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S. A. FORD ET AL

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FIREPLACE

Filed Sept. 17, 1927

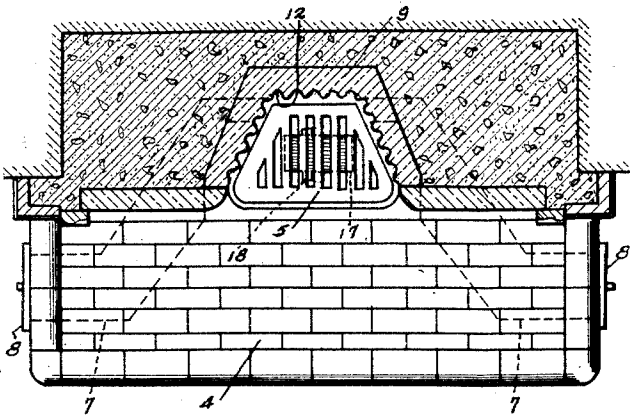


Fig. 2.

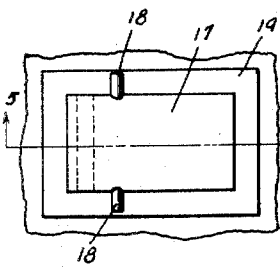


Fig. 4.

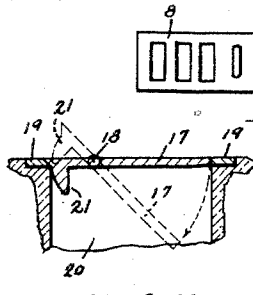


Fig. 5.

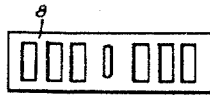


Fig. 6.

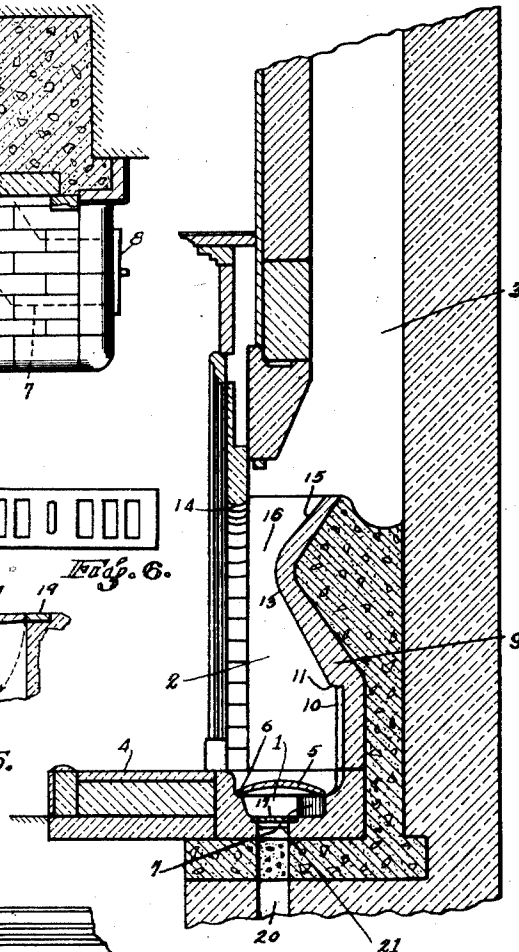


Fig. 3.

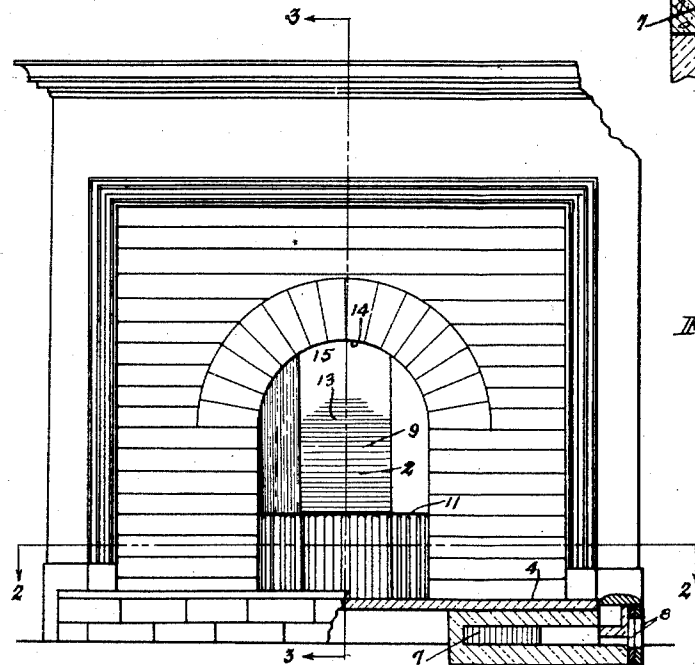


Fig. 1.

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FIREPLACE.

Application filed September 17, 1927. Serial No. 220,220.

Our invention relates to improvements in fireplaces and it consists in the combinations, constructions and arrangements hereinafter described and claimed.

5 An object of our invention is to provide a fireplace which has means for deflecting practically all of the heat back into the room instead of permitting this heat to pass up through the flue.

10 A further object of our invention is to provide a device of the type described which positions the well for the fire down below the surface forming a part of the fireplace and which makes use of conduits for conveying
15 air to the well, this air being controlled for determining the rapidity with which the fire burns. It should further be noted that the conduits are preferably made from flexible material so that they can be shaped in any
20 desired way and then have concrete or tiling placed thereon which forms the floor of the fireplace.

A further object of our invention is to provide a device of the type described which
25 makes use of a trap-door for permitting ashes to be dumped from the well when desired.

Other objects and advantages will appear in the following specification, and the novel features of our invention will be particularly
30 pointed out in the appended claim.

Our invention is illustrated in the accompanying drawing forming a part of this application, in which:

35 Figure 1 is a front elevation of the device a portion thereof being shown in section.

Figure 2 is a section along the line 2—2 of Figure 1.

Figure 3 is a section along the line 3—3 of Figure 1.

40 Figure 4 is a top plan view of a trap-door;

Figure 5 is a section along the line 5—5 of Figure 4, and

Figure 6 is a plan view of a damper used in connection with the fireplace.

45 In carrying out our invention we provide a fireplace which has a well 1, a combustion compartment 2, a flue 3, and a hearth 4. It should be noted from Figure 3 that the well 1 is spaced below the level of the hearth
50 4 a sufficient distance to prevent air from the room from passing beneath a removable grate 5 unless the operator so desires. The well 1 has a shoulder 6 upon which the grate 5 is mounted and Figure 2 shows how the grate
55 is provided with slots for permitting passage of air therethrough.

Since the material to be burned when placed in the well 1 and upon the grate 5 is disposed below the level of the hearth 4, no air can get to the material in order to furnish
60 the necessary amount of oxygen for the burning of the material unless this air is conveyed to the well at a point below the grate 5. This is one of the distinguishing features between the present fireplace and the usual fireplace
65 found in the standard home.

The means for conveying air to the well consists in the present instance of a pair of conduits 7, see Figures 1 and 2, that are disposed beneath the floor of the hearth 4 and
70 are preferably constructed of flexible material so that they may be bent in the manner shown in Figure 2. The conduits terminate at points along the sides of the hearth 4 and open into the well 1 at a point below the
75 grate 5.

Dampers 8 are disposed at the inlet end of the conduits 7 and are of the shape shown in Figure 6. The damper is of standard construction and consists of two sliding plates
80 each having a plurality of openings therein, these openings being brought into registration with each other or moved out of registration at the will of the operator.

So long as the dampers 8 are left open, air
85 will be furnished to the material being burnt in the fireplace and this material will burn rapidly or slowly depending upon the quantity of air furnished.

The fireplace is preferably made of fireclay
90 which is shaped in the manner shown in Figures 1, 2 and 3. The fireplace proper consists of two parts, one part housing the well and the other part forming the wall for the combustion compartment 2. A cross-section of
95 the compartment 2 shows that it is U-shaped and with an open front and a back 9, see Figure 2. The walls 10 of the compartment 2 up to the point of a shoulder 11 are corrugated as at 12, see Figures 2 and 3. From the shoulder
100 shown and upwardly the rear wall is inclined as at 13 and the angle of this wall is of such a degree as to be on a line with a top 14 of the opening into the fireplace. This is a vital
105 part of the invention since it is the angle at which this wall extends which directs the greater portion of the heat back into the room instead of permitting the heat to pass up through the flue 3.

It should be noted from Figure 3 that the
110 wall 13 takes a sharp bend in a direction away from the front of the fireplace after the wall

has come within a close distance from the front of the fireplace. This diverging of the wall as at 15 permits smoke to pass through the space 16 and up into the flue 3 instead of back into the room. Very little smoke however is formed due to the special construction of the fireplace and the reason for this will be apparent as the specification proceeds. The little smoke that is formed, however, being lighter than the heavier heated air will pass through the flue 3.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

Another decided advantage of causing all of the air feeding the fire to pass through conduits 7, disposed beneath the hearth 4 is that this air is preheated before it reaches the fire and by actual experience it has been found that this preheated air materially aids in combining with the smoke to form a combustible material which will burn up the smoke. This fireplace in actual operation will have clean walls instead of the usual sooty walls.

The burning of a minimum amount of fuel is accomplished by disposing of the well 1 beneath the surface of the hearth. Practically all of the heat from the fireplace will be deflected back into the room due to the angle of the wall portion 13. It is these advantages that have given the fireplace a tremendous advance over the standard fireplace.

At the bottom of the well 1 we mount a trapdoor 17 of the shape shown in Figures 4

and 5, this door is provided with trunnions 18 that are pivotally mounted in a frame 19, the latter being supported by the wall of the well 1. The door 17 may be swung into the dotted line position shown in Figure 5 when it is desired to drop the ash through a chute 20, (see Figure 3). This ash is extremely fine and powdered regardless of the material burnt because the arrangement of the different parts of the fireplace are such as to accomplish a practically complete oxidation of the material. A weight 21 swings the door 17 back into closed position as soon as the door is released.

Although we have shown and described one embodiment of our invention, it is to be understood that the same is susceptible of various changes and we reserve the right to employ such changes as may come within the scope of the appended claim.

We claim:

A fireplace comprising a hearth raised a slight distance above a floor, a well depressed below the level of the hearth, air ducts communicating with said well having their bottom walls lying in the plane of the floor, a combustion space disposed above the well, the rear wall of the fireplace being inclined for directing heat into the room, and a grate disposed in said well being of the same area as that of the well.

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