

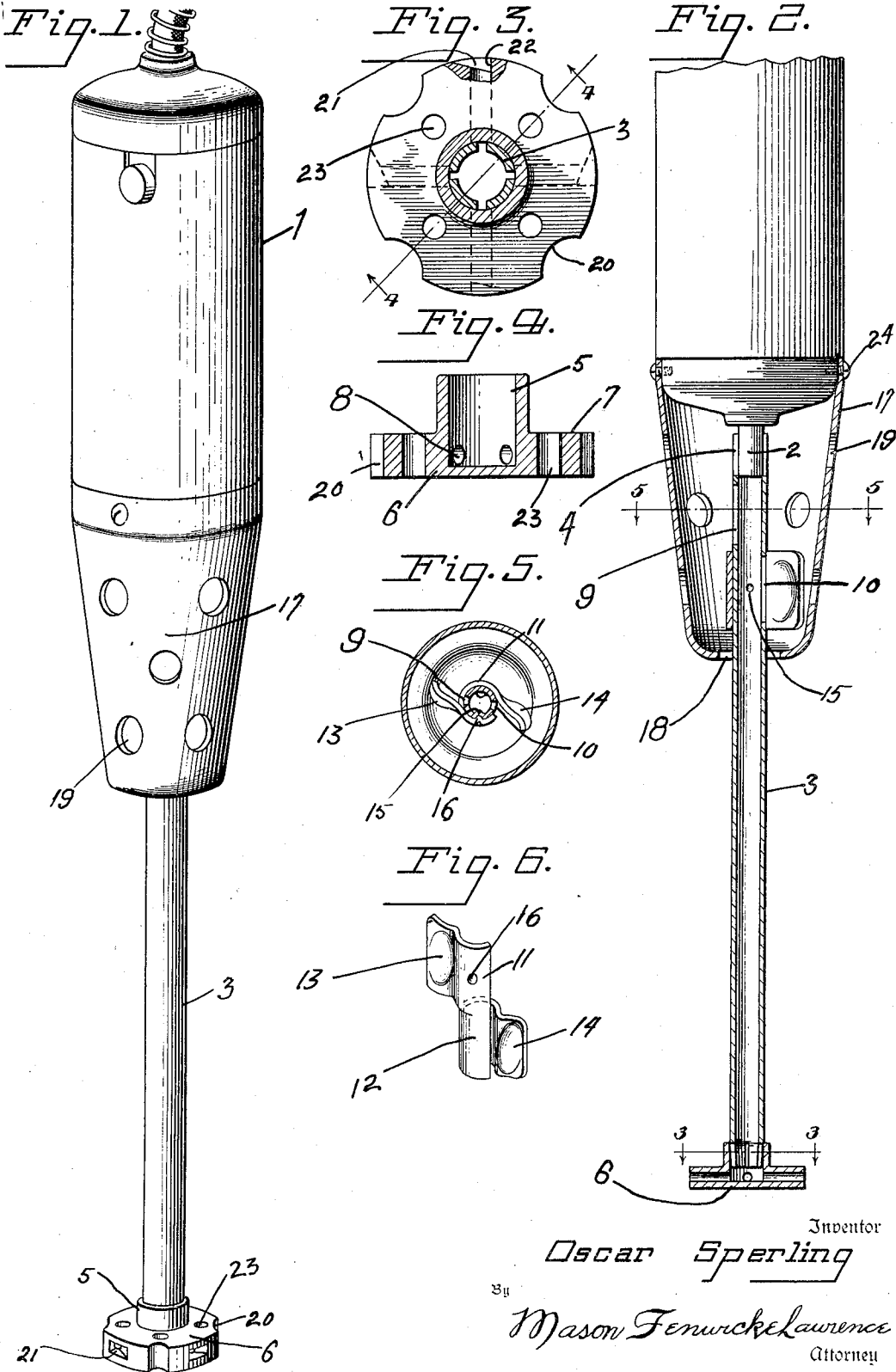
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AERATING STIRRER

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AERATING STIRRER

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4 Claims. (Cl. 261—87)

This invention relates to aerating stirrers and has for its general object the provision of a rotary agitator for mixing and at the same time aerating drinks, foodstuffs and fluid ingredients of foodstuffs as for example, batter.

Another object of the invention is the provision of a motor driven food or fluid mixer comprising a hollow rotary shaft having a stirring element extending in a plane substantially perpendicular to the rotation of the shaft and so constructed as to generate a current of air by centrifugal force and inject the air in finely divided streams of bubbles into the mass of the drink or foodstuff in the region of the stirring element, whereby air is incorporated into the fluid during the mixing or stirring of the latter, lightening it, increasing its bulk, and giving it those advantageous properties of aeration which characterize whipped cream or beaten egg whites, etc.

Another object of the invention is to provide the stirrer with air drawing means at its submerged end and air forcing means in an exposed portion, both cooperating under centrifugal force to drive a positive stream of air through the stirrer and into the food or drink being stirred.

Still another object of the invention is to provide quick detachable air impeller or scoop on the shaft in the zone of the air inlet, which scoop can be removed for cleansing.

Other objects of the invention reside in the specific construction of the stirring element, the protective hood extension of the motor casing which encompasses the air scoop, and in the demountability of the several parts.

In the drawing which accompanies and forms a part of the following specification and throughout the several figures of which, the same reference characters designating identical parts:

Figure 1 is a perspective view of the aerating stirrer;

Figure 2 is a similar view, the upper part being broken away and the lower part being shown in section;

Figure 3 is a section taken along the line 3—3 of Figure 2;

Figure 4 is a section taken along the line 4—4 of Figure 3;

Figure 5 is a cross section taken along the line 5—5 of Figure 2; and

Figure 6 is a perspective view of the detachable air scoop.

Referring now in detail to the several figures, the numeral 1 represents an electric motor, the casing of which is made relatively long and narrow so as to serve as a handle. The projecting

end 2 of the motor shaft serves as a means for the attachment of the shaft 3 of the stirrer which is preferably tubular and slotted at its upper end as shown at 4 to impart resiliency through which it may be spread so as to frictionally embrace the projecting end 2 of the motor and to be driven thereby. The lower end also of the shaft 3 is slotted so that it may be pressed into sticking relation into the socket 5 formed in the stirring element or button 6. The latter has preferably the form of a cylindrical disk 7 and formed with radial apertures 8 communicating by way of the socket 5 with the bore of the shaft 3. Said shaft is provided at points remote from the stirring button with air inlet slots 9 and 10.

Centrifugal force in the radial apertures 8, induced by the rapid rotation of the shaft 3 forces the air in said apertures radially outward and generates a downward current of air through the shaft 3, which is supplied by way of the air inlets 9 and 10.

In order to accentuate the force of this current and to increase the amount of air supplied to the stirring button, an attachment 11 is provided comprising a split cylindrical portion 12 of resilient metal adapted to be slipped endwise on the shaft 3 and to maintain its position by resilient pressure. Said attachment is formed with air scoops or impellers 13 and 14 which when the attachment is in position respectively, face the slots 9 and 10 and under the rapid rotation of the shaft 3 force air into the air inlets. A small hole 15 may be drilled or otherwise formed in the shaft 3, and the attachment 11 provided with a punched indentation 16 adapted to snap into the hole 15, thus securing the attachment in place.

The motor casing is provided with a hood 17 protectively surrounding the air scoops 13 and 14 preventing the possibility of injury to the user and of damage to the air scoops while the device is rotating. The hood may be provided with an opening 18 of relatively large diameter both for the purpose of admitting air to the hood and to facilitate aligning the shaft 3 with the end of the motor shaft in attaching the shaft 3 to the motor. The hood may also be provided with additional perforations 19 to avoid restricting the volume of admitted air.

The stirring button 6 is preferably formed of circular curvature, and provided at points intermediate the orifices of the apertures 8 with indentations 20, the edges of which take hold of the substance to be agitated and enhance the efficiency of the stirring.

The outer ends of the radial apertures 8 are formed with pockets 21, each having an abrupt shoulder 22 facing away from the direction of rotation of the stirrer. This pocket has the effect of presenting an extended area of air under pressure of the centrifugal force, to the surrounding liquid medium in the rotation of the device, thereby entraining the air with the liquid in the form of a fine stream or streams of bubbles.

The stirring button is also provided with a plurality of passages 23 extending therethrough, opening in the upper and lower faces of said button. Said passages permit the flow therethrough by displacement of viscous masses such as batter when the stirrer is thrust into said masses facilitating the complete submergence of the stirrer button and ensuring the imprisoning of the injected air.

Referring particularly to Figure 2, it will be understood that the stirring button 6 is frictionally fitted to the shaft 3 and may be removed therefrom at any time for a thorough cleansing, although ordinarily, no such cleansing is required since centrifugal force prevents the liquid or other fluid in which the stirrer is immersed from entering the air passages. Likewise, the shaft 3 may be readily detached from the projecting end of the motor shaft. This is accomplished by first removing the two screws 24 permitting the hood 17 to be separated from the casing of the motor. Attachment 11 may then be slipped endwise from the shaft and the shaft drawn out through the aperture 18 in the bottom of the hood. The parts thus separated may be subjected to a complete process of sterilization.

While I have in the above description disclosed what I believe to be a preferred and practical embodiment of the invention, it is to be understood that the details of construction as shown are merely by way of example and not to be construed as limiting the scope of the invention as claimed.

What I claim is:

1. Electric aerating stirrer comprising a motor

functioning as a handle, a hollow shaft attached to the rotor shaft of said motor, an agitating element at the free end of said shaft having radial apertures communicating with the bore of said shaft and opening substantially peripherally, said shaft having an air inlet above the point to which the stirrer is adapted to be immersed, cupped vanes on said shaft in the zone of said air inlet for forcing air into said shaft, and a perforated guard secured to said motor and surrounding said cupped vanes. 80 85

2. Electric aerating stirrer comprising a motor functioning as a handle, a hollow shaft attached to the rotor shaft of said motor, an agitating element at the free end of said shaft having radial apertures communicating with the bore of said shaft and opening substantially peripherally, said shaft having an air inlet above the point to which the stirrer is adapted to be immersed, means comprising a resilient clip yieldingly embracing said shaft and provided with cupped vanes, said means being adapted to be positioned with the cupped vanes adjacent said air inlet, for forcing air into said shaft, and a perforated guard secured to said motor and surrounding said cupped vanes. 90 95 100

3. Electric aerating stirrer as claimed in claim 2, with interengaging means on said shaft and clip respectively for definitely positioning said resilient means. 105

4. Electric aerating stirrer comprising a motor having a rotor shaft, said motor functioning as a handle, a guard secured to the motor, a hollow shaft, an agitating element on one end of the hollow shaft, a frictional slip joint connection between the other end of the hollow shaft and the rotor shaft within the perforated guard and means on the hollow shaft within the perforated guard for forcing air through said shaft to the agitator element. 110 115

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