May 1, 1923. 1,453,873

DU VAL Q. HICKS

CONVERTIBLE FAN

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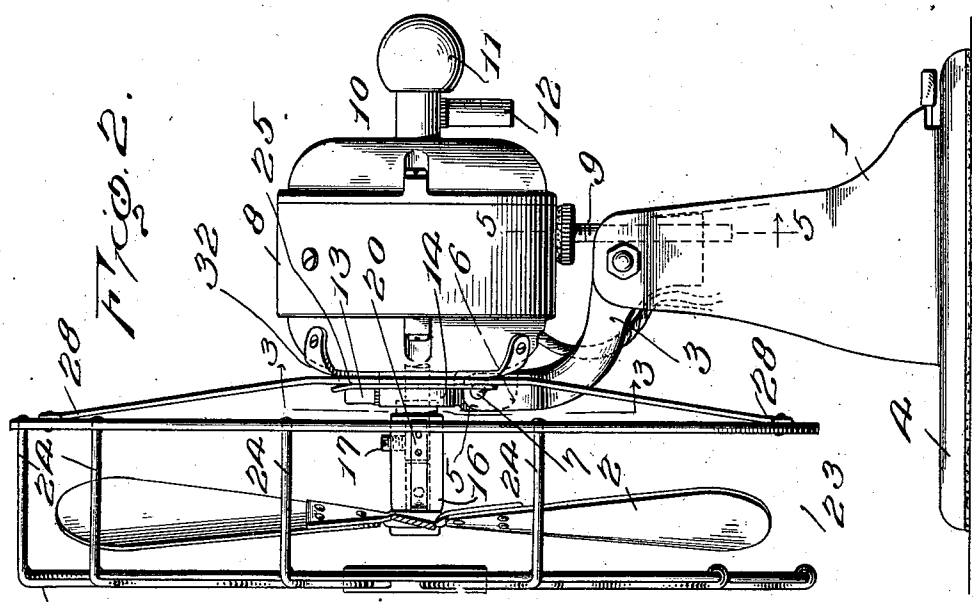


Fig. 2.

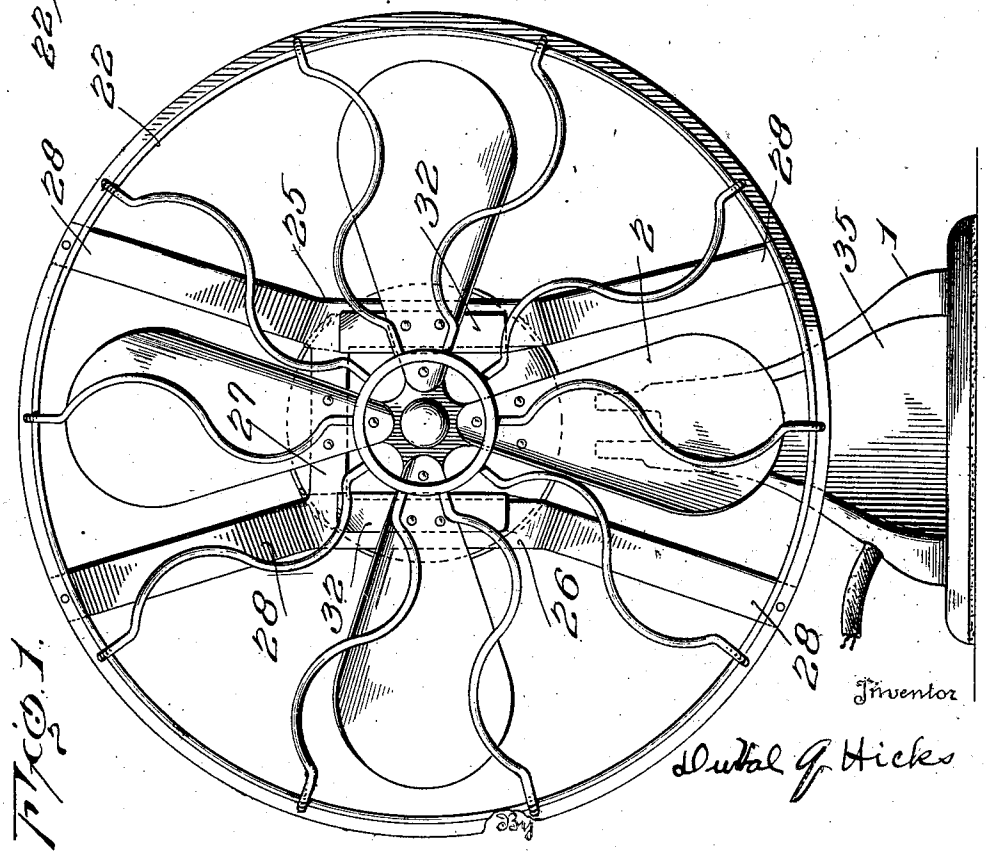


Fig. 1.

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FIG. 3.

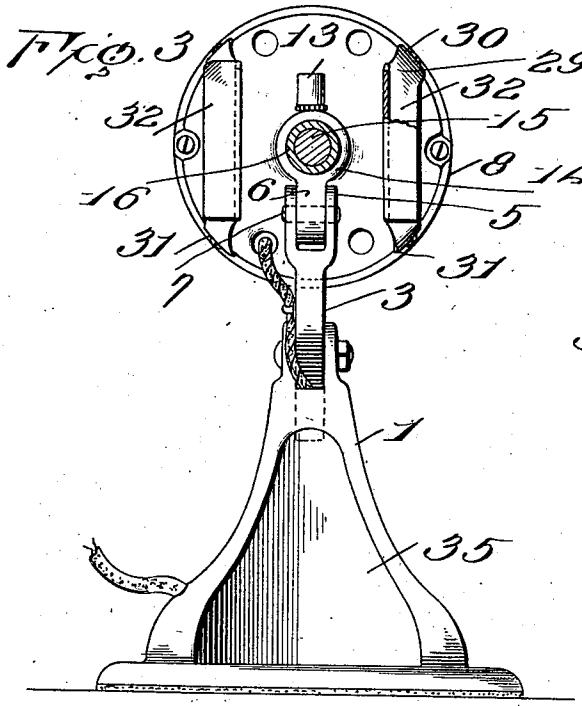


FIG. 4.

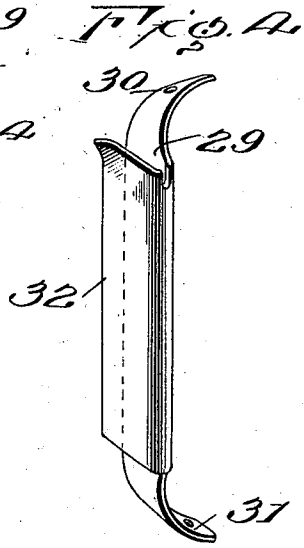


FIG. 5.

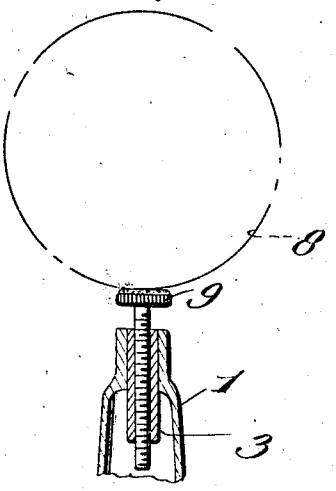
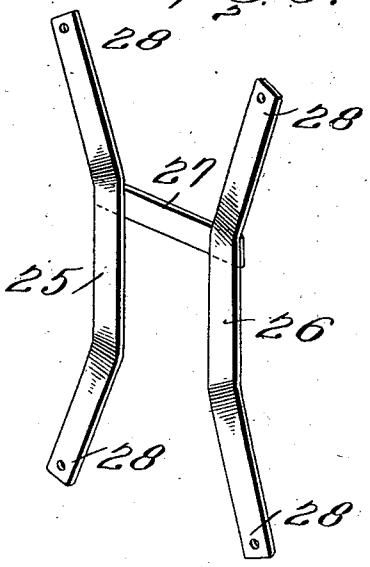


FIG. 6.



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FIG. 7.

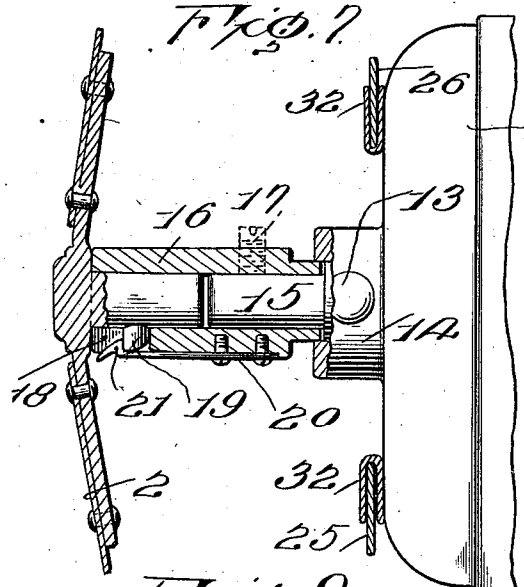


FIG. 8.

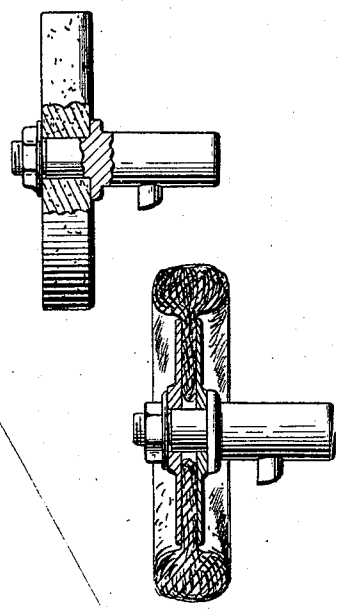


FIG. 9.

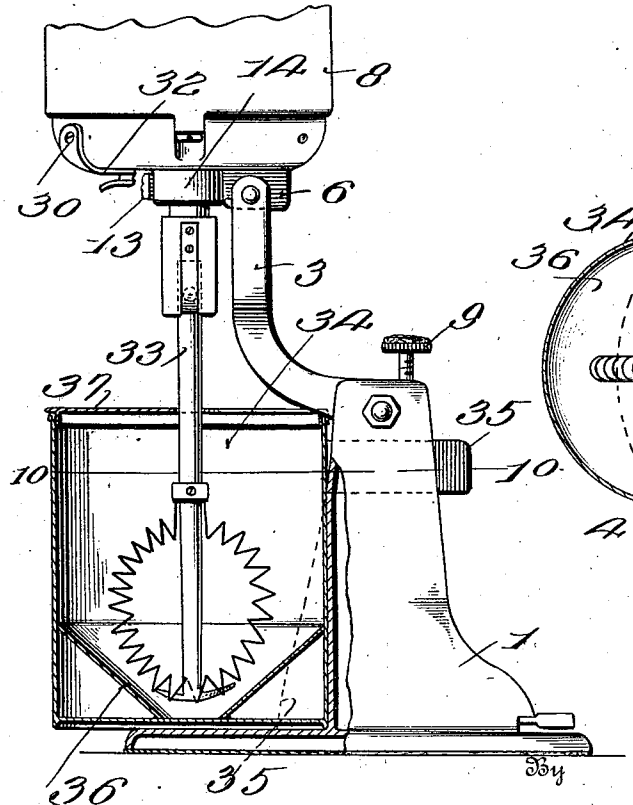
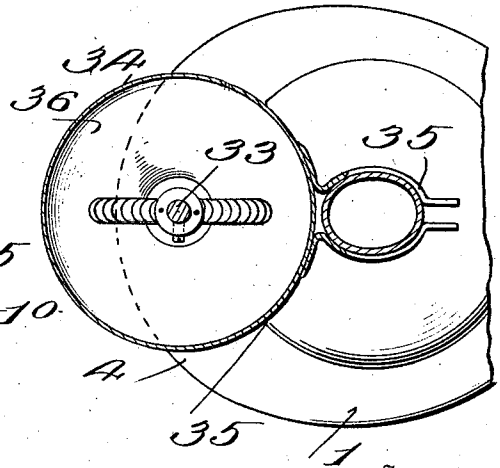


FIG. 10.



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UNITED STATES PATENT OFFICE.

DU VAL Q. HICKS, OF FREDERICKSBURG, VIRGINIA.

CONVERTIBLE FAN.

Application filed April 2, 1921. Serial No. 458,144.

To all whom it may concern:

Be it known that I, DU VAL Q. HICKS, a citizen of the United States, residing at Fredericksburg, in the county of Spottsylvania, State of Virginia, have invented certain new and useful Improvements in Convertible Fans, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

This invention relates to electrically driven devices, and more particularly to a device which may be used either as a fan or for rotating various attachments, such as a grindstone, an egg beater, a buffing wheel or the like.

At the present time, the ordinary household fan is used during the summer months only, being useless for any other purpose. An object of this invention is to provide such a fan so that it can be quickly and easily converted into a device for driving any rotative instrument, such as a grindstone, buffer wheel, agitator or the like.

A further object of this invention is to provide a quick detachable connection between the fan guard and the motor casing whereby the fan guard may be removed independently of the fan.

A further object of this invention is to provide a combined fan and agitating device constructed so that the fan and fan guard may be removed and replaced by a rotative agitator, and in further mounting the motor on the fan base so that it can swing from the normal horizontal fan driving position into a substantially vertical position without substantially lowering the working end of the motor shaft so that the agitator attached thereto can project into a relatively deep receptacle supported on the fan base.

A further object of this invention is to provide a simple and inexpensive convertible fan of the character described.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

Referring more particularly to the accompanying drawings:—

Figure 1 represents a front perspective view of the fan;

Fig. 2 is a side view thereof;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a detail perspective view of the fan guard on the motor casing;

Fig. 5 is a detail view of the means for raising or lowering the fan;

Fig. 6 is a perspective view of the rear of the fan guard showing the guides by which the fan is attached to the motor casing;

Fig. 7 is a detail section of the quick detachable connection between the fan shaft and the motor shaft;

Fig. 8 shows a grindstone and a buffer, respectively, adapted to make connection with the motor shaft;

Fig. 9 is a view partly in section showing the manner of holding the agitating receptacle in place on the fan base and showing the fan shifted to a vertical agitating position, and

Fig. 10 is a section on the line 10—10 of Fig. 9.

In general, the fan comprises a support upon which an electric motor is mounted. The motor is adapted to receive and drive a fan shaft, and to this end is formed in any desired manner, with a quick detachable connection for the fan shaft so that the fan may be removed and replaced by a suitably driven instrument such as a grindstone, buffer wheel or agitator. When using the motor for driving a fan, there is provided a fan guard, which at the back is formed with guiding strips detachably sliding in guides formed on the motor casing. In this manner, the fan and guard may be quickly detached and the desired instrument quickly connected to the motor shaft. The motor is pivoted to its support so that it can swing from a substantially horizontal fan driving position to a substantially vertical agitator driving position. The pivotal mounting of the motor on the upright is located so that the detachable connection of the motor shaft is not substantially lowered by reason of the shifting movements. As a result of this construction, a relatively long agitating device can be used in connection with a relatively deep receptacle so that the motor casing will not be projected downwardly into or too near the mouth of the receptacle. It is furthermore evident that by means of this construction, I combine in one apparatus, a fan driving device in which the motor is mounted relatively low with respect to its supporting upright and

also an agitating device in which the motor is mounted relatively high with respect to the base upon which the receptacle is to be seated, and furthermore, the motor shaft is shifted into a position substantially over the receptacle seat so that the agitator attachment can easily project into and will be located centrally of the receptacle.

Referring more particularly to the accompanying drawings, the device comprises a support or base 1 provided at its upper end with a bifurcation having bolted thereto a bracket 3 which in the present form, extends forwardly over a front part 4 of the base. This bracket 3 at its upper end is likewise bifurcated as at 5 to receive a lug 6 integral with the motor casing. The lugs 5 and 6 form a pivotal mounting 7 so that the motor can swing from a substantially horizontal position to a substantially vertical position. In the horizontal position, the motor casing 8 of any desired construction, rests on the top of an adjusting screw 9 threading into the upper portion of the base 1. In the vertical position, the motor is held by means of the lug 6 nesting in the bottom of the bifurcation 5 on the bracket 3. It is obvious that any desired manner of pivotally mounting the motor on this bracket and holding it in both horizontal and vertical positions may be utilized. At one end the motor 10 is provided with a handle 11 in the form of a knob and with an oil cup 12. At the opposite end the motor is provided with an oil cup 13 mounted on a boss 14 from which the motor shaft 15 projects. In order to quickly convert the fan into a means for rotatably driving any desired attachment, the motor shaft 15 is formed with a quick-detachable connection for the fan or attachment. A simple and preferred form comprises a sleeve 16 attached to the outer end of the shaft 15 as by means of the screw 17 and the outer end of this sleeve is provided with a slot 18 adapted to receive a pin 19 formed on the periphery of the fan shaft so that when the fan shaft is telescoped into the sleeve 16, the pin 19 will freely engage into the slot 18 to form a rotative driving connection. In order to prevent endwise movement of the fan shaft out of this sleeve, a spring 20 is fastened to the periphery of the sleeve and is provided with a detent 21 adapted to engage over the shoulder on the pin 19. By this means, the fan may be quickly detached from the motor shaft and replaced by the grinding or buffing instruments shown in Fig. 8 or by the agitator shown in Fig. 9. The pin 19 curves on its inner face so that the spring detent 21 will ride over the face and snap over the shoulder thereof.

In order to remove the fan, it is of course first necessary to remove the fan guard, and to this end, the fan guard 22, which may be formed of any desired material and of the usual approved construction is provided with an open peripheral portion 23 at its base, in the present instance formed by omitting several of the peripheral cross wires 24 so that the fan guard can be lifted vertically clear of the fan. Instead of forming the back of the fan in the usual manner, I have provided it with a means whereby it can be quickly detached from the motor casing. The preferred form is shown in Fig. 6 and comprises a frame formed of two guide strips 25 and 26 which, at their intermediate portions, are arranged parallel and are connected by a cross piece 27 preferably attached thereto by welding. These guide strips 25 and 26 are inclined outwardly at their outer ends and are attached to the peripheral portion of the fan guard by riveting as at 28. The guides adapted to receive these guide strips 25 and 26 are formed on the front face of the motor casing. The preferred form of one of these guides is shown particularly in Fig. 4 and comprises a sheet metal clip 29 having upper and lower tongues 30 and 31 for attachment to the motor casing. At the intermediate portion, the clip 29 is bent forwardly to provide a folded over portion 32. These two clips are held in spaced relation on the front part of the motor so that when the guard frame is held above the fan, it may be passed downwardly over the fan, the guide strips 25 and 26 sliding through the spaced folds 32 of the clips 29.

When it is desired to use the motor as an agitator, the guard and fan are removed as before described, and the agitator tool 23 shown in Fig. 9 is quickly attached to the motor shaft. Particular attention is directed to the fact that by pivoting the motor at a point substantially over the receptacle seat 4 and by locating the pivot on the motor at a point substantially under the end of the motor shaft,—the end of the motor shaft is not substantially lowered when the motor is swung into vertical position. This construction permits the use of a relatively deep receptacle and allows a relatively long-handled agitator attachment, particularly desirable in beating eggs, cream and the like. The motor is now shifted into vertical position and at the same time the agitating receptacle 34 is placed in a cut-away or recessed portion 35 on the support 1 so that the agitator 33 and receptacle assume the position shown in Fig. 9. If preferred, the agitator receptacle 34 may be provided with spring clips 36 which pass around the upper portion of the support 1 so that the receptacle is held in position. It is further to be noted that the receptacle is provided with an inverted cone-shaped bottom 36′ so that the contents are confined in

the central portion of the receptacle. This is particularly desirable when it is necessary to beat a single egg. If desired, a cover 37 may be provided for the receptacle which is slitted for the reception of the agitator shaft.

It will be obvious that minor changes in the details of construction and the arrangement of the parts may be made without departing from the spirit of the invention as set forth in the appended claims.

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

1. A device of the class described comprising a support, a motor mounted thereon having a shaft and a pair of spaced guideways, a fan, means forming a quick-detachable connection between said motor shaft and said fan, a fan guard provided with an open peripheral portion and a pair of spaced guidestrips adapted to fit into said guideways on said motor whereby said fan guard may be quickly detached from said fan.

2. A device of the class described comprising a standard adapted to receive a receptacle at its base, a motor including a motor mounted on said standard and shaft having a quick-detachable driving connection for either a fan or a rotatable agitator attachment, said motor being pivoted to said standard so as to swing relatively thereto from a substantially horizontal fan driving position to a substantially vertically agitator driving position with the axis of the motor shaft approximately over the receptacle seat.

3. A device of the class described comprising a base including an upright adapted to receive a receptacle at one side thereof, a motor including a motor shaft provided with a quick-detachable connection for the fan and a rotatable agitator attachment, means for pivoting said motor to said upright whereby said motor can shift from a substantially horizontal fan driving position immediately over said upright to a substantially vertical agitator driving position substantially over the receptacle seat, the driving end of said motor shaft remaining in substantially the same horizontal plane.

4. A device of the class described comprising a support, recessed to receive a receptacle, a bracket projecting from said support over said recessed portion, a motor pivotally mounted on the upper portion of said bracket so as to permit said motor to swing from a substantially horizontal position to a vertical position over said receptacle, said motor having a detachable driving connection adapted to receive a fan and fan guard or an agitator.

5. A device of the class described comprising a standard adapted to receive a receptacle at its base and provided with a motor seat at its top, a separable, upstanding bracket carried by said standard and extending over the receptacle receiving portion of said base, a motor provided with a spindle having a quick detachable driving connection to receive either a fan or agitator, said motor being pivoted to the upper end of said bracket whereby said motor can swing to a horizontal spindle driving position with the motor resting on said bracket seat or to a vertical spindle driving position with the spindle extending substantially vertically over said receptacle receiving portion of said base.

In testimony whereof, I affix my signature.

DU VAL Q. HICKS.