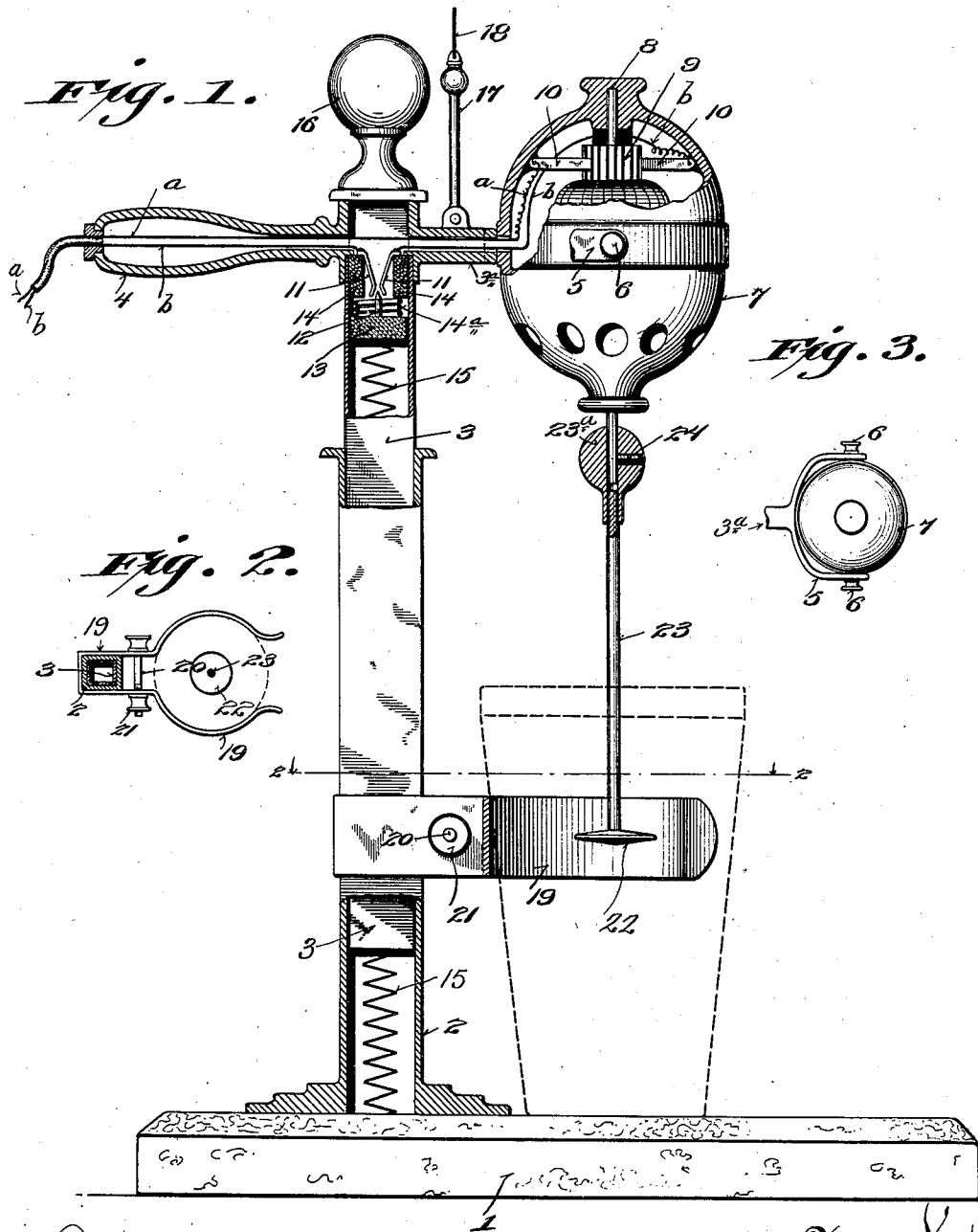


F. J. OSIUS.
AGITATOR IMPLEMENT.
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Patented Oct. 10, 1911.



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UNITED STATES PATENT OFFICE.

FREDERICK J. OSIUS, OF RACINE, WISCONSIN.

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1,005,653.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK J. OSIUS, a citizen of the United States, and resident of Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Agitator Implements; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 The primary object of my invention is to provide a portable electric motor-driven mixing implement for liquid beverages, compounds or the like, the construction and arrangement of the implement being such
15 that the stem of an agitator disk is directly and rigidly coupled to a protruding end of the motor-shaft whereby economy in power, speed and effectiveness of the mixing operation is had.

20 Another object of my invention is to provide a spring-controlled balanced motor-supporting standard in telescopic connection with the base-supported post, whereby adjustment of the agitator disk is effected
25 to remove or insert the disk within a vessel containing liquid.

Another object is to provide an automatic electric circuit make and break mechanism for the motor incidental to movement of its supporting standard.
30

Further objects of my invention are to provide an adjustable vessel-holding clip in connection with the post, and an agitator disk that is circular and free from obstructions upon its faces and edge, this construction of disk being essential to perfect agitation at high speed in order that the liquid, when agitated, is not deflected or
35 sprayed from its containing vessel by centrifugal force.

40 With the above objects in view the invention consists in various structural details and combination of parts as set forth hereinafter with reference to the accompanying drawings and subsequently claimed.

45 In the drawings Figure 1 represents an elevation of an implement embodying the features of my invention, with parts broken away and parts in section to more clearly illustrate structural features; Fig. 2, a detail plan sectional view of the implement, the section being upon a reduced scale and upon a plane as indicated by line 2-2 of

Fig. 1, and Fig. 3, a detail plan view of a portion of the motor-supporting bracket and motor, showing the means for suspending or
55 connecting the motor-casing to said bracket.

Referring by characters to the drawings, 1 represents a base-plate having secured thereto a hollow post 2, into which is fitted
60 a vertically adjustable hollow standard 3. The upper end of the standard has secured thereto a hollow bracket having a handle 4 extending therefrom in one direction and a hollow neck 3^a in the opposite direction,
65 from which neck spanner arms 5 extend. Mounted between the arms 5 and secured by retaining screws 6, is a motor-casing 7 provided with alined journal bearings at its opposite ends, into which bearings is jour-
70 naled a motor-shaft 8, having its lower end extended through the casing. The motor-shaft carries the usual armature and commutator 9, commutator brushes 10 being suitably secured to the casing and insulated
75 therefrom. Conductor wires *a*, *b*, pass through the hollow handle and neck 3 of the bracket and are connected to the brushes 10. The conductor wire *b*, as shown, is interrupted within the standard and has secured
80 to its interrupted ends spring terminals 11, which terminals are arranged to be engaged by a plug 12 that is carried by a plunger 13, the plunger being of insulated material and is reciprocally mounted
85 within said standard. The terminals are secured to a sleeve 14 of insulating material, which sleeve is fixed within the end of the standard, there being a coiled spring 14^a interposed between said sleeve and plunger,
90 which spring serves to break the electrical connection that is formed by the plug 12 after the latter, together with its plunger, has been moved upwardly. One end of a
95 light coiled spring 15 engages the lower face of the plunger, the spring being fitted within the standard and post, with its opposite or lower end arranged to rest upon the base-plate 1. The resistance of the
100 coiled spring 15 is such that it balances the weight of the standard and the mechanism carried thereby, and hence, when said standard is adjusted up or down within the post, the former will remain in its adjusted position, the bracket 3^a being provided with a
105 cap 16 that is alined with the standard and

may be utilized as a grip for moving said standard up or down in connection with the handle portion thereof. As shown in Fig. 1, the bracket is also provided with braces 5 17 that extend upwardly, which braces serve to support a suitable sign or advertising plate 18.

Adjustably mounted upon the post 2 is a vessel clip 19, into the jaws of which clip, 10 as indicated by dotted lines, is fitted a vessel of any desired capacity, the clip being held in its adjusted position upon the post; to accommodate the size of the vessel, by means of a bolt 20 and thumb-nut 21 in screw-threaded connection therewith. A disk 22 15 is rigidly secured to the projecting end of the motor-shaft by means of a stem 23 which forms part of the disk, the upper end of the stem being provided with an apertured head 23^a which is brazed or otherwise secured thereto. The aperture in the head is adapted to receive the end of the motor-shaft to which it is secured by means of a set-screw 24, the head and set-screw 25 forming a rigid coupling between the disk stem and aforesaid shaft.

In the operation of the implement, a vessel containing the liquid to be mixed is placed upon the base and gripped by the clip 19, the standard at this time being at 30 approximately its extreme elevation whereby a glass may be inserted under the disk conveniently. The standard is then pushed downwardly until the disk 22 is immersed 35 to the proper depth within the liquid contained in the vessel. This movement compresses the coiled spring 15 to such an extent that it overcomes the normal expansive force of coiled spring 14^a and thus an upward movement is imparted to the plunger 40 13, whereby its plug enters between the ends of the terminal springs 11 and thus closes the motor circuit, causing said motor to start and rapidly revolve the agitator disk. Owing to the frictional engagement 45 between the inner walls of the post and exterior walls of the hollow standard, said standard will remain in its adjusted position and until the latter is moved upwardly 50 a sufficient distance to relieve the tension upon coiled spring 15, it is apparent that the motor will continue its drive. Hence, when the liquid contained in the vessel is sufficiently stirred or agitated, the standard 55 is drawn upwardly for the purpose of removing the vessel and simultaneous with this upward movement an automatic break occurs in the motor circuit due to relief of the abnormal tension upon coiled spring 15. 60 This relief permits spring 14^a to act and thereby open the circuit.

Particular attention is called to the fact that the circular disk has a smooth circumferential edge and smooth upper and lower 65 faces, owing to which a very high speed can

be imparted to said disk without causing the liquid to be thrown or sprayed out from the mouth of the vessel during an agitating movement. It should be also understood that, while I have shown and described the 70 implement as being provided with an automatic circuit closer for the motor and a standard that is telescopically connected to a post, I may, in some instances, without departing from the spirit of my invention, 75 dispense with the standard and post, utilizing the handle only as connected to the motor-casing, in which instance any well known form of circuit closer may be utilized, the implement in any case being portable 80 and convenient for the purpose specified. Furthermore, the agitator disk, as shown, is provided with concave upper and lower surfaces, but, in some instances, these surfaces may be flat if desired. 85

I claim:

1. An agitator comprising a hollow post, a hollow standard in telescopic union with the post, a motor-casing carried by the standard, an electric motor-shaft journaled 90 in the casing having one end extending therethrough, a disk in connection with the extended end of the shaft, a balanced coiled spring mounted within the standard, electric conductors for the motor, terminals interrupting one of the conductors carried by 95 the standard, and a plug supported within said standard for engagement with the terminals.

2. An agitator comprising a hollow post, 100 a hollow standard in telescopic union with the post, a bracket secured to the upper end of the standard having a handle extending from one side and arms extending from the opposite side, a motor casing secured to 105 the arms, an electric motor-shaft journaled in the casing having one end extending therethrough, an armature carried by the shaft, brushes for the armature, electric conductor wires connecting the brushes, one of 110 which wires is interrupted, terminals secured to the interrupted ends of the conductor wire, an insulating sleeve secured to the standard for supporting the terminals, an insulating plunger mounted in the standard, 115 a plug extending from the plunger for engagement with the terminals, a coiled spring interposed between the sleeve and plunger, a second coiled spring interposed between the lower face of the plunger and 120 post bottom, a coupling member secured to the projecting end of the motor-shaft, a stem extending from the coupling member, and a disk mounted upon the lower end of the stem. 125

3. An agitator comprising a base, a hollow post extending therefrom, a hollow standard in telescopic union with the post, a coiled spring mounted within the post and adapted to oppose the standard, an elec-

tric motor carried by the standard, an agitator rigidly secured to the motor-shaft, electric conductors for the motor, and means carried by the standard for automatically
5 controlling the motor circuit.

4. An implement of the character described comprising a bracket having a hollow handle and arms extending therefrom, a motor-casing secured to the arms, a motor-shaft journaled in the casing having one
10 end extending therethrough, a stem, an agitator rigidly secured to one end of the stem, an apertured head rigidly secured to the opposite end of said stem, adapted to engage the protruding motor-shaft end, means
15 for securing the head to said motor-shaft end, electric conductors for the motor carried within the hollow handle, terminals interrupting one of the conductors, and means
20 for closing the terminals.

5. An implement of the character described comprising a motor-casing having alined journal-bearings therein, a handle extending from the motor-casing, an electric
25 motor-shaft mounted in the journal bearings, one end of which shaft is adapted to protrude through said casing, a stem, an agitator secured to one end of the stem, an apertured head rigidly secured to the opposite end of said stem adapted to engage
30 the protruding motor-shaft end, means for rigidly securing the apertured head to said motor-shaft end, electric conductors for the motor, terminals interrupting one of the
35 conductors, and means for bridging said terminals whereby the motor circuit is closed.

6. An agitator comprising a hollow post, a standard in telescopic union with the post,
40 a motor-casing rigidly secured to the standard, an electric motor-shaft journaled in the casing having one end extending therethrough, an agitator in rigid connection with the extended end of the motor-shaft,
45 electric conductors for the motor, terminals interrupting one of the conductors carried by the standard, and a plug supported within said standard for engagement with the terminals incidental to telescopic movement

of said standard with relation to the hollow
50 post.

7. An agitator comprising a base, a hollow post extending from the base, an adjustable vessel-holding clip carried by the post, a hollow standard in telescopic union with
55 said post, a bracket secured to the upper end of the hollow standard, a motor-casing carried by the bracket, a motor-shaft journaled in the casing having one end extending therethrough, an agitator having a stem
60 rigidly secured to the motor-shaft, the agitator being alined with the vessel-holding clip, and a balancing coiled spring interposed between the base and upper end of the aforesaid hollow standard, whereby said
65 standard is held in its adjusted position relative to the hollow post.

8. A mixing apparatus comprising an electric motor, a shaft connected to said motor and projecting downwardly therefrom, an agitating member on said shaft, a
70 vertically movable support carrying said motor, and a switch device arranged to close a break in the motor circuit when the latter is lowered, and to reopen such break
75 when the motor is raised.

9. A mixing apparatus comprising a motor, a shaft connected to and rotated by the motor projecting downwardly therefrom, an agitating member on said shaft, a support for the motor movable vertically, separated contact members in the circuit of the
80 motor, and a switch plug adapted to make contact with said contact members when the motor is lowered, and to be withdrawn therefrom when the motor is raised, said
85 plug being movably mounted to follow the contact members during a portion of the upward movement of the motor.

In testimony that I claim the foregoing I
90 have hereunto set my hand at Racine in the county of Racine and State of Wisconsin in the presence of two witnesses.

FREDERICK J. OSIUS.

Witnesses:

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JOHN W. RUGGABER.