Sept. 13, 1949. A. P. ROBINSON 2,481,878

ASH TRAP

Filed Dec. 16, 1946

Fig. 1

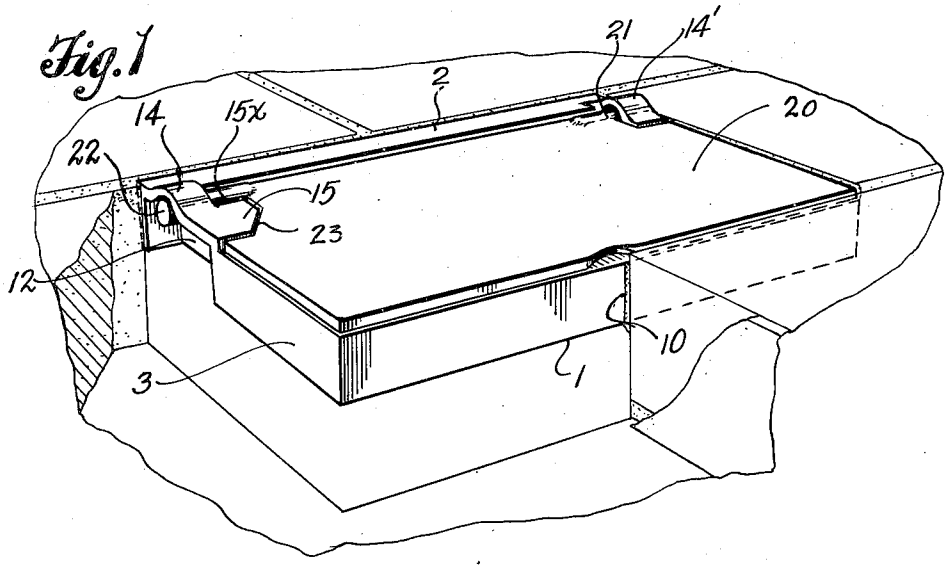


Fig. 2

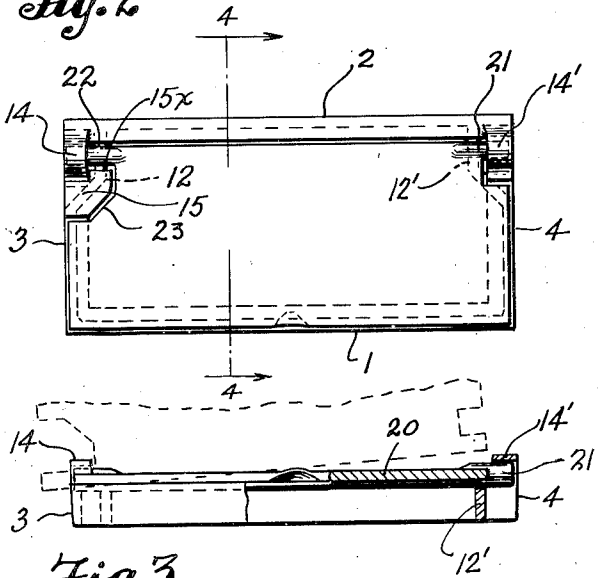


Fig. 4

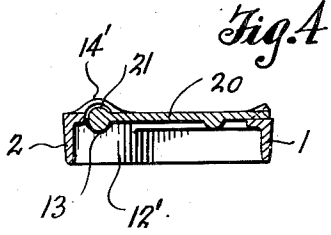


Fig. 5

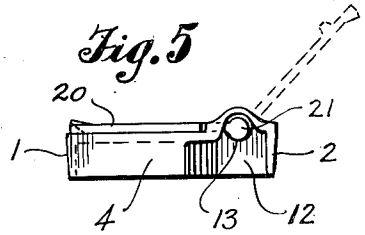


Fig. 3

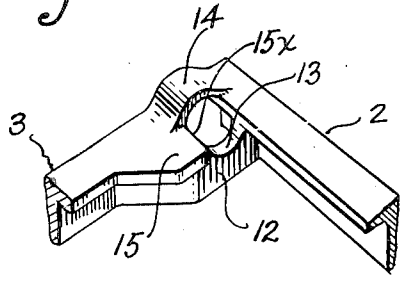


Fig. 6

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ASH TRAP

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4 Claims. (Cl. 126—242)

1

This invention relates to improvements in fireplace equipment, and it has reference more particularly to that type of article known in the home building industry as an "ash trap," and which is installed in the opening of the back hearth of a fireplace and may be opened for the disposal of ashes from the fireplace into the ash pit below.

One of the undesirable features of many ash traps that are in general use, is that they frequently are accidentally displaced from the ash pit opening and even pushed into the ash pit by a person in poking or stirring up a fire, or when shovelling out the ashes; this being due to the fact that ash trap most generally is merely rested loosely in place and is not fixed against displacement.

In view of the foregoing, it is one of the principal objects of this invention to provide an ash trap structure embodying a frame and door that, when assembled and applied properly to the opening in the fireplace floor, cannot become disassociated; that is, the door cannot be accidentally displaced from the frame structure but may be readily opened or closed.

More specifically stated, the objects of the present invention are to provide an ash trap for fireplace use, comprising a door that is equipped with mounting and securing trunnions at its opposite ends, and a rectangular frame structure that is adapted to be set into an opening provided in the bottom wall or back hearth of the fireplace and leading into the ash pit, and which has bearings adapted to receive the trunnions of the door therein for the hinged attachment of the door thereto; the design of the door and frame featuring therein the novel details that permit the door and frame to be easily assembled prior to application of the assembly to the fireplace hearth and to be retained against disassembly when applied to the hearth opening by brick work at one end of the frame.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Fig. 1 is a perspective view of an ash trap embodied by the present invention, showing it as applied in the opening of a fireplace hearth; a part of the hearth being broken away for better illustration of the frame structure.

Fig. 2 is a top view of the same, showing the door in its closed position.

Fig. 3 is a front view of the device as seen in

2

Fig. 2; a part being broken away for better understanding of construction.

Fig. 4 is a cross section, taken on line 4—4 in Fig. 2.

Fig. 5 is an end view of the frame and door.

Fig. 6 is a perspective view showing a detail of the frame construction.

Referring more in detail to the drawings:

The persent ash trap assembly comprises essentially, a frame portion and a complemental door; the latter being hingedly applied to the frame portion. After being properly assembled, the frame and door are applied within the usual cleanout opening provided in the back hearth of the fireplace and leading to the ash pit, and are secured in place by mortar or cement.

First describing the frame: This is an integrally cast, rectangular structure, approximately nine and one-fourth inches long and four and one-half inches wide and comprises the longitudinal front and back rails, 1 and 2, and the opposite end rails 3 and 4. Each of these rails is of angle iron form in cross section, as shown best in Figs. 4 and 6 and all are disposed with the vertical flanges thereof lying at the outside margin of the frame and the horizontal flanges at the top and extended inwardly from the marginal edges.

In locating and securing this frame in the hearth opening, the top surface of the back rail 2, which extends above the horizontal flanges of the front and side rails to the thickness of the door, is brought flush with the fireplace hearth surface as has been shown in Fig. 1, and the frame is then secured in the floor opening by mortar packed thereabout, as has been indicated at 10 in Fig. 1.

The opposite end rails of the frame have parts of their vertical flange portions that are adjacent the back rail 2, inwardly offset; these parts being designated in Fig. 2 by reference numerals 12 and 12'. Formed in the top edges of these inwardly offset parts 12 and 12' are seats 13, designed for the hinged support of the door mounting trunnions therein, as presently described. Those portions of the horizontal flanges that are aligned with the seats 13 are upwardly arched as at 14 and 14' to receive and retain the trunnions thereunder. The relationship of the seats 13 to the upwardly arched flange portions 14 and 14' is best illustrated in Figs. 4, 5 and 6.

At one side of the frame, herein shown as the left hand side, a stop or ear 15 is upwardly offset from and also extends inwardly from the inner edge of the horizontal flanges of the side rail 3

and has a back edge, 15x, that is parallel to and spaced from the adjacent edge of the horizontal flange of the back rail 2.

The door, designated in its entirety by numeral 20, is a one piece casting, rectangular in form and substantially of the same length as the frame, and adapted to close down flatly against the top surface of the frame at the front and along opposite sides to near the back rail. The back edge of the door is just within the back rail 2.

At the back edge of the door 10, trunnions 21 and 22 extend laterally therefrom at opposite ends. The trunnion 21 is normally disposed beneath the upwardly arched flange 14' and supported pivotally in the seat 13 of the corresponding vertical flange 12' of the end rail 4. Likewise, the trunnion 22 is normally retained below the upwardly arched portion 14 of the corresponding end rail 3 and supported pivotally in the seat 13 of the inset flange 12 of end rail 3. Together the trunnions mount the door for upward swinging movement of its forward edge from the closed position of Fig. 5 to the open position in which it is indicated in dotted lines in that view.

It is further to be noted that the door is formed at the left hand edge with a recess 23 to receive the extension ear 15 therein when the door is closed as shown in Fig. 2.

It is a feature of this invention that when the frame and door are in their assembled relationship and properly set in the fireplace hearth opening there can be no relative endwise play of the door, either in its closed or open position; this being due to the fact that when the door is closed, the ear 15 takes up all lateral play provided by the notch 23. When the door is open the brickwork at the end of the frame, close against the frame rail 3, will be engaged by the end of the trunnion 22 if there should be any tendency for that endwise movement of the door provided by the recess 23. However, the construction featuring the notch 23 permits an easy assembly of the door with the frame prior to their being set into the fireplace. The assembly of the door and frame is as follows:

First, the door is brought to an open position relative to the frame and the longer trunnion 22 is placed on its seat 13 and then slipped endwise, as to the left in Fig. 3, until the base of the recess 23 in the door edge engages with the adjacent upwardly arched portion 14. Then the trunnion 21 is likewise placed on its seat 13 and the door shifted laterally to the right to locate that trunnion below the corresponding arch 14. Then, the door may be swung to its closed position as shown in Fig. 2. In this position the ends of both trunnions are flush with the outer surfaces of the end rails.

The assembled door and frame are then placed flush in the floor opening and secured by the mortar. In this condition, the door, in any position, will be held against releasing endwise movement due to the provision for the engaging of the end of the trunnion 22 with the adjacent brick work which bounds the frame at that end.

The main advantage of such construction resides in the fact that the door cannot be accidentally or otherwise displaced from position but is easily and readily opened and closed.

From a manufacturing standpoint, the device is very desirable and practical since there are only two complementary pieces to cast, and both are simple castings, and inexpensively made.

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

1. An ash trap structure comprising an open frame having opposite end rails formed with oppositely disposed and inwardly opening bearing seats, a door applicable to the frame and having a portion adapted to be received between the bearing seats, trunnions extended from opposite ends of the door for application to said seats; said door having a recess in one end, adjacent the corresponding trunnion, providing necessary clearance for axial movement of that trunnion within its bearing seat to a distance beyond its normal position and whereby the opposite end trunnion will be brought to the inside of its bearing seat, providing for its application thereto by an endwise shifting of the door in that direction, which shifting is not sufficient to disengage the other trunnion from its seat.

2. An ash trap structure comprising an open frame having opposite end rails formed with oppositely disposed and inwardly opening bearing seats, a door applicable to the frame and having a portion adapted to be received between the bearing seats, trunnions extended from opposite ends of the door for application to said seats, said door having a recess in one end, adjacent the corresponding trunnion, providing necessary clearance for axial movement of that trunnion within its bearing seat to a distance beyond its normal position and whereby the opposite end trunnion will be brought to the inside of its bearing seat, providing for its application thereto by an endwise shifting of the door in that direction, which shifting is not sufficient to disengage the other trunnion from its seat and a stop member on the frame, adapted to engage with the door when the latter is functionally applied to the frame and in closed position only, to prevent that lateral shifting that is provided for by the recess.

3. An ash trap structure comprising an open frame having opposite end rails and a back rail; said end rails having bearing seats formed therein adjacent the back rail, a door overlying the frame, with its back edge retained between said bearing seats, trunnions extended from opposite ends of the door and retained pivotally in said bearing seats to permit hinging action of the door; said door having an inwardly formed recess in an end edge thereof adjacent the corresponding trunnion, providing a clearance for lateral shifting of the door, when open, to an extent required for disengaging the opposite trunnion from its bearing seat, and a stop flange extended inwardly from that end rail of the frame that is adjacent the recessed end of the door, to fit within said door recess when the door is closed and serving to prevent that lateral shifting of the closed door which is provided for by the recess when the door is open.

4. In combination, a fireplace hearth formed with an ash pit opening, an open frame fitted in said opening and comprising opposite end rails, a back rail and a front rail; said end rails having inwardly opening bearings formed therein, adjacent the back rail, a door overlying the frame, with its back edge retained between the said inwardly opening bearings, trunnions extended from opposite end edges of the door and retained pivotally in said bearings, said door having an inwardly formed recess in an end edge thereof adjacent the corresponding trunnion providing clearance whereby, prior to assembly of the frame in the hearth, the corresponding trunnion may be applied to its bearing and shifted endwise

therein to such extent that the end of the other trunnion will be brought to the inside of its bearing for application thereto by shifting of the door in that direction, and said trunnions terminating close to the adjacent wall surfaces of the ash pit opening to engage therewith to prevent lateral shifting of the door in the frame when the latter is assembled with the hearth.

ALBERT P. ROBINSON.

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