July 27, 1937. A. SCHILLINGER 2,088,280

HEATING ATTACHMENT FOR STOVES, RANGES, AND THE LIKE

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FIG. 1

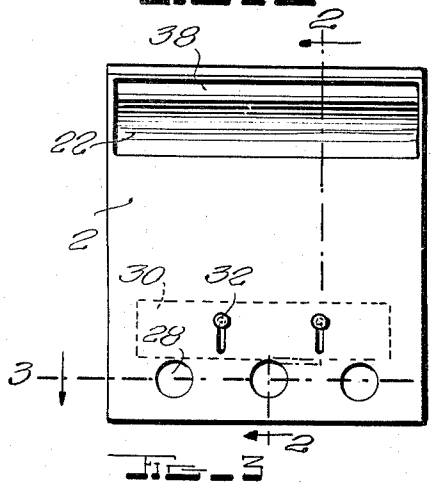


FIG. 2

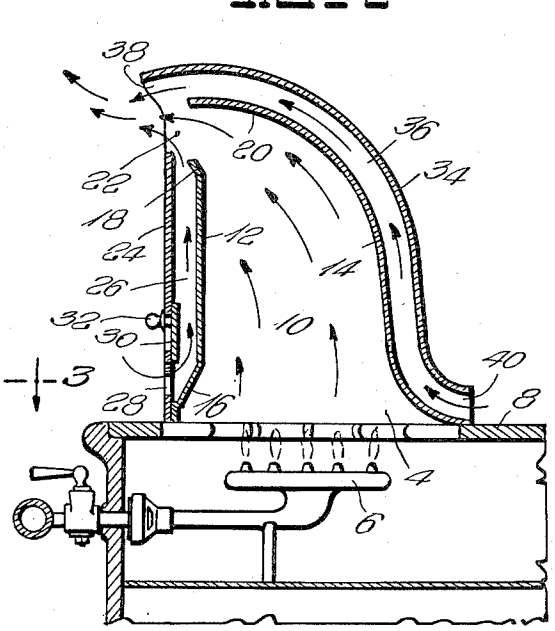


FIG. 3

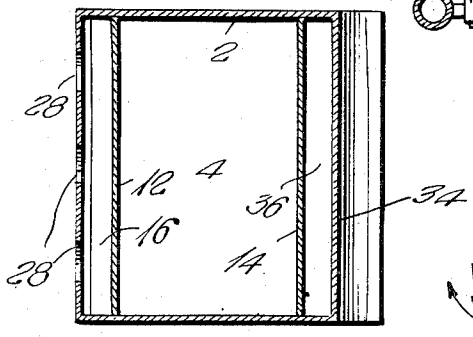


FIG. 8

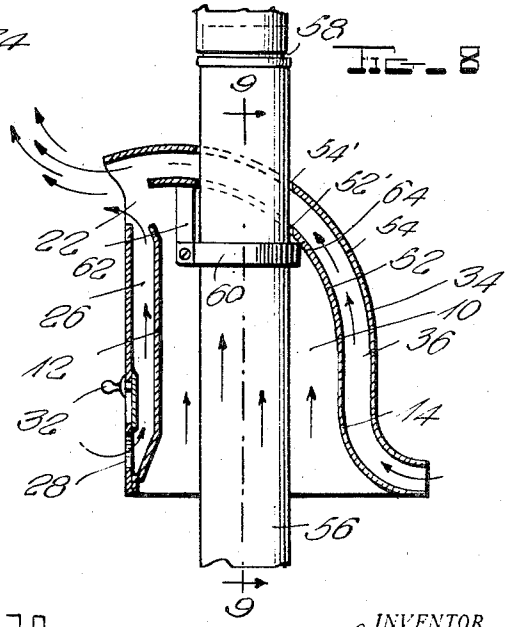


FIG. 9

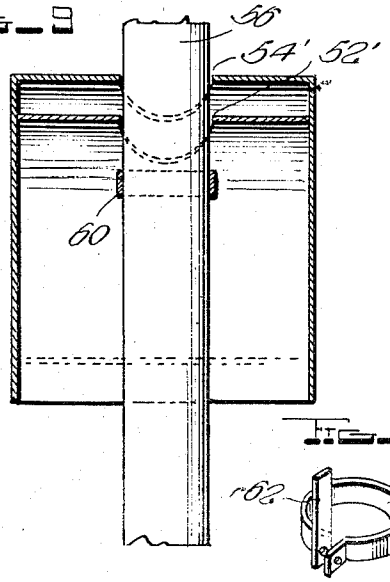


FIG. 10

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FIG. 4

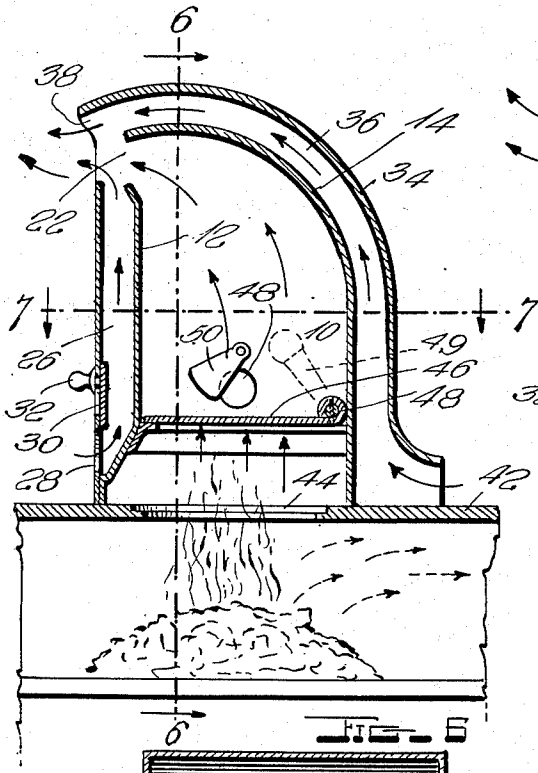


FIG. 5

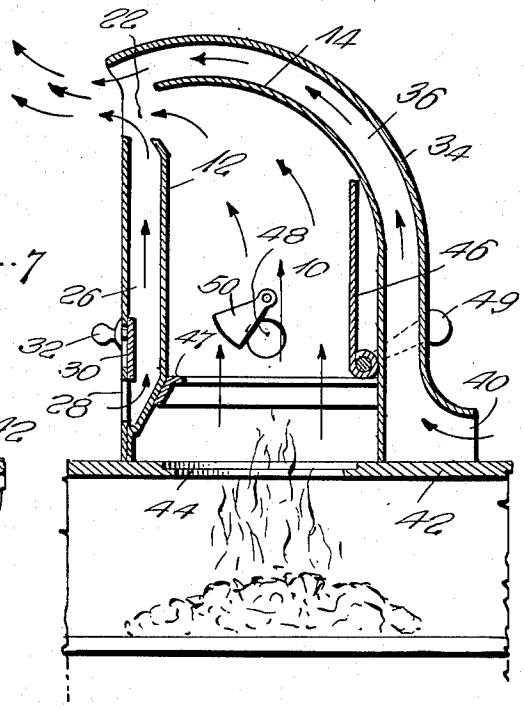


FIG. 6

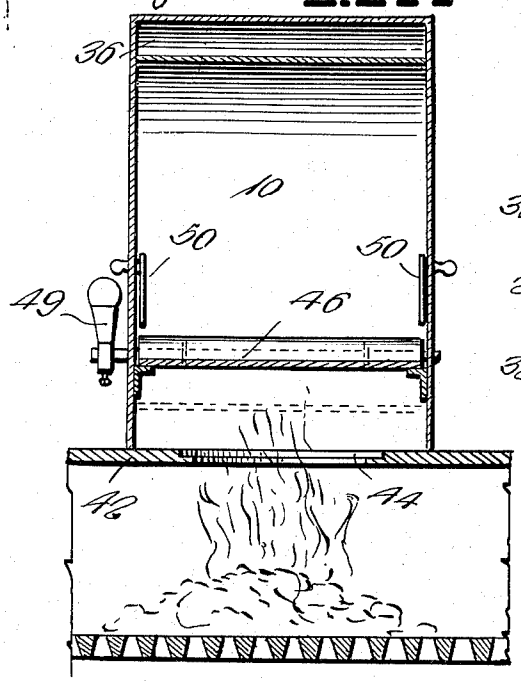
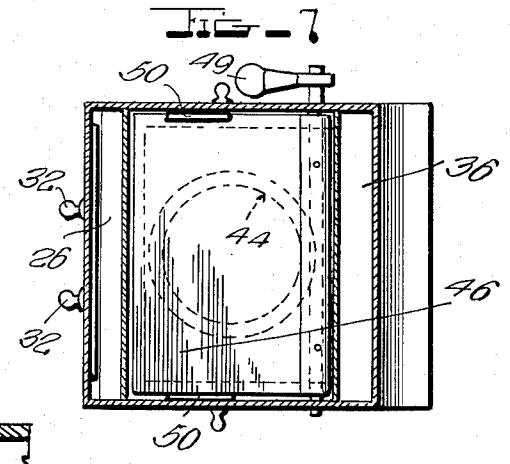


FIG. 7



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UNITED STATES PATENT OFFICE

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HEATING ATTACHMENT FOR STOVES, RANGES, AND THE LIKE

Adolph Schillinger, Tulsa, Okla.

Application October 3, 1935, Serial No. 43,412

5 Claims. (Cl. 126—248)

This invention is an attachment for use particularly on a gas stove or range, but also usable on a coal or wood stove or range, and also usable in connection with a hot pipe, for creating convection currents in the air of a room, for warming the room uniformly.

Where a stove or other type of heater is in a room, the heat therefrom will rise to the ceiling and accumulate there in a layer of warm air, while the floor will be covered with cool or cold air. Further, those parts of the room remote from the stove or heater will be many degrees colder than that portion of the room near the stove. The present invention is an attachment for use with a stove for remedying the above condition. The present attachment is intended to be placed over the burner of the usual gas range, for example, or over one of the openings in the top of a coal or wood stove, or around a vertically disposed hot flue pipe in the room, for creating sufficient pressure and circulation of warm air for causing a very definite lateral or horizontal flow of warm air away from the stove toward the cooler parts of the room. As the attachment of the present invention pushes or throws warmed air into the room, the resulting displacement of the air forces the cold air in the lower part of the room toward the stove where it is drawn up into the stove and through the heater and circulated through the room. As a result of many experiments with the heater of this invention, it has been found that the ordinary room is very satisfactorily heated, even in portions thereof remote from the stove, by reason of the convection currents of warm air created by the heating device of the invention. That is to say, a thermometer placed, say 15 or 20 feet away from the heating attachment, will register as high, or even higher, than thermometers placed to one side of the stove within say 5 or 6 feet thereof.

Another important aspect of the invention is that it enables the ordinary gas, coal or wood stove, which is primarily for cooking, to function efficiently as a heater and heat the room. The ordinary cook stove, of course, does heat the room, but it does not heat it well because, as stated above, those portions of the room remote from the stove remain rather cold. The usual stove has more than one burner or opening on it and so if a heating attachment according to this invention is placed over one of such burners or openings, the room will be sufficiently heated, and, at the same time, the other burners or openings in the stove can be used for the usual cooking purposes.

In one aspect of the invention the heater is placed around a vertically disposed hot pipe. This form of the invention creates laterally flowing convection currents, as before, and can be used for heating the room, either alone or in conjunction with a heater placed on top of the stove.

The ordinary stove, therefore, can be instantly converted into a room heater, while, if it has more than one burner or opening, which is usually the case, it can still function efficiently as a cook stove.

The attachment has no burner as a part thereof, and therefore it is simpler in construction and much cheaper to manufacture, than a heater having a built-in burner.

The main features of the invention having been thus described, it will be further illustrated in the accompanying drawings illustrating the present preferred ways of carrying it out.

In these drawings:

Fig. 1 is a front view of the heating attachment;

Fig. 2 is a section on the line 2—2 of Fig. 1, showing its use on a gas range;

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

Fig. 4 is a sectional view similar to Fig. 2, showing a modification for use on a coal or wood stove;

Fig. 5 is a vertical section similar to Fig. 4, showing the parts in another position;

Fig. 6 is a section on the line 6—6 of Fig. 4;

Fig. 7 is a section on the line 7—7 of Fig. 4;

Fig. 8 is a sectional view of a modification for use on a hot pipe;

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

Fig. 10 is a perspective view of a securing collar.

Referring now to these drawings, in which similar reference characters indicate similar parts, the attachment comprises a generally rectangular housing 2, the bottom of which is provided with a large opening 4 of a size to fit over a burner 6 of a gas stove, the top of which is shown at 8.

The opening 4 at the bottom of the housing merges into a substantially vertical passage 10 defined by an inner front wall 12 and an inner rear wall 14. The front wall 12 is offset as at 16, then extends vertically and is provided with an outwardly turned lip 18. The passage 10 is further defined by a rear wall 14 which, about half way up, bends smoothly to-

ward the horizontal, as shown at 20, causing delivery of the hot gases through the horizontally disposed discharge aperture 22. Due to the fact that the passage 10 is directly above the gas flame and is entirely free from baffles or any obstruction, and due to the smooth curve of the wall 20, the relatively large volume of hot gases from the burner 6 are delivered out of the discharge aperture 22 with some pressure and velocity, sufficient to create a very definite laterally flowing convection current, which carries the warm air to the more remote parts of the room.

The front of the attachment is double walled, as shown in Fig. 2, a second front wall 24 cooperating with the inner front wall 12 to define between them a vertically disposed upwardly extending channel 26 for cool air. Wall 24 is provided, near its lower edge, with one or more inlet openings 28 for the entry of cool air, the amount of which can be controlled by a damper plate 30 which is vertically movable manually by handles 32.

The upper end of the channel 26 opens directly into the stream of hot gases flowing laterally out of passage 22. The flow of hot gases out of 22 over the open upper end of channel 26 creates a suction, eduction or Venturi effect which causes a rapid flow of cool air up the passage 26. This cool air mixes with the hot gas issuing from 22, most of the mixing taking place outside of the attachment. This is advantageous, because as the cool air coming up channel 26 is warmed by its contact with the hotter gas, it would tend to expand and build up back pressure; but since most of this mixing takes place outside of the attachment, no such back pressure is created.

The back of the housing is preferably double walled, a second back wall 34, following generally the curvature of the inner wall 14, being spaced from the wall 14 to form a second channel 36 for the passage of cool air, which is delivered at 38 at a point just above the discharge aperture 22. This cooler air tends to descend and so will mix with the hot gases from aperture 22, just outside the attachment. The double back wall is provided at its lower edge with one or more openings 40 for the inlet of cool air.

Referring now to the modification shown in Figs. 4 to 7, this form of the invention is particularly for use on a coal or wood stove, the top of which is shown at 42, one of the usual openings in the top of the stove for the stove lid being shown at 44. In this form of the invention, a hinged plate or valve 46, the outer edge of which, when in the closed position, rests on a flange 47, is pivoted at 48, and is provided with a manipulating handle 49. This plate is large enough to close the bottom of the main passage 10, for preventing passage of undesirable combustion gases into the heater. When the plate is closed, as in Fig. 4, it becomes heated and so heats the air inside the passage 10, which hot air passes upwardly as has been described; the side walls of the housing are provided with one or more inlet openings 48 for cool air, which openings may be controlled by dampers 50. If the combustion of the fuel in the stove has progressed so that the combustion gases are unobjectionable, the plate 46 may be opened as in Fig. 5.

The usual stove lid may also be put in place in the opening 44, in which case the plate 46 would be kept open as in Fig. 5.

The other features of this form of heater are substantially as in Fig. 2.

Figs. 8 and 9 show modifications for use with a vertically disposed hot flue pipe. In this form of the invention, the inner and outer walls 52 and 54 are provided with openings 52' and 54' for the passage therethrough of a hot flue pipe 56 which is preferably arranged vertically. The attachment is placed on the pipe by breaking the flue pipe at one of its joints, such as 58, slipping the attachment down over the pipe and securing it in place by a collar 60 which grips the pipe and which is provided with a vertical stud 62 for engaging the upper under part of the inner wall 52, while the other side of the collar 60 supports the inner wall 52 at 64. The hot pipe 56 sets up convection currents within the passage 10 which pass upwardly in substantially the same way as described in connection with Fig. 2, while cool air passes upwardly through the channel 26 and mixes with such hot gases. Cool air also passes upwardly and laterally in the passage 36 and mixes with the hot gases from the discharge aperture 22.

The device is preferably made of sheet metal, spot welded, and may be enameled and provided with ornamentation, and a carrying handle, as may be desired.

While the invention has been described in some detail in its present preferred embodiments, it should be understood that the invention is not restricted to these details, but may be carried out in other ways as falling within the scope of the claims.

I claim as my invention:

1. An attachment for creating laterally flowing convection currents of heated air comprising a hollow housing, the bottom of which is open to receive warm air, the walls of said housing near the bottom extending substantially vertically, one wall curving inwardly toward the top and finally closing the upper end of said housing, the opposite wall of said housing having a conduit extending substantially parallel with said wall, an opening in said latter wall near the bottom communicating with said conduit for the passage of cool air and another opening in the same wall vertically arranged near the top thereof to form an outlet for intermixed warm and cool air, said conduit terminating adjacent the upper opening and the inner side of the upper end of the conduit being deflected outwardly toward said upper opening, whereby the cool air passing through the conduit is efficiently blended with the warm air issuing from said upper opening in a substantially horizontal direction.

2. An attachment for creating laterally flowing convection currents of heated air comprising a hollow housing, the bottom of which is open to receive warm air, the walls of said housing near the bottom extending substantially vertically, one wall curving inwardly toward the top and finally closing the upper end of said housing and overhanging the opposite wall thereof, the outer end of said curved wall extending downwardly from the horizontal, the opposite wall of said housing having a conduit extending substantially parallel with said wall and an opening in said wall near the bottom communicating with said conduit for the passage of cool air and another opening in the same wall vertically arranged near the top thereof to form an outlet for

intermixed warm and cool air, said conduit terminating adjacent the upper opening and the inner side of the upper end of the conduit being deflected outwardly toward said upper opening, whereby the cool air passing through the conduit is blended with the warm air issuing from said upper opening in a substantially horizontal direction, a second conduit extending along the curved wall of said housing having an opening adjacent the bottom of said housing and another opening inwardly of the upper terminus of said curved wall whereby cool air passing through said second conduit is directed downwardly at the terminal end of the conduit into positive intermixed relationship with said warm air issuing in a horizontal direction.

3. An attachment for creating laterally flowing convection currents of heated air comprising a hollow housing, the bottom of which is open to receive warm air, the walls of said housing near the bottom extending substantially vertically, one wall curving inwardly toward the top and finally closing the upper end of said housing and overhanging the opposite wall thereof, the outer end of said curved wall extending downwardly from the horizontal, the opposite wall of said housing having a conduit extending substantially parallel with said wall and an opening in said wall near the bottom communicating with said conduit for the passage of cool air and another opening in the same wall vertically arranged near the top thereof to form an outlet for intermixed warm and cool air, said conduit terminating adjacent the upper opening and the inner side of the upper end of the conduit being deflected outwardly toward said upper opening, whereby the cool air passing through the conduit is blended with the warm air issuing from said upper opening in a substantially horizontal direction, a second conduit extending along the curved wall of said housing having an opening adjacent the bottom of said housing extending vertically to permit the entrance of cool air in a horizontal direction to said second conduit, and another opening inwardly of the upper terminus of said curved wall whereby cool air passing through said second conduit is directed downwardly at the terminal end of the conduit into positive intermixed relationship with said warm air issuing in a horizontal direction.

4. The combination as claimed in claim 1, wherein the curved wall of the housing is provided with an aperture to permit the passage therethrough of a vertically disposed pipe adapted to conduct a heated medium and means for securing said attachment to said pipe in spaced relationship around the same.

5. The combination as claimed in claim 2, wherein the curved wall of the housing and conduit adjacent the same are provided with an aperture to permit the passage therethrough of a vertically disposed pipe adapted to conduct a heated medium and means for securing said attachment to said pipe in spaced relationship around the same.

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