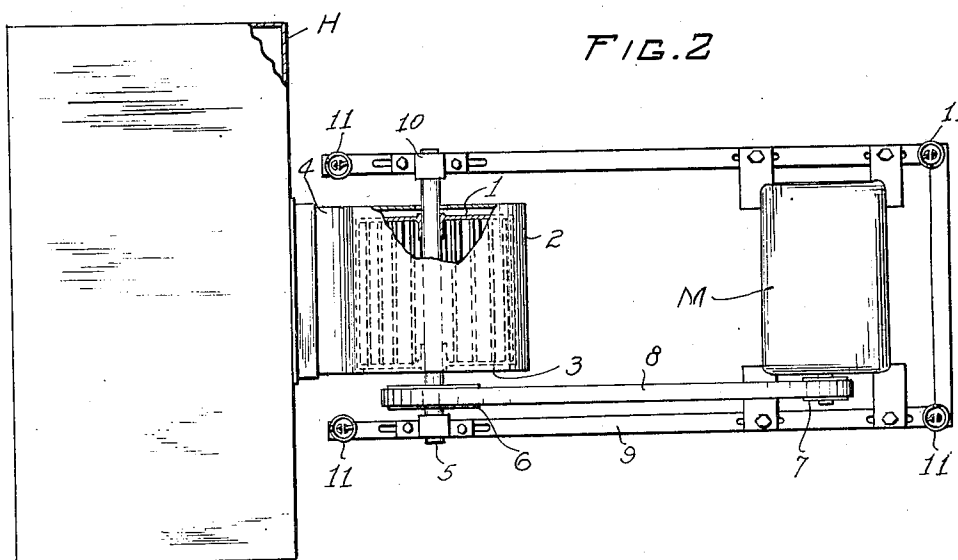
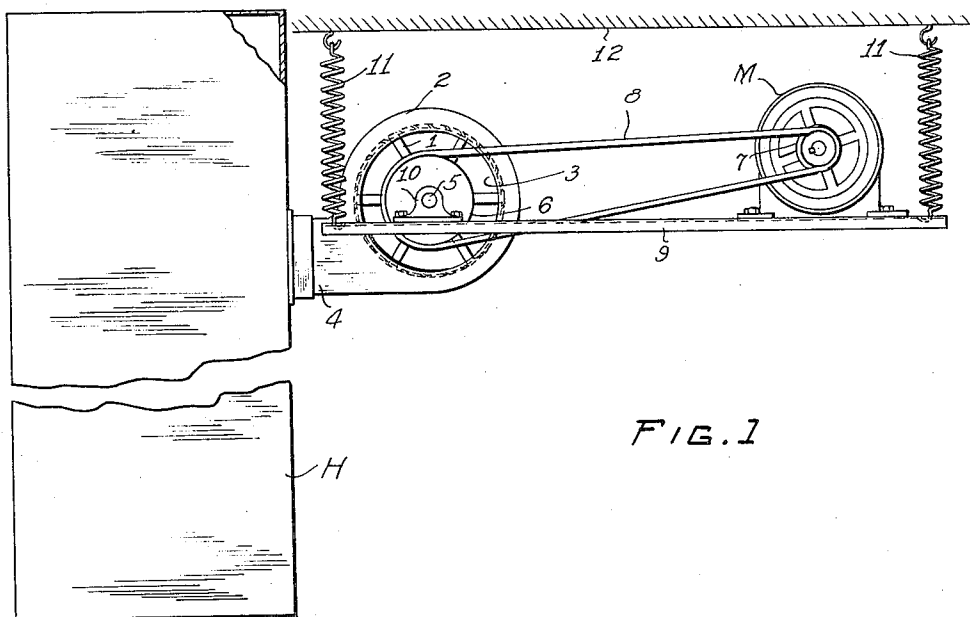


Feb. 7, 1950

S. J. HEIMAN
HEATER FAN MOUNTING
Filed Sept. 9, 1946

2,496,720



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2,496,720

HEATER FAN MOUNTING

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Application September 9, 1946, Serial No. 695,633

4 Claims. (Cl. 230—235)

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The invention relates generally to room or space heater equipment and installation, and more particularly to a construction wherein the noise, hum and vibration originating through the operation of the one or more motors driving the several related other members, is very much reduced.

One of the principal objects of the invention is to so support the fan and its driving motor that there will be no contact therefrom with the casing of the heater, so that vibration and noise from either the fan or the motor will not be transmitted to the casing to become magnified and objectionable.

An important object of my invention is to construct the fan rotor and its driving motor as an operating unit, on a base member, and to support said base member so loaded, and through tension springs, from a supporting structure or element situated above said base member and its load, said supporting structure being entirely free of any contact with the casing or other portions of the main heater construction.

A further object of my invention is to so support a motor and fan rotor unit so that the same is substantially free-floating and there is no direct or fixed connection therefrom to the sheet metal housing or casing of the heater, and whereby hum, noise and vibration is effectively minimized.

The invention has among its other objects, the production of a device of the kind described, that will be relatively simple and economical in construction and operation, have comparatively few operating parts, and which will be otherwise satisfactory and efficient for use wherever deemed applicable.

Many other objects and advantages of the construction herein shown and described, will be obvious to those skilled in the art to which this invention appertains, as will be apparent from the disclosures herein given.

To this end, my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and the uses mentioned, as will be more clearly pointed out in the following specifications.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure 1 is a side elevation, partly in section, showing the device for forcibly driving air through a heater; and

Figure 2 is a top plan view of the same, with the overhead or main support omitted.

Referring more particularly to the drawings, wherein I have illustrated one form of the in-

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vention, H represents the outer casing of a room or space heater of any sort of construction, and is shown as being of a rectangular prism shape of the desired height. Such a casing may vary from around two or three feet in height to from eight or ten feet in height, these sizes being simply for illustration and not for limitation of the invention.

Due to the large sizes of these casings, any hum, noise or vibration transmitted to any part of them, through fans, motors, or other moving or rotating members, becomes intensified and magnified so as to cause annoyance and disturbance to the occupants of the quarters in which said heater is placed, and the main objective of the instant invention is to eliminate or at least greatly minimize such objectionable vibration and noise.

With this thought in mind, I have so designed the rotating parts of the elements associated with the heat producing and conducting machinery of the heater, so that they are carried independently of the heater parts, and will be free-floating relatively thereto, as will be hereinafter set forth in detail.

Generally, some sort of fan or blower is incorporated into the heater assembly, and a motor is used to drive such a fan, the fan either forcing air into the casing or withdrawing air therefrom, as the case may be.

One form of such a fan is indicated, the part 1 representing the rotor or driven element of the fan, and the part 2 indicating a casing or housing through which the air moved by said rotor part travels. In the embodiment shown, 3 indicates the intake of the fan and 4 the discharge port, the part 1 having a supporting shaft 5, and carrying a pulley 6 on the latter.

It is to be particularly noted and stressed, that although the casing element 2 of the fan is fixed or carried by the casing of the heater, the rotor element 1 is free of securement to any part of the casing, and substantially floats freely, as will be seen by the following description.

A motor M, having a pulley 7 on its shaft, is used to drive the fan element 1, the drive being transmitted in this instance, by the belt 8 interconnecting said fan and motor.

A sub-base or carrying frame 9 is of a size to receive both the fan and the motor in operative relationship, there being journals 10—10 at the one end of the frame to receive and provide bearings for the shaft 5 of the fan rotor element and secure said element in fixed relationship for operation, and the motor being adjustably

mounted at the other end of the frame 9. Thus, the frame 9, motor and fan form an operative unit.

Now, in order to reduce the noise and hum normally incident to such moving parts or elements, I have devised that the said operative unit be free-floating and not supported by the heater or its parts such as the casing, and for this purpose, I have secured the lower ends of tension springs 11, 11 to the opposite ends of the base or frame member 9, the upper ends of said springs being secured to an overhead platform, ceiling or other suitable structure for the purpose, as at 12.

With such a device, it is obvious that all of the load of the base 9, with the fan and motor in operative position thereon, will be supported from the overhead support member 12, through the springs only, and that any movement or vibration will be taken through said springs and be transmitted to the element 12.

The element 12 is a comparatively poor sound conductor, and if desired may be sound-proofed further to more completely eliminate the transference of sound, but in any case, even without such added sound-proofing, it will give off little noise, hum or vibration, as compared with what would be otherwise given by even minor transmissions of sound and vibration to such a large, hollow structure as the heater casing.

Although the device is illustrated as being positioned exteriorly of the heater casing, this arrangement is merely for the sake of convenience and simplicity of the drawing and is not intended to be by way of limitation, as it is obvious that any or all of the various elements of the device may be placed within the heater casing, or in some auxiliary casing if so desired, just so that neither the fan rotor, the motor, the base, or the overhead support is supported by or in contact with the heater casing or such other casing.

The entire load of the working unit having the movable parts, that could possibly cause any hum, noise or vibration, is carried through the tension springs, so that such objectionable noises are isolated insofar as they arise from said elements.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, arrangement, construction and combination of parts herein shown and described, or the uses mentioned, except as limited by the claims hereunto appended.

What I claim as new and desire to secure by Letters Patent is:

1. For use with a heater having an air blower fan casing, a rotary horizontal-axis fan in said casing and free of engagement therewith, a motor having a rotational axis parallel to and spaced from that of said fan and drivingly connected to the fan, a base member supporting said fan and motor, and tension springs connected to said base member for suspending and entirely supporting the latter from overhead.

2. For use with a member having a fan casing, a rotary fan in said casing and free of contact with the latter, a motor having its rotational axis parallel to and spaced from that of said fan, means for adjustably drivingly interconnecting said fan and motor to form a unit together therewith, and tension springs connected to said last-mentioned means for suspending and supporting said unit from above.

3. For use with a heater having a fan casing and an overhead support that is independent of said casing, a motor, a fan driven by said motor and rotary in said casing free of contact therewith and support therefrom, said motor and fan being entirely below said support, a base member supporting said fan and motor, and tension springs for interconnecting said base member to said overhead support and transmitting the entire load therebetween.

4. For use with a heater having a fan casing and an overhead support independent of the latter, a rotary horizontal axis fan in said casing free of contact therewith and support therefrom, a motor having its rotational axis parallel to and spaced from that of said fan and drivingly connected to the latter, a base member supporting said fan and motor, and tension means interconnecting said base member to said overhead support to transmit the entire load therebetween.

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