

June 1, 1954

J. L. YATES
FLUE CLEANOUT DOOR

2,679,914

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2 Sheets-Sheet 1

Fig. 1

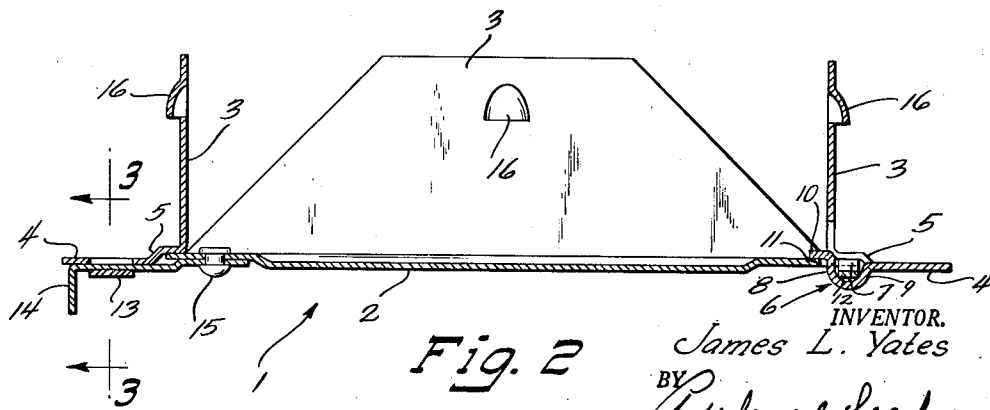
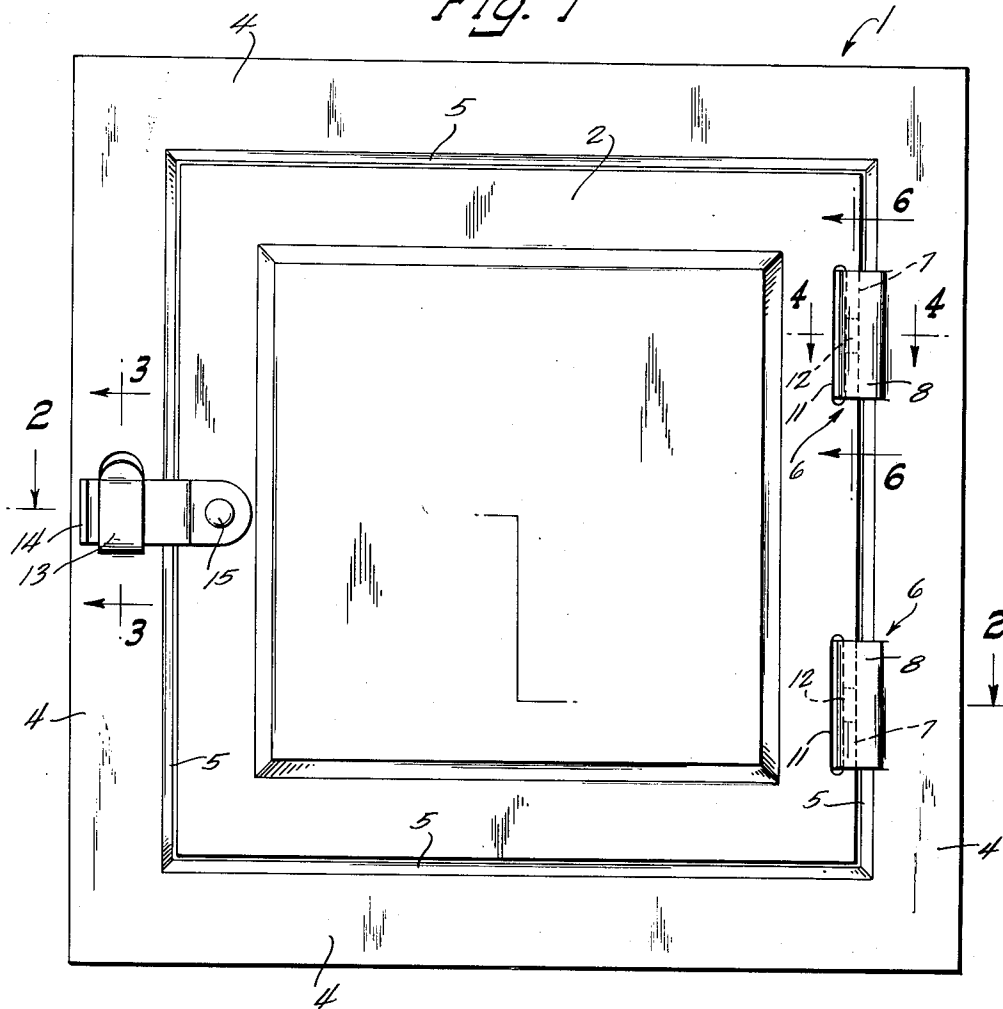


Fig. 2

INVENTOR.
James L. Yates
BY
Andrew & Seales
Attorneys

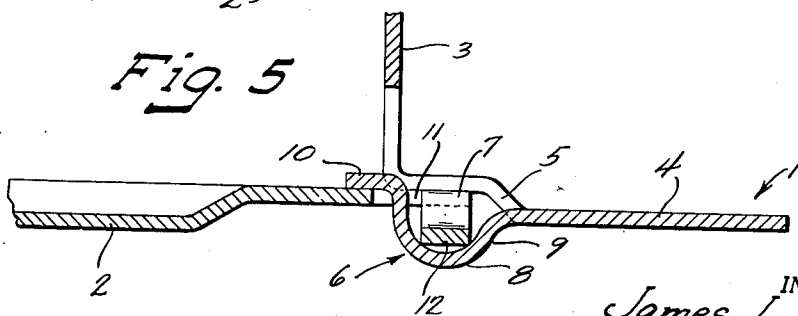
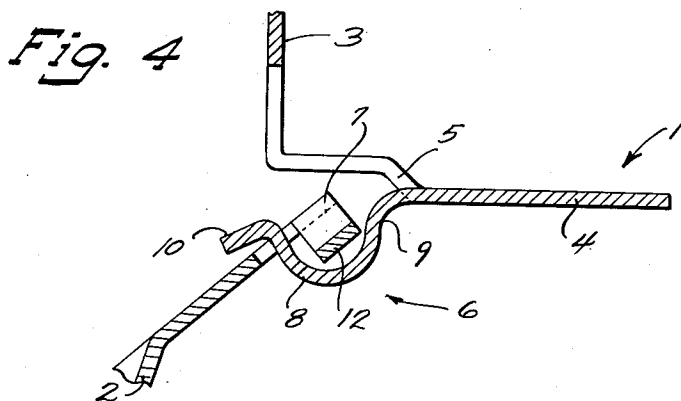
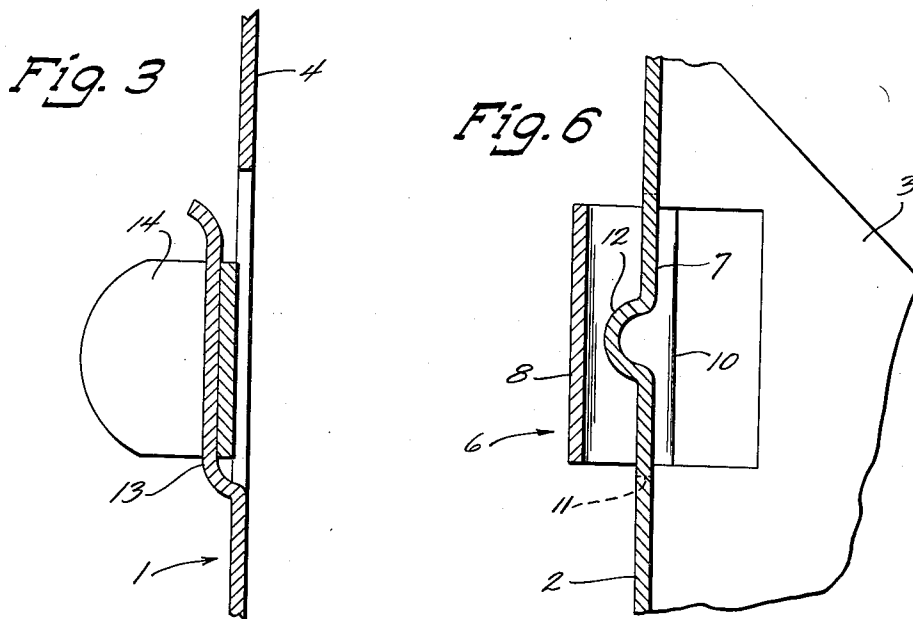
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INVENTOR.
James L. Yates
BY
Andrew S. Scales
Attorneys

UNITED STATES PATENT OFFICE

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FLUE CLEANOUT DOOR

James L. Yates, Milwaukee, Wis., assignor to
Inland Steel Products Company, Milwaukee,
Wis., a corporation of Delaware

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2 Claims. (Cl. 189—46)

1

This invention relates to closure fixtures for chimney cleanout openings and the like and particularly to the construction of the door and its fastening to the frame of the fixture.

The invention provides for the stamped construction of the entire hinges and a part of the latch integrally with and from within the general dimensions of the respective sheet metal parts forming the frame and the door of the fixture.

A general object of the invention is to provide a more tightly fitting door which when closed positively engages the frame entirely around its edges.

Another object is to form the parts of the door hinges entirely by stamping the corresponding parts from the door and frame.

Another object is to facilitate adjustment of the door hinge and prevent looseness and rattling of the door on the hinges.

Another object is to bias the door against the frame by means of the hinge.

Another object is to provide for varying the operation of the hinges whereby they may be manually adjusted to the desired tightness in compensation of a wide tolerance in manufacturing fit.

Another object is to form the catch for the door latch integrally with and within the general dimensions of the frame carrying the door.

Another object is to provide a sheet metal closure fixture of less cost with less waste of material and of easier assembly of the parts.

These and other objects and advantages will be more fully set forth in the following description of a preferred embodiment of the invention illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a front elevation of the fixture;

Fig. 2 is a transverse horizontal section taken on line 2—2 of Fig. 1 showing the door closed;

Fig. 3 is an enlarged sectional view taken on lines 3—3 of Figs. 1 and 2 showing in detail the construction of the catch formed in the frame to receive the latch carried by the door;

Fig. 4 is an enlarged sectional view taken on lines 4—4 of Figs. 1 and 2 showing the hinge construction before assembly;

Fig. 5 is a view similar to Fig. 4 showing the assembled hinge, and

Fig. 6 is an enlarged sectional view taken on lines 6—6 of Figs. 1 and 2 showing the construction of the hinge pin.

The closure fixture shown in the drawings comprises, in general, the frame 1 and the door 2

2

which latter is pivotally mounted to cover and uncover the opening defined by the frame.

Frame 1 is of sheet metal, stamped construction and of generally rectangular dimensions. The four flanges 3 are struck from the center of the frame to extend at right angles to the front panels 4 of the frame and to form a rectangular opening therein. The marginal indentation 5 formed in panels 4 extends around the opening of the frame for some rigidity and to receive the outer margins of door 2 whereby the door when closing the opening is substantially flush with the panels 4 of the frame.

The door 2 is supported at one side by the upper and lower aligned hinges 6 which comprise respectively the hinge pin 7 and the eye 8 through which the corresponding pin extends.

Each eye 8 is formed by a semicircular portion of each tongue 9 struck from the metal of frame 1. One end of each tongue 9 as formed remains joined to the side panel 4 of the frame. The free end forms the flange 10 which extends inwardly from the side panel. As initially formed, as shown in Fig. 4, tongue 9 projects forwardly of the panel so as to be open to insertion of the corresponding pin 7 of door 2 from the opposite side.

Each pin 7 comprises a strip of metal formed by punching a slot 11 in the metal of door 2 spaced from and extending parallel to one side edge thereof.

The projection or ridge 12 as formed in each pin preferably extends from the side referred to across the face of each pin 7 to the slot 11. The length of the slots 11 adjacent each pin 7 should be equal to the width of the tongues forming the eyes 8 with sufficient clearance to receive the tongues in the assembly of the fixture and allow turning of the door.

In assembly, the door 2 is placed so that each tongue 9 passes through the corresponding slot 11 and so that the pins 7 pass into the corresponding hinge eyes 8 with the ends 10 located on the back side of door 2. Thereafter, the tongues 9 are depressed toward frame 1 to engage the respective hinge pins 7 and secure the door 2 to the frame.

The ridge or projection 12 of each pin 7 should be of a height which provides the desired hinge action. By providing projection 12 as a transverse ridge of a height approximately equal to the width of the strip forming the hinge pin 7, the pin is generally square and is made the equivalent of a round pin turning on a relatively fixed axis in the hinge eye. The axis referred

3

to is disposed forwardly of the door 2 so that the door swings away from frame 1 when open and is biased against the panel 4 of frame 1 when closed, thereby closing tightly the opening defined by the frame.

The tongue 13 is formed in the side panel 4 oppositely of tongues 8 and forms the catch for the latch 14 which is pivotally secured to the door 2 by the rivet 15.

Tongue 13 is formed by stamping and may be included in the operations by which frame 1 is blanked and formed. The lower end of the tongue remains joined to frame 1 and the body of the tongue is offset forwardly of the frame to receive latch 14 between the frame and the upper end of the tongue and secure the door in the closed position.

The fixture is adapted to be installed in an opening slightly larger than the outer dimensions of flanges 3. Where the fixture is to be secured by mortar, not shown, or other chimney cement, the toe-holds 16 may be provided in the flanges to afford a better securement.

The fixture is adapted to be manufactured by conventional stamping processes from sheet metal with a minimum of waste. All the parts excepting latch 14 and rivet 15 are formed from within the general rectangular dimensions of frame 1 and door 2. Riveting of latch 14 to the door and the assembly of door 2 and frame 1 as described completes the fixture. No welding or soldering is necessary in the construction of the fixture. All of the forming operations are such as to prevent distortion of the parts, and a close fit is obtained for the door in the final assembly.

The door is constructed from a sheet metal blank which need be no larger than the outer dimensions of the door, as distinguished from former practice wherein hinge parts were either welded to the edge or were formed from blank material beyond the edge. The latch which must pivot in operation is the only extra piece of metal required.

The several parts may be made to fit upon assembly regardless of reasonably wide tolerances in manufacture. For instance, in case the hinge is too loose upon assembly and does not compel the corresponding side of the door to fit closely against the insert portion 5 of the frame, it is only necessary to tap the tongue 9 inwardly until it tightens against projection 12 of pin 7. The curvature of the eyes 8 is such that the projection or ridge 12 keeps pin 7 tight in the hinge at all times.

The projection 12 when formed as a transverse ridge provides a substantially square sectional shape for pin 7 so that turning of the hinge does not loosen or tighten the same. This makes it possible to space slot 11 farther from the edge of the door and to make a substantially stronger hinge with the door panel offset inwardly from the axis of the hinge pivot whereby the door may be held tightly against the frame when closed. Furthermore, the door may be opened wide without interference from engagement of the hinge parts, the only stop being the engagement of the edge of slot 11 with the base curvature of tongue 9.

4

The spaces in slots 11 between the outer curved surface of the tongues 9 and the adjacent edge of the door panel are closed by flanges 10 formed on the inner ends of the tongues. The door is much tighter against smoke discharge than previous sheet metal cleanout doors, by reason of the continuous fit of the door against the panel of the frame.

Various embodiments of the invention may be employed within the scope of the following claims.

I claim:

1. A flue cleanout fixture, comprising a sheet-metal frame having a rectangular front panel defining a smaller rectangular opening and having a series of flanges extending along the inner edges of said panel and rearwardly thereof, a door adapted to fit against the front of said panel and to close said opening and having at least one slot extending parallel to and spaced from one side thereof to form a hinge pin therebetween, said hinge pin being formed to include a forward projecting semi-circular hollow rib having an axis normal to the axis of the hinge pin and disposed substantially centrally of said hinge pin, and a tongue struck from the corresponding portions of said frame and defining a curved hinge eye to receive said hinge pin, said projection being engaged by said tongue to support the door for pivotal movement on a relatively fixed axis.

2. In a flue cleanout fixture, a sheet-metal frame having a rectangular front panel defining a smaller rectangular opening and having a series of flanges extending along the inner edges of said panel and rearwardly thereof, a door adapted to fit against the front of said panel and to close said opening and having at least one slot extending parallel to and spaced from one side thereof to form a hinge pin therebetween, said hinge pin being formed to include a semi-circular hollow rib having an axis normal to the axis of the hinge pin and disposed substantially centrally of said hinge pin, said rib projecting forwardly of the door and being substantially equal to the width of said hinge pin whereby the turning axis of said pin is disposed forwardly of the door, and a curved tongue struck from a portion of the frame and a portion of the corresponding flange at the intersection thereof and defining a hinge eye to receive said hinge pin for turning on said axis, said tongue having a flange at the free end thereof formed in the plane of the front of said panel to fit against the door when the latter is closed and seal the hinge against leakage.

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