is provided at its sides with flanges 32 which bear on and are bolted to the side bars of the truck frame. The said hopper is divided by suitable partitions or walls into as many compartments as there are kinds of material to be mixed by the machine, there being, for the purposes of this specification, three compartments 33, 34 and 35 here shown, respectively for cement, sand and crushed rock or other integrates. The mixing cylinder is provided at points coincident with the respective compartments of the hopper, with feed openings 36, 37, 38, which are arranged in line with one another. On the outer side of the mixing cylinder, and arranged over the said feed openings therein, are measuring feed scoops or boxes which are respectively indicated at 39, 40 and 41. The said meas-

uring feed scoops or boxes are identical in construction, and we will therefore only describe one of them.

Each feed scoop or box comprises a curved outer wall 42 which is concentric with the mixing cylinder, and side walls 43 provided with outstanding flanges 44, which are secured by screws or bolts 45 to the cylinder. The front end according to the direction of the rotation of the mixing cylinder indicated by the arrow in Fig. 3, of each feed scoop or box is open, and its rear end is also open. In the rear portion of each feed scoop or box is a gage element 46, forming a movable closure therefor, and provided with a curved arm 47 which bears on the outer side of the mixing cylinder and is provided with a longitudinal slot 48 engaged by a bolt 49 which secures the said arm and hence the said gage element to the mixing cylinder and enables the gage element to be adjusted so as to vary the capacity of the measuring feed scoop or box in which the said gage element is disposed. Hence the effective cubic capacity of the feed scoop or box may be regulated at will, by appropriately adjusting the gage element thereof, so that each feed scoop or box may be, at each revolution of the mixing cylinder, caused to deliver a certain predetermined quantity of material thereto. It will be observed that as the mixing cylinder rotates in the direction indicated by the arrow, each feed scoop or box as it moves through one of the compartments in the hopper will become filled with material.

For each feed opening of the mixing cylinder, we provide an automatically acting closure element such as indicated at 51. The said closure elements are segmental in form and curved on an arc corresponding with the inner surface of the mixing cylinder, and the said closure elements are sufficiently large to entirely cover the feed openings in the mixing cylinder when the said closure elements bear against the inner surface of said cylinder. Each closure element has a bent arm 54 attached thereto as at 55, the opposite end of the said bent arm being pivotally mounted as at 56 between a pair of lugs 57 of a plate 58, the said plate being bolted to the inner side of the mixing cylinder as at 59, at a suitable point and being provided at one end with a stop 60 to limit the movement of the said bent arm in one direction.

It will be observed by reference to Fig. 3 of the drawings, that when the mixing cylinder is in rotation, the pivoted ends of the arms of the closure elements are at the lower side of the said cylinder, as the measuring feed scoops or boxes enter the compartments of the hopper, and move downwardly therein, and hence the said closure

elements by their own gravity as the pivoted ends of their arms move upwardly, by the rotation of the mixing cylinder close against the inner side of the mixing cylinder, and cover the feed openings so that while the feed scoops or boxes become filled with the material, as they move through the mass of the same, in the hopper, the material remains in the said feed scoops or boxes until the same is moved upwardly out of the hopper at which time the pivoted ends of the arms 54 of the closure elements are uppermost and hence said closure elements by their own gravity swing inwardly in the mixing cylinder, uncover the feed openings thereof, and permit the material to drop from the feed scoops or boxes into the mixing cylinder.

In the side of the mixing cylinder opposite the feed openings is a series of obliquely disposed blades 60 which act to urge the material rearwardly in the mixing cylinder as the latter rotates, and cause the material fed to the cylinder by the feed scoop or boxes, and mixed by the returning of the cylinder, to be discharged from the open, rear end of the said cylinder, as will be understood.

A tank or reservoir 61 is secured on the upper portion of the yoke bar 8 and is provided with a pipe 62 which leads into the rear end of the cylinder and is provided with perforations, which spray water on the material mixed in the cylinder. This pipe is provided with a suitable regulating valve 63 by means of which the quantity of water supplied to the mixed material may be regulated as may become necessary. Since each feed box or scoop becomes filled with material at each revolution of the mixing cylinder and discharges its contents into the same, and since each of the said feed boxes or scoops is provided with an adjustable gage element whereby its effective cubic capacity may be varied, it will be observed that our mixing machine may be caused to mix cement, sand and crushed rock or other integrates in any desired proportions, and that these proportions may be varied at will from time to time by merely adjusting the said gage elements. The sand compartment of the hopper is here shown as provided at opposite sides of the machine with screens 64 for screening the sand as it is thrown into the said compartment. We also show a pivotally mounted hood 65 at the rear discharge end of the mixing cylinder. This hood when lowered collects the material discharged from the mixing cylinder and when raised dumps the same.

While we have herein shown and described what we now regard as the preferred embodiment of our invention, we would have it understood that changes may

be made in the form proportion, and construction of the parts, and that modifications may be made within the scope of our invention as defined by the appended claims.

5 We claim:—

1. In a machine of the class described, in combination with a hopper, a revoluble mixing cylinder having a feed scoop or box on the outer side thereof, and communicating therewith, the said feed scoop or box being  
10 open at its front and rear sides, and a gage element to form a closure for the rear side of the feed scoop or box, movable in said feed scoop or box, and provided on its rear  
15 side with a curved arm bearing on the outer side of the mixing cylinder, and means securing said curved arm on the mixing cylinder, for longitudinal adjustment of the curved arm, and the gage element.

2. In a machine of the class described, the combination of a hopper, a revoluble mixing element, a feed scoop or box carried thereby, movable by the rotation thereof through the said hopper, and communicating with said mixing element, and an auto-  
25 matically acting closure carried by the mixing element for cutting off communication between said feed scoop or box and said

mixing element at one period of the rotation of the latter.

3. In a machine of the class described, a revoluble mixing element having a feed scoop or box on its outer side, and automatically acting means carried by the mixing element for cutting off communication between said feed scoop or box and said mixing element at one period of the rotation of the latter.

4. In a machine of the class described, a revoluble mixing element having a feed opening, a feed scoop or box on said mixing element, and communicating therewith through said feed opening, and a pivotally mounted closure element in the mixing element acting by gravity to close said feed  
45 opening during one period of the rotation of said mixing element.

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

CHARLES BUCHANAN.  
MARION JARVIS.

Witnesses:

CHANCE E. DEWALD,  
OLIVE MCCARTHY.