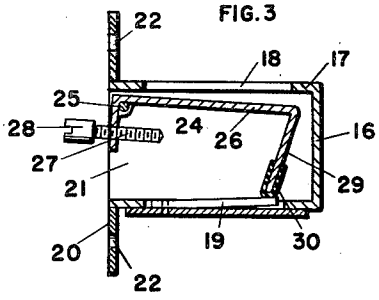
Feb. 26, 1957 D. C. ALDERFER 2,782,747

ALARM FOR AIR CONDITIONING SYSTEM

Filed April 11, 1955

FIG. 3



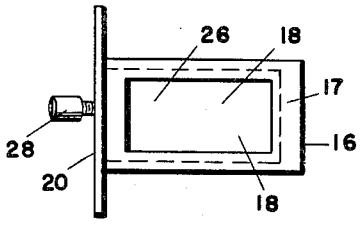


FIG. 2

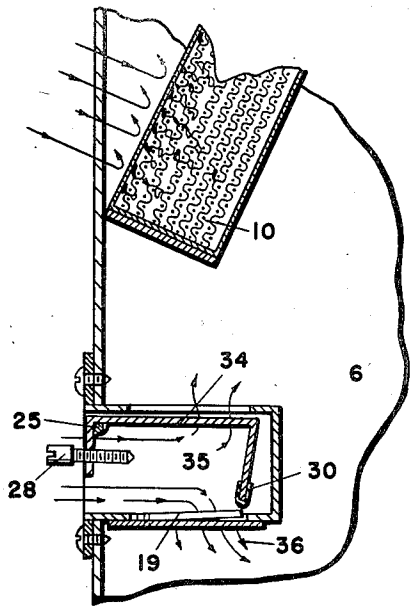
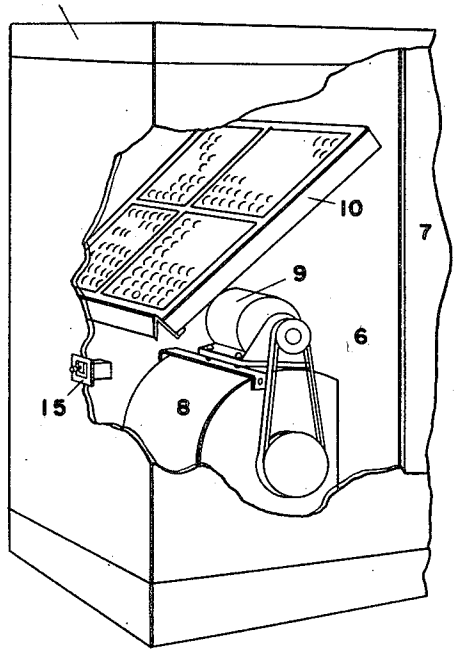


FIG. 4

FIG. 1



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ALARM FOR AIR CONDITIONING SYSTEM

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Application April 11, 1955, Serial No. 500,412
2 Claims. (Cl. 116—112)

This invention relates to an alarm for warm air furnaces or air conditioners of the forced air type to provide a signal indicating a reduction in the efficiency of the system.

This invention is a continuation in part of application Serial No. 376,855, filed August 27, 1953, now U. S. Patent No. 2,721,533.

In furnaces or air conditioners of the forced air circulation type it is customary to provide filters through which air is drawn into the unit to be heated or cooled and forced into distribution ducts. The air drawn into the unit contains foreign matter such as dust or pollen which is retained by the filters. In the due course of use the filters become clogged, making it impossible to obtain the correct volume of air through these filters with the result that the system is working at less than peak efficiency. There is no fixed time limit for the life of the filter. It may become clogged within a week due to coal dust or it might last for a year, depending entirely upon the air which is drawn through it. To replace the filters before it is necessary is a needless expense and to retain them after being clogged results in an increased consumption of fuel because of the inefficient working of the unit.

It is the object of the present invention to provide an audible alarm attached to a warm air furnace or air conditioner of the forced air type to provide a signal indicating the clogging of the air filters with dirt.

It is a further object of the present invention to provide a means for adjusting the alarm to suit the individual unit so that by a simple adjustment the alarm may be caused to sound when the filters have accumulated sufficient dirt to cause the unit to operate inefficiently.

It is a further object of the present invention to provide a simple device which may be attached to any existing air conditioner without the addition of any parts other than the sound making instrument itself.

The invention is shown in the accompanying drawing in which:

Figure 1 is a perspective view of a portion of an air conditioning unit showing the motor and fan, the filtering screens and the alarm.

Figure 2 is a top plan view of the alarm.

Figure 3 is a vertical cross section of the same.

Figure 4 is a cross sectional detail view showing the alarm in operating position.

The blower compartment **6** of an air conditioning unit is shown with a fan **8** driven by a motor **9** to force air drawn through the filters **10** into the heating unit (not shown). The air after leaving the heating unit is conducted by ducts to the different rooms of the house and drawn back by return ducts and into the top **12** of the blower compartment **6**. The return air coming in from the return ducts passes through the filters **10** under the influence of the reduced pressure in the compartment **6** caused by the fan **8** so that when the fan is in operation the compartment **6** is at a slightly reduced pressure to that of the air outside of compartment **6**.

Located between the filter and the fan is the alarm **15** which may be fastened to the metallic wall of the blower compartment by metal screws or by soldering or other suitable means. This alarm is made up of a substantially rectangular body portion having a back **16**, a top formed of a rim section **17** and a rectangular opening **18**. Secured in the bottom section is a vibratory reed **19**. The front

portion is formed with a flange **20** and an opening **21**. The flanges have holes **22** for metal screws to secure the alarm to the side of the blower compartment. Mounted in the sides **24** and adjacent the front of the body portion is a rod **25** on which is pivotally mounted a damper **26**. The front end of the damper **26** extends downward at **27** and carries a weighted screw **28**, while the back portion of the damper is bent inward at **29** and has mounted at its extremity a rubber finger **30**.

In the normal operation of the air conditioning system the air passing through the filtering screens **10** deposit dust and dirt so that passage of the air through these screens is obstructed. When this condition reaches a point which can be predetermined for each individual unit the air pressure within the chamber **6** is below the normal air pressure on the outside of the chamber, and because of the obstruction in the filtering screens the passage of air through these screens is insufficient to balance this reduction of pressure. Therefore, the upper surface **34** of the damper **26** has less pressure than the under surface **35** so that the movement of the damper will be counterclockwise about the pivot **25** removing the rubber finger from the reed **19** and permitting the passage of air as shown by the arrows **36** through the alarm, vibrating the reed and producing an audible sound.

The reed is adjusted for operation by running the air conditioning unit with new filters in place and turning the screw **28** inward so that the damper drops down on the reed. With this adjustment the damper will lift from the reed and cause the alarm to sound at a point where the efficiency of the furnace is beginning to drop due to the restricted passage of air through the filters. This is true for low pressure air conditioners. Should this alarm be used with greater pressure air conditioners the adjusting screw **28** may be given an additional turn so that the filters will stay in use slightly longer before the alarm sounds.

What is claimed is:

1. An alarm for an air conditioning system having a substantially closed blower compartment comprising a substantially rectangular shaped body portion open at one end and having one side formed with a rectangular shaped opening mounted in the wall of said blower compartment, a vibratory reed mounted in the side opposite to the side having the rectangular shaped opening, a damper pivotally mounted in the open end of said body portion and adapted to automatically swing to a position closing said rectangular opening upon a change in air pressure within the blower compartment, the end of said damper being bent to contact the vibratory reed when not in rectangular opening closing position.

2. An alarm for an air conditioning system having a substantially closed blower compartment comprising a substantially rectangular shaped body portion open at one end and having one side formed with a rectangular shaped opening mounted in the wall of said blower compartment, a vibratory reed mounted in the side opposite to the side having the rectangular shaped opening, a damper pivotally mounted in the open end of said body portion and adapted to automatically swing to a position closing said rectangular opening upon a change in air pressure within the blower compartment, the end of said damper being bent to contact the vibratory reed when not in rectangular opening closing position, and means mounted at the pivot end of the damper for counterbalancing the weight of the damper.

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