Sept. 8, 1959 R. W. KRITZER 2,903,246

BASEBOARD RADIATORS

Filed Dec. 20, 1957 3 Sheets-Sheet 1

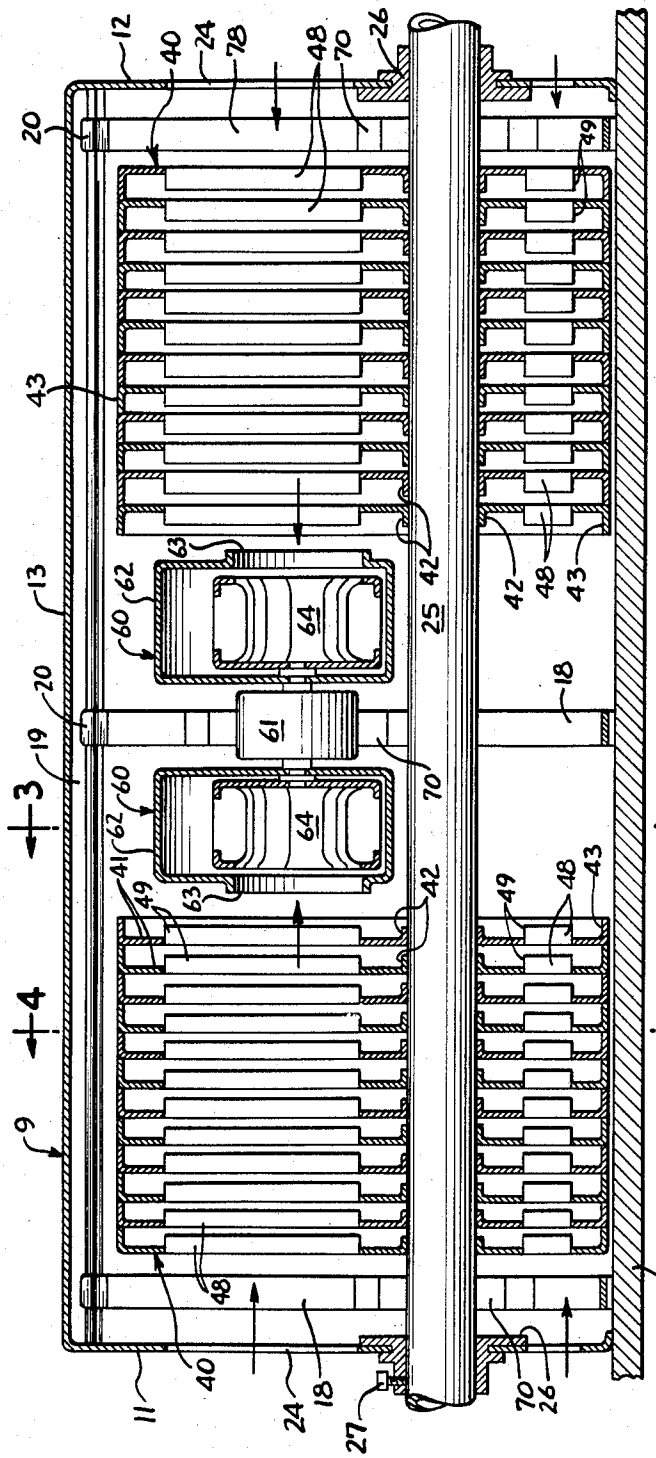


Fig. 1

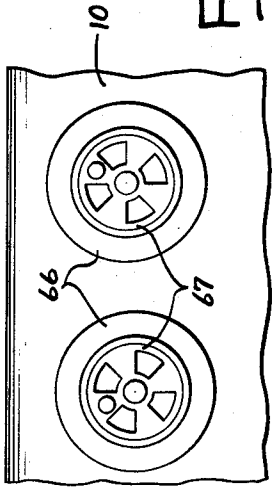


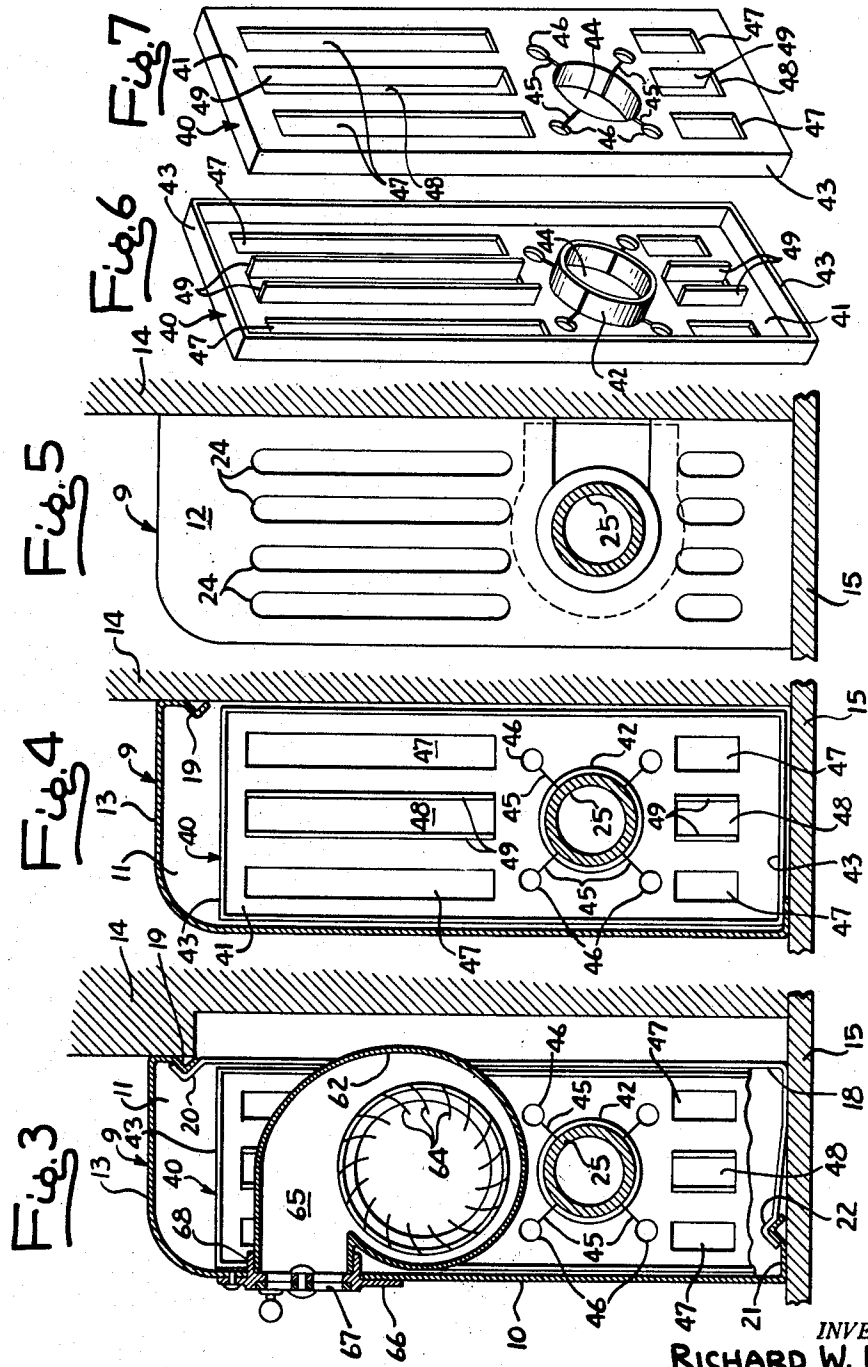
Fig. 2

INVENTOR.
RICHARD W. KRITZER
BY
ATTY.

Sept. 8, 1959 R. W. KRITZER 2,903,246

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INVENTOR.
RICHARD W. KRITZER
BY
ATTY.

Sept. 8, 1959 R. W. KRITZER 2,903,246

BASEBOARD RADIATORS

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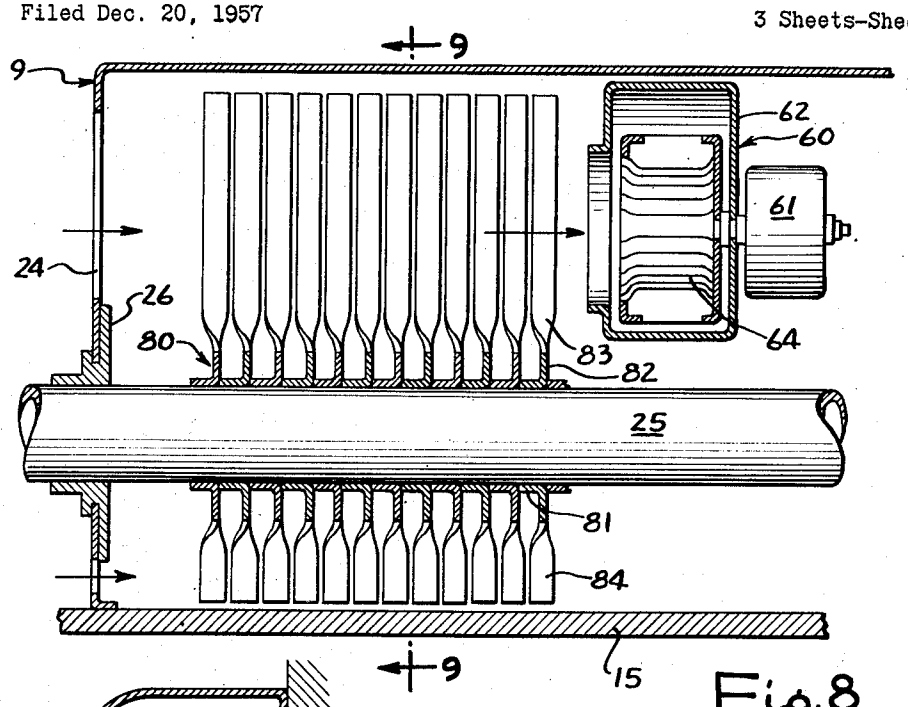


Fig. 8

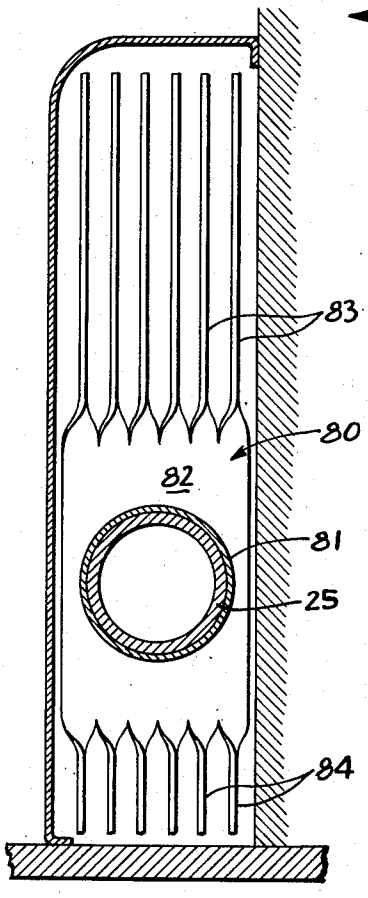


Fig. 9

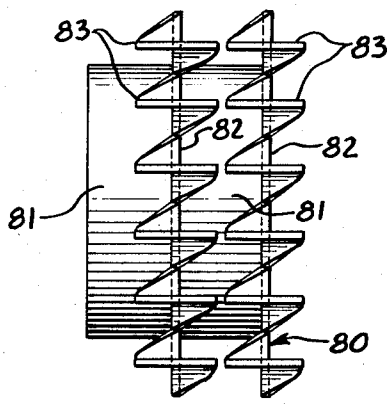


Fig. 10

INVENTOR.
RICHARD W. KRITZER
BY Norman Blackwell
ATTY.

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BASEBOARD RADIATORS

Richard W. Kritzer, Chicago, Ill.

Application December 20, 1957, Serial No. 704,073

1 Claim. (Cl. 257—133)

The invention relates to radiators adapted for use along the base of the back wall and the floor of a room, generally known as baseboard type of radiators.

One object of the invention is to provide a radiator of this type which may be economically fabricated and installed, is efficient in heat-conduction and simple in construction.

Other objects will appear from the detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by the claim at the conclusion hereof.

In the drawings:

Fig. 1 is a longitudinal section of a radiator exemplifying the invention;

Fig. 2 is a partial front elevation;

Fig. 3 is a transverse section taken on line 3—3 of Fig. 1;

Fig. 4 is a section taken on line 4—4 of Fig. 1;

Fig. 5 is an end elevation;

Figs. 6 and 7 are perspectives of one of the fins shown in Figs. 1 to 3;

Fig. 8 is a longitudinal section of a radiator embodying a modified form of fins on the pipe through which fluid is circulated for heat-transfer to air in the casing;

Fig. 9 is a section taken on line 9—9 of Fig. 8; and

Fig. 10 is a plan view of said modified form of fins.

The invention is exemplified in Figs. 1 to 7 in a radiator-casing, generally designated 9 and comprising a front-wall 10, end-walls 11 and 12 and a top-wall 13 all secured together and adapted to extend along the back-wall and floor 15 of a room or enclosure of a building and functions as a baseboard. The casing is removably supported on the floor and against the back-wall for access to the space enclosed by the casing. Strips 18 are secured on the back-wall 14 for attaching the casing to the room structure. A flange 19 on the back of the top-wall 13 detachably engages clips 20 on the upper ends of strips 18, and a bottom-flange 21 detachably engages clips 22 on forwardly extending arms on said strips and permit removal of the casing 9 from the back-wall 14.

A pipe or conduit 25 extends through the end-walls 13 and 14 and longitudinally across the casing 9 between the front-wall 10 and the back-wall 14 for the circulation of a heating fluid, such as hot water or steam for the transfer of heat to air passing through the casing 9. Annular flanges or heads 26 are secured by screws 27 to pipe 25 and interfit with slots 28 in the end-walls 12 and 13 for permitting forward separation of casing 9 from pipe 25.

For heat-transfer from pipe 25 to air in the casing 9, series of fins, generally designated 40, are mounted on pipe 25 between its longitudinal center and the ends of casing 9 respectively. Each fin is formed of suitable fin-stock, such as sheet copper or aluminum, and includes a planar side 41 extending transversely of the casing 9 and including extensions above and below the pipe 25; an opening 44 surrounded by an annular flange 42 coaxial

with and fitting around said pipe; right-angled marginal flanges 43 projecting from one face of said side 41 at the ends, top and bottom of the fin; and radial slits 45 between perforations 46 and opening 44.

The slits 45 and perforations 46 render the flanges 42 resilient against the periphery of pipe 25 and assist in the conduction of air into the surrounding portion of fin-side 41. Each side 41 is also provided with a pair of vertical slots 47 along its ends and a central slot 48 above and below pipe 25 for the flow of air through the fins. Flanges 49 are bent along the sides of slots 48 to direct the air longitudinally of pipe 25. The end-walls 11 and 12 are also formed with vertical slots 24 for the entry of air into casing 9 and through the series of aligned slots 47 and 48 in the fins and longitudinally from the end-walls 11 and 12 to the longitudinal center of casing 9. Marginal flanges 43 on the fins confine the air for such flow. The inlet slots 24 in end-walls 11 and 12 and the slots 47 and 48 are provided in the fins above and below pipe 25.

A pair of air impellers, generally designated 60, are disposed longitudinally between the inner ends of the series of fins 40 and are driven by an electric motor 61. Each impeller is of the centrifugal type and includes a casing 62 having an air-intake 63 which faces the fin 40 at the inner end of one of the pair of series of pipe 25. Each impeller also includes a rotary propeller 64 for drawing air from the inlets 24 in opposite end-walls 11 and 12 of casing 9 longitudinally through slots 47 and 48 in fins 40 and intake 63 into its casing 62 and forcing the air from casing 62 through a discharge-section 65. Front-wall 10 of casing 9 has secured thereto plates 66 which are each provided with an outlet controlled by a rotatable register valve 67 communicatively connected to one of the discharge trunks 65. The open ends of each trunk 65 is slidably and telescopically confined in a sleeve 68 on one of the plates 66 to permit separation of the casing from said discharge-sections.

The casing 9 and pipe 25 may be of any length according to the radiating capacities desired and the space available along the base of the back-wall. A recess 69 may be provided in the back-wall to accommodate the impellers and electric motor. Pipe 25, the impellers and motor are stationarily supported by brackets 70 secured to the strips 18.

The operation of the invention as exemplified in Figs. 1 to 7 will be as follows: Assuming a heating liquid, such as hot water or steam is circulated through pipe 25, heat will be conducted from said pipe to the annular flanges 43 and the sides 41 of fins 40 and below pipe 25. The impellers 60 will draw air through inlets 24 in both of the end-walls 24 of the casing and the slots 47 and 48 above and below pipe 25 in both series of fins into the intakes 63 of the impellers 60 and force the air through trunks 65 to valves 67. In transit through the slots 47 and 48 in fins 40 heat will be transferred from the fins to air passing into the impellers which will be discharged through valves 67 when they are open to outside of the casing and into the room surrounding the radiator. When access is desired to parts inside of casing 9 the flanges 19 and 21 on casing 9 may be released from clips 20 and 22 on strips 18 for removing casing 9 away from the rear-wall 14 so that the impellers and motor will be accessible.

In Figs. 8 to 10, a modified form of fins is illustrated and designated 80 for use in lieu of the fins 40 hereinbefore described. Each fin comprises an annular flange 81 fitting on and coaxial with pipe 25, a surrounding integral transverse planar hub 82, a series of parallel-sided strips 83 extending upwardly from a hub 82 and a series of parallel-sided strips 84 extending downwardly from hub 82. The strips 83 and 84 are twisted at hub 82 so their

planar faces form vanes which extend in vertical planes parallel to the axis of the pipe **25**. In fabricating these fins, the axial flanges **81** are first formed in the fin-stock. Parallel slits are then cut in the stock from the hub **82** to its upper and lower ends. The strips between the slits are then twisted 90° at the hub **82** so that the faces of the strips **84** will be in planes parallel to vertical axial plane of the pipe **25**. The spaces between the vanes function to direct air to the impellers. This causes the air drawn into the impellers **60** to flush the planar faces of the fins without excessive frictional retardation. When this modified construction of fin is used, the impellers draw the air from the inlets **24** in the ends of casing **9** along both faces of the fins **80** and longitudinally through casing **9** into the intakes of the impellers for discharge of the heated air outside of the casing and into the surrounding room.

The invention is not to be restricted to the details set forth since these may be modified within the scope of the appended claim without departing from the spirit and scope of the invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

A baseboard radiator adapted to extend along the juncture between a floor and wall structure, said radiator comprising in combination an elongated casing including front and rear walls respectively, top and bottom walls respectively, and end walls closing the opposite ends of the casing, a fluid conduit in the form of a cylindrical tube extending longitudinally through said end walls and the interior of the casing and adapted to communicate with a source of heating fluid, there being air inlet openings above and below the level of said conduit in said end walls, a twin-blower assembly disposed within the casing medially of its ends above the level of said conduit

and overlying the latter, said twin-blower assembly including longitudinally spaced impellers having axially aligned air inlets facing outwardly in opposite directions and facing said end walls respectively, an electric motor disposed between said impellers and operatively connected thereto in common for driving the same, said impellers having radial air discharge outlets facing said front wall, there being a pair of air outlet openings in said front wall in sealed communication with said air discharge outlets respectively, and a series of closely spaced sheet metal fins mounted on said conduit in heat exchange relationship with respect thereto and within the casing, each fin having a medial opening receiving the conduit, said opening being bounded by an annular flange extending axially of the conduit and closely hugging the wall thereof, a flat hub portion surrounding the opening and extending transversely of the conduit, a series of closely spaced flat vanes integral with the hub and extending vertically downwardly from the lower region of the hub, all of said vanes being turned out of the plane of the hub and extending in parallelity longitudinally of the conduit.

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