Oct. 22, 1957 M. W. PATRICK 2,810,514

SUPPORTING AND POSITIONING MEANS FOR BLOWERS OR THE LIKE

Filed July 8, 1955 2 Sheets-Sheet 1

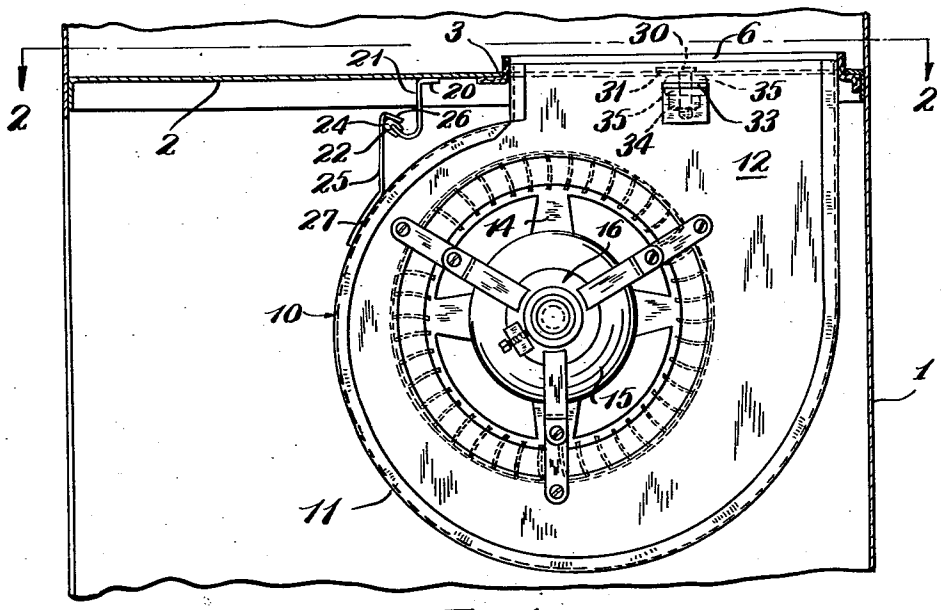


FIG. 1

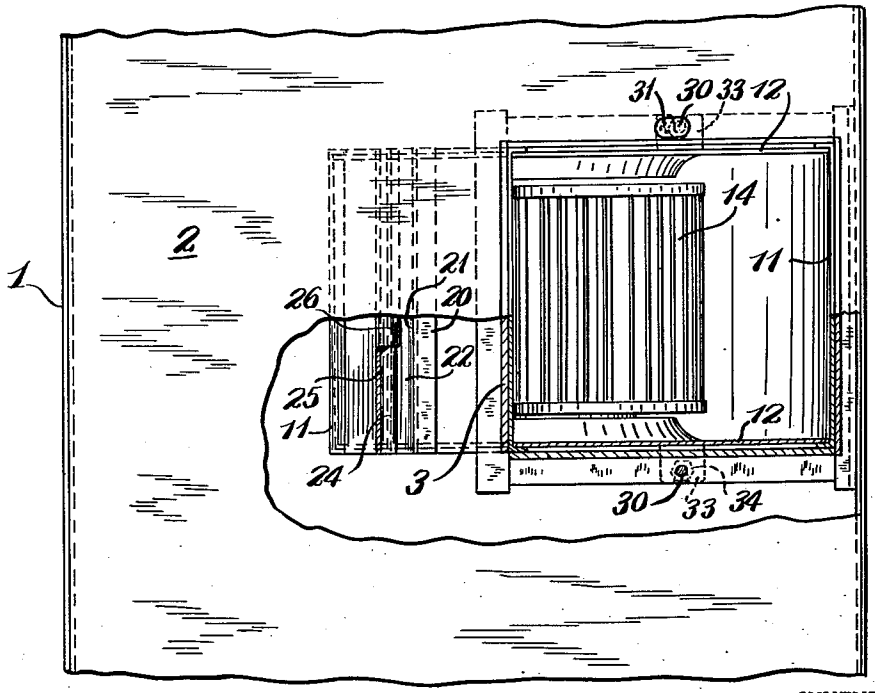


FIG. 2

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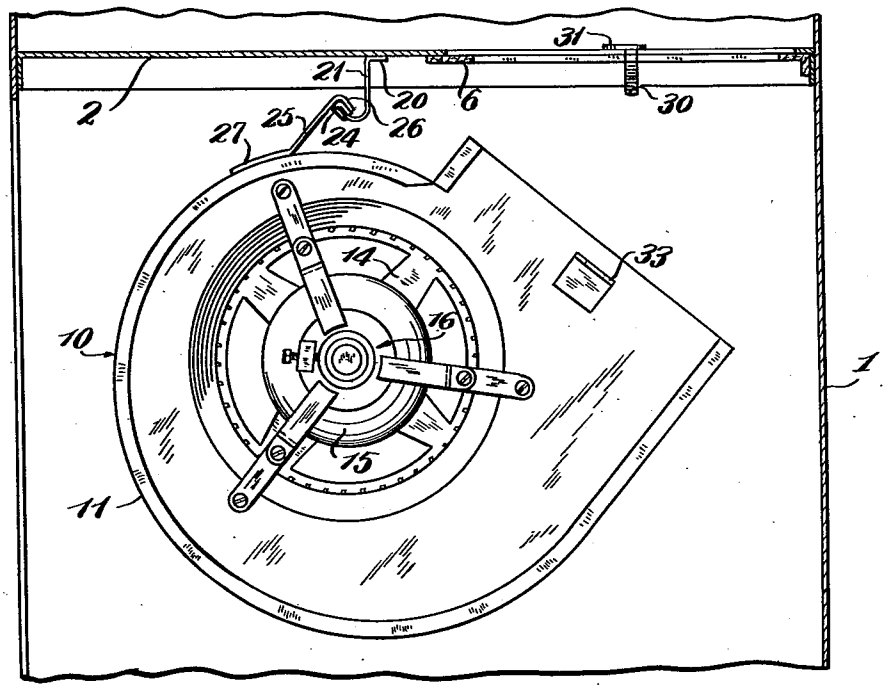


FIG. 3

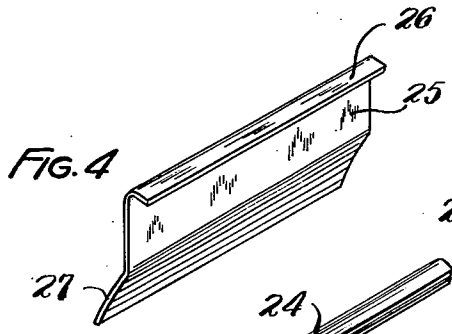


FIG. 4

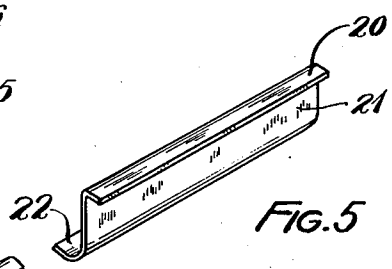


FIG. 5

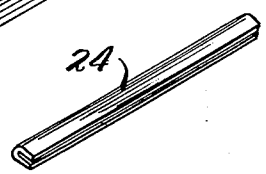


FIG. 6

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SUPPORTING AND POSITIONING MEANS FOR BLOWERS OR THE LIKE

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Application July 8, 1955, Serial No. 520,691

4 Claims. (Cl. 230—235)

This invention relates to the installation of air impellers or blowers in various kinds of apparatus, such, for example, as forced circulation hot air furnaces.

The invention consists of unique means for attaching an impeller or blower casing to a wall of the apparatus with the outlet opening or extension of the casing in register with, or with the extension projecting through, an aperture of said wall.

Objects of the invention are to provide very simple and inexpensive means for quickly and conveniently attaching the impeller or blower casing to, or suspending it from, the wall of the apparatus in accurate relation to an aperture therein, thereby to greatly facilitate and expedite installation; to provide suspension means for attaching the impeller or blower casing to the underside of a substantially horizontal wall of the apparatus in a definite relationship to an aperture in said wall and so that, during installation, the impeller or blower casing may be hung from the wall and thereafter readily swung to a position wherein the outlet of the casing is in register with the aperture in the wall, together with means for finally securing the casing to the wall in an especially convenient manner; and, more specfically, to provide means in the nature of a readily engageable separable hinge for suspending a blower casing from an apparatus wall having an aperture, so that the casing may be swung about an arc to project an outlet extension of the casing through the aperture of said wall, together with coacting means on the casing and wall for fixedly attaching the casing to the wall in the immediate region of said aperture.

I shall now describe in detail, by reference to the accompanying drawings, an embodiment of the invention through which the foregoing objects are attained. It is to be understood, however, that said embodiment is illustrative, and that the invention is not limited to the details thereof further than is required by the terms of the claims appended hereto.

In the drawings,

Fig. 1 is a fragmentary sectional side elevation of an apparatus, such as a hot air furnace, showing an air impeller or blower installed therein in accordance with my invention;

Fig. 2 is a horizontal section substantially on the line 2—2 of Fig. 1, with a part of the horizontal wall or partition from which the impeller or blower is suspended, broken away;

Fig. 3 is a view similar to Fig. 1, showing the impeller or blower in the process of installation;

Fig. 4 is a perspective view of the rocker member that is carried by the impeller or blower casing;

Fig. 5 is a similar view of the fulcrum member that is secured to and depends from the wall of the apparatus from which the impeller or blower is to be suspended; and

Fig. 6 is a perspective view of a cushion element that is applied to the fulcrum member and whereon the rocker member bears.

Describing the invention and associated apparatus by the use of reference characters spread over the several views of the drawing, 1 designates a housing, which may be that of a hot air furnace and which, like most, may be rectangular in plan. Within the housing is supported, as from the surrounding walls, a horizontal wall or partition 2, having a rectangular opening 3. Secured to the wall 2, about the opening 3, desirably to the underside of the wall and by means of a suitable adhesive, are strips of flexible sealing material, such as felt. These strips constitute a gasket 6, the inner marginal portion of which, before the impeller or blower is installed, extends over the corresponding portion of the aperture 3. This condition of the gasket is shown in Fig. 3.

The impeller or blower is designated, generally, by the reference character 10. In the form shown, it includes a casing of the conventional scroll type, the same being made up of a peripheral wall 11 and end walls 12. The casing encloses the usual fan wheel 14, arranged with its ends adjacent openings in the end walls 12. In the present instance, an electric motor 15 is supported within one of the openings of the casing by means of a support designated, generally, 16, and the fan wheel is carried by the shaft of the motor. This mounting of the motor and wheel is in accord with a rather popular current trend and constitutes no part of the invention, and, so far as the invention is concerned, the motor may be mounted upon the peripheral wall of the casing and operatively connected to the fan wheel shaft by means of pulleys and belt, in a common and well known manner.

Secured to the underside of the wall or partition 2, as by welding, is the attaching flange 20 of an elongated fulcrum member 21, desirably formed of relatively heavy gauge sheet metal. The member, throughout its lower edge portion, extends laterally and upwardly to provide a fulcrum 22. Shown as applied to the fulcrum 22 is a cushion element 24 of rubber or the like. Said element preferably consists of a pre-formed channel, as illustrated in Fig. 6.

25 denotes an elongated supporting member, desirably made of heavy sheet metal, which is turned over along its upper edge to provide a rocker portion 26. Said supporting member is formed throughout its lower region to constitute an attaching flange 27, formed to fit the contour of the peripheral wall 11 of the blower casing 10, and to which said flange is secured, as by welding. The former member 21 is fastened to the wall 2 with the fulcrum 22 in substantially parallel relation to, and a given distance from, the adjacent side of the aperture 3; and the member 25 is secured to the blower casing with its rocker portion 26 in approximately the same relation to the corresponding side of the outlet extension of the blower casing.

Secured to and depending from the wall or partition 2, adjacent each end of the aperture 3, is a threaded stud 30, the adjacent part of the gasket 6 being removed to accommodate the stud. The stud, as herein shown, is extended downwardly through a hole in the wall or partition 2, and it has an oblong head that overlies the adjacent portion of the wall or partition and is welded thereto.

Carried by and projecting laterally from each end wall 12 of the impeller or blower casing 10 is an ear 33. In the present instance, the ear is constituted of one flange of an angle which has its other flange welded to the said end wall. Each ear 33 is apertured for the passage of the corresponding stud, and a nut 34 is applied to the lower end of the stud for binding the impeller or blower casing 10 to the wall 2. In order to reduce transmission of vibration from the casing to the wall, I may insert washers 35, of rubber or the like, between the wall and each nut and the upper and lower sides,

respectively, of the corresponding ear. When the blower casing **10** is swung to its final position, the outlet extension thereof is projected upwardly through the aperture in the wall **2**, with the inner peripheral portion of the gasket **6** turned upwardly between said extension and the surrounding edge portions of said wall.

From the foregoing it will be seen that my invention provides means that greatly facilitates and expedites installation of the impeller or blower. The impeller or blower assembly (which includes the motor) may be inserted bodily through an opening in a side wall of the housing **1** and the rocker portion **26** of the supporting member **25** engaged over the fulcrum **22** of the member **21**, incidentally with the cushion element **24** between said interengaged parts. The impeller or blower assembly is thus attached to and suspended from the wall **2**, as shown in Fig. 3, and it may then be swung with ease to the position shown in Fig. 1 with the outlet extension thereof extended through the aperture **3**. In this step, the ears **33** are automatically engaged over the studs **30**, and the nuts **34** may then be applied to the studs, it being understood that the washers **35** are applied to the studs in the meanwhile, or said washers may be cemented or otherwise attached to the top and bottom surfaces of the ears **33** so as to make unnecessary their handling in the process of installation. The gasket **6** not only seals the joint between the outlet extension of the impeller or blower casing and the wall or partition **2**, but absorbs some of the vibration.

Having thus described my invention, what I claim is:

1. In a blower installation, the combination with a substantially horizontal wall having a rectangular aperture, of an elongated supporting member secured to the underside of said wall and depending therefrom and terminating at its lower end in a laterally and thence generally upwardly extending fulcrum that extends lengthwise of said member and is disposed in spaced substantially parallel relation to a side of said aperture, a blower casing of the scroll type including end walls and a peripheral wall, the corresponding edge portions of said walls defining a rectangular outlet extension of the casing, an elongated supporting member secured to the peripheral wall of the casing and rising therefrom and terminating at its upper end in a laterally and thence generally downwardly extending rocker portion that extends lengthwise of the member and is in spaced substantially parallel relation to the near side of said outlet extension, the rocker portion of said member being downwardly engaged over the fulcrum of the former member thereby to support the blower casing with said rocker portion held under the influence of gravity to the fulcrum and thus render the casing capable of being swung to a position in which the outlet extension of the casing projects through the aperture of said wall, a stud secured

to and depending from the wall adjacent each end of said aperture, an ear on, and extending laterally from, each end wall of the casing and apertured for the passage of the corresponding stud, and means applied to the stud below said ear for binding the casing to said wall.

2. In a blower installation, the combination and arrangement of parts defined by claim 1, and, in addition thereto, a cushion element applied to the fulcrum of the first mentioned member and whereon the rocker portion of the second mentioned member bears.

3. In a blower installation, the combination and arrangement of parts defined by claim 1, and, in addition thereto, a normally flat gasket having its marginal portion attached to the underside of the wall about said aperture and its inner peripheral portion overlying the aperture, said portion being adapted to be deflected upwardly through the aperture by the outlet extension of the casing when the latter is projected through said aperture.

4. In a blower installation, the combination with a substantially horizontal wall having a rectangular aperture, of a suspension member secured to said wall and situated on the underside thereof, said member incorporating an elongated generally upwardly facing fulcrum disposed in spaced substantially parallel relation to one side of said aperture, a blower casing of the scroll type comprising end walls and a peripheral wall, edges of said walls lying in a substantially common plane and defining a rectangular discharge opening, a member secured to the peripheral wall of said casing and including an elongated generally downwardly facing rocker portion in parallel spaced relation to a side of said opening for downward engagement over the fulcrum of the former member whereby the casing is adapted to be suspended from the wall with the rocker portion held under the influence of gravity to the fulcrum and so that the casing may be rocked about the axis of said fulcrum to bring the opening of the casing in register with the aperture of the wall, a cushion element interposed between the fulcrum of the first mentioned member and the rocker portion of the second mentioned member, and fastening means including parts carried by the end walls of the casing adjacent the ends of said opening and parts on said wall for cooperation with the former parts to bind the casing to the wall in the region of said aperture.

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