Sept. 11, 1934. J. ASKIN 1,973,678

UNIT HEATER

Filed Sept. 28, 1933

Fig. 1.

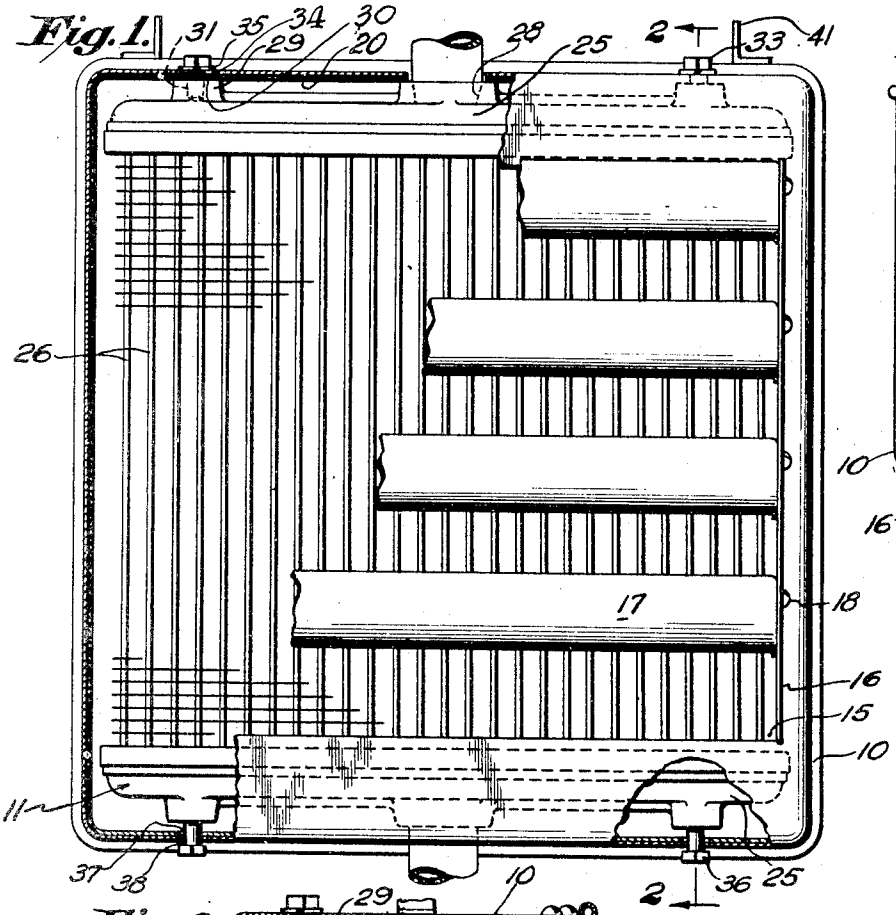


Fig. 3.

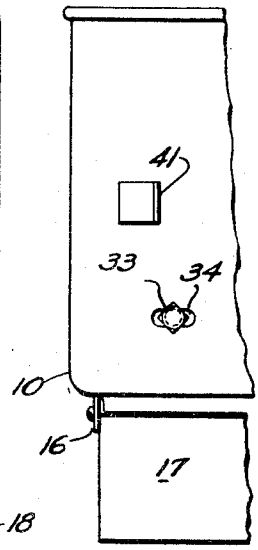
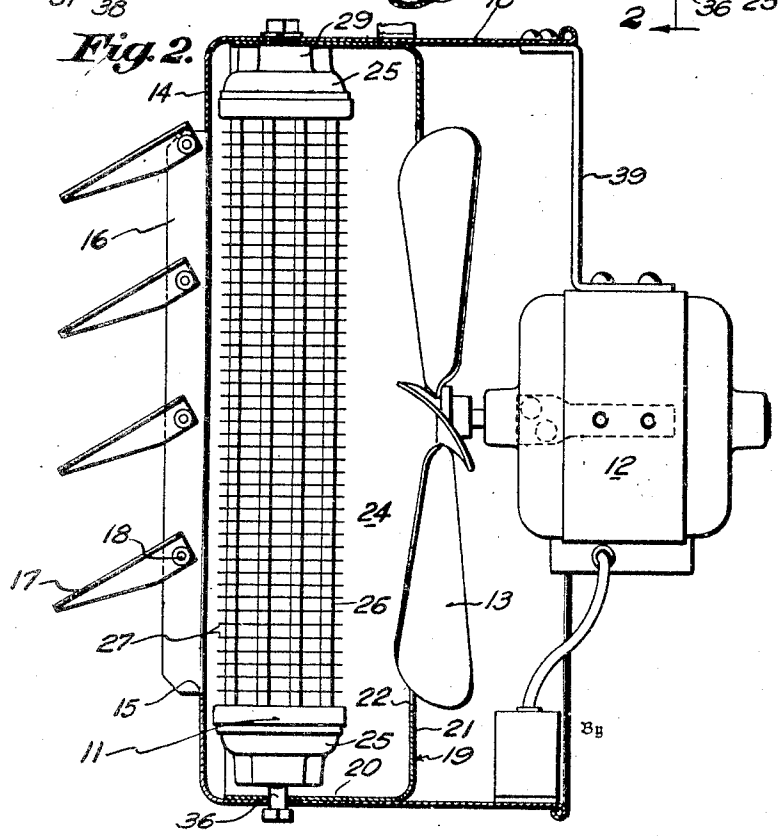


Fig. 2.



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UNIT HEATER

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2 Claims. (Cl. 257—137)

This invention relates to heat exchange devices which are adapted for the heating of enclosures such as offices and factory rooms.

The invention is particularly applicable to heaters designated in the art as the unit type, which consist of radiators devised with a housing suitably cowled for the direction of a forced air stream through the radiator from a motor-driven fan. The invention is directed to a novel means for mounting the radiator within the housing, which, although providing a simple and rugged connection of the members, permits independent expansion and contraction of the radiator without subjecting the housing to destructive stresses.

The structural features of the invention are more specifically described in the accompanying specification and drawing, wherein:

Fig. 1 is a front elevation of a unit heater with portions broken away to disclose the radiator mounting;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a partial top view of the heater.

The unit heater, as illustrated in the drawing, comprises a supporting structure including a housing 10 within which is mounted a radiator 11 and an air impelling unit consisting of a motor 12 for driving a fan 13. The housing 10 is generally rectilinear in shape and formed of sheet metal to provide side, top, and bottom walls, an open back, and a front wall 14, containing an enlarged opening 15 having vertical flanges 16 extending outward therefrom. Deflector plates 17 are mounted between the flanges 16 by the bolts 18.

A partition member 19 is mounted within the housing 10 and it is also rectilinear in shape, having a tubular walled portion 20 closely engaging the corresponding walls of the housing and a rear wall 21 formed with a circular opening 22 and providing a shroud for the fan 13. The partition member cooperates with the housing 10 to form a chamber 24 therein for receiving the radiator 11.

The radiator 11, for exemplary purposes, is shown as being of the tubular type having spaced and similar headers 25 connected by a plurality of tubes 26, which engage through spaced horizontal fins 27. Each header is formed with a central tapped hole 28 for receiving a communicating pipe and spaced bosses 29 each containing a tapped hole 31. The upper header is tightly secured to the housing structure by screws 33. These screws extend through lateral aligned slots 34 and 30 in the housing and partition member respectively and are received in the tapped holes 31 of the header, the header being thereby pulled up tightly against the partition member to provide a suspended mounting for the radiator 11. A lock washer 35 is interposed between the head of each screw 33 and the housing.

The lower header 25 is spaced from the adjoining lower wall of the housing structure and it is provided with guide pins or screws 36 mounted in the tapped holes 31 thereof and which slidably engage through clearance slots 37 and 38 in the lower walls of the partition member 19 and housing 10. These slots are similar in disposition and configuration to the described slots of the upper walls, as shown in Fig. 3.

The portion of the housing 10 exterior of the chamber 24 is utilized to house the fan 13 and motor 12, the latter being rigidly secured to the housing by brackets 39. The entire unit is suspended on angle brackets 41 secured to the top wall of the housing 10 and to which suitable straps or brackets may be secured for such purpose.

It will be observed that adequate allowance is made for vertical expansion of the radiator 11 by the provision of the slidable mounting of the lower header 25. The screws 36 of this header act as guide pins in the housing structure and although slidably mounted therein, they support the radiator against lateral movement. Upon horizontal expansion of the headers 25, the screws 33 and 36 being mounted in transversely oval holes, may shift therein without transmitting the expansion strains to the housing structure. In addition to the above described functions, the screws 33 and 36 serve to retain the partition member 19 against axial misalignment and thereby provide an assembly means between the housing 10 and the partition member 19.

I claim:

1. A unit heater comprising a rectilinear housing structure having lateral slots in its top and bottom walls, a radiator therein comprising a pair of headers connected by finned tubes, means for securing one of the headers to the structure comprising screws entering through the slots of the top wall of the structure and engaging the header to secure it to the structure, said remaining header being spaced from the bottom wall of the structure, means for mounting said remaining header for guided movement comprising pins engaging through the slots in the lower wall of the structure and secured to the remaining header, said slots of the structure permitting horizontal movement of the screws and pins therein upon expansion or contraction of the radiator, and said pins being slidably movable in the slots of the lower wall upon expansion or contraction of the

radiator, and means for impelling air through the radiator.

2. A unit heater comprising a rectilinear housing, a partition structure therein comprising a rectilinear member having a vertical wall formed with an enlarged orifice, the adjacent top and bottom walls of the housing and partition structure being formed with aligned transverse slots, a radiator within the partition structure, screws engaging through the slots in said top walls and securing the radiator thereto, guide pins secured to the opposite end of the radiator and slidably mounted in the slots of said bottom walls, a fan disposed in the orifice of said vertical partition wall, and a motor for operating said fan, said motor being secured to the housing.

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