Feb. 9, 1960 D. L. RIPLEY 2,924,693

ELECTRIC HEATING APPARATUS

Filed Feb. 12, 1958

Fig. 1

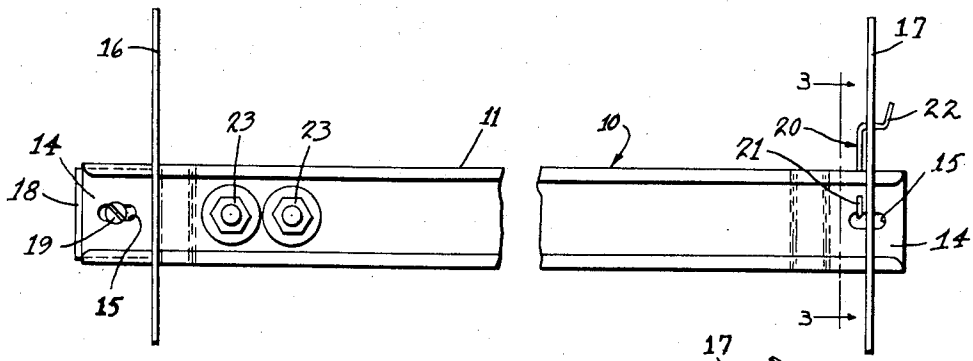


Fig. 2

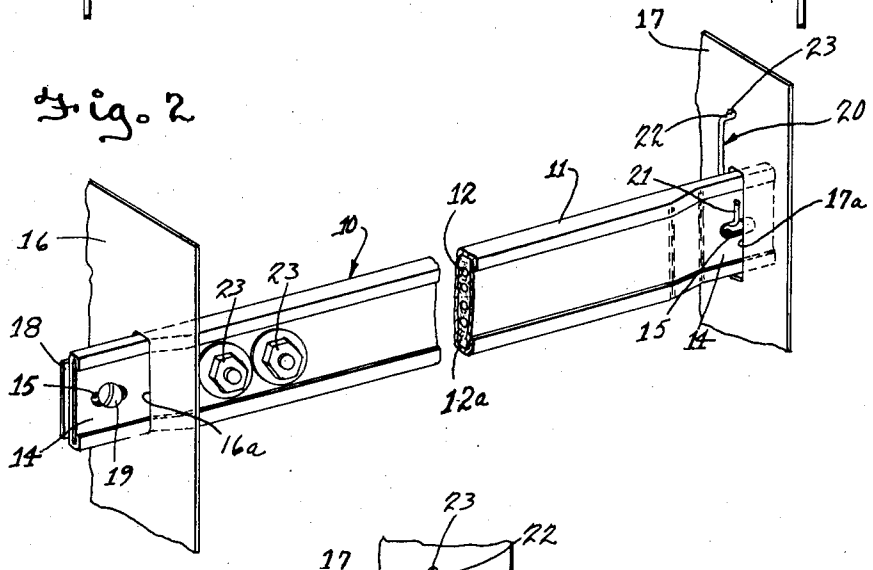
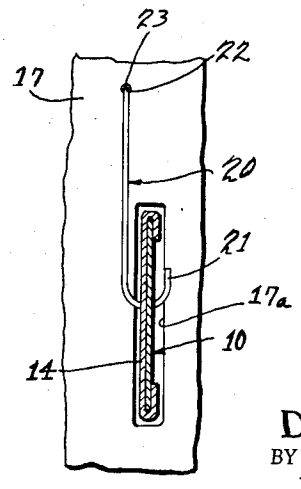


Fig. 3



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ELECTRIC HEATING APPARATUS

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3 Claims. (Cl. 219—19)

My invention relates to electric heating apparatus, more particularly to methods and means for mounting an electric heater, and the principal object of my invention is to provide new and improved methods and means of the character disclosed.

As is well known, energization and de-energization of an electric heating element causes heating expansion and cooling contraction respectively, and in some installations it is desirable to minimize any noise which may be caused by expansion and contraction forces.

In baseboard heating, for example, and particularly in bedroom installations, it has been found desirable to minimize noise, and my invention solves the problem adequately and economically.

In the drawing accompanying this specification and forming a part of this application, there is shown, for purposes of illustration, an embodiment which my invention may assume, and in this drawing:

Figure 1 is a broken side elevation of a heater assembly illustrating a presently preferred embodiment of my invention,

Figure 2 is a broken perspective view of the embodiment shown in Figure 1, and

Figure 3 is an enlarged transverse sectional view corresponding generally to the line 3—3 of Figure 1.

The embodiment herein disclosed utilizes an electric strip heater **10** of any commercially available type and, for purposes of details, reference is made to Patent No. 1,678,838 of Edwin L. Wiegand, wherein is disclosed a strip heater of a type which may be used in the disclosed embodiment.

The active heating portion **11** of the strip heater contains the heating resistor, such as the resistance coils **12**. Suitable electric-insulating heat-conducting material **12***a* maintains the coils **12** from shorting against the metallic sheath of the heater. In usual construction, such end of the strip heater is flattened, as shown at **14**, to close the end openings of the sheath. Each end is usually formed with an aperture **15** to pass a mounting member.

The strip heater **10** is usually carried by a pair of spaced supports **16** and **17** which may form part of or be connected to an enclosing housing (not shown). In the case of a baseboard heater, the supports may be connected to a back panel (not shown) which in turn is attached to the bottom of a room wall, and a decorative front panel (not shown) may be connected to the supports and/or to the back panel.

In accordance with my invention, the strip heater extends between the supports **16**, **17** and has one end secured to one of the supports (the support **16** in this instance) so that all longitudinal expansion is in a direction toward the other support. The other end of the strip heater is carried by the other support for generally free floating action. More specifically, such other end is supported so that it may move generally free of engagement with the adjoining surface of the other support.

As herein disclosed, each support **16**, **17** is formed with an elongated opening **16***a*, **17***a*. The openings may

be of the same size for economy of production, but in any event the opening **17***a* is of a size to freely receive and pass the adjacent end **14** of the strip heater. As best seen in Figure 3, the adjacent end **14** of the strip heater is spaced from all the marginal surfaces of the opening **17***a*.

In the presently disclosed embodiment, the support **16** is formed with a tab **18** which extends at right angles from a side surface thereof, and mounting screw **19** is passed through the aperture **15** in the strip heater end and is threaded into an aperture in the tab **18**. Thus, this end of the heater is firmly anchored and longitudinal expansion of the heater is limited in a direction toward the other end.

As herein disclosed, a hook member **20**, formed of bendable wire or any other suitable material, supports the opposite end of the strip heater. Conveniently, the hook member **20** may have a lower hook portion **21** which extends through the aperture **15** in the end of the strip heater and an upper hook portion **22** which extends through an aperture **23** in the support **17**. It will be understood, however, that the lower hook portion, instead of extending through the aperture **15**, may engage around the adjacent lower marginal edge of the heater.

Thus, the strip heater end is carried by the support **17** for generally free floating action, the pivotal mounting provided by the hook member **20** enabling the strip heater to expand and contract without material engagement with the support **17** and therefore noise commonly caused by expansion and contraction in previous heater constructions is eliminated or at least minimized to a point where it is unobjectionable.

In the disclosed embodiment, the terminals **22**—**23** of the strip heater are both located at the fixed end of the latter and this is preferred, although it is possible to locate one or both of these terminals at the opposite floating end if the wire connections thereto are flexible enough so as not to interfere with the floating action of such end.

In view of the foregoing it will be apparent to those skilled in the art that I have accomplished at least the principal object of my invention and it will also be apparent to those skilled in the art that the embodiment herein described may be variously changed and modified, without departing from the spirit of the invention, and that the invention is capable of uses and has advantages not herein specifically described, hence it will be appreciated that the herein disclosed embodiment is illustrative only, and that my invention is not limited thereto.

I claim:

1. In a heater assembly, the combination of a sheathed electric strip heater which is subject to elongation and contraction by reason of heating expansion and cooling contraction, a first support to which one end of said strip heater is secured, a spaced second support, and hook means swingably engaging the opposite end of said strip heater and said second support for hanging said opposite end from said second support for free movement relative to adjoining surfaces of the latter.

2. In a heater assembly, the combination of a sheathed electric strip heater which is subject to elongation and contraction by reason of heating expansion and cooling contraction, a first support having an opening and a transversely extending tab along a margin of said opening, one end of said strip heater extending through said opening and being fastened to said tab, a spaced second support having an opening which freely receives the opposite end of said strip heater, and hook means having a lower portion swingably engaging said opposite strip heater end and an upper portion which swingably extends through an aperture in said second support.

3. The method of mounting an electric strip heater to

minimize noise incident to heating expansion and cooling contraction which comprises, securely mounting one end of said strip heater to a first support and supporting the opposite end of the strip heater by means of a hook which is pivotally connected to a speced second support.

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