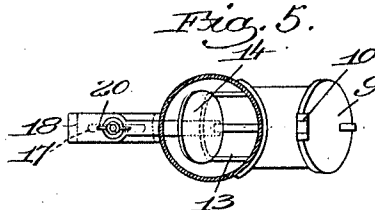
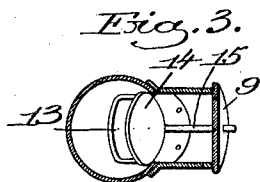
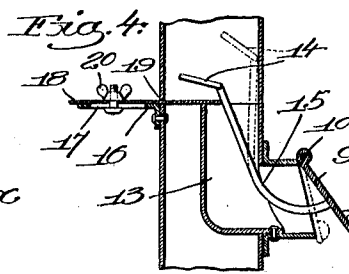
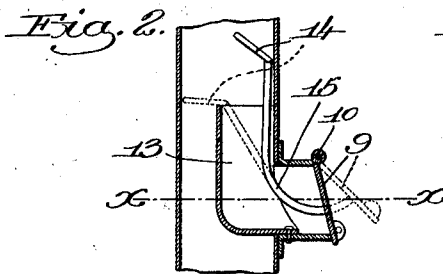
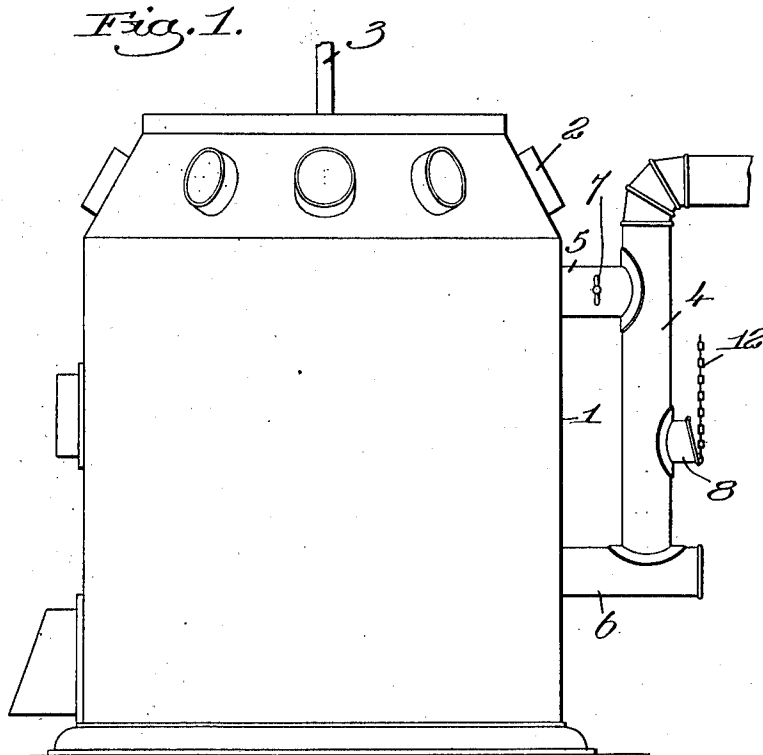


J. DEMAREST.
CHECK DAMPER.

APPLICATION FILED JULY 13, 1911.

1,027,037.

Patented May 21, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE

JOHN DEMAREST, OF SPRINGFIELD, MASSACHUSETTS.

CHECK-DAMPER.

1,027,037.

Specification of Letters Patent.

Patented May 21, 1912.

Original application filed July 18, 1910, Serial No. 572,426. Divided and this application filed July 13, 1911. Serial No. 638,245.

To all whom it may concern:

Be it known that I, JOHN DEMAREST, a citizen of the United States, residing at Springfield, county of Hampden, State of Massachusetts, have invented an improvement in Check-Dampers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to a check damper and a means for positioning it and limiting its operation.

The subject matter of this application to the extent to which it was disclosed in my Patent No. 999,756 granted Aug. 8, 1911, is a continuation or division of the said patent.

The invention is herein shown as embodied in a combined steam and hot air heater such as illustrated in the aforesaid patent, but it is obvious that the invention is not restricted to the particular form or type of heater.

The invention relates to the means for governing the cold air inlet to the smoke pipe so that the entering air is directed toward the chimney flue instead of being permitted to mingle at once with the escaping products of combustion. The valve controlling the cold air inlet and the throttling of the escaping products of combustion is so arranged that no movable joint or pivotal connection is exposed to the corroding effect of the gases.

An additional feature of the invention resides in means for adjustably limiting the position of the valve.

The invention will be clear from the accompanying description and drawings, and will be particularly pointed out in the claims.

The drawings illustrate a combined steam and hot air heater with the preferred forms of the invention embodied therein.

In the drawings Figure 1 is a side elevation of a combined steam and hot air heater such as illustrated in my aforesaid patent, with the present invention embodied therein. Fig. 2 is an enlarged vertical sectional detail of the cold air inlet and adjacent parts. Fig. 3 is a sectional view taken transversely and mainly on the line $x-x$ of Fig. 2, but with the throttling valve in elevation. Fig. 4 is a view similar to Fig. 2 with the ad-

justable limiting device combined therewith. Fig. 5 is a sectional view taken transversely of Fig. 4.

The construction and character of the heater not being involved in this invention, no detailed illustration or description thereof is necessary. The invention is shown as embodied in a heater such as illustrated in my aforesaid patent, and in the form shown the heater comprises an inclosing casing with hot air outlet pipes 2 and steam outlet pipe 3. The smoke pipe is shown at 4 leading to the chimney. The direct outlet flue is shown at 5 extending into the smoke pipe, and the indirect outlet flue is shown at 6 connected to the bottom of the smoke pipe. The direct outlet flue is provided with the usual damper 7, which when closed causes the gases and other products of combustion to pass through the indirect outlet flue 6 into the smoke pipe and thence to the chimney.

The smoke pipe 4 is provided with an elbow 8 above the flue 6, constituting a cold air inlet governed by an outside damper 9 hinged on the elbow at 10, and wholly outside of the inlet and the smoke pipe so that the pivotal connection cannot be in any circumstances affected by the corroding action of the products of combustion. The damper 9 is controlled in any suitable or usual manner by a flexible connection or chain 12 forming no part of the invention.

Within the smoke pipe I provide an up-turned tubular deflector 13 only partly filling the smoke pipe, and opening at its upper end thereinto at a point higher than the air inlet 8, but said outlet opens into the deflector as shown. This deflector 13 guides the entering air in an upward direction within the smoke pipe 4 instead of permitting the air to mingle at once with the products of combustion escaping from the flue 6 as in other structures now in use. By this deflection of the incoming air I secure a much better and smoother regulation of the chimney draft.

A throttling damper 14 to govern escaping products of combustion is fixedly mounted on a curved up-turned arm 15 attached to the damper 9, said arm being located within the deflector 13, so as to obviate any inside joint in the means for controlling said throttling damper. When the air inlet damper 9 is open, see dotted lines in Fig. 2,

it moves the arm 15 to drop the throttling damper 14 across a portion of the flue 4 outside of the deflector. This serves to throttle more or less the escape of the products of combustion according to the extent to which the cold air inlet valve 9 is open, the damper 14 when in use practically clearing the deflector so that the incoming air is not obstructed.

The parts thus far described are precisely as shown in my aforesaid patent, and are illustrated in Figs. 2 and 3. The same construction is illustrated in Figs. 4 and 5, but with an additional feature which I will now describe.

Chimney drafts vary greatly in different cases, and some cannot stand as much throttling as others. If the throttling device be left to the free control of the user of the heater it may result in such a throttling as to put out the fire or cause the discharge of noxious gases into the room where the heater is located, thus endangering health and even life. I provide a device for limiting the closing movement of the throttling device, and this adjusting device is intended to be set at the time of the installation of the heater in a position proper for the particular conditions of the particular flue. This device is also constructed and located so that all its movable parts are outside the flue and thus protected from corrosion. This device comprises a bracket formed as a casting 16 bolted to the exterior of the flue 4 about in line with the top of the deflector 13. This bracket is slotted diametrically of the flue as shown at 17. A sliding bar 18 is mounted on the bracket and to project from a slot 19 in the wall of the flue into the flue over the top of the deflector, and is held in its adjusted position by the bolt 20. By adjusting the bar 19 longitudinally it will contact with the curved arm 15 of the throttling damper 14 and limit the lowermost position of the throttling damper. Thus the device can be set at the time of the installation of the heater, or whenever required, by a person familiar with flue conditions, so as to prevent the throttling damper from being closed to such an extent as to throttle the flue to a dangerous extent. The same adjustment limits the opening of the air inlet so that the entire device operates to affect the draft and limit the position of the parts to one in which there is no danger of throttling or checking the escaping products of combustion.

The various changes or modifications in details of construction or arrangement may be made by those skilled in the art without departing from the spirit or scope of my invention as set forth in the claims annexed hereto.

The invention having been described,

what is claimed as new and desired to be secured by Letters Patent, is:

1. In a heater, a smoke pipe, direct and indirect outlet flues opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet between the said outlet flues, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a throttling damper to operate within the smoke pipe adjacent said deflector, and a rigid operating connection between said dampers.

2. In a heater having a heating dome, an indirect outlet flue leading therefrom for the escape of the products of combustion, a smoke pipe with which said flue communicates, said smoke pipe having an air inlet above the flue opening, an upturned deflector leading from said inlet within the smoke pipe, and connected means to govern the entrance of air at the inlet and throttle the products of combustion within the smoke pipe and outside said deflector.

3. In a heater, a smoke pipe, an outlet flue opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet above said outlet flue, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a throttling damper to operate within the smoke pipe adjacent said deflector, and a rigid operating connection between said dampers.

4. In a heater, a smoke pipe, an outlet flue opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet above said outlet flue, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a curved arm rigidly connected to the inlet damper and projecting up through the tubular deflector, a throttling damper mounted upon the end of said arm to operate within the smoke pipe adjacent said deflector.

5. In a heater, a smoke pipe, direct and indirect outlet flues opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet between said outlet flues, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a throttling damper to operate within the smoke pipe adjacent said deflector, a rigid operating connection between said dampers, adjustable means mounted upon the smoke pipe externally thereof and projecting thereinto to limit the lowermost position of the throttling damper.

6. In a heater, a smoke pipe, an outlet flue opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet above said outlet flue, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a throttling damper to operate within the smoke pipe adjacent said deflector, a rigid operating connection between said dampers, adjustable means mounted upon the smoke pipe externally thereof and projecting thereinto to limit the lowermost position of the throttling damper.

7. In a heater, a smoke pipe, an outlet flue opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet above said outlet flue, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a curved arm rigidly connected to the inlet damper and projecting up through the tubular deflector, a throttling damper mounted on the end of said arm to operate within the smoke pipe adjacent said deflector, adjustable means mounted upon the smoke pipe externally

thereof and projecting thereinto to limit the lowermost position of the throttling damper.

8. In a heater a smoke pipe, an outlet flue opening thereinto for the escape of the products of combustion, said smoke pipe having an air inlet above said outlet flue, an upturned tubular deflector within the smoke pipe and leading from the inlet, a damper for the latter pivotally mounted externally of the smoke pipe, a curved arm rigidly connected to the inlet damper and projecting up through the tubular deflector, a throttling damper mounted upon the end of said arm to operate within the smoke pipe adjacent said deflector, a bracket mounted upon and externally of the smoke pipe, a bar adjustable on said bracket and projecting into the smoke pipe beneath the throttling damper, whereby the lowermost position of the throttling damper may be limited.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN DEMAREST.

Witnesses:

J. G. GOTTESMAN,
B. F. CRAIG.