

H. U. PRINDLE.
 AGITATOR OR PADDLE MECHANISM FOR MIXING MACHINES.
 APPLICATION FILED JAN. 21, 1911.

1,012,154.

Patented Dec. 19, 1911.

2 SHEETS-SHEET 1.

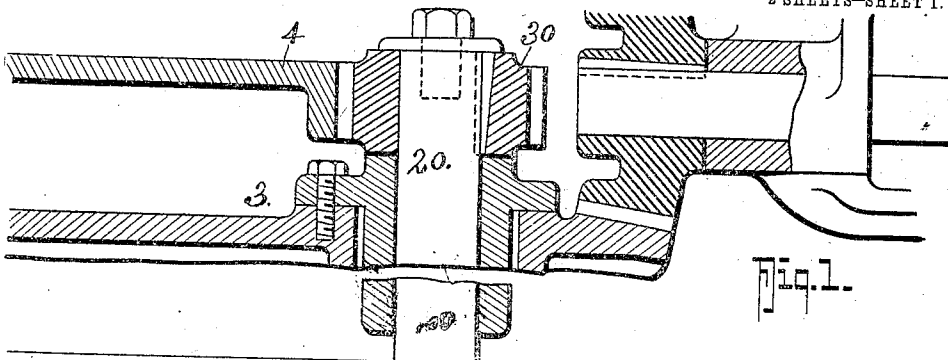
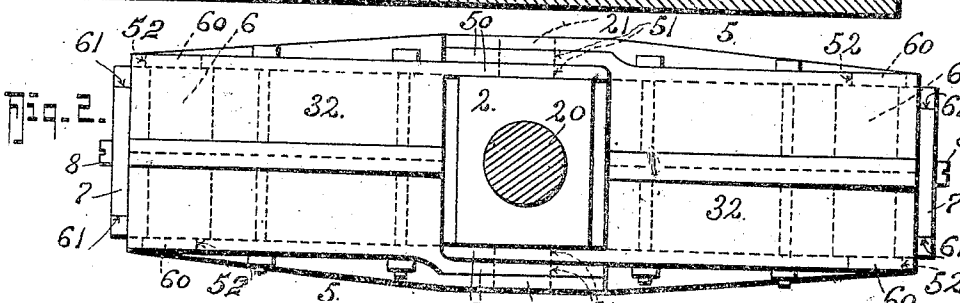
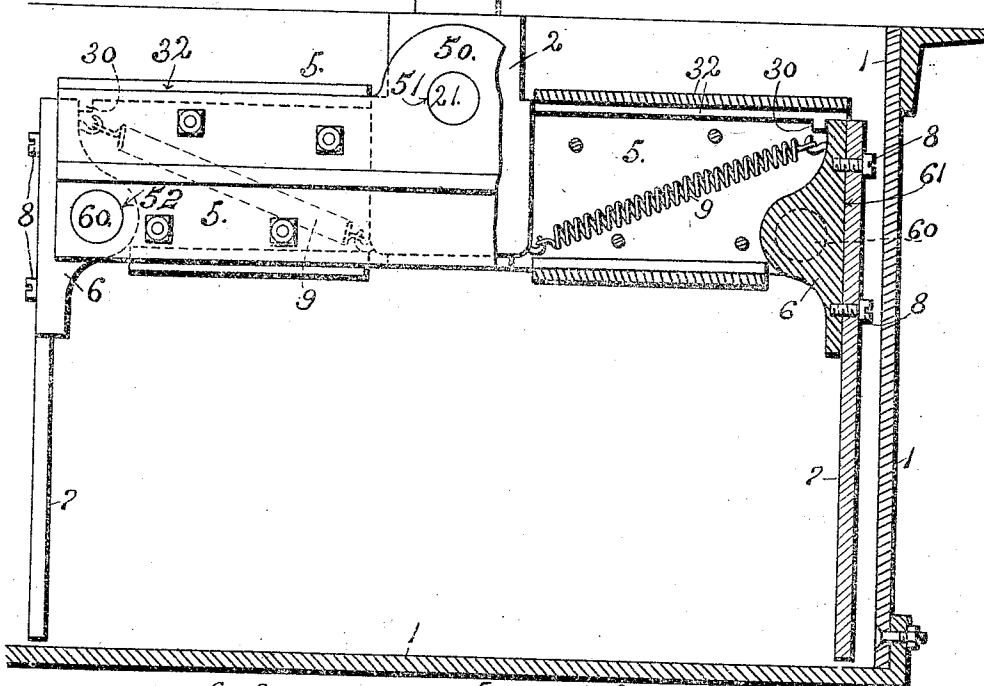


Fig. 1.



WITNESSES.

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May Linnich

INVENTOR

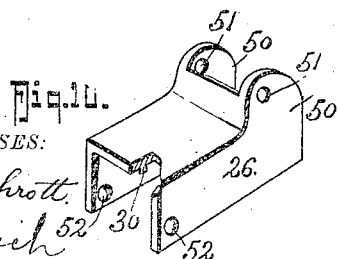
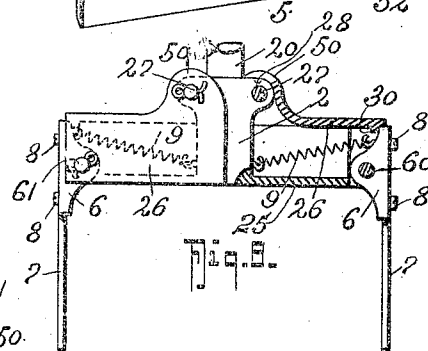
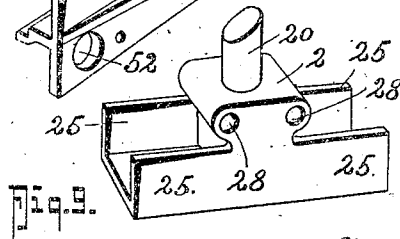
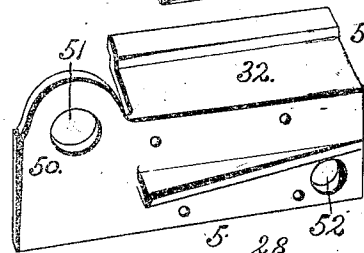
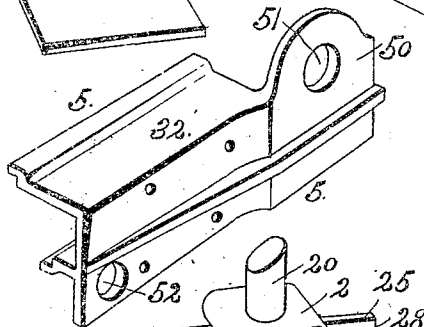
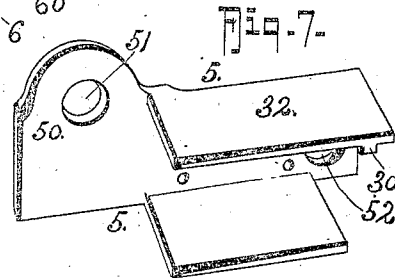
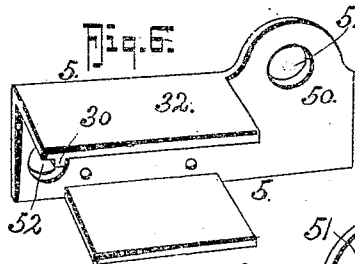
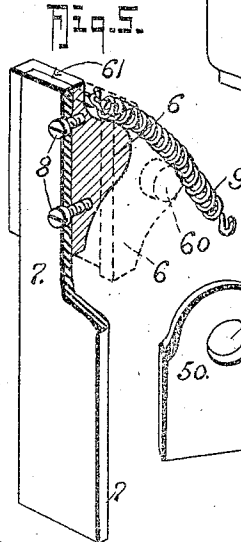
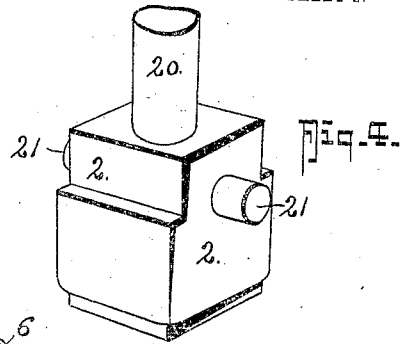
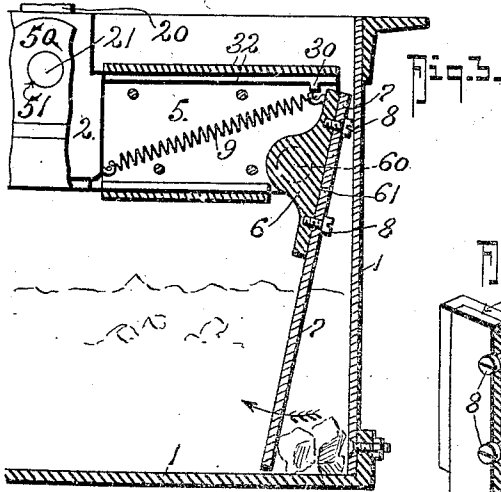
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 BY *Fred J. Duerich & Co.*
 ATTORNEYS.

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2 SHEETS-SHEET 2.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

HENRY URSON PRINDLE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO PLANETARY MACHINERY COMPANY, INCORPORATED, OF SAN FRANCISCO, CALIFORNIA.

AGITATOR OR PADDLE MECHANISM FOR MIXING-MACHINES.

1,012,154.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed January 21, 1911. Serial No. 608,895.

To all whom it may concern:

Be it known that I, HENRY U. PRINDLE, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Agitator or Paddle Mechanism for Mixing-Machines, of which the following is a specification.

This invention more particularly has for its purpose to provide an improved construction of paddle or stirrer for mixing machines, of the general type disclosed in my Patent No. 856295.

In the form of mixing machine shown in my patent referred to, a planetary motion is imparted to the mixing paddle or stirrer member, and in practice motion is imparted under great speed and considerable power. From practical experience with machines of the character stated, it has developed in operation, if a coarse aggregate comes between the paddle or stirrer members and the side of the mixing tank or is crowded under the said paddle, the strain frequently breaks the paddles and otherwise throws the operating parts out of gear and impairs the desired effectiveness of the machine.

My present invention has for its object to provide an improved construction of mixing paddle or stirrer, especially designed for mixing concrete or other coarse aggregates, or coarse and fine aggregates, wet or dry, in such manner that danger of the paddles becoming broken or the mechanism rendered ineffective under the conditions hereinbefore mentioned is reduced to the minimum, and in which the several parts are so individually formed and arranged for coöperation, whereby any of the parts under accidental breakage or usual wear, can be replaced without altering any of the remaining parts.

With other objects in view that will hereinafter appear, my invention, in its generic nature, embodies, in connection with a rotary head block, stirrer or paddle members flexibly joined thereto for moving in a direction relatively radial to the axis in meeting with excessive endwise obstruction, and to swing vertically with the head as the pivotal axis.

In its more subordinate features my invention consists in certain details of construction and various combinations of parts that constitute my invention, all of which will be hereinafter fully explained, specifically pointed out in the appended claims

and illustrated in the accompanying drawings, in which:—

Figure 1, is a vertical section, parts being in elevation of so much of a mixing mechanism as is necessary to illustrate the practical application of my invention. Fig. 2, is a top view of the mixing head and the paddles carried thereby, and shows the preferred form of my present invention. Fig. 3, is a detail section that illustrates the manner in which the paddle or stirrer members flex in meeting with a solid or coarse aggregate between it and the tank side. Fig. 4, is a perspective view of the head block. Fig. 5, is a detail view that shows the spring connection with the paddle holding and rockably mounted casting. Figs. 6 and 7 show the several sections that constitute the paddle holders, separated. Fig. 8, is a side view (partly in section) of a modified construction of my invention. Figs. 9 and 10 are detail views of parts thereof, hereinafter specifically referred to.

Referring now more particularly to Figs. 1, 3 and 4, 1 designates a part of a mixing tank which may be of the type shown in my patent referred to or other form in which a rotary mixer or agitator mechanism of the general type shown may operate. The mixing or agitator mechanism which, *per se*, constitutes my invention, in the preferred form, comprises a hub or head block 2 mounted on or integral with a vertical shaft 20 mounted in a carrier arm 3 which may be, and preferably is, horizontally rotatable and arranged to sweep the mixer mechanism in a circular manner over the tank bottom as the mixer mechanism is in itself rotated, the same having, as it were, a planetary movement with respect to the tank. For imparting the rotary motion to the hub 2, a gear 30 is mounted on the upper end of the shaft 20 that meshes with a stationary gear 4, the actuating mechanism referred to being only generally shown in the drawings since the same is of a well-known type and forms no part of my present invention. The hub 2 has a pair of oppositely projected axial lugs 21 with which are pivotally connected the opposite or wing portions of the mixer head, each consisting of a pair of like formed but oppositely disposed angle plates 5—5, the inner ends of which are formed with apertured extensions 50—50 for hinging on the head block, the lugs 21—21 of which enter

the apertures 51—51 in the extensions 50—50 that lap on each other when assembled, as clearly shown in Fig. 2, such mounting of the wings allowing them to swing upwardly for the purpose presently explained. At the outer end each wing member, near its lower edge, has an aperture 52 and such apertures are provided to receive the oppositely projected pivot lugs 60 in the end blocks 6 mounted in the end of the wings, each of which has a socket 61 in its outer face to seat the upper ends of the mixing paddles or stirrer members 7—7 which are made fast to the end blocks 6 by the screw bolts 8—8, it being obvious, see Fig. 4, that by pivotally hanging the paddles in the outer ends of the wings of the mixing head, should the lower part of the paddles engage a hard aggregate next the end wall of the tank the paddle will readily swing inwardly as shown. For returning the paddle to its straight or normal position, stout coil springs 9—9 are used, one end of each of which connects with the upper end of their respective paddle blocks while the other ends connect with the head block 2, and to hold the said paddles from going outwardly beyond the vertical plane stop flanges 30 are cast on the under side of the horizontal or top portions 32 of the wings of the mixer head.

In Figs. 8, 9 and 10 I have illustrated a somewhat modified form of my invention in which the component parts are, however, combined to work the same as in the preferred form. In the said modified form the hub member 2 has integral trough-like wings 25 in which fit trough-like members 26 that fulcrum on bolts 27, one for each wing, that pass through apertures 28—28 in the hub. In this last form, the wing members 26 have the paddles secured to the extended ends thereof, see Fig. 8, the springs 9—9 being also used the same as in the preferred form.

From the foregoing, taken in connection with the drawings, the advantages and the general operation of my invention will be

readily apparent to those skilled in the art to which it appertains and therefore need not be further defined.

Having thus described my invention, what I claim is:

1. In a mixing machine a rotary mixer comprising a head block oppositely projected trunnions, a wing member projected from opposite sides of the head block, each of the wing portions consisting of two like members, each having an upwardly projected and apertured extension for fitting on the head block trunnions, the outer lower ends each having an aperture, the said outer ends also having a stop rib, a paddle for each wing, each consisting of a head having trunnions for engaging the apertures in the outer ends of the wing members, said head engaging the aforesaid stop ribs and a spring for each paddle connected to the paddles, and to the head block for holding the paddles to their normal vertical position.

2. In a mixing machine, a rotary mixer comprising a head wing portions each formed of longitudinally extending half sections, the inner ends of each pair of sections being pivotally mounted on the head block to swing in the vertical plane, a paddle for each wing, each paddle consisting of a head pivotally mounted between the outer ends of each set of wing portions, and a spring device for each paddle for holding it to its normally pendent position, said paddles being rockable in one direction on their pivots.

3. In a mixing machine, a rotary mixer including a head rotatable on a vertical axis, a radially disposed member pivoted to said head on a horizontal axis for vertical movement, and a paddle pivoted to said member on a horizontal axis for vertical and radial pivotal movement.

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Witnesses:

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CHARLES E. NORDFELT.