Oct. 29, 1929. D. S. WILLS 1,733,846

FIREPLACE HEATER

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Fig. 1.

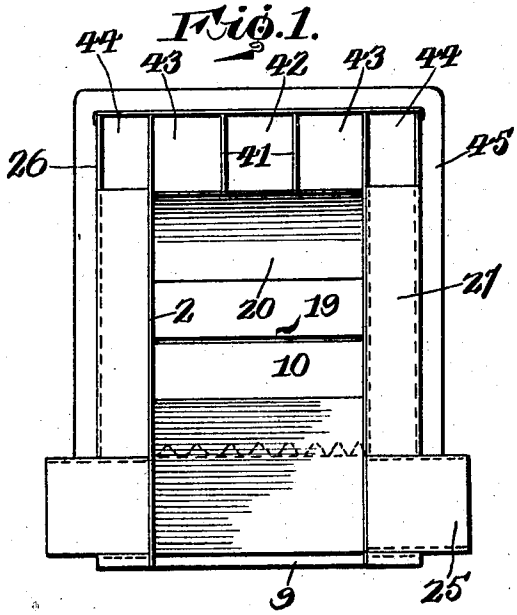


Fig. 2.

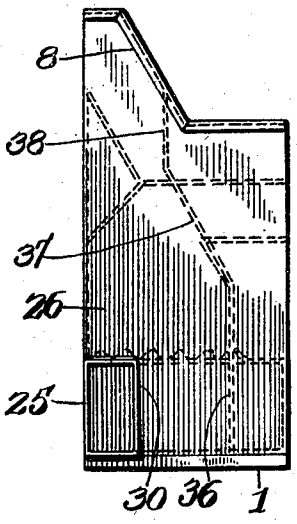


Fig. 3.

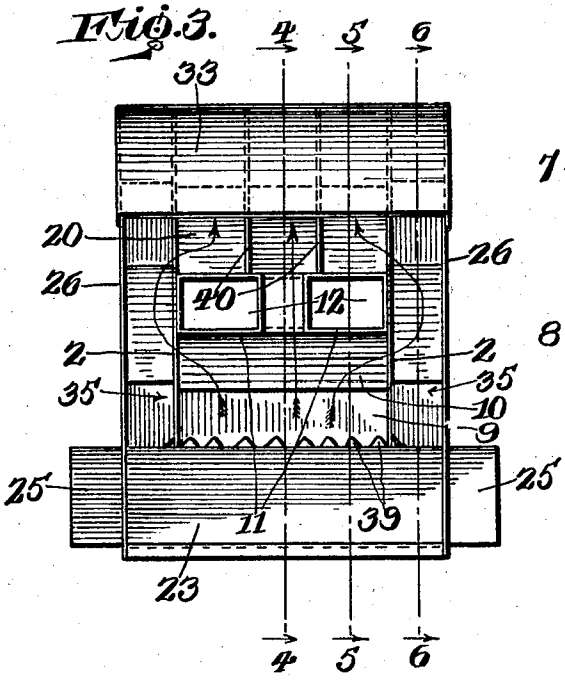
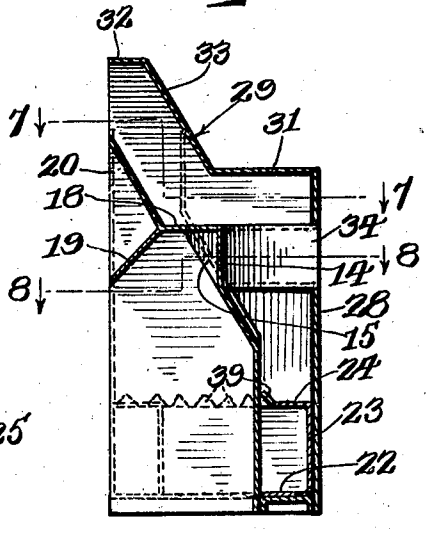


Fig. 4.



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Fig. 5.

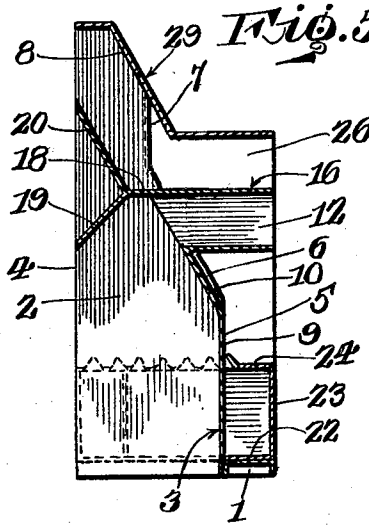


Fig. 6.

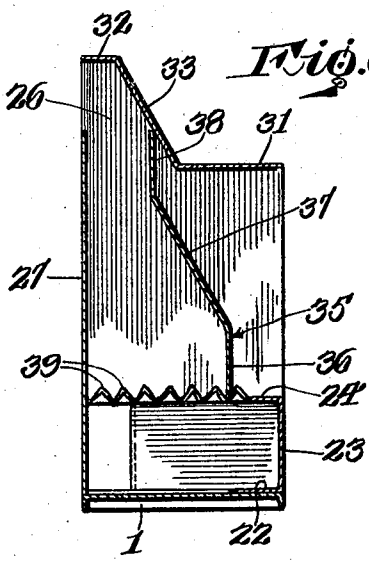


Fig. 7.

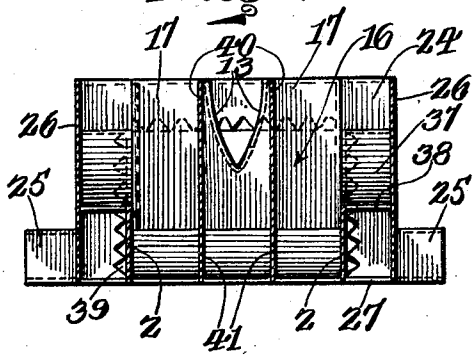


Fig. 8.

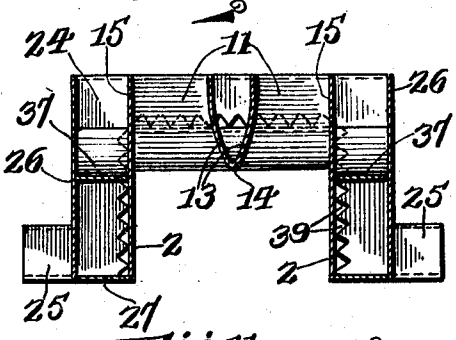


Fig. 11.

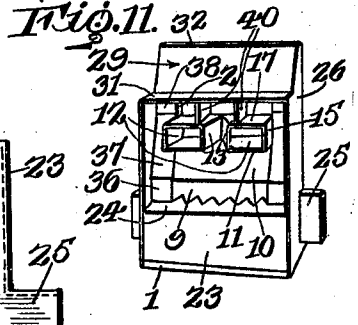


Fig. 10.

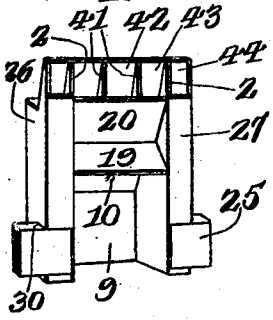
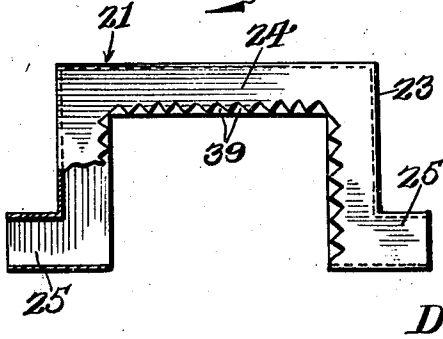


Fig. 9.



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UNITED STATES PATENT OFFICE

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FIREPLACE HEATER

Application filed January 3, 1929. Serial No. 330,026.

This invention relates to a fireplace heater and has for its primary object to provide, in a manner as hereinafter set forth, a heater of such class wherein cold air is drawn into flues to be circulated around the sides and back and over the top of the firebox and also around and between a pair of smoke flues, thereby utilizing a maximum area of radiating surfaces for warming the air before the latter is discharged into the room.

A further object of the invention is to provide a heater of the class aforesaid wherein the cold air is drawn into the heater at the sides and adjacent the front thereof, whereby the front of the heater is kept out of contact with any cold drafts.

A further object of the invention is to provide a heater as aforesaid which is adapted to prevent any air from passing into the chimney except through the firebox and smoke flues, thereby insuring an effective draft for the proper combustion of the fuel.

A further object of the invention is to provide a heater as aforesaid which is adapted for use in burning either wood or coal.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more particularly described, and as illustrated in the accompanying drawings wherein is shown a preferred embodiment of my invention, but it is to be understood that such drawings and description are to be taken as illustrative and that the invention is intended to be limited only by the scope of the claims hereunto appended.

In the accompanying drawings in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a front elevation of a heater constructed in accordance with this invention.

Figure 2 is a side elevation thereof.

Figure 3 is a rear elevation thereof.

Figure 4 is a section taken on line 4—4 of Figure 3.

Figure 5 is a section taken on line 5—5 of Figure 3.

Figure 6 is a section taken on line 6—6 of Figure 3.

Figure 7 is a transverse section of the heater taken at a point indicated by the line 7—7 of Figure 4.

Figure 8 is a similar view taken at a point indicated by the line 8—8 of Figure 4.

Figure 9 is a detailed view of the air distributor in top plan.

Figure 10 is a perspective view of the heater showing the front thereof.

Figure 11 is a perspective view of the heater showing the back thereof.

Referring to the drawings in detail, the numeral 1 designates a base which is substantially in the form of a frame having an open front. Seated within the base are the lower edges of a pair of inner side walls 2 and an inner rear wall 3. Each side wall 2 is formed with a vertical forward edge 4 and an angular rearward edge consisting of a vertical portion 5, a forwardly and upwardly inclined portion 6, a vertical portion 7, and a forwardly and upwardly inclined portion 8.

The rear wall 3 consists of a vertical lower portion 9 and a forwardly and upwardly inclined upper portion 10. The upper portion 10 is disposed at the same angle of inclination as the rear edge portion 6 of the side walls 2 and terminates intermediate the upper and lower ends of such edge portions 6. Merging into the upper edge of the rear wall portion 10 is a pair of bottom walls 11 for a pair of spaced flues 12. The inner walls 13 of the flues 12 converge and merge at their forward edges as indicated at 14. The outer side walls 15 of the flues 12 extend in parallel relation and merge into the inclined rear edge portion 6 of the side walls 2. The flues are formed with a common top wall 16,

the rearward portion 17 of which is bifurcated to conform in contour to the flues 12 and the forward portion 18 of which extends beyond the forward edges of the flues and merges into a pair of oppositely inclined walls 19 and 20. The walls 19, 18, 3 and 2 provide a firebox, the upper and rearward portion of which opens into the flues 12.

Seated on the base 1 is an air distributor indicated generally by the numeral 21 and formed with a bottom wall 22, a side wall 23, and a top wall 24. The inner edges of the bottom wall 22 and top wall 24 abut against the side walls 2 and rear wall 3 and in connection with the walls 2 and 3 the distributor 21 provides an air conduit around the lower portion of the firebox. The forward ends of the distributor are formed with a pair of oppositely extending, hollow members 25 which provide air inlets for the distributor, adjacent the forward portion of the firebox.

Seated on the base 1 is an outer shell consisting of a pair of side walls 26, a pair of front walls 27, a rear wall 28, and a top wall indicated generally by the numeral 29. Each side wall 26 is formed at its lower forward corner with a recess 30 for the reception therein of the inlet forming members 25 of the distributor 21. The top wall 29 consists of a horizontally disposed rearward portion 31, a horizontally disposed forward portion 32, and a forwardly and upwardly inclined intermediate portion 33 connecting the horizontal portions 31 and 32. The intermediate portion 33 is disposed at the same angle of inclination as the inclined wall 20. The upper edges of the side walls 26 conform in contour to the top wall 29 and the rear wall 28 is formed with a pair of spaced openings in registry with the flues 12. One of such openings is indicated at 34, Figure 4. The front walls 27 as well as the forward portions of the side walls 26 seat on the inlet forming members 25 and the inner edges of the front walls 27 merge into the inner side walls 2.

Seated on the distributor 21 and connecting each adjacent pair of side walls 2 and 26 is an angular partition 35 which consists of a vertical lower portion 36, a forwardly and upwardly inclined intermediate portion 37, and a vertical upper portion 38 which abuts against the inner face of the inclined portion 33 of the top 29. The intermediate portions 37 of the partitions 35 are disposed at the same angle of inclination as the rear edge portions 6 of the side walls 2 and are co-extensive therewith. The top wall 24 of the distributor 21 is formed with a serrated inner edge 39 in order that air may pass from the distributor into the space between the firebox and outer shell on both sides of the partitions 35.

Seated on the flues 12 is a pair of spaced partitions 40, the upper edges of which abut the horizontal portions 31 of the top 29, and the forward and rearward edges of which respectively abut the inclined wall 20 and the rear wall 28 of the shell. The partitions 40 are formed at their forward ends with angularly disposed extensions 41, the upper edges of which abut against the portions 33 and 32 of the top 29. The portion 32 of the top 29 is spaced from the upper edges of the front walls 27 and inclined wall 20 and the spaced extensions 41 provide an outlet 42 at the top of the heater midway between the sides thereof. The extensions 41, in connection with the upper portions of the side walls 2 provide a pair of outlets 43, one of which is disposed on either side of the outlet 42.

The upper portions of the inner side walls 2 and side walls 26 of the shell provide a pair of outlets 44 which are disposed directly over the side portions of the distributor 21. The side walls 26 and the portion 32 of the top 29 are provided with a flange 45 which is adapted to seat against the outer face of the fireplace wall, in order to cut off all draft to the chimney for the fireplace, except through the air inlet members 25.

When air enters the distributor 21 through the inlets of the members 25, a portion thereof passes between the serrations in the edge 39 of the top wall 24 of the distributor to the spaces in front of the partition 35 on either side of the firebox. This air is warmed by its contact with the sides of the firebox and is discharged into the room through the outlets 44. Another portion of the air passes from the distributor through the serrations in the edge 39 into the space between the partitions 35 and comes in contact with the rear wall 3 of the firebox. This air also comes in contact with the walls of the flues 12, a portion thereof passing between the flues and partitions 40 to be discharged into the room through the outlets 42, and a portion thereof being drawn around the outer side walls 15 and top wall 17 of the flues and discharged into the room through the outlets 43.

It is thought that the many advantages of a heater in accordance with this invention will be readily apparent, and although the preferred embodiment is as illustrated and described, yet it is to be understood that changes may be made in the details of construction, which fall within the scope of the invention as defined in the appended claims.

What I claim is:

1. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall

of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof.

2. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, a forwardly and downwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof.

3. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, a forwardly and downwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof, said flues having a common top wall merging into said baffle walls and coacting with the forwardly and downwardly inclined baffle wall to form the top wall of the firebox.

4. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof, said distributor having a top, bottom and outer side wall and having its top wall formed with a serrated inner edge for the discharge of air into the space between the walls of the firebox and shell.

5. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof, said distributor having a top, bottom and outer side wall and having its top wall formed with a serrated inner edge for the discharge of air into the space between the walls of the firebox and shell, said partitions connecting the side walls of the firebox and shell extending from the top wall of the distributor to the top wall of the shell and dividing said enclosed space into a rear compartment and a pair of forward compartments.

6. A heater comprising, a firebox, a pair of spaced smoke flues leading therefrom adjacent the top thereof, an air distributor around the sides and back of the firebox adjacent the bottom thereof and provided with an air inlet at each side of the heater, a shell to form an enclosed space at the sides, back and top of the firebox, a partition connecting each side wall of the firebox with a side wall of the shell, a pair of spaced partitions extending from the smoke flues to the top wall of the shell, a forwardly and upwardly inclined baffle wall extending from the top wall of the firebox, and a pair of extensions formed on said spaced partitions for coaction with the side walls of the shell and firebox to provide a series of discharge openings at the front of the heater adjacent the top thereof, said distributor having a top, bottom and outer side wall and having its top wall formed with a serrated inner edge for the discharge of air into the space between the walls of

the firebox and shell, said partitions connecting the side walls of the firebox and shell extending from the top wall of the distributor to the top wall of the shell and dividing said enclosed space into a rear compartment and a pair of forward compartments, the walls of said spaced flues and the spaced partitions extending therefrom providing a plurality of passages for the air from said rear compartment.

In testimony whereof, I affix my signature hereto.

DENNIS S. WILLS.