

July 28, 1931.

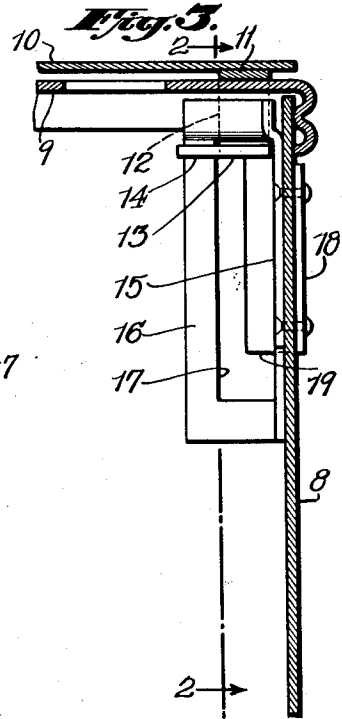
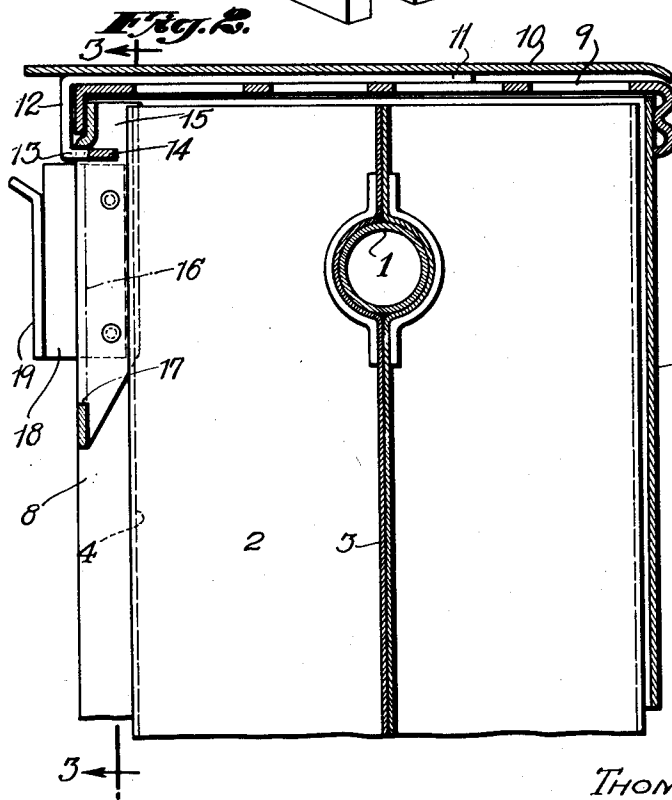
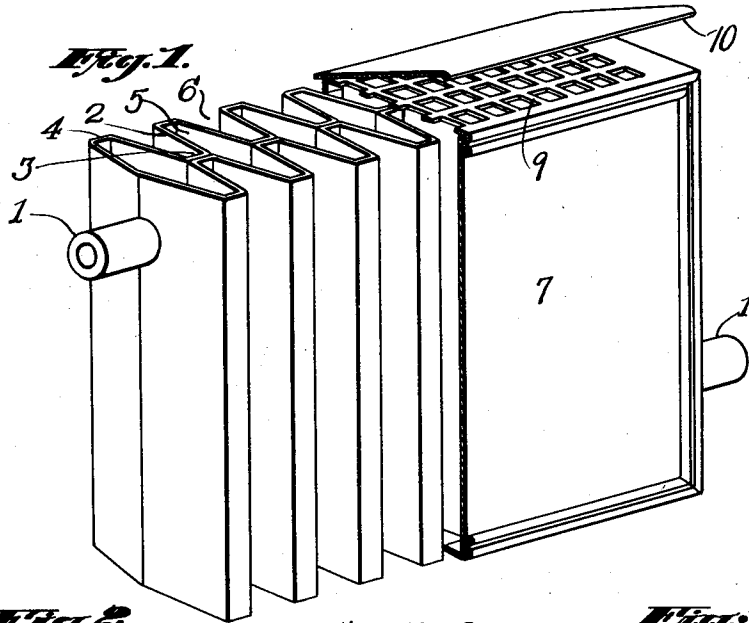
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1,816,604

CASING OR COVER FOR RADIATORS

Filed Sept. 5, 1928

4 Sheets-Sheet 1



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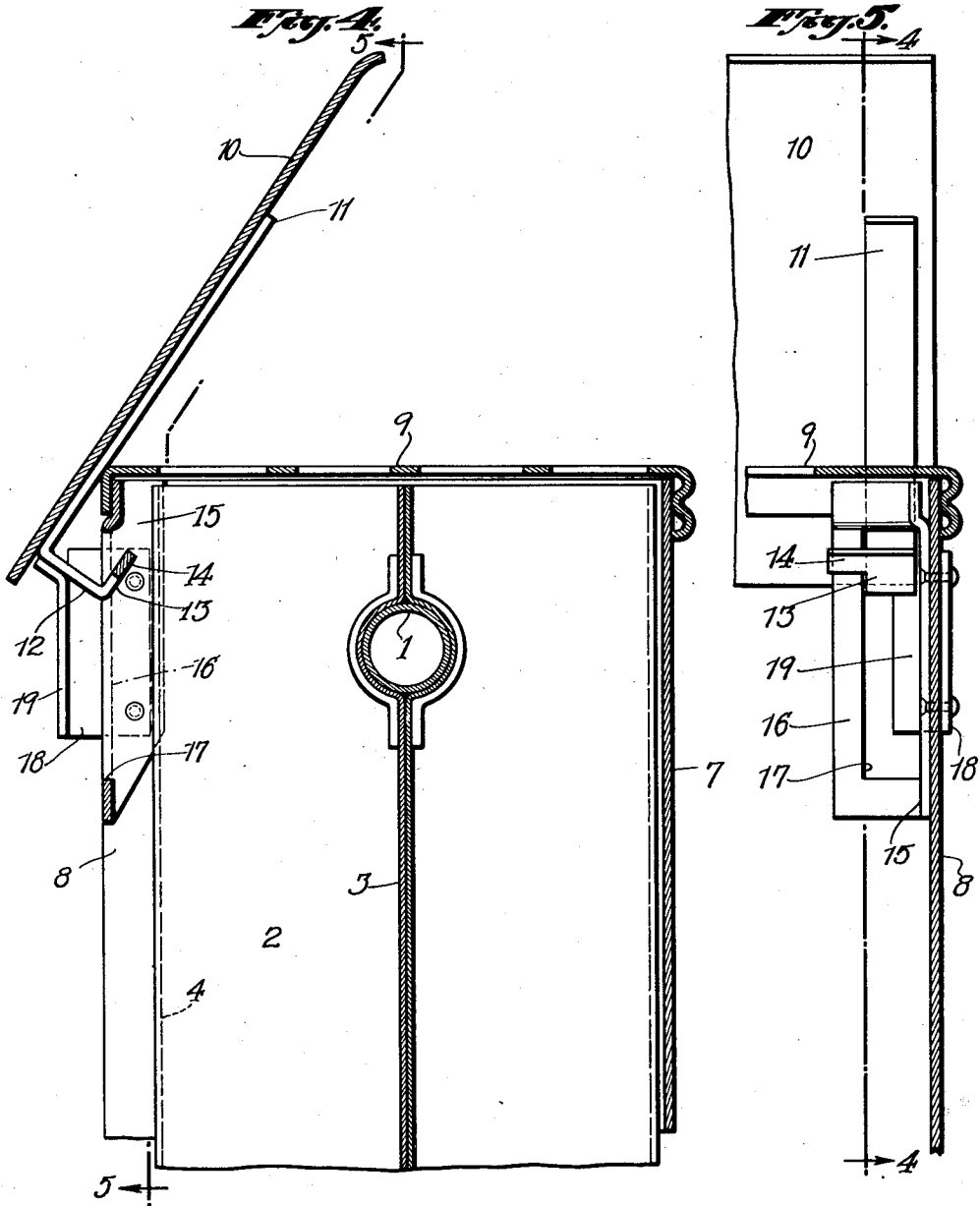
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CASING OR COVER FOR RADIATORS

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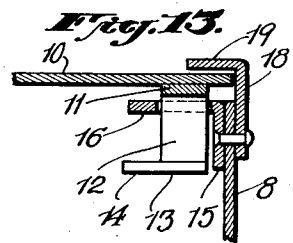
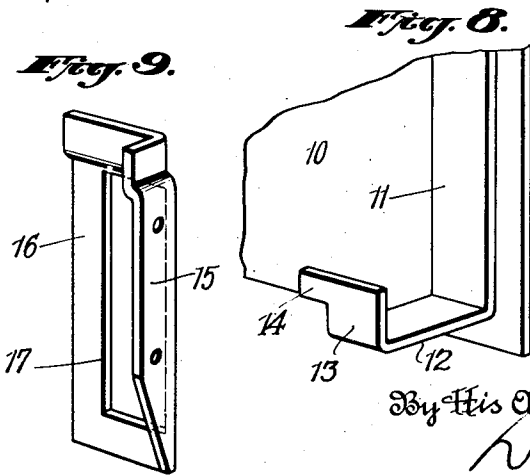
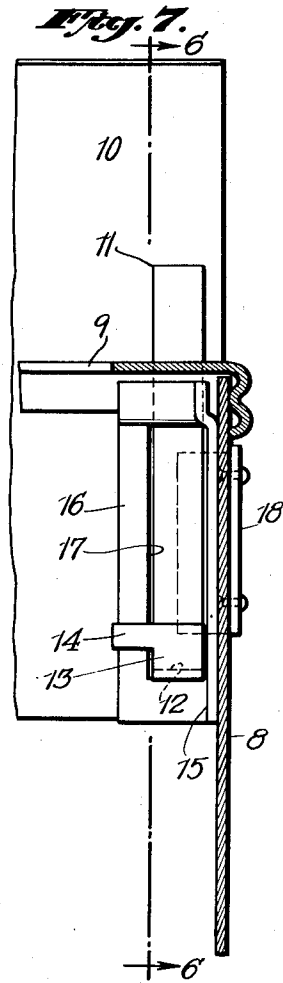
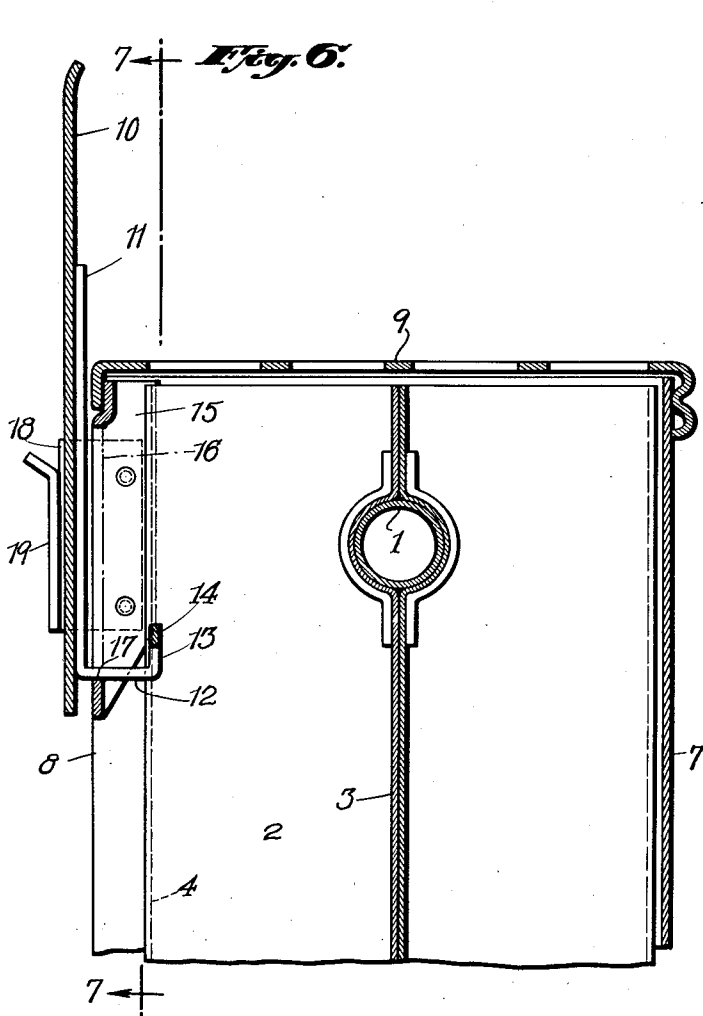
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CASING OR COVER FOR RADIATORS

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4 Sheets-Sheet 3



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Fig. 10.

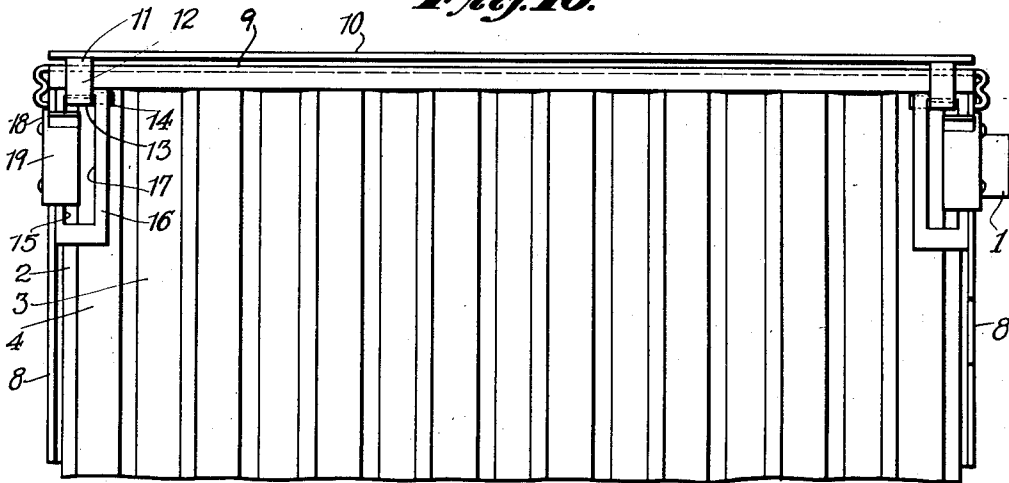


Fig. 11.

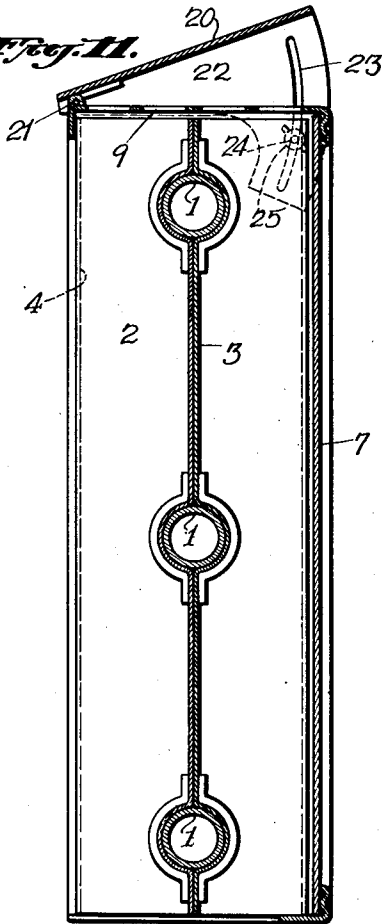
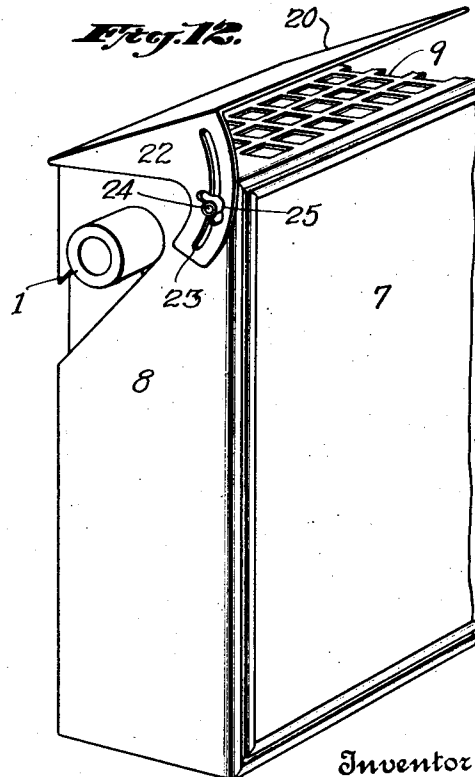


Fig. 12.



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UNITED STATES PATENT OFFICE

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CASING OR COVER FOR RADIATORS

Application filed September 5, 1928. Serial No. 304,131.

In certain pending applications of myself and others, there are described radiators of a very efficient type acting mainly by convection. The present improvements are designed to deflect the heated air from radiators of this and similar upward-discharge types in a horizontal or inclined direction with little loss in efficiency. Directing the heated air approximately horizontally as near the floor as possible tends to promote an even distribution of the heat throughout the room and especially to reduce the temperature differences between the floor and ceiling. Such a direction of the hot air also is advantageous in preventing the soiling of walls and draperies by the current. The design of the apparatus is also economical to manufacture.

The accompanying drawings illustrate embodiments of the invention.

Fig. 1 is a perspective view, with the casing broken away to show the radiator proper within;

Fig. 2 is a vertical section (on the line 2-2 of Fig. 3) at one end with the cover down; and Fig. 3 is a section of the same on the line 3-3 of Fig. 2;

Figs. 4 and 5 are similar sections, with the cover half open;

Figs. 6 and 7 are similar sections with the cover entirely open;

Figs. 8 and 9 are perspective views of parts of the hinge or fastening of the cover;

Fig. 10 is a rear view of the upper part of the apparatus;

Fig. 11 is a vertical section and Fig. 12 a perspective view of one end of a modification.

Fig. 13 is a horizontal section of the hinge of Fig. 7.

The radiator proper is illustrated in Figs. 1 and 11. The heating element in the examples illustrated is a pipe 1 extending horizontally in three lengths back and forth with an inlet for steam, hot water or other heating medium at the upper end and an outlet at the lower end.

The heating element may be of other design for a fluid heating medium, or it may be electrical. To the opposite sides of it

are applied corrugated plates which form transverse fins 2 connected at their inner edges by longitudinal plates 3 and at the outer edges by longitudinal plates 4. These plates form flues 5 which are closed in cross section and alternate vertical ducts 6 open only on their outer sides (except as they may be closed by the casing or the adjacent wall).

The heating element and the corrugated structure are preferably of copper or other highly conductive metal so that the heat is taken away rapidly from the heating element and transmitted to the air. The vertical passages, of great length compared with their cross section, induce a rapid vertical draft which carries off the heat rapidly and circulates it vigorously throughout the room, drawing it in at their lower ends from the coolest stratum near the floor.

Radiators of this type utilize very little of the heat by direct radiation to the neighboring parts of the room. Most of the heat is carried in the circulating current of air.

The appearance is improved by the use of a casing comprising a front plate 7 and end plates 8 (Fig. 10) and a perforated top plate 9 through which the heated air passes. Ordinarily no back plate is required.

I propose to regulate the direction of the discharge, and the quantity of heat consumed and given off, by means of a cover having various positions of adjustment.

In Fig. 1 a cover 10 overlies the perforated plate 9 and is so mounted that it can be readily set to any one of the three positions in Figs. 2, 4 and 6. In the full open position, Fig. 6, the steam consumption is the full rated capacity of the radiator. In the middle position, the steam consumption is cut to about ninety per cent and in the completely down position, to about seventy-three per cent. Such a cover, therefore, furnishes a simple means for roughly regulating the heat, a thing which is difficult to accomplish with the ordinary steam valves.

The structure is designed for occupying very little vertical space and also for econ-

omy of manufacture. The cover 10 is a plain rectangular plate with a downwardly extending lip at its forward edge. Near each end, at the rear, there is fastened a strip 11 (Fig. 8) of sheet metal with a portion 12 bent at right angles and having a return flange 13 having a lateral extension 14, by which it is hooked into a supporting piece (Fig. 9). This is made of sheet metal with a flange 15 which is mounted on the inner face of the rear edge of the end 8 of the casing, and another flange 16 at right angles thereto in which there is an opening 17 in line with the portion 12 of the cover attachment. The end flange 13, 14 of the latter can be inserted in the opening and turned to the position illustrated in Figs. 2 to 7. A third piece, serving as a stop and guide has a flange 18 fastened on the outer face of the end plate and a longitudinal flange 19 parallel with the back and bent back slightly at the top. The plate 16 and slot 17 may extend downward to any desired distance, according to the height desired for the cover plate 10 in the completely open position of Fig. 6.

In the closed position of Fig. 2, the cover rests a slight distance above the perforated plate, equal to the thickness of the strips 11. The heated air can escape only in a truly horizontal direction. For the intermediate position, Fig. 4, the cover is swung up until the parts 12 of the strips rest against the stops 19. For the full open position (Fig. 6), the parts 12 are thrust inward and the cover 10 lowered, the parts 19 serving as guides.

According to Figs. 11 and 12, the cover 20 is similar to the cover 10 but is connected directly to a hinge 21 to the rear edge of the perforated plate 9. It has end flanges 22 with curved slots 23 through which pass bolts 24 fastened to the ends 8 and carrying on their outer ends thumb nuts 25 by which they can be clamped in any desired position of adjustment.

These covers can be made to rest tightly on top of the radiator to practically shut off the flow of air, in which case the heating effect is greatly reduced. To accomplish this, the strip 11 of Fig. 8 would have to be set in a recess of the cover 10. The design of Fig. 11 can be similarly modified by setting the hinge leaves in recesses. The covers serve to keep dirt out of the radiator during non-heating periods.

Various modifications may be made by those skilled in the art without departing from the invention as defined in the following claims:

1. A radiator casing including a cover adapted for adjustment to a position over the upper end of the radiator or alternatively behind and partially below the top of

the radiator so as to project only a portion of its width above the radiator.

2. A radiator casing including a cover adapted in one position to overlie the top of the radiator and in another position to uncover the top and at the same time to project above the radiator a distance substantially less than the width of the cover.

3. A radiator casing including a cover at its upper end adapted to occupy any one of at least three positions, first horizontally over the top, second inclined from its rear edge upward, and third, vertical at the back of the radiator with only a portion of its width extending above the radiator.

4. A radiator of the convection type having vertical passages for heating air and inducing a draft through the radiator in combination with end plates supported by said radiator, and a hinged cover supported by said end plates.

5. A radiator of the convection type having numerous small vertical passages open at top and bottom for heating the air and inducing a rapid upward draft out of the top of the radiator and suction into the lower end so that most of the heat is carried off in the circulating currents of air in combination with a cover adapted to overlie the upper ends of said passages to prevent the discharge of the heated currents of air into the room and means for holding the cover open at different angles to permit the discharge of air in different vertical directions so as to control the quantity of heat consumed and given off.

In witness whereof, I have hereunto signed my name.

THOMAS E. MURRAY, JR.