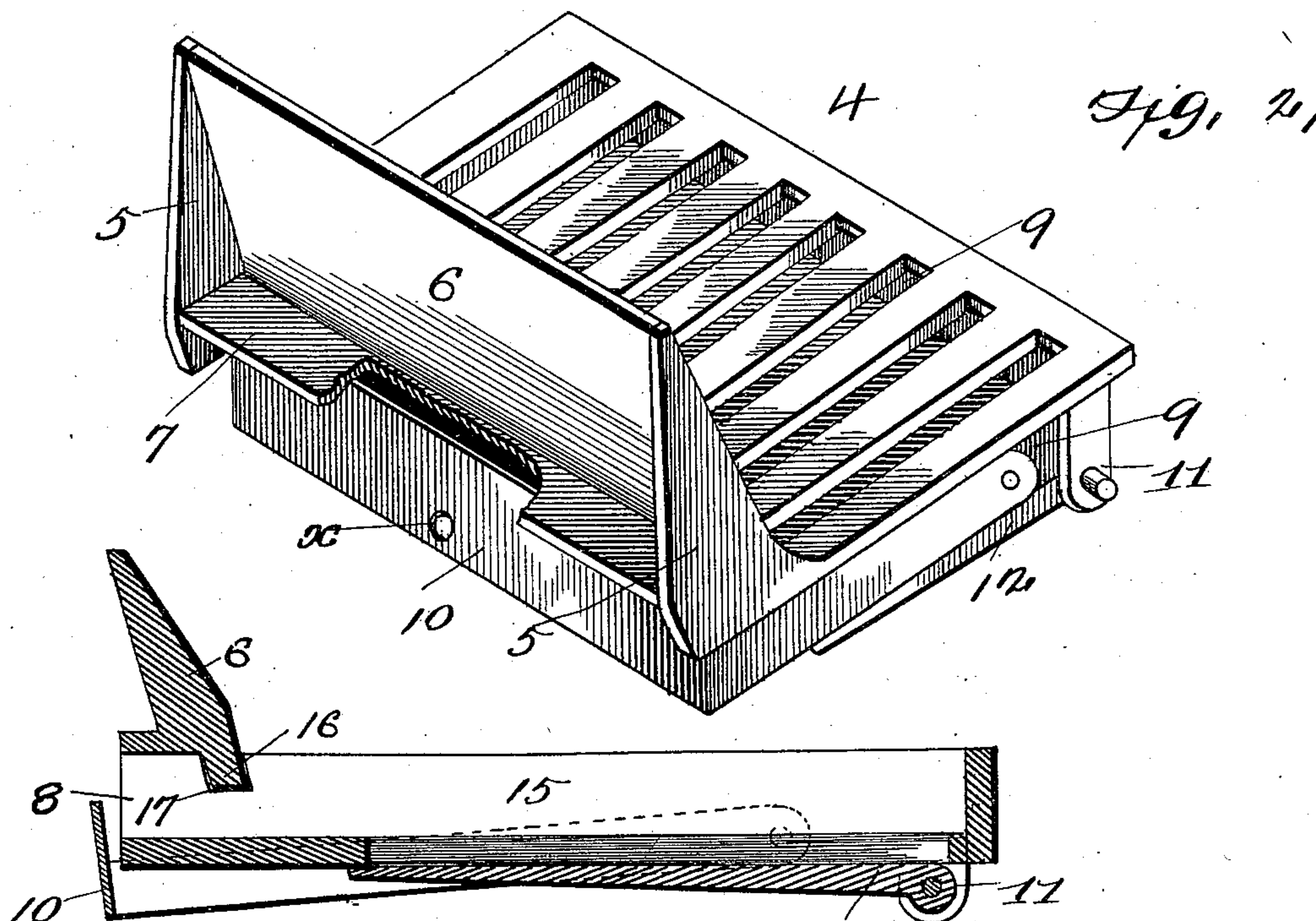
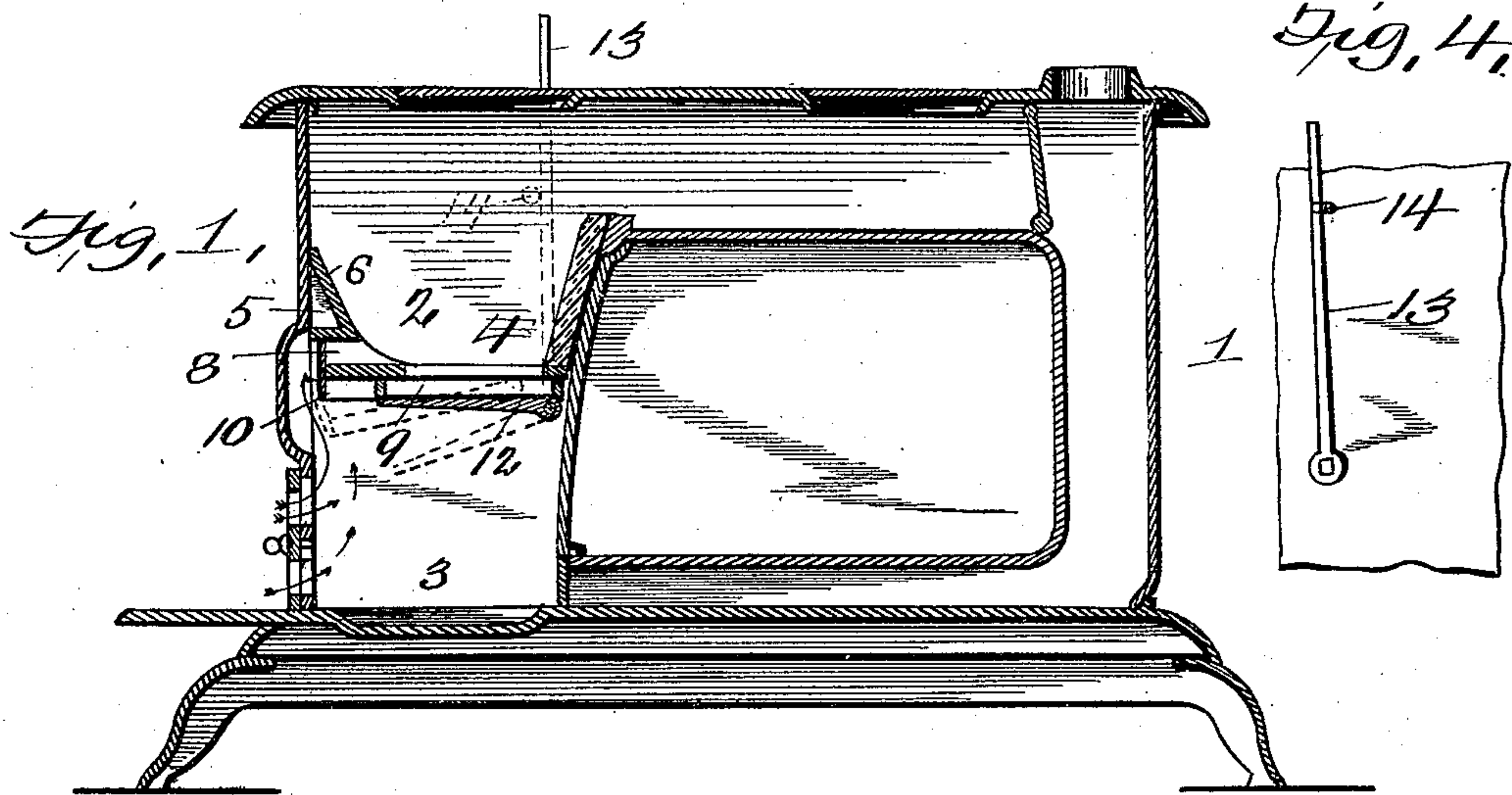


(No Model.)

E. FALES.
GRATE FOR STOVES OR FURNACES.

No. 574,315.

Patented Dec. 29, 1896.



WITNESSES-

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UNITED STATES PATENT OFFICE.

EDWARD FALES, OF WINTHROP, MASSACHUSETTS.

GRATE FOR STOVES OR FURNACES.

SPECIFICATION forming part of Letters Patent No. 574,315, dated December 29, 1896.

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To all whom it may concern:

Be it known that I, EDWARD FALES, a citizen of the United States, residing at Winthrop Highlands, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Grates for Stoves or Ranges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to certain improvements in grates for stoves or ranges, and is designed, essentially, to provide a grate of such peculiar construction that bituminous coal may be satisfactorily used as fuel in such class of stoves.

The object of the invention is to so construct the grate and provide the same with certain novel and useful devices that the fuel will be thoroughly consumed and fully utilized and the smoke and deposits natural to the burning of bituminous coal under ordinary circumstances will be prevented.

The invention consists, essentially, in providing a grate with a grated section, and a plate arranged beneath the same and adapted to support the ashes and prevent the passage of air through the grated section, and with means for supplying air above said section; and the invention further consists in the peculiar arrangement of the various parts, as will be hereinafter more fully explained.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a cooking-stove, showing my improved grate and its attachments applied thereto; Fig. 2, a perspective view of the grate removed; Fig. 3, a modification of the same, and Fig. 4 a detail view of the mechanism for operating and holding the swinging plate.

Referring specifically to Figs. 1 and 2, the numeral 1 indicates a cooking-stove of ordinary construction, 2 the fire-box or combustion-chamber thereof, and 3 the ash-pit below said box or chamber. The fire-box is provided with the usual ledges at the opposite ends, which ordinarily support the brick linings and the journals of the grate.

The numeral 4 indicates the grate which constitutes my invention, said grate consisting of a grate-bar section of a size adapted to

fit in the lower part of the fire-box and rest upon the end ledges before mentioned. The ends of the said section, at its forward edge, are provided with vertical plates 5, having inclined rear edges and supporting an inclined plate 6 and a horizontal plate 7, between which and the front edge of the grate-bar section is a draft-opening 8 for the entrance of air to support the combustion of the fuel upon the grate. The lower portion of the grate-bar section is provided with a depending ledge 9, extending all around it; and to this ledge, at the ends thereof, are pivoted the supporting-arms of a damper 10, which may be lowered or raised to control or regulate the supply of air to be admitted to the fuel. The arms hold the damper up by frictional contact with the ledge 9, as shown, or other means may be employed to hold it in an elevated position. A hole x is made in the damper-plate for the insertion of a poker, by means of which said plate may be raised and lowered. At the rear of the grate-bar section, at each end, are located depending lugs 11, which are provided with bearings for the journals of a plate 12, which normally closes the space below the grate-bars, resting, when in such position, against the edges of the depending ledge 9. One of the journals of the plate 11 projects through the side wall of the fire-box and is provided with an arm 13, which is normally engaged and held by a suitable catch 14 on the outside of the stove but may be removed, so as to dump the plate and discharge the collected ashes.

The grate-bar section, with its vertical end plates, its inclined front and horizontal plates, and depending ledge and lugs, are preferably intended to be cast in one piece, so as to be fitted with the swinging dump-plate and pivoted damper.

The grate, as thus constructed, may be readily placed in the fire-box of an ordinary cooking stove or range by simply removing the fire-brick and old grate and setting the improved grate with its ends resting upon the ledges upon which the fire-bricks were seated. The fire-box is then lined with fire-bricks, which are cut so as to fit upon the upper edges of the grate-bar section and against the edges of the end plates. The inclined plate 6 forms the front wall of the fire-box, leaving

an air-space between it and the front wall of the stove, which prevents said front wall from burning out. Air is prevented from passing through the grated section by the swinging plate, but is admitted to the body of the fuel, at the front portion thereof, through the opening 8, causing most intense combustion in the center of the fuel, producing openings in the body of the fuel and insuring thorough combustion of the same with but little smoke, and that of a whitish character.

The swinging plate, in its normal position, supports the ashes which fall through between the grate-bars, and when required the accumulated ashes may be dumped into the ash-pit below by releasing the arm 13 from its catch.

Various modifications or changes in the construction of my invention may be made without departing from its principle or sacrificing any of the advantages to be derived therefrom, such, for instance, as the modification shown in Fig. 3, wherein the depending ledge 9 is dispensed with and a frame 15 is substituted therefor. The end pieces 5 are also dispensed with and the inclined plate 6 is cast separately and provided with a tongue 16, which is adapted to be seated in a slot 17 made in each side wall of the frame. In both forms of grate, however, the opening for admission of air to the fuel is at the front and above the grate-bars.

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

1. A grate having a grated section, a mov-

able plate arranged below said section and adapted, in its normal position, to support ashes and prevent the passage of air through the grated section, and means for supplying air above said section.

2. In a grate, the combination of a grated section, a downwardly-swinging plate adapted, in its normal position, to support ashes and prevent the passage of air through the grated section, and means for supplying air above said section.

3. A grate having a grated section, an inclined plate and a horizontal plate, said plates being so arranged as to form an air-draft passage above said grated section, and a damper for controlling said passage.

4. A grate having a grate-bar section provided with a depending flange or surrounding ledge, a downwardly-swinging plate pivoted to said ledge, and means for holding said plate in normally-closed position to prevent the passage of air through the grate-bar section and to support the ashes.

5. A grate having a grate-bar section, a depending flange and an air-inlet above the grate-bar section, a downwardly-swinging plate and a damper, both pivoted to said flange, and, respectively, adapted to control the flow of air through said grate-bar section and through the air-inlet.

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

EDWARD FALES.

Witnesses:

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