March 16, 1926. 1,576,684

H. R. STUART

OSCILLATING FAN

Filed July 21, 1924

Fig. 1

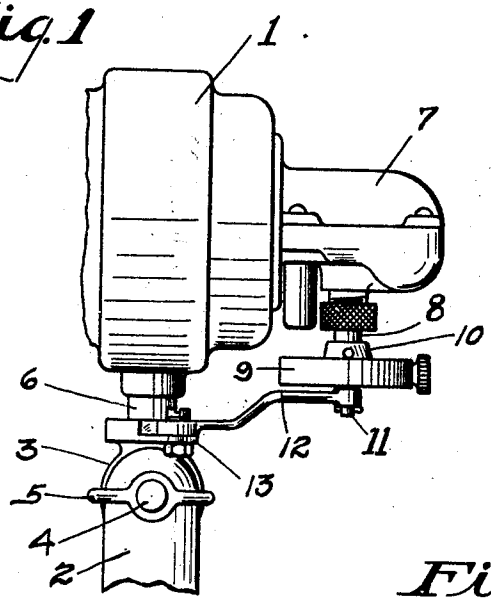


Fig. 2

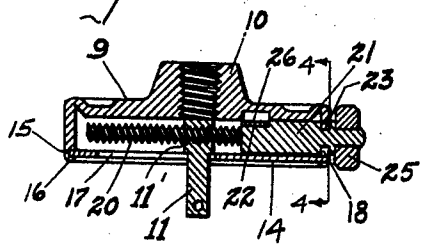


Fig. 3

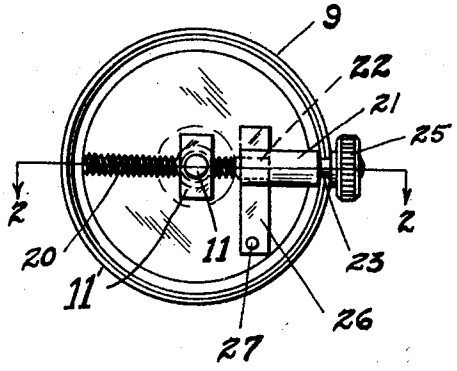


Fig. 4

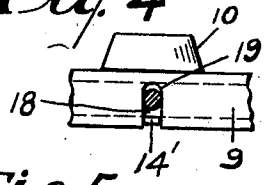


Fig. 5

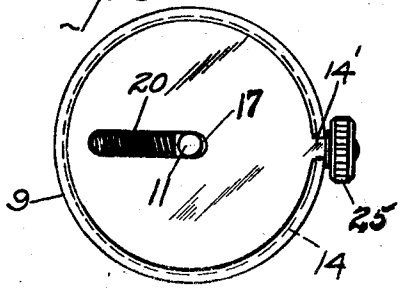
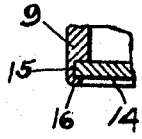


Fig. 6



Inventor

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UNITED STATES PATENT OFFICE.

HARVE R. STUART, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE ROBBINS & MYERS COMPANY, OF SPRINGFIELD, OHIO, A CORPORATION OF OHIO.

OSCILLATING FAN.

Application filed July 21, 1924. Serial No. 727,135.

To all whom it may concern:

Be it known that I, HARVE R. STUART, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Oscillating Fans, of which the following is a specification.

My invention relates to improvements in fans for ventilating purposes, it more particularly relating to the means for regulating the extent of oscillation of the fan.

In fans of the type to which this invention relates there is employed a rotary housing carried by the motor frame which is connected to a stationary point through an eccentric pin and a link, the eccentric pin being adjustably mounted in the housing and means provided for adjusting its degree of eccentricity.

The object of my invention is to improve the form of the housing and the adjusting means for the pin in such a way as to effect a saving in the cost of construction and render more simple the assembly of the parts.

In the accompanying drawings:

Fig. 1 is a side elevation of a portion of an electric motor and the standard upon which it is swivelly supported showing the improved oscillating devices.

Fig. 2 is a vertical section of the eccentric pin, adjusting devices for same and the housing which carries these parts, the section being on the line 2—2 of Fig. 3.

Fig. 3 is a bottom plan view of the parts shown in Fig. 2 with the bottom plate of the housing removed.

Fig. 4 is a side view of a portion of the housing showing the adjusting screw for the eccentric pin in section, the section being on the line 4—4 of Fig. 2.

Fig. 5 is a bottom plan of the housing.

Fig. 6 is an enlarged section of a portion of the housing.

Referring to the drawings, 1 represents a portion of the frame or casing of an electric motor which is employed for rotating the fan blades (not shown). A portion of the standard which supports the motor is indicated at 2, the upper end of the standard being bifurcated to receive a head 3 which is clamped to the standard by a bolt 4 having a wing nut 5 in the usual manner. The motor casing has a spindle 6 which is swivelly mounted in the head 3. The motor casing also has connected therewith a housing 7 which contains reducing gears (not shown) which revolve at a comparatively slow speed a vertical shaft 8. An open bottom housing 9 has on its upper side a threaded boss 10 which has a threaded engagement with the lower end of the shaft 8 so as to cause the housing to revolve with the shaft and this housing carries an eccentric pin 11 which projects through the under side of the housing and has pivotally connected therewith a link 12, the opposite end of the link being pivotally connected with an ear 13 which projects from the upper portion of the head 3. As a result of this construction, when the motor is in operation, the motor frame, as well as the fan carried thereby, is oscillated to an extent determined by the degree of eccentricity of the pin 11, this arrangement being one which has long been in use in connection with oscillating fans of this type. My improvements relate to the construction of the housing 9 and the adjusting device for the pin carried thereby and will now be described.

The housing is of cylindrical shape and the top and side walls are integrally formed by spinning or otherwise, the lower edge of the side wall being formed with an interior recess, indicated at 15, to form a seat for the disk or plate 14 which encloses the bottom of the housing, the plate 14 being held in position by upsetting or swaging the extreme lower end of the side wall of the housing, as indicated at 16. The plate is provided with a slotted opening 17 through which the pin 11 projects. In line with the slotted opening 17 the wall of the housing is provided with a vertical slot 18 open at the bottom and terminating at a point removed from the top, as indicated at 19. Projecting through this slotted opening 17 and extending in the housing is a screw consisting of a threaded portion 20 and an enlarged portion 21 having at its inner end a flat surface 22 and at its outer end an annular groove 23, the extreme outer end of the screw being provided with a knurled finger piece 25. The groove receives that part of the housing wall indicated at the upper end of the slot 18 which holds the screw against longitudinal movement in the housing. To prevent the bottom 14 from turning and also align the slot 17 properly with the screw, the bottom is provided with a lip 14′ which

projects into the lower portion of the slot 18. A flat spring 26 having one end secured to the inner face of the top of the housing by a rivet 27, has its free end bearing upon the inner portion of the enlargement 21 so that by frictionally engaging the flat seat 22 it will tend to normally prevent the screw from turning. The upper end of the pin 11 has an enlarged head 11′ threaded to receive the screw 20. This head is freely slidable between the top and bottom of the housing, but is of such height as to support the adjusting screw in horizontal position. To adjust the eccentricity of the pin 11 the operator by grasping the knurled finger piece revolves the same which moves the pin to or from the axis of rotation of the housing.

By the construction described a very simple method of enclosing the open side of the housing is provided which eliminates screws or other similar fastening devices as well as spacing blocks between the top and bottom of the housing. Further, the manner of holding the screw against longitudinal movement is greatly simplified and the construction cheapened.

The construction also facilitates the assembly of the parts. To assemble, the threaded member with the eccentric pin threaded thereon is placed in the housing before the bottom is secured in position by slipping the grooved portion thereof in the recess 18 until the wall portion 19 enters the groove after which the bottom plate is secured in position in the manner described.

Having thus described my invention, I claim:

1. The combination of a rotary housing, a separate bottom plate for said housing, a threaded member extending through an open ended recess in the side wall of said housing, said threaded member being provided with an annular groove to receive the upper portion of the wall of said recess to hold said member from longitudinal movement, an eccentric pin threaded on said member and projecting through a slotted opening in the bottom of said housing.

2. The combination of a rotary housing, a separate bottom plate for said housing together with means for securing the same in position, said bottom plate having an elongated slot, the side wall of said housing having a vertical recess open at the bottom, a threaded member extending through said recess and provided with a groove to receive the upper wall of said recess to hold said member against longitudinal movement, a pin threaded on said member and projecting through said elongated slot, and a lip on said bottom plate arranged to be received in said recess and so positioned as to hold said slotted opening in alignment with said threaded member.

3. The combination of a rotary housing, a separate bottom plate for said housing having an elongated slot, the side wall of said housing having a vertical recess open at the bottom, said threaded member having an enlarged portion provided with an annular groove, said groove being arranged to receive the upper wall of said recess to hold said threaded member against longitudinal movement, a pin having a head threaded on said member, said pin projecting through said elongated slot, and a lip upon said bottom plate arranged to project into said recess and positioned to cause said slot to be held in alignment with said threaded member.

4. The combination of a rotary housing, said housing consisting of an integrally formed top and side walls and a separate plate to form the bottom, the lower edge of the side wall being recessed to receive said plate and adapted to be swaged or upset to hold said plate in position, a threaded member extending into said housing, a pin threaded on said member and projecting through a slotted opening in said bottom plate, said bottom plate having a lip arranged to engage a recess in the side wall and so postioned as to align said slotted opening with said threaded member.

5. The combination of a rotary housing, a separate bottom plate for said housing, a threaded member extending through an open ended recess in the side wall of said housing in the direction at right angles to the axis of rotation of said housing, said threaded member being provided with an annular groove to receive the upper portion of the wall of said recess to hold said member from longitudinal movement but permitting its rotation, and a pin threaded on said member and projecting through a slotted opening in the wall of said housing.

In testimony whereof, I have hereunto set my hand this 18th day of July, 1924.

HARVE R. STUART.