April 22, 1924. 1,491,736

G. C. POLK

FAN

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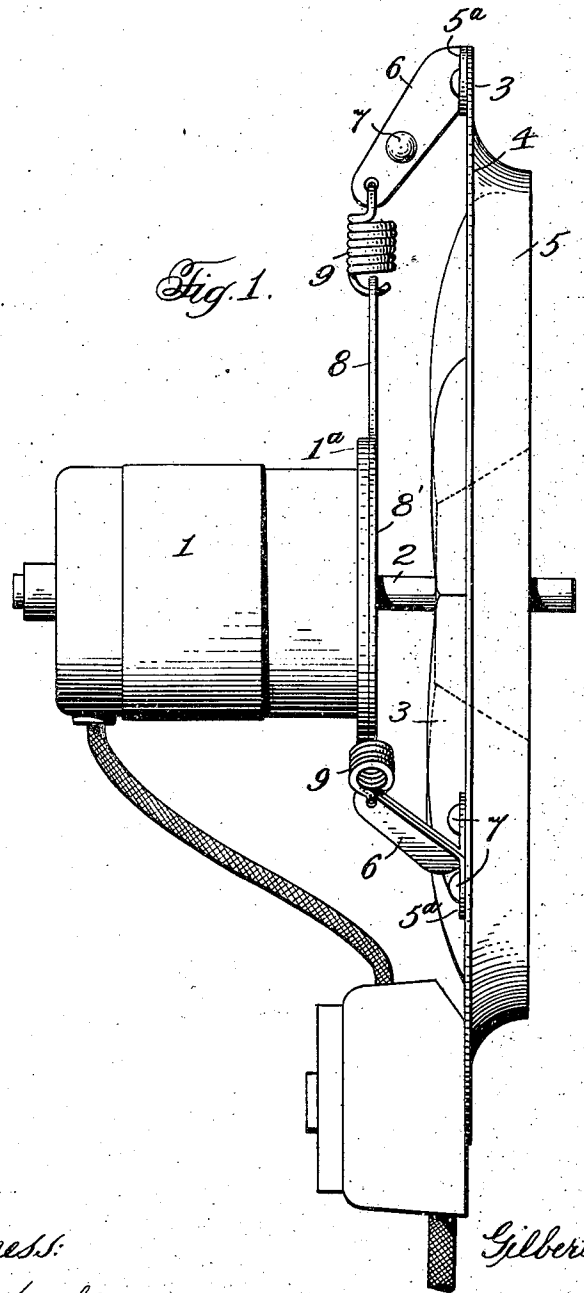
Fig. 1.



Witness:
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Inventor:
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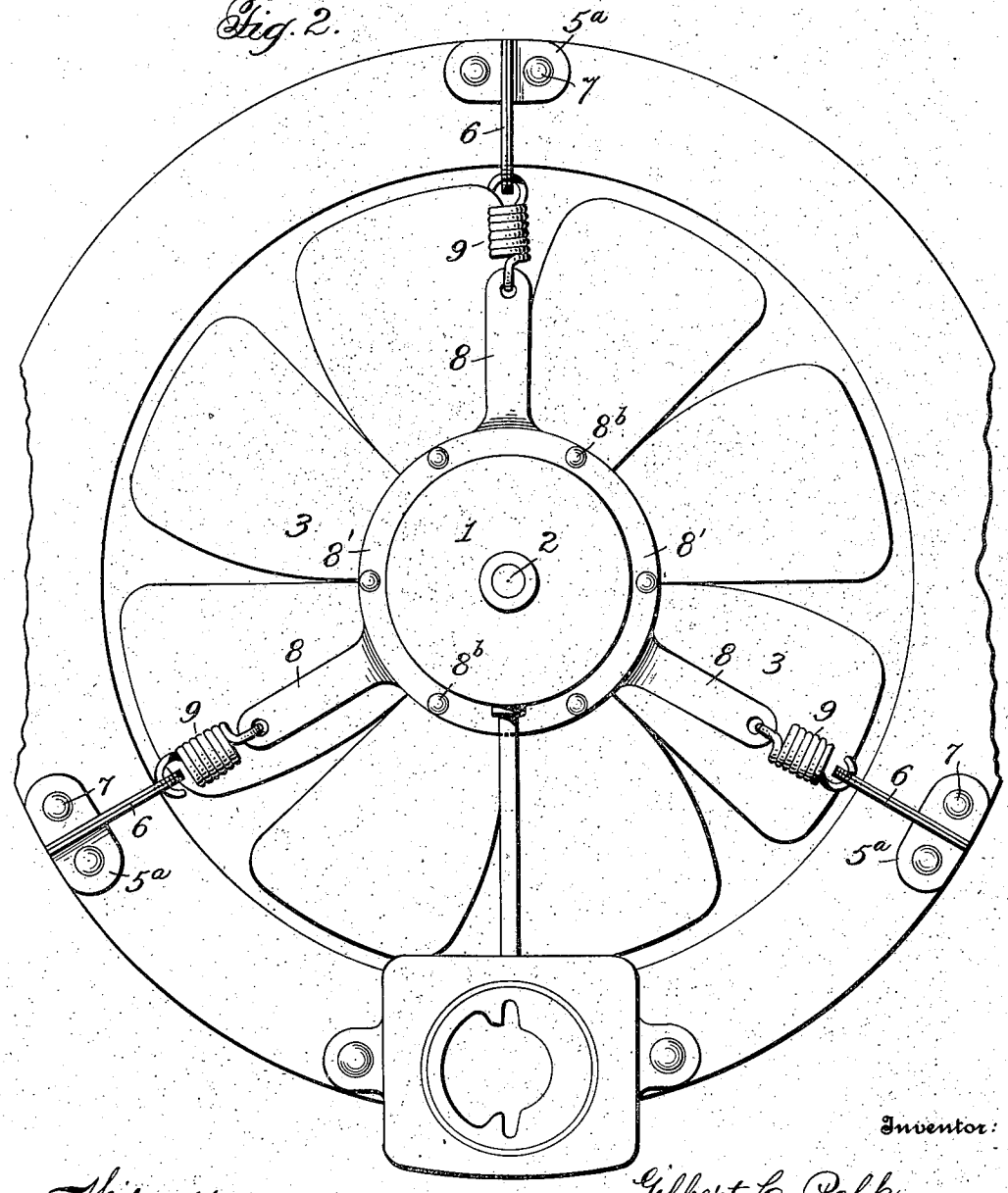
Fig. 2.



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Filed May 21, 1923 3 Sheets-Sheet 3

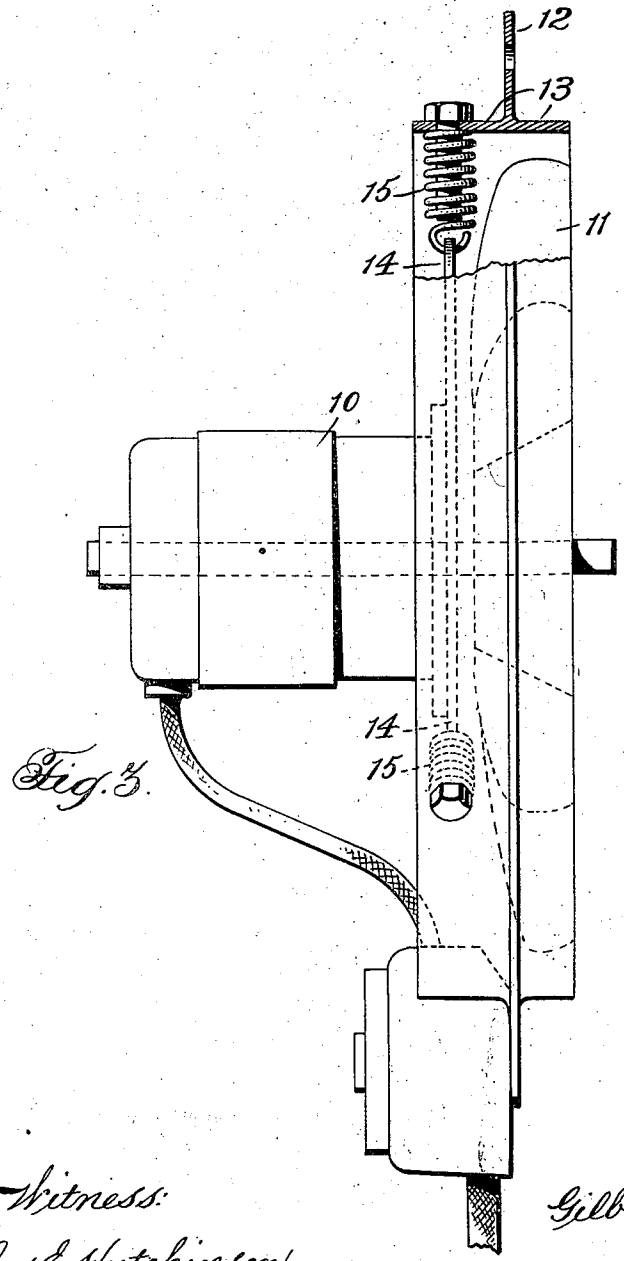

Fig. 3.

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Patented Apr. 22, 1924. 1,491,736

UNITED STATES PATENT OFFICE.

GILBERT C. POLK, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN BLOWER COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

FAN.

Application filed May 21, 1923. Serial No. 640,508.

To all whom it may concern:

Be it known that I, GILBERT C. POLK, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Fans, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in mountings for motor driven fans, particularly fans employed for ventilating purposes in residences, schools, churches, and other places where absolute quiet is desired.

The fans and motors of motor driven fans may be perfectly balanced when they leave the factory, but as commonly employed for ventilating purposes, the blades of the fan soon become coated with dust, dirt, or other foreign matter, and this foreign matter accumulating unequally on the blades of the fan results in a very serious unbalanced condition which, when the motor and fan unit is rigidly mounted upon their support, at times sets up vibration causing considerable wear on the parts.

The object of the present invention is to provide an improved motor driven fan mounting of a simple, efficient durable nature to eliminate vibration of the running gear of the motor and fan, and the annoying noises and serious wear on the parts incidental thereto.

The invention, with other objects and advantages thereof, and the particular construction, combinations, and arrangements of parts comprising the same, will be understood from the hereinafter contained detail description when considered in connection with the accompanying drawings, forming part hereof, and illustrating embodiments of the invention.

The invention comprehends an improved fan mounting comprising an outer tubular or open ring like frame part, a fan and motor unit disposed centrally of said outer frame part, and springs connected with the fan and motor unit and the outer frame part at different points about the same, and providing a spring suspension for the fan and motor unit.

In the drawings:

Figure 1 is a side elevation of a fan and motor unit and a mounting therefor constructed in accordance with the present invention.

Fig. 2 is a side elevation.

Fig. 3 is a vertical section illustrating a slightly modified construction.

While specific embodiments of the invention are illustrated in the drawings, by way of example, it will of course be understood that changes and obvious variations in the construction shown, and the carrying out of the invention in other forms as will appeal to those skilled in the art, and falling within the scope of the appended claims, may be practiced without departing from the spirit of the invention.

In the drawings a fan and motor unit of conventional form is shown comprising a motor 1, having a shaft 2, on which the fan 3 of the propeller type is fixed.

Referring to a detail description of the particular construction of mounting illustrated Figures 1 and 2 of the drawings, the outer supporting ring member is shown as comprising a flat radially extending annular part 4 with an inwardly curved casing part 5 extending from its inner portion laterally to one side thereof. Extending laterally from and to the other side of the flat radially extending part 4 of the outer supporting ring member is attaching means, which, in the particular construction shown, takes the form of separate brackets equally spaced about the supporting ring, said brackets projecting laterally and at an inward inclination. Each bracket is shown as consisting of two members having a base flange 5 and an arm 6, the arms of the members of each bracket being secured together by rivets 7, or equivalent means, and the brackets are rigidly secured, as shown, to the flat radially extending part by rivets or like fastening means passing through the base flanges 5 of the brackets.

The casing of the motor 1 is provided with radially extending arms 8, of equal number and equally spaced to correspond with the number and spacing of the brackets of the outer supporting ring member. 9 are coiled springs connected at opposite ends with the brackets of the outer supporting ring and the arms 8, the end loops of the springs 9 being engaged with suitable eyes in the outer ends of the brackets and said arms, the springs 9 being under a slight tension and adapted to provide a resilient suspension for the fan and motor unit, as shown, centrally of the outer supporting

ring with the fan 3 extending within the casing part 4.

Any suitable number of springs 9, and brackets and arms on the outer supporting ring and motor casing may be employed, but preferably, as shown, three springs are employed, to provide a three point suspension.

The radial arms 8 on the casing of the motor 1 are preferably, as shown, provided in the form of a separate spider having an inner connecting ring portion 8′, the spider being formed as a separate part and detachably secured by bolts 8^b or other suitable fastening means to a flange 1^a on the forward part of the casing of the motor.

The modified construction illustrated Figure 3 of the drawings is the same as that illustrated Figures 1, 2, previously described, except for a different form of outer supporting ring. In this view 10, 11, designate the motor and fan unit. The outer supporting ring member is here shown as comprising a flat radially extending part 12 and an inner cylindrical casing part 13 projecting beyond either side of said flat radially extending part 12. 14 designates radially extending arms on the casing of the motor, and 15 designates the coiled springs connected at their inner ends to the outer ends of said arms, and at their outer ends suitably connected with bolts in threaded engagement with the cylindrical part 13, the fan and motor unit being supported centrally of the outer supporting ring member with the fan 11 disposed within the cylindrical part 13 thereof.

It will be understood that the outer supporting ring member of the mounting is adapted to be bolted or otherwise suitably secured to a supporting panel or other structural part with which the fan and motor unit is to be associated.

It will be noted that the special construction and arrangement of parts hereinbefore described affords a simple and efficient mounting, which provides a resilient suspension for the fan and motor unit which to a large degree will eliminate vibration, and the annoying noises and wear on the parts incidental thereto, the springs of the mounting interposed between the motor and fan unit and the outer supporting ring functioning to absorb the vibration so that the same is not communicated to the outer supporting ring member and the support to which the same is connected.

What I claim is:

1. The combination with a rotary fan, of supporting means therefor permitting the fan to automatically adjust itself in balance and acting to absorb vibration of the fan and render the same noiseless in operation, said supporting means including an outer supporting ring, and cushioning devices connected with the fan bearing and the outer supporting ring at different points thereabout.

2. The combination with a rotary fan of supporting means therefor permitting the fan to automatically adjust itself in balance and acting to absorb vibration of the fan and render the same noiseless in operation, said supporting means comprising an outer supporting ring, and coiled springs connected with the fan bearing and said outer supporting ring at different points thereabout.

3. A mounting for fans including an outer tubular frame part, a fan and motor unit disposed centrally of said outer frame part, the motor having radially extending arms at different points thereabout, and springs connected with said arms and with the outer frame part at different points around the same and providing a yieldable suspension for the fan and motor unit.

4. A mounting for fans including an outer supporting ring, a fan and motor unit disposed centrally of the supporting ring, the motor having radially extending arms at different points thereabout, and coiled springs connected with said arms and with the supporting ring at different points around the same, and providing a yieldable suspension for the fan and motor unit.

5. A mounting for fans including an outer supporting ring member having a flat radially extending portion, a casing part extending from said flat portion laterally to one side thereof, and attaching means rigid with the flat portion and extending to the other side thereof, a fan and motor unit disposed centrally of the supporting ring with the fan extending within said casing part, the motor having arms extending radially therefrom at different points thereabout, and coiled springs connected with said arms and said attaching means at different points around the supporting ring, and providing a yieldable suspension for the fan and motor unit.

6. A mounting for fans including an outer supporting ring member having a flat radially extending portion, a casing part extending from said flat portion laterally to one side thereof, and brackets on said flat radially extending part rigid therewith and extending to the other side thereof, a fan and motor unit disposed centrally of the supporting ring with the fan extending within said casing part, the motor having radially extending arms at different points thereabout, and coiled springs connected with said arms and with the brackets of the supporting ring, and providing a yieldable suspension for the fan and motor unit.

7. A mounting for fans including an outer supporting ring, a fan and motor unit disposed centrally of the supporting ring, a

spider comprising an inner connecting ring part with arms equally spaced and extending outwardly and radially therefrom, means for detachably securing the connecting ring of the spider to the motor, and coiled springs connected with said arms and connected with the outer supporting ring at different points thereabout, and providing a yieldable suspension for the fan and motor unit.

8. The combination with a rotary fan and motor unit, of yieldable supporting means therefor permitting the fan and motor unit to automatically adjust itself in balance and acting to absorb vibration of the fan and motor unit and render the same noiseless in operation.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GILBERT C. POLK.

Witnesses:
O. F. POELK,
RAWSON VARLE.