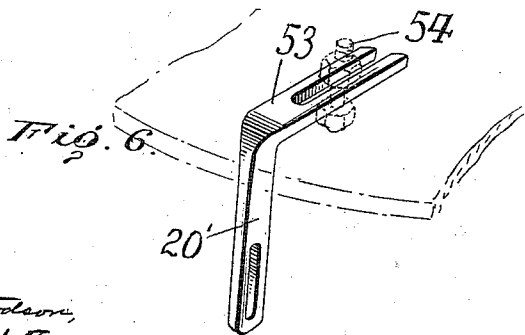
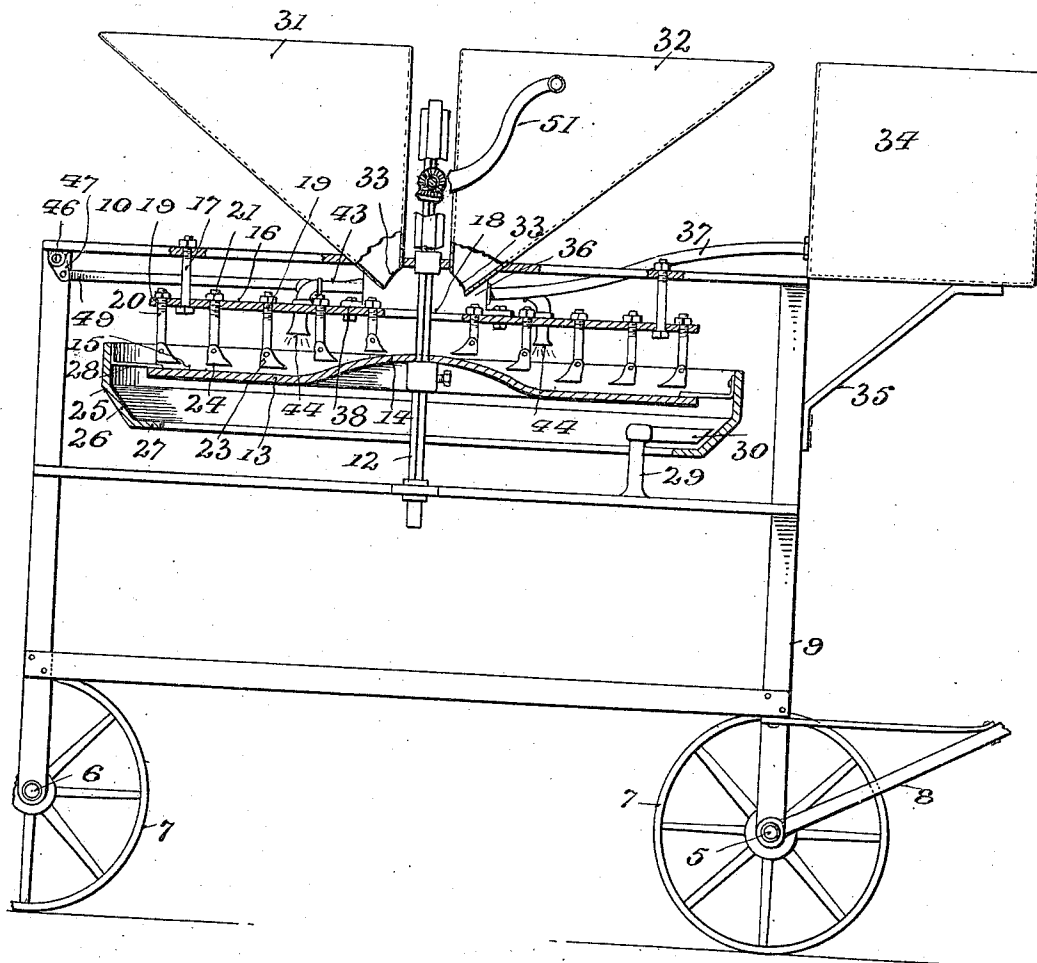


985,602.

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CONCRETE MIXER.
APPLICATION FILED JUNE 22, 1909.

Patented Feb. 28, 1911.
3 SHEETS-SHEET 1.

Fig. 1.



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3 SHEETS-SHEET 2.

Fig. 2.

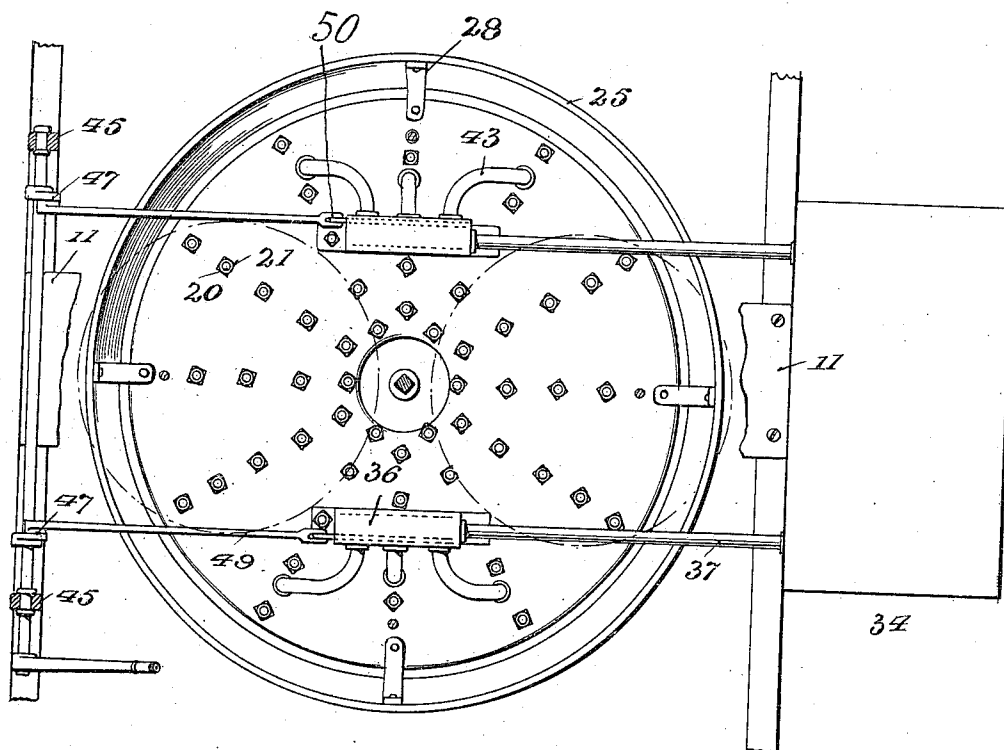
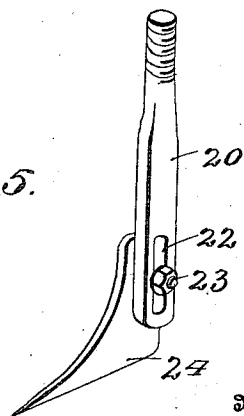


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 3.

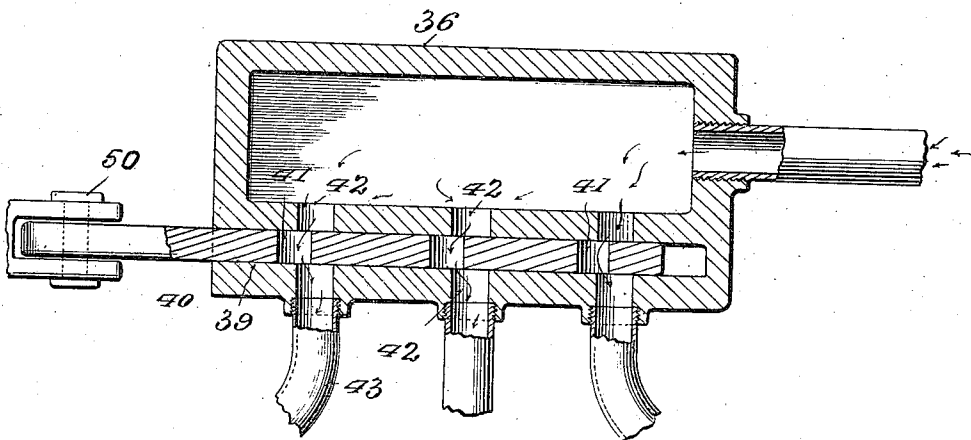
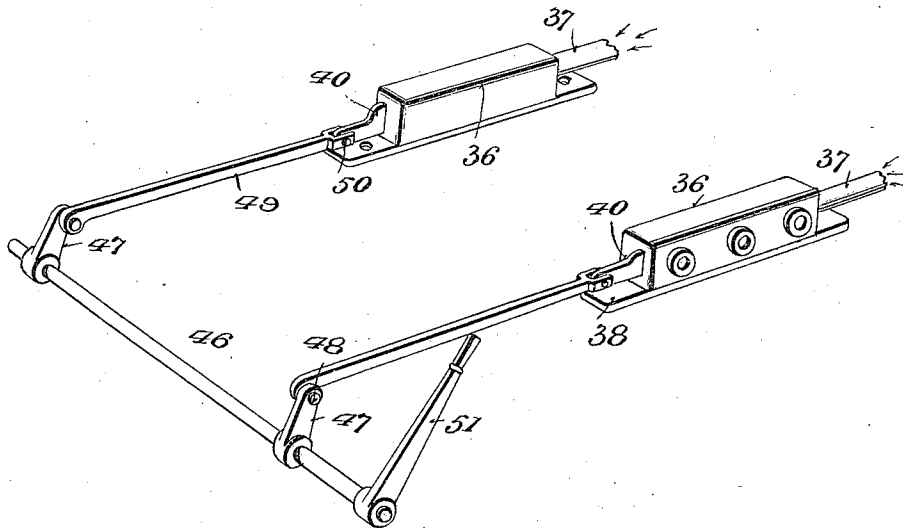


Fig. 4.

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UNITED STATES PATENT OFFICE.

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CONCRETE-MIXER.

985,602.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed June 22, 1909. Serial No. 503,743.

To all whom it may concern:

Be it known that I, WALTER L. JONES, citizen of the United States, residing at Thomson, in the county of Carroll and State of Illinois, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a specification.

This invention relates to mixing machines and more particularly to a machine especially designed for mixing cement, gravel and similar materials preparatory to molding the same into the desired shape.

The object of the invention is to provide a mixing machine including relatively stationary and movable members, one of which is provided with depending agitating fingers which co-act with the movable member for stirring or blending the materials to be mixed, provision being made for spraying said materials during the mixing operation.

A further object is to provide an annular receiving member or trough mounted for rotation with a movable mixing disk and from which the material is discharged into a wheel-barrow or other suitable receptacle designed to receive the same.

A further object is to provide means for controlling the flow of water from the supply tank to the mixing members or disks, and means for adjusting the agitating fingers, thereby to either retard or accelerate the movement of the materials toward the receiving trough.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes, in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view of a portable mixing machine, constructed in accordance with my invention; Fig. 2 is a top plan view thereof partly in section;

Fig. 3 is a perspective view of the liquid cylinders and pitmen for operating the same, the cylinders and pitmen being detached from the machine; Fig. 4 is a horizontal sectional view through one of the cylinders; Fig. 5 is a perspective view of one of the agitating fingers and its shoe or plow detached. Fig. 6 is a perspective view of a modification illustrating different means for securing the agitating fingers from that in Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The mixing machine forming the subject matter of the present invention is preferably mounted on a truck including front and rear axles 5 and 6 on which are mounted for rotation ground wheels 7, the front axle 5 being provided with a suitable handle 8 by means of which the truck may be transported from one place to another. Extending vertically from the front and rear axles of the truck, is a supporting frame 9 including spaced longitudinal bars 10 and 11 in which is journaled a vertically disposed shaft or spindle 12.

Keyed or otherwise rigidly secured to the spindle or shaft 12, is a movable mixing member or disk 13 having a centrally disposed convex portion 14 and a circumferential flat portion 15, the materials to be mixed being deposited on the convex portion 14 and thrown outwardly by centrifugal force as said disk revolves.

Disposed above and spaced from the movable disk 13, is a stationary disk or mixing member 16, the latter being rigidly secured to the upper bar 10 of the supporting frame by bolts or similar fastening devices 17. The stationary disk 16 is provided with a central opening 18 through which the materials are delivered to the lower mixing member or disk 13, said stationary disk being provided with a plurality of concentric openings 19, the walls of which are threaded for the reception of correspondingly threaded agitating fingers 20. The threaded ends of the agitating fingers 20 pass through the stationary disk 16 for engagement with suitable clamping nuts 21, while the lower ends thereof are flattened and provided with

elongated slots 22 for the reception of bolts or similar fastening devices 23, the latter serving to retain the mixing shoes 24 in position on the agitating fingers 20. Attention is here called to the fact that by loosening the clamping nuts 21 and rotating the fingers or pins 20, the position of the mixing shoes 24 may be changed so as to either retard or accelerate the discharge of the materials to be mixed, while by loosening the fastening devices 23, the shoes 24 may be adjusted vertically of the fingers 20 and thus space the lower ends of the shoes at any desired distance from the upper surface of the lower mixing member or disk 13.

Surrounding the lower member 13 and spaced from the peripheral edge thereof, is an annular receiving member or trough 25 having its intermediate portion inclined downwardly at 26 so as to deflect the material deposited on the wall 26 downwardly on the lower edge or flange 27. The receiving trough 25 is mounted for rotation with the lower mixing member or disk 13, and is preferably connected with the latter through the medium of one or more braces 28.

Secured to the lower longitudinal bar 11 of the supporting frame, is a standard 29 to the upper end of which is secured one end of a horizontally disposed arm 30, the opposite end of the arm 30 being inclined to conform to the inclination of the wall 26 of the receiving trough and arranged to scope the inwardly extending flange 27 of said trough so as to discharge the materials deposited on the flange 27 into a wheel-barrow or other suitable receptacle designed to receive the same.

Mounted on the supporting frame above the stationary mixing member or disk 16, are spaced hoppers 31 and 32, one of which is adapted to receive cement and sand, and the other gravel, the materials in the hoppers 31 and 32 being fed through the discharge spouts 33 and opening 18 in the upper disk 19 to the convex portion 14 of the lower disk 13, where they are thrown outwardly by centrifugal force and are thoroughly agitated and blended by contact with the mixing shoes 24. As a means for spraying the materials during the mixing operation, there is provided a supply tank or fountain 34, the latter being mounted on one end of the machine and retained in position by suitable diagonal braces 35.

Deposited on opposite sides of the shaft or spindle 12, are boxes or cylinders 36, each being connected to the fountain or tank 34 by a conductor 37. The cylinders 36 are provided with terminal flanges 38 for attachment to the upper surface of the stationary disk 16, said cylinders being formed with longitudinally disposed guides 39, in which are mounted for reciprocation sliding valves 40. The valves 40 are each provided

with a series of openings 41 adapted to register with corresponding openings 42 formed in the wall of the adjacent cylinder and the guide 39 respectively, thereby to control the flow of water to the mixing disks.

Threaded in the openings 42 of the guide 39, are pipe sections 43, which latter extend through the upper mixing disk or plate 16 and are provided with terminal discharge nozzles 44 arranged a suitable distance apart so as to permit uniform spraying of the surface of the movable member or disk 13 and thus insure the proper blending of the materials during the mixing operation.

Journalled in suitable bearings 45 on one end of the supporting frame, is a transverse shaft 46 having terminal crank arms 47 to each of which is pivotally connected at 48, the adjacent end of a pitman 49, the opposite ends of the pitman 49 being pivotally connected at 50 with the adjacent valves 40. One end of the transverse shaft 46 is provided with a terminal operating handle 51 by means of which the valves 40 may be operated simultaneously to control the flow of water from the tank or fountain 34 to the several discharge nozzles on opposite sides of the machine.

The machine may be operated either manually or from any suitable source of power, and by way of illustration is shown as provided with a crank 52 having connection with the upper end of the shaft or spindle 12 so that by turning the crank 52, motion may be imparted to the lower mixing member or disk 13.

In operation, cement and gravel are placed in the hoppers 31 and 32 and the lower disk 13 set in motion by rotating the crank 52. As the materials in the hoppers 31 and 32 are deposited on the convex portion 14 of the lower disk or mixing member 13, said materials will be thrown outwardly by centrifugal force and into contact with the terminal shoes 24 of the mixing fingers, thus thoroughly mixing or blending the different materials, which latter are subjected to the action of a liquid spray from the nozzles 44 when the handle 51 is operated. As the lower disk 13 revolves, the materials will be thrown outwardly against the inclined walls 26 of the receiving trough and thence fall on the lower flange 27 thereof, the concrete being discharged from the receiving trough into a wheel-barrow or other suitable receptacle by means of the arm 30, as before stated. By rotating or partially rotating the fingers 20 of the upper disk 16, the terminal shoes 24 of said fingers may be disposed at any angle to each other so as to either retard or accelerate the delivery of the material to the receiving trough.

In Fig. 6 of the drawings, the upper end of the finger 20' is provided with an angularly disposed arm 53, the end of which is

bifurcated to receive the bolt or fastening device 54.

Having thus described the invention, what is claimed as new is:

5 1. A mixing machine including a supporting frame, a stationary mixing member, a movable mixing member spaced from the stationary member, a receiving trough surrounding the lower mixing member and
10 movable therewith, agitating fingers depending from the stationary member and adjustable to either retard or accelerate the flow of material to the receiving trough, and a stationary scraper for removing the
15 material from the receiving trough.

2. A mixing machine including a supporting frame, a stationary mixing member, a movable mixing member mounted for rotation beneath the stationary member, a
20 receiving trough secured to and surrounding the movable member, agitating fingers depending from the stationary member, and an arm secured to a fixed portion of the frame and projecting within the trough for
25 discharging the materials deposited thereon.

3. A mixing machine including a supporting frame, a stationary mixing member, a movable mixing member mounted for rotation beneath the stationary member, a
30 trough surrounding the movable member and mounted for rotation therewith, vertically adjustable agitating fingers depending from the stationary member, mixing shoes carried by and adjustable both verti-
35 cally and laterally independently of the fingers, and means for subjecting the materials deposited on the movable mixing member to the action of a liquid spray during the rotation of said movable member.

4. A mixing machine including a supporting frame, a stationary mixing member, a movable mixing member mounted for rotation beneath the stationary member, a
40 trough surrounding the movable member and mounted for rotation therewith, vertically adjustable agitating fingers depending from the stationary member and having their lower ends slotted, mixing shoes carried by the slotted ends of the fingers and
45 adjustable vertically independently of said fingers, and bolts extending through the shoes and the fingers for securing the shoes in adjusted position.

5. A mixing machine including a wheeled
55 truck, a frame mounted on the truck, a stationary mixing member secured to the frame, a movable mixing member mounted for rotation beneath the stationary member and having a central convex portion, a
60 trough secured to and surrounding the movable mixing member, agitating fingers depending from the stationary member, an arm secured to a fixed portion of the frame and projecting within the trough for dis-
65 charging the material therefrom, and means

for subjecting the material to the action of a liquid spray during the operation of the mixing member.

6. A mixing machine including a supporting frame, a stationary mixing member
70 secured to the frame, a movable mixing member mounted for rotation beneath the stationary member, a receiving trough movable with the revolving mixing member and having an intermediate inclined wall and
75 an inwardly extending flange, agitating fingers depending from the stationary mixing member, and an arm projecting within the trough and having its free end inclined to conform to the incline of the trough and
80 adapted to discharge the materials deposited on said trough into a receptacle.

7. A mixing machine including a supporting frame, a stationary mixing member secured to the frame, a movable mixing
85 member mounted for rotation beneath the stationary member, a trough surrounding the movable mixing member and mounted for rotation therewith, agitating fingers depending from the stationary mixing mem-
90 ber, a liquid supply tank, a cylinder having conductors secured thereto and projecting through the stationary mixing member and provided with spray nozzles, a conductor connecting the cylinder with the supply
95 tank, and a valve for regulating the flow of liquid from the cylinder to the discharge nozzles.

8. A mixing machine including a mixing
100 device, a liquid supply tank, spaced cylinders mounted above the mixing device, conductors communicating with the interior of the cylinders and provided with terminal
105 nozzles for spraying the material on the mixing device, conductors connecting the tank and cylinders, valves for controlling the flow of liquid from the cylinders to the spraying nozzles, a transverse shaft, pitmen forming a connection between the
110 shaft and the adjacent valves, and an operating handle secured to the shaft for actuating the latter to simultaneously operate both valves.

9. A mixing machine including a mixing
115 device, a liquid supply tank, cylinders disposed above the mixing device and provided with guides, there being a series of perforations formed in the guides and one wall of each cylinder, respectively, pipes communi-
120 cating with the openings in the guides of the cylinders and provided with terminal nozzles for spraying the material on the mixing device, valves mounted for reciprocation in the guides of the cylinders and provided with openings adapted to register with
125 the openings in the guides and cylinders, respectively, for controlling the flow of liquid to the spraying nozzles, a shaft provided with crank arms, and means forming
130 a connection between the crank arms and

adjacent valves for simultaneously controlling the movement of both valves.

10. A mixing machine including a supporting frame, a spindle journaled in the supporting frame, a movable mixing member mounted for rotation with the spindle, a stationary mixing member secured to the frame and provided with depending agitating fingers co-acting with the upper surface of the movable mixing member, said stationary member being provided with a centrally disposed opening and the movable member being provided with a concaved portion disposed beneath the opening in the stationary member, a receiving trough surrounding the mixing member, a hopper for delivering material through the opening in the stationary member to the convex portion of the mixing member, and means for spraying the material on the mixing member when the latter is rotated.

11. A mixing machine including co-acting relatively stationary and movable mixing members, cylinders supported by one of the mixing members and provided with nozzles extending through the stationary mixing member for spraying liquid on the material between said mixing members, a liquid supply tank communicating with said cylinders, valves for controlling the flow of liquid from the cylinders to the spraying

nozzles, an operating shaft, and a connection between the operating shaft and valves for simultaneously opening and closing the latter.

12. A mixing machine including co-acting relatively stationary and movable mixing members, agitating devices carried by one of the mixing members, spaced liquid receiving cylinders disposed above the mixing members and provided with guides, spraying nozzles connected with the cylinders and extending through the stationary mixing member for spraying liquid on the material between said mixing members, there being openings formed in the walls of the cylinders and registering with the inner ends of the nozzles, a liquid supply tank connected with the cylinders, valves slidably mounted in the guides and provided with openings registering with the openings in the cylinders for controlling the flow of liquid to the nozzles, an operating shaft, and a connection between the operating shaft and valves for simultaneously operating the latter.

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

WALTER L. JONES. [I. S.]

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