MEANS FOR SUPPORTING FANS IN HOUSING OPENINGS

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INVENTOR.

INVENTOR.

ATTORNEY
This invention relates to improvements in means for supporting a fan in a housing opening. When a fan is so mounted it is very necessary, in most cases, that it be held coaxial with the opening as otherwise the air output of the fan is materially diminished. It is an object of the invention to provide a means for supporting a fan in a housing opening so that the fan is positively and rigidly held coaxial with the opening, and wherein the construction is such that there is no possibility of the fan gradually becoming misaligned after prolonged operation.

Another object of the invention is to provide means for supporting a fan in a housing opening which is cheap and simple to manufacture and which is adapted to mass production methods.

Having thus briefly stated some of the objects and advantages of the invention I will describe it in detail with the aid of the accompanying drawings, in which:

Figure 1 is a side view of the invention partly in section,

Figure 2 is a plan view taken on the line 2—2 of Figure 1, and

Figure 3 is a section on the line 3—3 of Figure 2.

Referring to the drawing, 1 designates a fan mounted on a shaft 2 which is suitably supported for rotation; in the present instance this shaft is the shaft of a motor 3. Secured around the supporting means for the shaft 2, in the instant case around the body of the motor 3, coaxial with the said shaft is a circular member 4. Formed integral with one annular margin of the latter is a split collar 5 having opposed outwardly projecting flanges 6 at its extremities. Extending through the flanges 6 is a bolt 7 having a nut 7a on one extremity by which the said split collar is tightened around the supporting means for the shaft, which in the embodiment shown consists of the body of the motor 3. The circular member 4 is for the most part of greater diameter than the split collar 5, and, in order that the rigidity of the said member shall not prevent the flanges 6 from being drawn toward one another when the nut 7a is tightened, an arcuate slot 7b extending some little distance on both sides of the flanges 6 separates the split collar 5 from the said member 4. Formed integral with the circular member 4 are a plurality of radially outwardly inclined radial arms 8 the outer extremities of which terminate in and are integral with a ring 9, which is coaxial with the said circular member 4 and with the shaft 2. The inside diameter of the ring 9 is somewhat greater than that of the fan 1, the front annular margin of the ring is preferably so arranged that the front extremities of the blades of the fan project forwardly beyond it, and the rear annular margin of the ring which extends behind the fan blades is inwardly and rearwardly inclined so that its diameter is substantially the same as that of the fan. Formed integral with the ring 9 and projecting outwardly therefrom are a plurality of wider arcuate flanges 10 and spaced between the latter are narrower arcuate flanges 10a. Formed in the wider flanges 10 are slots 11.

Denotes one wall of a housing in which the fan is mounted. Formed through the said wall is an opening 13 around which an inwardly projecting annular flange 14 integral with the wall 12 extends, and projecting inwardly from the said wall adjacent the flange 14, and in the present instance in threaded engagement with the wall, are fastening means such as the screws 15. The outside diameter of the flange 14 is substantially the same as the inside diameter of the ring 9 so that the latter may be inserted over and supported by the said flange, and the size of the opening 13 in which the fan 1 rotates is such as to provide the desired clearance between it and the outer margins of the fan blades. The screws 15 are so positioned that when the ring 9 is turned upon the housing wall 12 they engage the slots 11. Thus when the screws are tightened the ring 9, and therefore the fan 1 and its shaft 2, are securely supported upon the said wall. The purpose of the narrower flanges 10a is to provide bearing faces to rest against the wall 12 between the screws 15 and the wider flanges 10 engaged by the said screws, and thus insure proper setting of the fan 1 and the motor 3.

It will be seen from the foregoing that the circular member 4 and its ring 9 may be quickly and easily secured around a motor 3 or other support for the fan shaft 2 so that the latter is coaxial with the said ring; the circular engagement of the ring 9 around the annular flange 14 insures maintenance of concentricity of the fan shaft in the opening 13; and the screws 15 prevent detachment of the ring 9 from the flange 14.

While in the foregoing the preferred embodiment of the invention has been described and shown, it is understood that alterations and modifications may be made thereto provided the said alterations and modifications fall within the scope of the appended claims.

What I claim is:

1. A supporting means for supporting a fan in a housing opening comprising a circular member, a split collar integral with said member and having outwardly projecting flanges at its extremities, said member having an arcuate slot...
therein separating it from said collar beneath and adjacent the split flanged ends of the latter, means for drawing the split ends of the collar toward one another around a fan motor having a shaft projecting therefrom and holding said shaft and said fan thereon coaxial with said member, forwardly and outwardly inclined arms extending radially from said member, and a ring supported by said arms coaxial with said member, in combination with the housing opening having an annular flange therearound and coaxial therewith, said ring being mounted around said annular flange, spaced outwardly projecting flanges on the ring, fastening means adjacent the housing opening engaging said outwardly projecting flanges and holding the ring immovable on the annular flange and the fan coaxial in the housing opening.

2. A supporting means for supporting a fan in a housing opening comprising a circular member, a split collar integral with said member and having outwardly projecting flanges at its extremities, said member having an arcuate transversely extending slot therein separating it from the said collar beneath and adjacent the split flanged ends of the latter, means for drawing the split ends of the collar toward one another around a fan motor having a shaft projecting therefrom and holding said shaft and a fan thereon coaxial with said member, forwardly and outwardly inclined arms extending radially from said member, and a ring supported by said arms coaxial with said member, in combination with the housing opening having an annular flange therearound and coaxial therewith, said ring being mounted around said annular flange, a pair of relatively wide spaced outwardly projecting flanges on the ring, and a pair of spaced relatively narrow outwardly projecting flanges on the ring, open ended slots in the pair of wide flanges, and fastening means in said spaced wide flanges for holding said wide and narrow flanges and ring immovable on the annular flange and the fan coaxial in the housing opening.

EDMUND E. HANS.

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