No. 839,144. PATENTED DEC. 25, 1906.

J. B. HINCHMAN.

MIXING MACHINE.

APPLICATION FILED FEB. 10, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

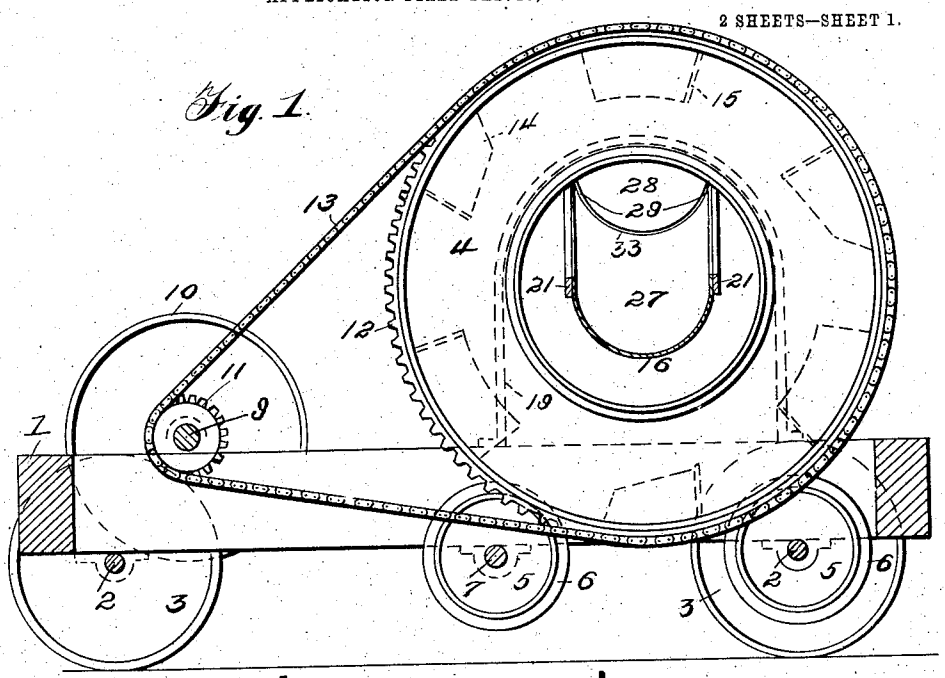
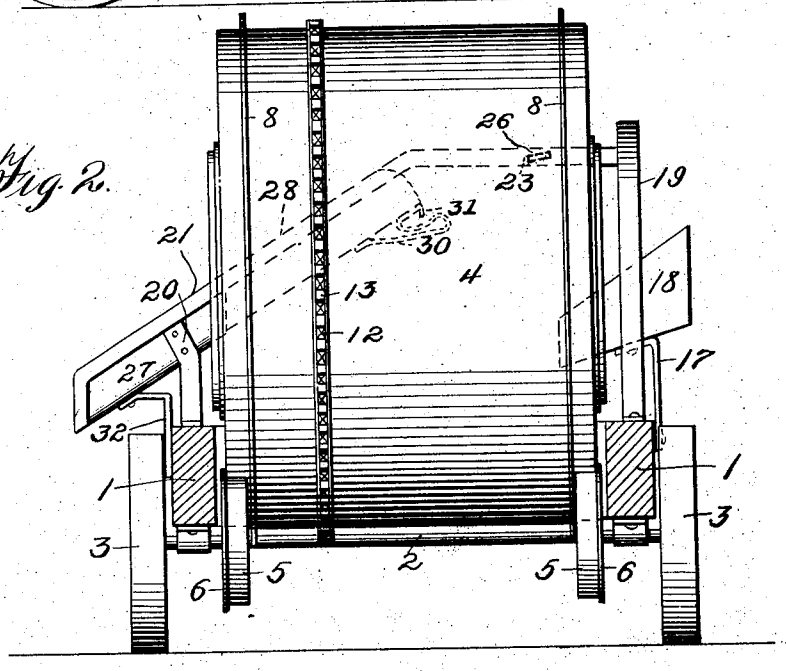


Fig. 2.



Witnesses
Agnes Trigg
Mildred Clarke

Inventor
James B. Hinchman
By H. C. Evert & Co.
Attorneys

No. 839,144. PATENTED DEC. 25, 1906.

J. B. HINCHMAN.

MIXING MACHINE.

APPLICATION FILED FEB. 10, 1906.

2 SHEETS—SHEET 2.

Fig. 3.

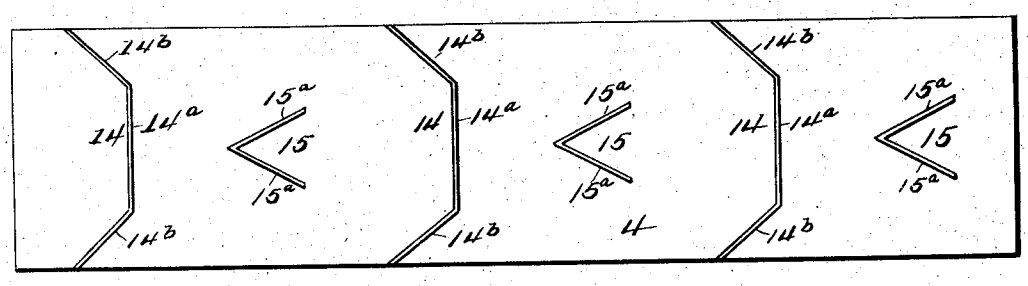


Fig. 4.

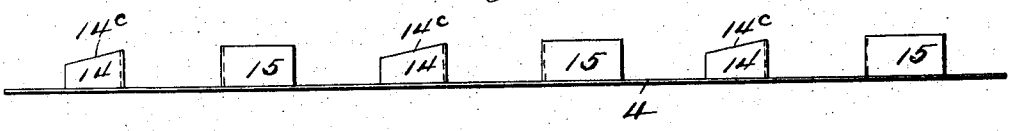
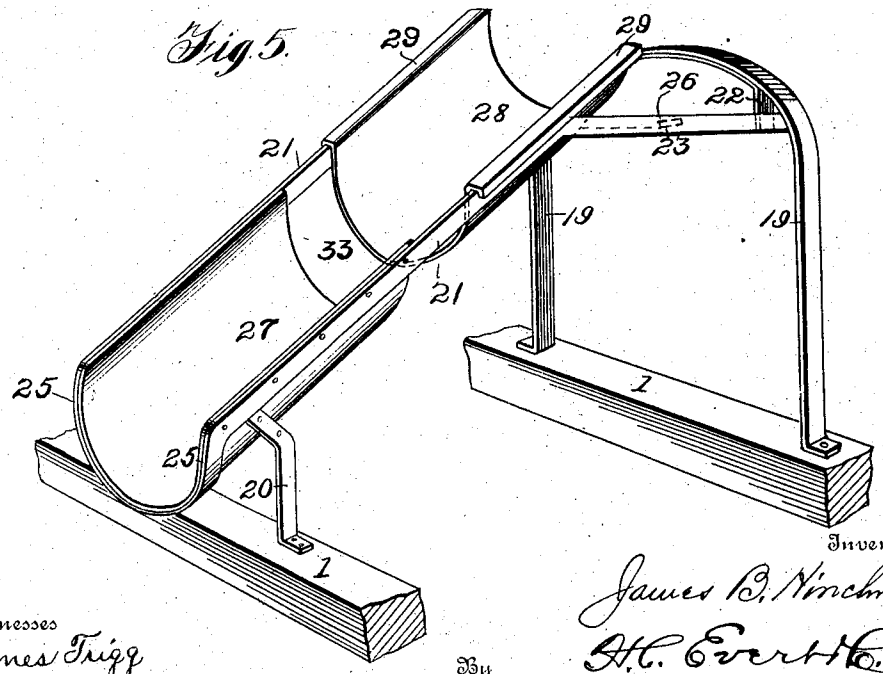


Fig. 5.



Witnesses
Agnes Trigg
Mildred Clark

Inventor
James B. Hinchman
By H. C. Evert & Co.
Attorneys

UNITED STATES PATENT OFFICE.

JAMES B. HINCHMAN, OF DENVER, COLORADO.

MIXING-MACHINE.

No. 839,144. Specification of Letters Patent. Patented Dec. 25, 1906.

Application filed February 10, 1906. Serial No. 300,470.

To all whom it may concern:

Be it known that I, JAMES B. HINCHMAN, a citizen of the United States of America, residing at Denver, in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in mixing-machines and belongs to that particular type of construction known as "drum-mixers."

The machine involved is especially designed for mixing material to be employed in building construction in either its dry or liquid state, and in such application means are provided whereby the material may be mixed continuously or in batch.

It is a primary object of my invention to provide means for effecting a more prefect amalgamation of the granular particles; and toward the attainment of this end the invention specifically resides in the provision and arrangement of a series of baffling and carrying wings mounted within the rotary drum.

In connection with the wings I employ a delivery-spout of novel construction, which comprises two members designed to be held together in overlapping or registering position to feed the amalgamated material from the drum after the completion of the mixing operation and adapted during the progress of the mixing operation to be disengaged from one another, so as to leave an open space in the spout through which the material continuously gravitates in the rotary movement of the drum without being allowed egress therefrom.

The detailed construction will appear in the course of the following description, in which reference is had to the accompanying drawings, forming a part of the specification, like numerals designating like parts throughout the different views, wherein—

Figure 1 is a side elevation of the drum and driving mechanism therefor, the supporting-frame and the spout being shown in section. Fig. 2 is an end elevation of the same, the arrangement of the spout with relation to the drum being shown in dotted lines. Fig. 3 is a developed plan view of the drum, showing the relative arrangement of the baffling and carrying wings. Fig. 4 is a side elevation thereof, and Fig. 5 is a perspective view showing in detail the construction of the spout and the supporting-frame therefor.

Referring specifically to the accompanying drawings, it will be observed that I employ a rectangular frame 1, mounted on axles 2, upon the ends of which wheels 3 are journaled. The frame 1 constitutes a support for the superstructure which is moved upon the wheels 3, although I may eliminate these wheels and employ other supporting means well known in the art, such as skids, &c.

The drum 4 is revolubly mounted upon the frame 1 and is supported upon rollers 5, formed on their outer sides with peripheral retaining-flanges 6, which overlap for a short distance the sides of the drum. The rollers 5 are arranged in axially-alined pairs on opposite sides of the frame 1, one pair of said rollers being revolubly journaled upon the rear axle 2 and the other pair being journaled upon an axle 7, located in the same plane as the axles 2 and centrally disposed therebetween. The drum 4 is provided a short distance from each of its sides with peripheral flanges 8, which bear against the inner sides of the rollers 5 and coact with the flanges 6 upon the said rollers in positively maintaining the drum in its position.

The rollers 5 constitute a positive support and cylindrical bearings for the drum in its rotary movement and in this function coöperate with the driving mechanism, which may be of any desired form, but which as shown embodies a sprocket-and-chain gearing driven from a source of power-supply. The frame 1 carries adjacent to its front end a transverse shaft 9, upon which is mounted a drive-pulley 10 and a small sprocket-wheel 11. The drum 4 carries on its periphery a large sprocket 12, arranged in the same plane as the sprocket 9 and driven therefrom by a chain 13.

Upon the inner circumference of the drum 4 are secured in any desirable manner a series of spaced wings 14, which, owing to their function, I shall hereinafter refer to as "carrying-wings." The wings 14 are formed with a central transverse wall 14^a and with obliquely and forwardly extending side walls 14^b, which are formed with inclined top edges 14^c, as clearly shown in Figs. 3 and 4. Centrally located in the spaces between the wings 14 and secured to the inner circumference of the drum 4 are a corresponding series of wings 15, which shall be hereinafter des-

ignated as "baffling-wings." The wings 15 are of V shape, and the inclined sides 15^a thereof extend rearwardly, so as to direct the material against the converging side walls 14^b of the next adjacent carrying-wing.

The drum 4 is formed in its ends with openings 16, as usual, the circumference of said openings being concentric with the periphery of the drum. Mounted upon one side of the frame 1 is a vertically-extending bracket 17, which supports an inclined feed-chute 18, through which the material has ingress to the drum.

The delivery-spout is shown in detail in Fig. 5 and is supported upon a frame of novel construction, which comprises an arch-shaped rear frame 19, secured to the side bar 1 adjacent to the feed-chute 18 and straddling the same, spaced supporting-posts 20, mounted upon the opposite side bar of the frame 1, and inclined top bars 21, secured at their one end to the post 20 and at their other ends to depending brackets 22, carried at the top of the frame 19.

The top bars 21 extend for a portion of their length in the same plane, their forward ends being bent around the spout, as shown at 25, thus bracing the spout at its outer or delivery end. Each top bar has its rear portion 23 extending horizontally or at an angle to the main inclined portion, and said rear portions are suitably secured to brackets 22 and carry a transverse bar 26, having a forwardly-inclined surface.

The delivery-spout is of substantially U shape in cross-section and comprises a stationary member 27, rigidly secured to the incline front portion of the top bars 21, and a movable member 28, formed with flanged or channel edges 29, which rest upon the bars 21 and serve as guides for the section 28 in the movement thereof. The section 28 carries upon its underneath surface a handle 30, as shown in dotted lines in Fig. 2, which terminates in a hooked end 31, designed to ride over and lockingly engage the bar 26. The section 27 is further braced by connection with a supporting-bracket 32, secured to one of the side bars of the frame 1, as shown in Fig. 2.

Upon reference to Fig. 5 it will be observed that the sections 27 and 28 are shown in non-registering position, and the latter section is maintained in this position by the engagement of the hook 31, carried thereby, with the bar 26. An open space 33 is thereby left between the sections through which the granulated material gravitates in the rotating action of the drum.

In operation the sections 27 and 28 of the delivery-spout are in the position shown in Fig. 5, the granular material to be amalgamated is fed into the drum 4 through the chute 18, which projects into the opening 16 in the side wall thereof, and the drum is rotated through the power mechanism described, the wheels 5 serving as bearings and preventing the drum from side or end movement. In this operation the wings 14 will convey the material upwardly to a point beyond the center of gravity, at which time it will drop to the lowermost position in the drum, the bulk of the material as it falls passing through the space 33 between the spout-sections 27 and 28. As the drum continuously revolves the baffling-wings 15 will again and again separate the material, and direct it against the converging walls 14^b of the next adjacent carrying-wing 14, where it will of its own force gravitate toward the central portion 14 of said wings and be carried upwardly thereby until it drops in the manner described and mingles with the bulk of the material in the drum. When the mixture has become thoroughly combined and it is desired to deliver the same from the drum 4, the section 28 is tilted so as to disengage the hook 31 from the bar 26, at which time the section will gravitate down the top bars 21 of the supporting-frame until it abuts and laps one-half the section 27. In this position, which is shown in dotted lines in Fig. 2, the sections 27 and 28 coöperate to form a continuous delivery-spout having an uninterrupted passage throughout its entire length. When the sections are thus joined or brought together, the drum 4 in its rotating movement will raise the material to a point above said sections until said material drops thereinto and egresses from the drum 4 by a gravitating action down the inclined surface of the sections 27 and 28, forming the delivery-spout, from whence it is carried away by any suitable conveyer. It will thus be observed that the carrying-wings 14 and the baffling-wings 15 coact with one another to thoroughly amalgamate the different granular materials in the drum 4 in the open position of the delivery-spout, and it will be further observed that in the closed position of said spout the carrying-wings 14 act as conveyers to feed the material into said spout, down which it passes by gravity from the drum 4.

I have herein shown and described a practical embodiment of supporting truck or frame for the drum as well as a driving means for said drum, but do not wish to be understood as claiming this construction, my invention residing in the construction of the drum and in the delivery-spout and support.

Other equivalent driving means than that shown may be employed, and the drum need not necessarily be mounted on a traveling truck.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a mixer, the combination with a rotatable drum having a feed-chute, and a sup-

port for the drum, of standards mounted on said support, at one side of the drum, and a frame mounted on said support at the opposite side of the drum, spout-supporting bars connected at their ends to said frame and extending into the drum on a horizontal line and outwardly thereof at an incline to the horizontal, a spout formed of two sections, one of which is stationary on the inclined portion of said bars and which is secured to said standards, and the other of which sections is slidable on said bars, a cross-bar carried by the horizontal portion of said bars, and a catch carried by the slidable section of the spout for engagement with said cross-bar, to hold the slidable section separated from the stationary section.

2. In a concrete-mixer, the combination with a horizontal rotatable mixing-drum, of spout-supporting bars extending through the open ends of the drum, and supported free thereof, a spout formed in two sections one of which is rigidly mounted on the bars and extends partly within and partly without the drum, and a slidable section mounted on the bars and movable thereon into and out of engagement with the stationary section, a cross-bar carried by the said bars, and means on the slidable section for engagement with said cross-bar to hold the sections of the spout separated.

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

JAMES B. HINCHMAN.

Witnesses:
CALVIN BOYER,
EDWIN W. HINCHMAN.