

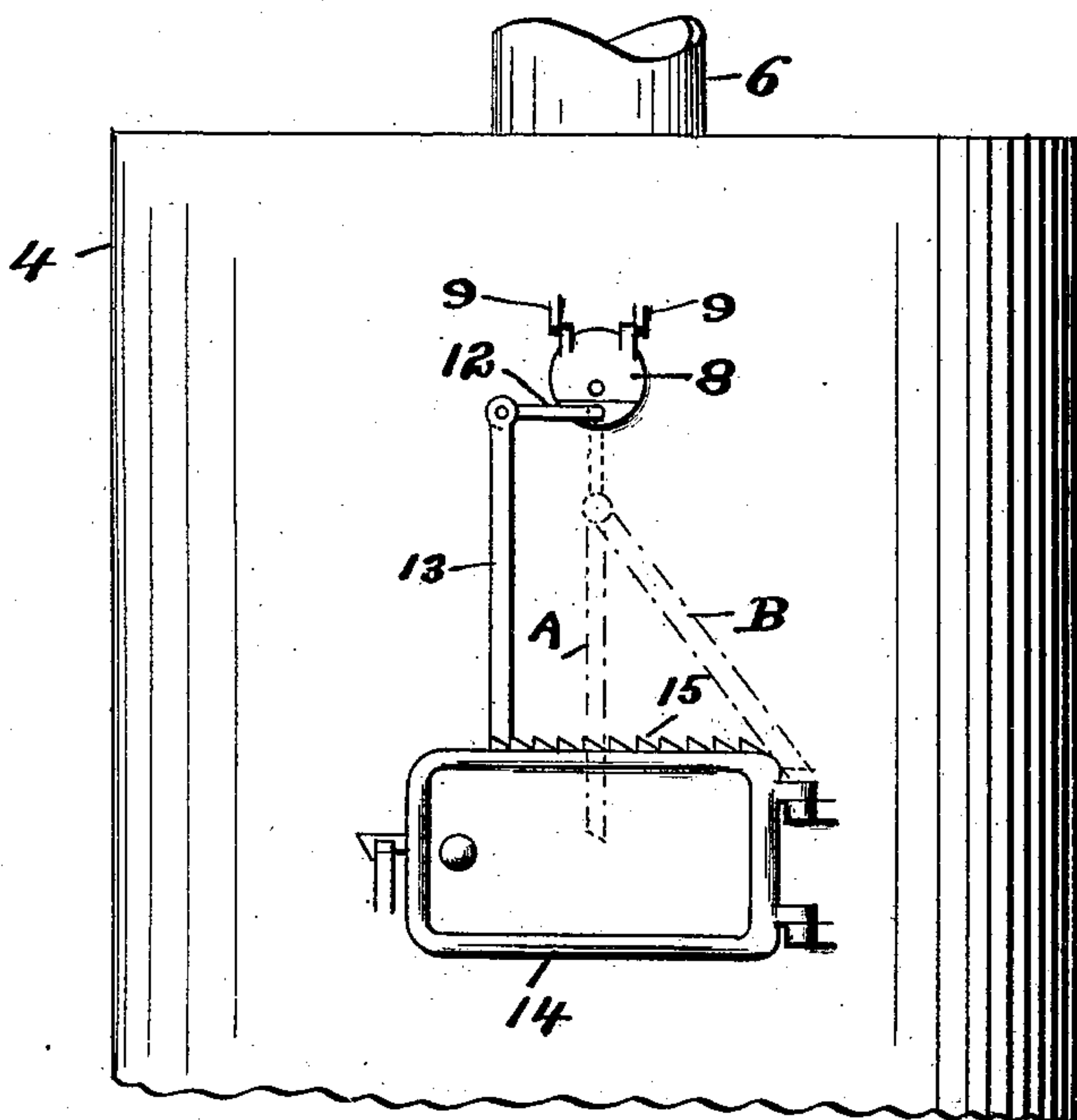
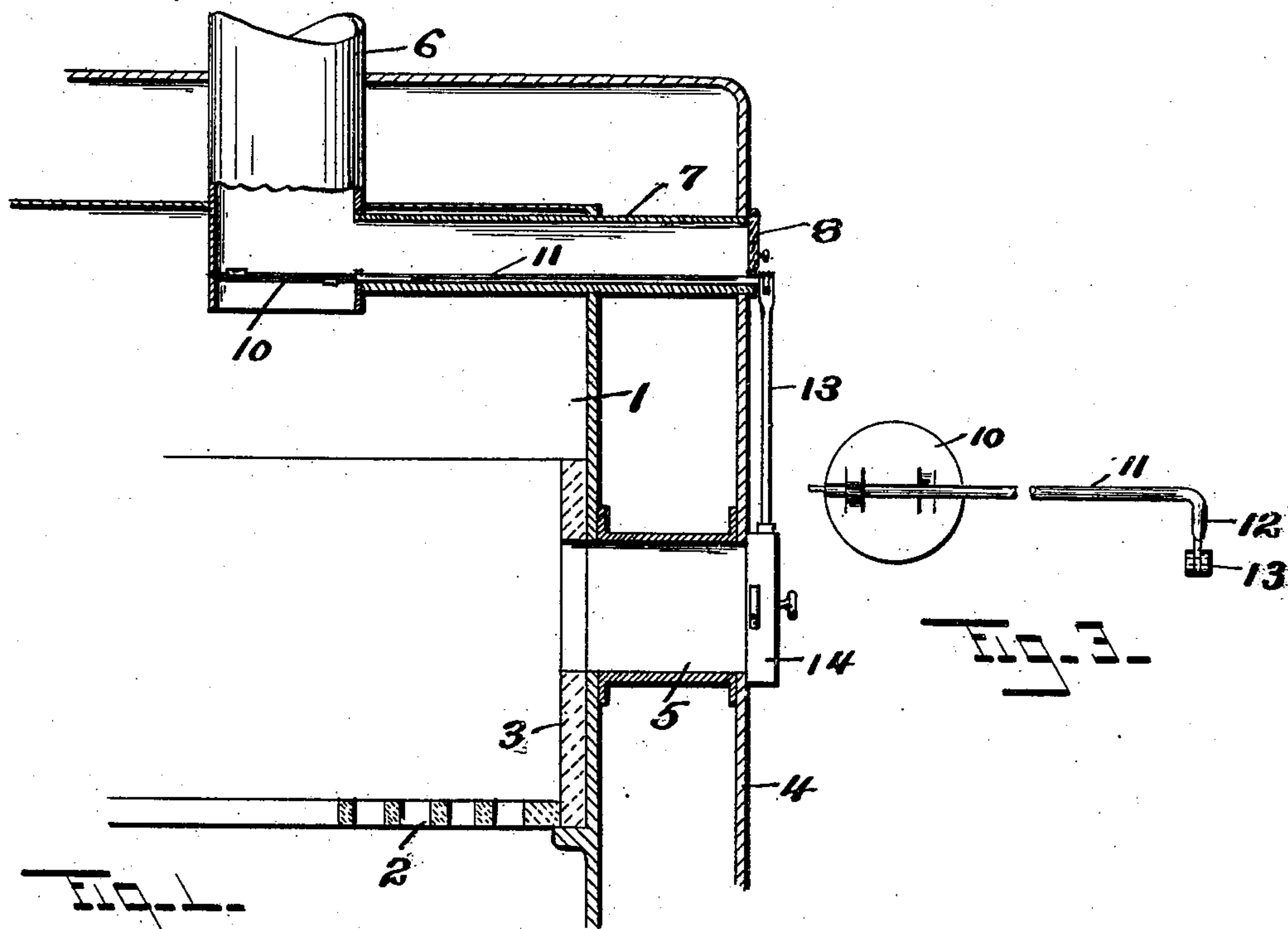
No. 713,066.

Patented Nov. 11, 1902.

F. G. COOPER.
DAMPER MECHANISM.

(Application filed Oct. 1, 1901.)

(No Model.)



Witnesses.

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FREDERICK G. COOPER, OF NEW HAVEN, CONNECTICUT.

DAMPER MECHANISM.

SPECIFICATION forming part of Letters Patent No. 713,066, dated November 11, 1902.

Application filed October 1, 1901. Serial No. 77,232. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. COOPER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Damper Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in damper mechanisms, and refers more especially to automatic dampers which are actuated from the feed-door.

It is the object of my invention, among other things, to connect a furnace-damper with the feed-door so that it will be brought to its wide-open position when the feed-door is opened, and before the feed-door can be shut the damper mechanism must be manipulated, and, further, to construct the mechanism of few parts that can be economically made and assembled and readily attached to any of the many forms and types of furnaces.

To these and other ends my invention consists in the damper mechanism constructed and operated substantially as herein shown and described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals designate like parts in the several figures, Figure 1 is a fragmentary sectional view of a furnace with my improved mechanism attached thereto. Fig. 2 is a fragmentary front elevation thereof, and Fig. 3 is a view of the damper with the rod connected therewith.

The damper mechanism herein described is especially designed, but not necessarily, for dampers within the direct outlet from the combustion-chamber to the smoke-flue. As ordinarily constructed these dampers are manually operated and must be opened before the feed-door to prevent the gases and flame from escaping through the feed-door into the room. If, perchance, the damper is not opened to permit the escape of the gases, &c., as is frequently the case, the products of combustion within the combustion-chamber are forced through the feed-passage and feed-door, carrying with it usually a sheet of flame, which is liable to injure the person op-

erating the feed-door. I overcome these disadvantages by connecting the damper with the feed-door, so that when the feed-door is opened the damper will be opened automatically and the products of combustion be given an opportunity to escape through the smoke-flue into the chimney rather than into the feed-passage.

Referring to the drawings, the numeral 1 designates the combustion-chamber of a furnace; 2, the grate-bar; 3, the linings surrounding the fire-pot; 4, the outer shell, and 5 the feed-passage opening through the outer shell into the fire-pot. Above the fire-pot and opening into the combustion-chamber is the pipe 6, which forms the smoke-flue and leads into the chimney, and connecting this pipe with the open air is a horizontal check-draft pipe 7, which is closed at its outer end by a door 8. The construction of this door is immaterial to my invention, as any form or style thereof can be used equally as well as the one herein shown, which consists of a member 8, hinged to the lugs 9. Mounted within the pipes 6 near its lower end is a damper 10, and connected therewith is the damper-rod 11, which is bent at its outer end to form the arm 12, to which is pivotally secured a downwardly-hanging bar 13. Hinged to the outer shell directly in front of the feed-passage 5 is the usual feed-door 14, which is provided upon its upper edge with a plurality of notches 15. When both the feed-door and damper are closed, the bar 13 is in a vertical position, as shown by the full lines in Fig. 2, with its lower end engaging one of the notches 15, in which position the passage through the pipe 6 is closed.

When the feed-door is open, the bar 13 drops by gravity and through its connection with the arm 12 rotates the damper-rod 11 about its axis, and thereby causes the damper 10 to assume a vertical position and open the passage through the pipe 6. Substantially all of the gases, &c., within the combustion-chamber can now escape through this pipe before the feed-door is completely opened, and hence the pressure is relieved which impels them to enter the room through the feed-passage. The damper mechanism must be manipulated before the feed-door

can be again closed, because the bar 13 hangs between the said door and the outer shell, as shown by the dotted lines A in Fig. 2, and must be moved so that its lower end will be out of the path of movement of the door, which operation permits the door to be closed.

If it is desired that the damper should be partly open while the feed-door is closed, the rod 13 is shifted so that the end will engage one of the notches 15, and if it is desired that the damper should be completely open while the feed-door is closed the rod 13 is shifted to the position shown by broken lines B in Fig. 1, in which position the damper will be open and the feed-door closed.

The position of the bar 13 is also an indicator to show the position of the damper, thus challenging the attention of the attendant to its position and obviating the opening of the feed-door to determine its position.

There are minor changes and alterations that can be made within my invention, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

I am aware that dampers have heretofore been operatively connected with the feed-door, and therefore do not claim such construction broadly.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. The combination with a furnace or stove; of a damper; a feed-door; a gravity-actuated damper-rod; a rod member pivotally secured at one end to said damper-rod with the other end resting upon said feed-door; and means connected with said feed-door to hold said rod connection in various positions in relation thereto and the damper in various positions between its open and closed position, substantially as described.

2. The combination in a furnace or stove; of a flue 6 connected therewith; a damper 10 hinged within said flue and adapted by its movement to open and close the passage there-through; a feed-door 14 hinged to the body of said furnace or stove and having notches 15 upon the top side thereof; a damper-rod 11 connected with said damper at one end and having a bar 13 pivotally connected to the other end thereof, the lower end of said bar resting within one of the notches 15 when the said feed-door is closed, all constructed and operating substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK G. COOPER.

Witnesses:

GEORGE E. HALL,
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