W. LINDSAY.

AGITATING DEVICE.

APPLICATION FILED OCT. 21, 1918.

1,328,576.

Patented Jan. 20, 1920.

Fig. 1.

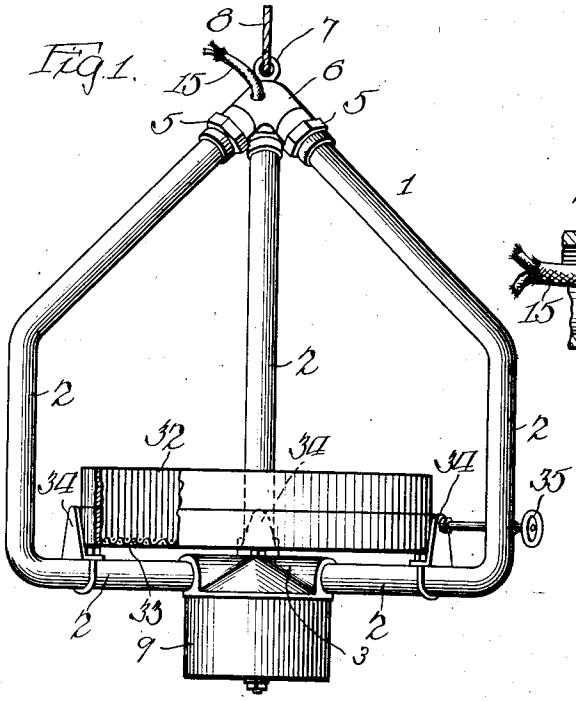


Fig. 3.

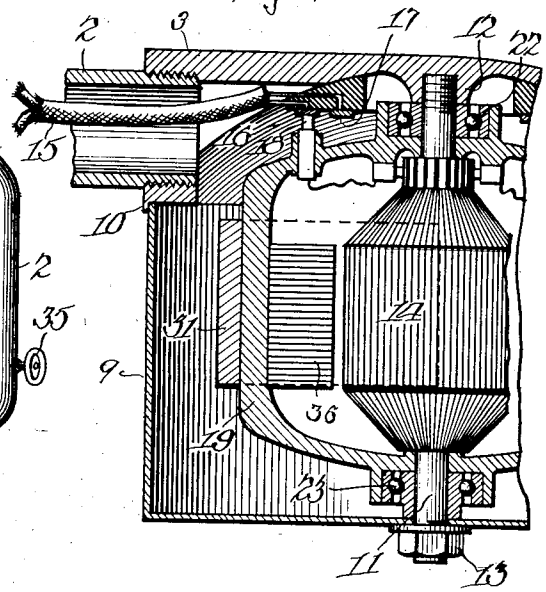


Fig. 4.

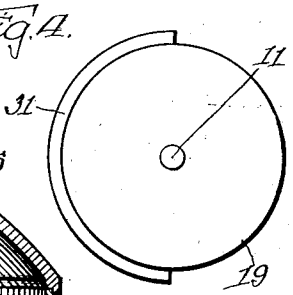
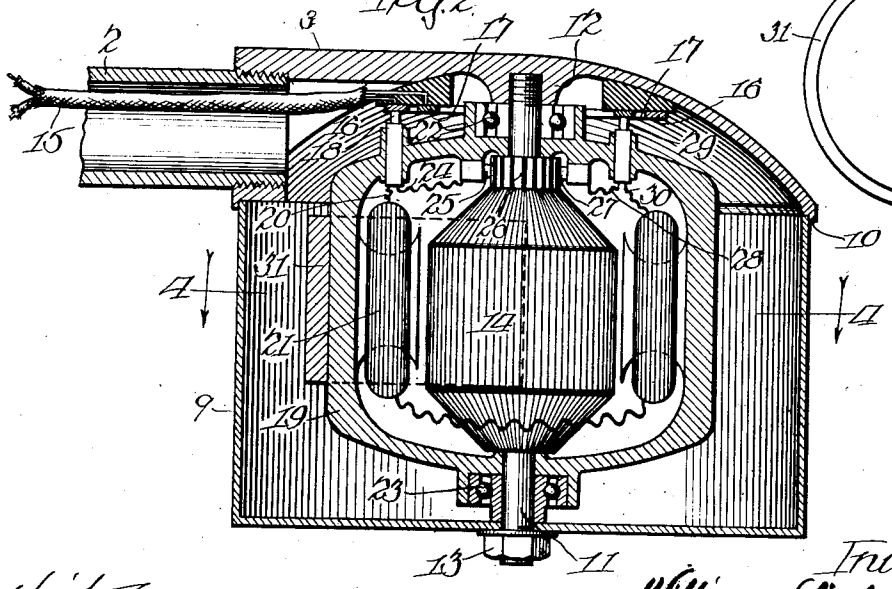


Fig. 2.



Witness:
Leo J. DuMais.

Inventor:
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UNITED STATES PATENT OFFICE.

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AGITATING DEVICE.

1,328,576. Specification of Letters Patent. Patented Jan. 20, 1920.

Application filed October 21, 1918. Serial No. 259,100.

To all whom it may concern:

Be it known that I, WILLIAM LINDSAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Agitating Devices, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding numerals of reference in the different figures indicate like parts.

My invention has for its object to provide improved means for agitating movable structures, such, for example, as sifting devices for sifting molders' sand, flour, enameling or other powder, or otherwise treating by agitation, any comminuted or liquid material requiring such treatment, by combining with a freely movable structure, suspended or otherwise supported, an electric motor mounted upon said structure, said motor having an eccentrically weighted, or unbalanced rotary field and a stationary armature to enable a relatively large circle of movement to be described, all of which is hereinafter more particularly described and definitely set forth in the claims.

In the drawings,

Figure 1 is an elevation of a sifting device embodying the features of my invention,

Fig. 2 is an enlarged central vertical sectional view in detail of the motor and casing,

Fig. 3 is a like view, partly broken away, showing a modified form of motor, and

Fig. 4, is a diagrammatic plan view of the motor field-casing taken on the line 4—4, Fig. 2.

The drawings illustrate one form of application of my invention.

Referring thereto, 1 indicates generally, a frame consisting of a plurality, preferably three, of metallic tubes 2, tapped into and extending radially from a central cylindrical member 3, the construction and purpose of which will be hereinafter explained. The tubes 2 are extended horizontally and thence upwardly, as shown, and finally bent toward each other so as to be connected by means of hollow sleeve-nuts 5, to a central hollow casting or suspending-member 6, having a ring, or other suspending member 7, by means of which it may be loosely suspended in mid-air upon a cord or chain 8, or otherwise.

The contiguous ends of the tubes 2 are tapped as shown, into the central casting or member 3, which forms a cap for a depending cylindrical protective casing 9. The upper edge of the part 9 is fitted within a depending flange 10, formed upon the periphery of the part 3, and hermetically sealed or otherwise constructed, so as to form an air tight chamber within the casing which is in free communication with the hollow space within the tubes 2. The cylindrical casing is rigidly secured to the cap by means of a central bolt or member 11, the upper end of which is tapped as shown into a boss 12, formed upon said cap, while the lower end is caused to protrude through the bottom of the casing and is provided with a nut 13 to hold the casing in place. The part 11, is stationary in its relation to the casing and forms an armature support for the winding 14, of a stationary armature. An electric cable 15, in communication with a source of electrical energy is threaded through an opening in the part 6, care being taken to seal or close the space around it to prevent the admission of air or dust, and thence through one of the tubes 2, where one of its terminals is connected with an insulated metallic ring 16, and the other with a like ring 17. A brush 18, upon the motor casing 19, is connected by means of a lead 20, to the winding 21 of the motor. The field-casing 19 is rotatably mounted by means of rings and ball-bearings 22 and 23, so as to revolve around the stationary armature 14. A lead 24 serves to connect the brush 18 with a commutator brush 25 in operative contact with a commutator 26 upon the armature. A counterpart brush 27 is connected by means of a lead 28, with a brush 29, contacting with the ring 17. The field-pole also communicates with said brush by means of a lead 30.

While the motor described is of the direct current type, of well known construction, it differs from motors in common use in the fact that the field is made to rotate around a stationary armature, the latter being in rigid connection with the structure to be agitated. In order to impart an eccentric or gyratory movement to the field, and hence to the structure, I cause the former to be weighted eccentrically to its axis. This, it is manifest, may be accomplished in different ways. In the example illus-

trated, I have shown as being rigidly attached to or formed upon the periphery of the field-casing 19, a curved weight or member 31. This may consist of a metal casting bolted or riveted to the casing. The effect of this construction causes the motor, when in operation, to assume a gyratory movement, which, in turn, is imparted to the structure, the extent of eccentricity depending upon the relative weights of the parts and the speed at which the motor is driven.

The device shown is represented as applied to an ordinary sieve having a frame or wall 32, Fig. 1, and a sieve or riddle 33. The sieve frame may be held in place by means of lugs 34 attached to the tubes 2, and a clamping-screw 35.

In Fig. 3, I have shown a series motor adapted for use in connection with an alternating current, in which laminated field-poles 36 are substituted for the windings shown in the other. The unbalanced weight 31 is attached to or formed upon the casing in the same manner, and the gyratory action is the same as that of the structure indicated in the other views.

I do not limit myself to the exact construction shown, inasmuch as it may be varied without departing from the principle involved in the invention which is applicable to any freely movable structure however supported or suspended.

Having thus described my invention, I claim:

1. An agitating device in which is combined a freely supported movable structure, and an electric motor mounted thereon, said motor having a rotary unbalanced field.

2. An agitating device comprising, in combination, a structure supported to permit free lateral movement thereof in all directions, and a motor mounted thereon having an eccentrically weighted rotary field.

3. An agitating device in which is combined a freely movable structure having an electric motor thereon, said motor having a rotary field and being provided with a peripheral weight eccentric to its axis.

4. A device of the class described, comprising, in combination, a freely suspended structure having an electric motor thereon provided with an unbalanced rotary field.

5. An agitating device comprising, in combination, a suspended structure, an electric motor mounted thereon, said motor having a rotary field, a stationary armature rigid with the structure, and an unbalanced weight upon said field to cause a gyratory movement of said motor and structure when the field is rotated.

6. An agitating device, comprising, in combination, a structure freely suspended by flexible means to permit a gyratory movement thereof, an electric motor having its field-casing rotatably mounted upon said structure upon an axis concentric with that of said structure, said motor having a stationary armature, a rotary field-casing, and an unbalanced weight upon the periphery of said field-casing.

7. An agitating device comprising, a freely movable structure, an electric motor having a field-casing journaled in said structure, a stationary armature in rigid concentric axial relation to said casing, a rotary field, and a weight upon said casing eccentric to its axis.

8. In a gyratory structure, the combination, with a movably supported element to be agitated, of an actuating element comprising an electric motor having a rotary field and field-casing journaled upon said movably supported element, an armature rigidly secured to said movably supported element, said field-casing having thereon a peripheral weighted portion.

9. The combination with a suspended structure free to be moved laterally in all directions, of an electric motor mounted thereon the armature of which is rigidly attached thereto, said motor having an eccentrically weighted rotary field.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses, this 18th day of October, 1918.

WILLIAM LINDSAY.

Witnesses:
DAVID H. FLETCHER,
HARRY I. CROMER.