

No. 681,701.

Patented Sept. 3, 1901.

F. L. HORSPPOOL & G. J. KELLY.
FURNACE DOOR AND DEFLECTOR PLATE.

(Application filed July 28, 1900.)

(No Model.)

Fig. 1.

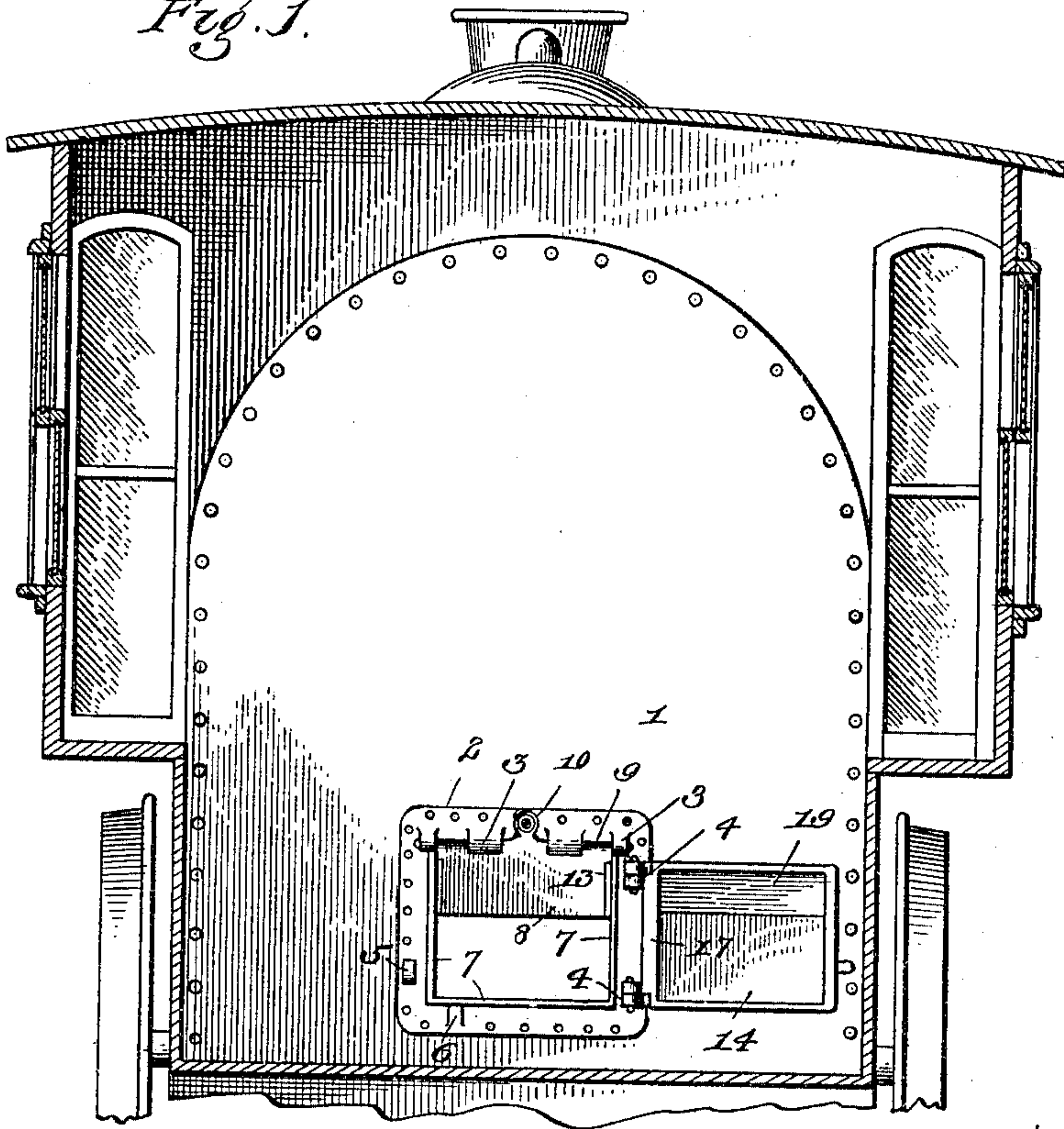


Fig. 2.

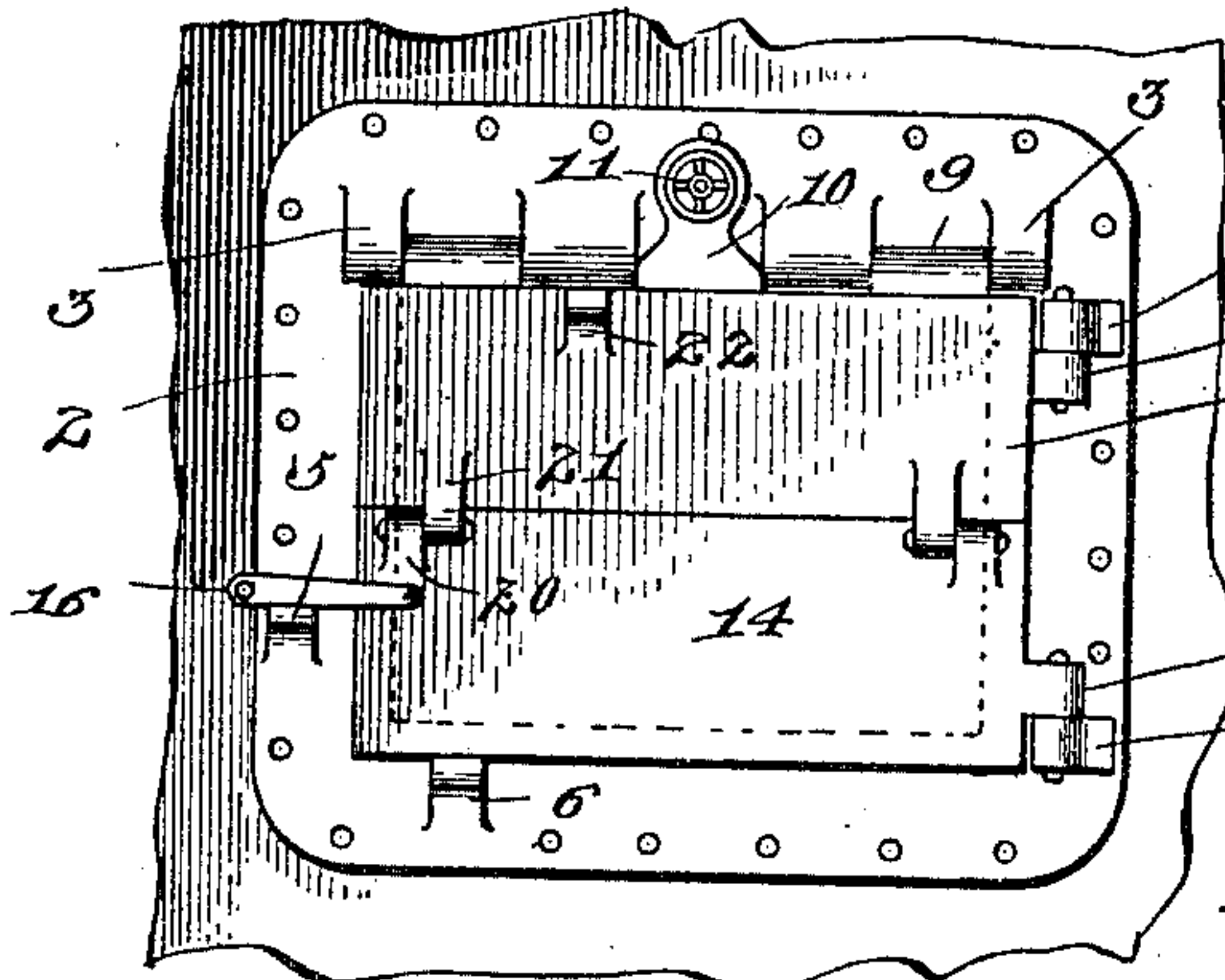


Fig. 3.

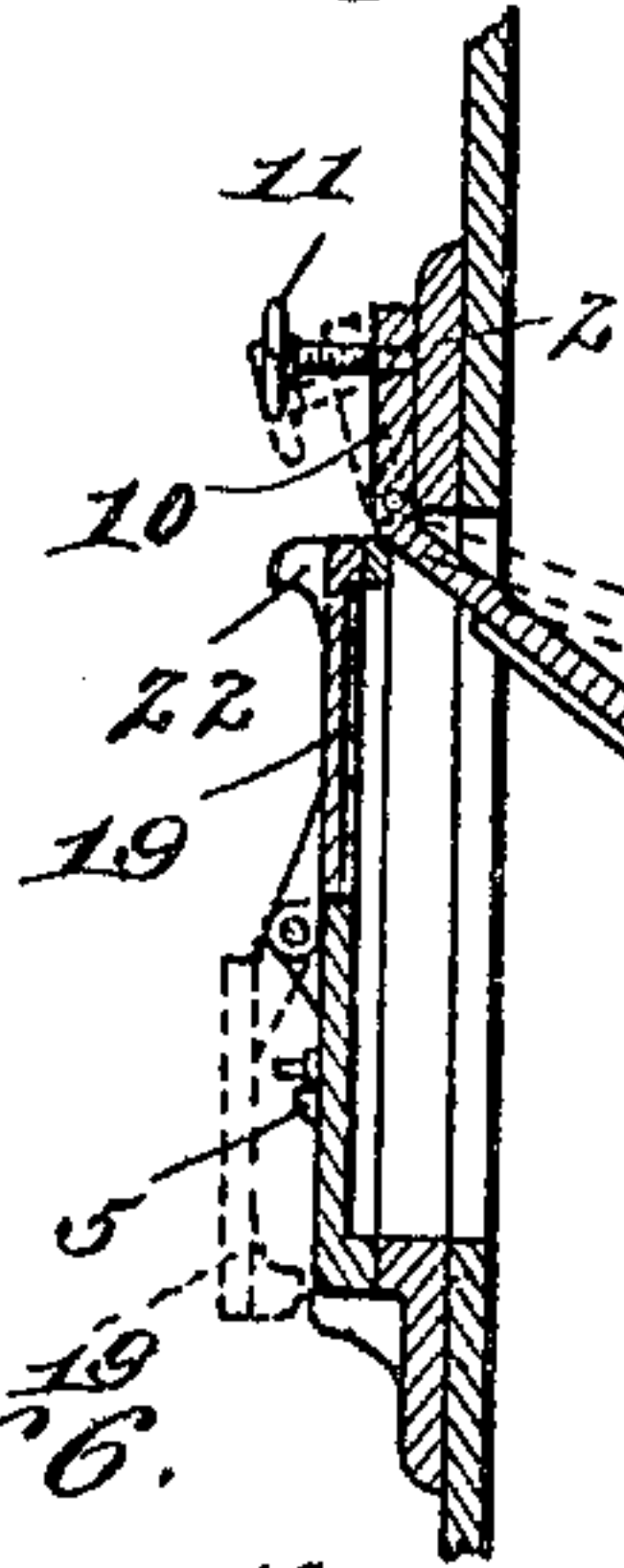


Fig. 4.

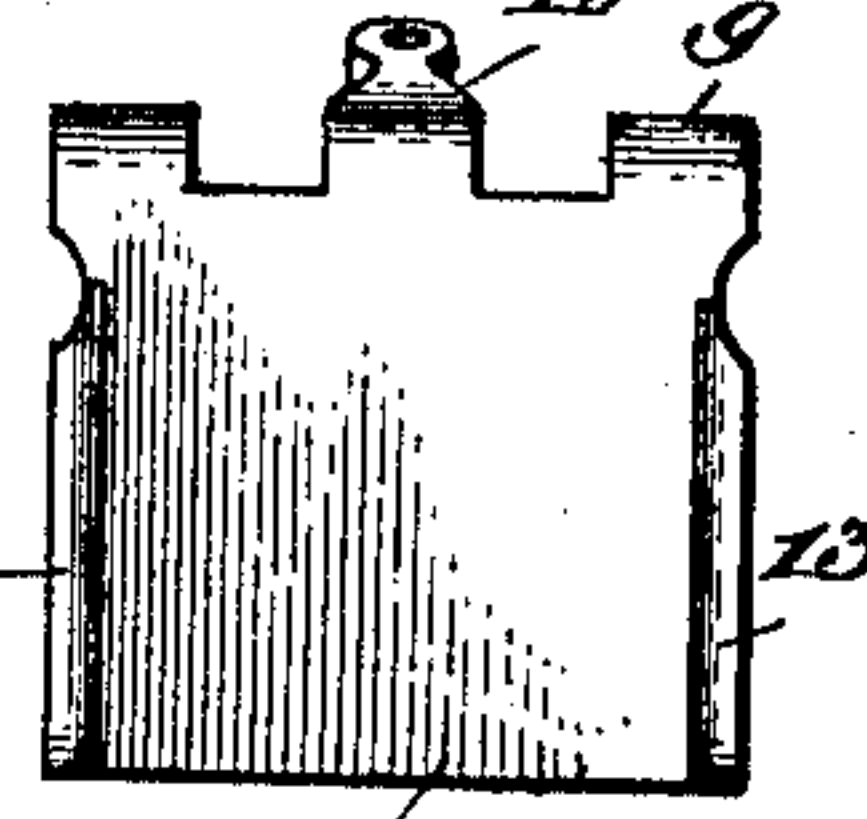


Fig. 5.

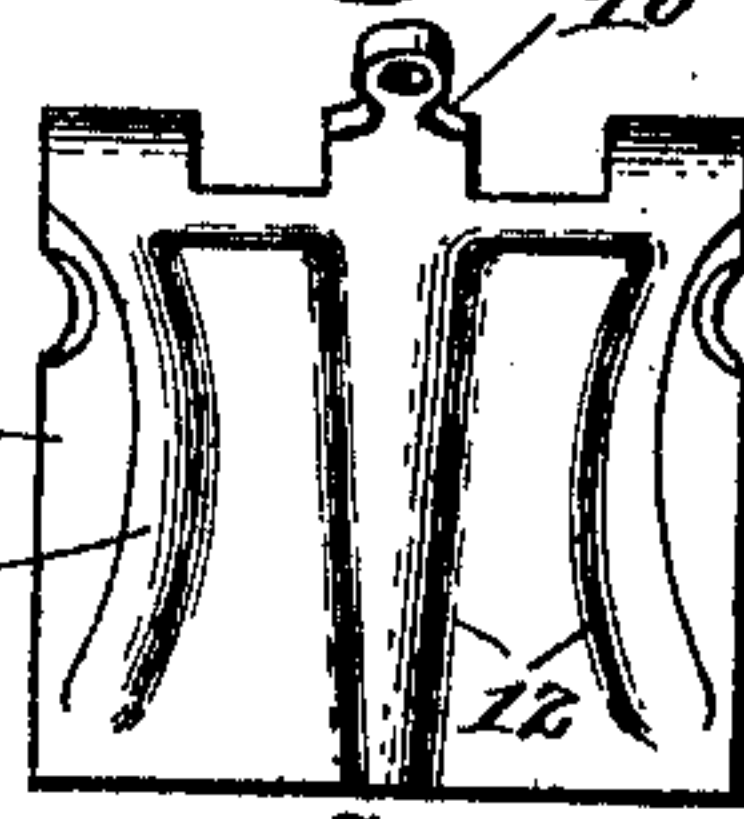
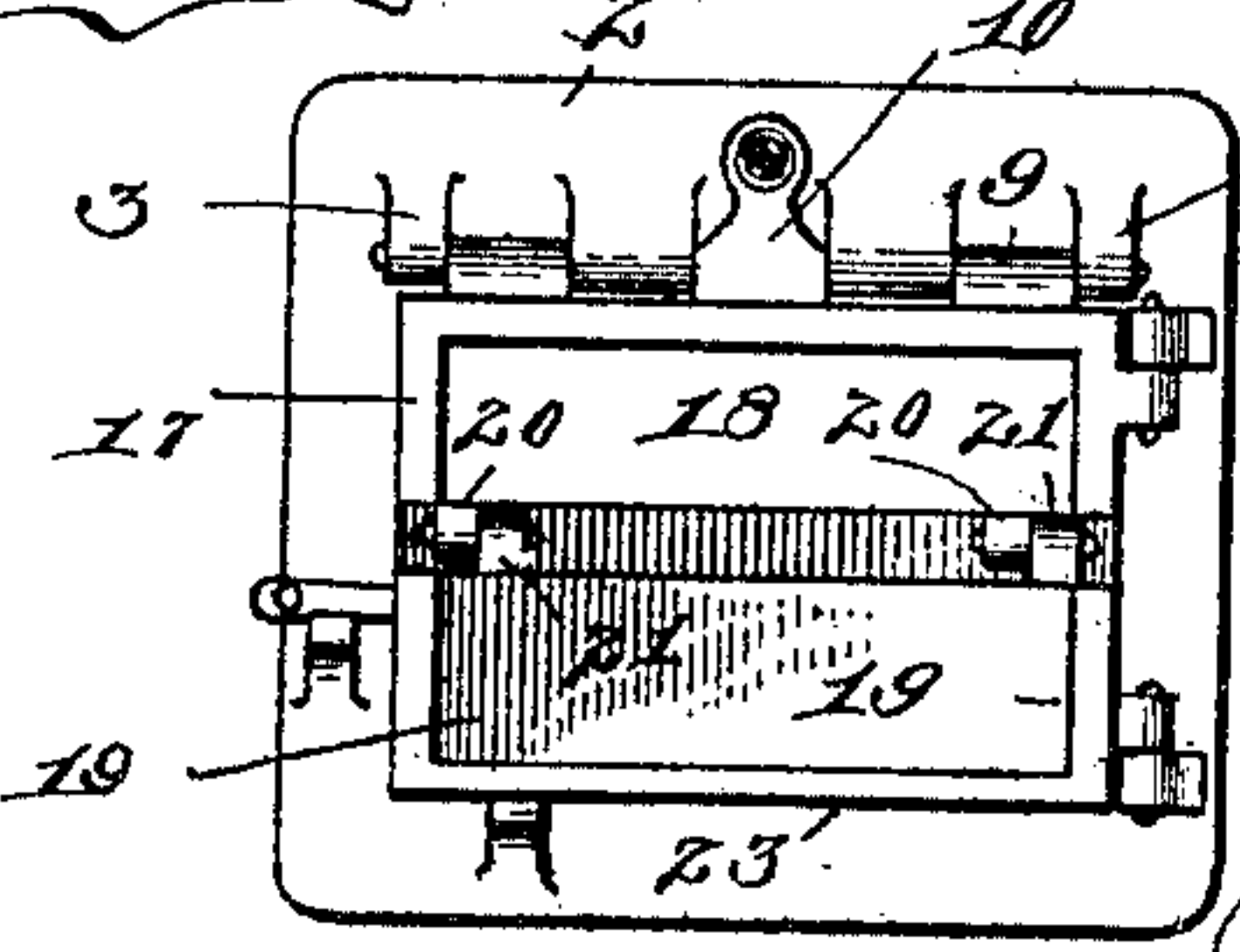


Fig. 6.



Witnesses

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FRANCIS L. HORSPOOL AND GEORGE J. KELLY, OF OGDEN, UTAH.

FURNACE-DOOR AND DEFLECTOR-PLATE.

SPECIFICATION forming part of Letters Patent No. 681,701, dated September 3, 1901.

Application filed July 28, 1900. Serial No. 25,166. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS L. HORSPOOL and GEORGE J. KELLY, citizens of the United States, residing at Ogden, in the county of Weber and State of Utah, have invented a new and useful Furnace-Door and Deflector-Plate, of which the following is a specification.

Our invention relates generally to an improved door and deflector-plate for steam-boiler furnaces; and it has for one of its objects to provide a furnace-door and a deflector-plate which will save time and labor in firing a furnace.

Another object is to provide a furnace-door that has a trap-opening in it, so that a fireman can fire without swinging the door back and forth, and by leaving the trap open all the time a saving in fuel will be effected and the emission of black smoke from the smoke-stack be avoided.

Another object is to construct a furnace-door in combination with a baffle or deflector plate which will prevent cold air from coming in contact with the crown-sheet of the fire-box and also to provide means for adjusting the baffle.

Another object is to provide means for securely locking the door in position and for holding the baffle-plate in place.

With these objects in view our invention consists in the improved construction and novel arrangement of parts of a door and baffle-plate, as will be hereinafter more fully set forth.

In the accompanying drawings, in which the same reference-numerals indicate corresponding parts in each of the views in which they occur, Figure 1 is an elevation of a portion of the end of a locomotive provided with our door and baffle-plate, the door being shown open. Fig. 2 is a view showing the door closed. Fig. 3 is a vertical sectional view of the door, frame, and baffle-plate, the plate and the air-trap of the door being shown in two positions. Figs. 4 and 5 are details of the baffle-plate, and Fig. 6 is a face view showing the upper door thrown down.

Referring more particularly to the drawings, 1 indicates the front of a furnace or locomotive to which our improvement may be applied in any suitable manner.

2 indicates a door-frame, which is secured to the front of the furnace and has its outer face provided with hinge-sections 3 upon its upper edge, hinge-sections 4 upon one side, a catch 5 upon the opposite side, and a door-stop or door-support 6 upon its lower side. The bottom and two sides are preferably provided with a bead 7, which projects a slight distance outward from around the inner edge of the frame forming the door-opening.

A baffle-plate 8 or deflector is pivotally secured to the upper edge of the frame 2 by means of the hinge-sections 9 and is provided with a lip or projection 10, extending upwardly in front of the frame from its central hinge-section. An adjusting-screw 11 is secured in said lip in position to engage with the frame and adjust the position of the plate inside of the furnace. The plate is arranged to normally hang at such an angle as to deflect the current of air entering the door downward and prevent its coming in contact with the crown-sheet of the fire-box or water-tubes of the boiler. The top of the plate is preferably provided with strengthening-ribs 12, which extend from the respective hinge-sections 9 toward the free edge of the plate, and the under surface of the plate is provided with a downwardly-extending lip or flange 13 upon its side edges to conduct the air to the center of the fire-box and prevent its coming in contact with the crown-sheet.

A door 14 is pivotally secured to the frame 2 by means of hinge-sections 15, which register with the hinge-sections 4 and permit of the door being swung open for the introduction of fuel. A latch 16 is pivotally secured to the free edge of the door in position to engage with the catch 5 and hold the door closed. The lower edge of the door rests upon the stop or lug 6 and is prevented from sagging down.

A frame 17 extends from the top of the door proper up to the baffle-plate when the door is closed and forms an opening 18 or air-trap at the top of the door. A door 19 is pivotally secured to the upper edge of the door 14 by means of hinge-sections 20 and 21 in position to be opened by moving its upper edge away from the frame 17, the upper edge being provided with a lug 22 for that purpose.

The inner face of the door 14 is preferably provided with flanges 23 around its edges for engaging with the frame 17 and making a close-fitting joint.

5 By means of the door and baffle-plate constructed as above described it will be seen that a locomotive can be fired much more easily and economically than with the ordinary solid or one-piece door, as the fuel can
10 be introduced through the air-trap at the top of the door, and thereby avoid the necessity of opening and closing the furnace-door for every shovelful of coal that is thrown into the furnace. To do this, the fireman simply
15 opens the fire-door and introduces the fuel through the trap, leaving the door open during the entire time that he is introducing the fuel. By leaving the air-door open in this manner the operation of firing is more easily
20 performed and a sufficient amount of air or oxygen is permitted to enter the furnace to consume the excessive amount of gas that is generated when fresh coal is introduced, and thereby an economy of fuel is effected and
25 the escape of black smoke from the smoke-stack is avoided. By means of the set-screw the angle of the baffle-plate can be adjusted to suit the conditions of fuel, draft, and other requirements, thereby securing the most desirable results from the fuel consumed. By
30 hinging the baffle-plate to the upper side of the frame it is entirely independent of the door and may be removed and inserted while

there is fire in the fire-box, or it may be omitted entirely, if desired.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a device of the character described, the combination with a frame formed on the upper edge of its opening with spaced hinge-sections and provided about the other three sides of said opening with a flange, of a baffle-plate having at its upper edge hinge-sections extending between the spaced hinge-sections of the frame and having a lip or projection extending upwardly from the central hinge-section and provided with a screw-threaded perforation, said lip being disposed at an angle to the body of the plate, a pivotal pin passing through all of the hinge-sections of the baffle-plate and the frame and pivotally securing the plate in position, an adjusting-screw in said threaded perforation of the plate and bearing against the frame, a door hinged at one side of the frame and provided with a frame and having a swinging upper section provided with a flange at its top and sides for contacting with said frame carried by the door, and a latch for the door, substantially as described.

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Witnesses:

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