

No. 664,521.

Patented Dec. 25, 1900.

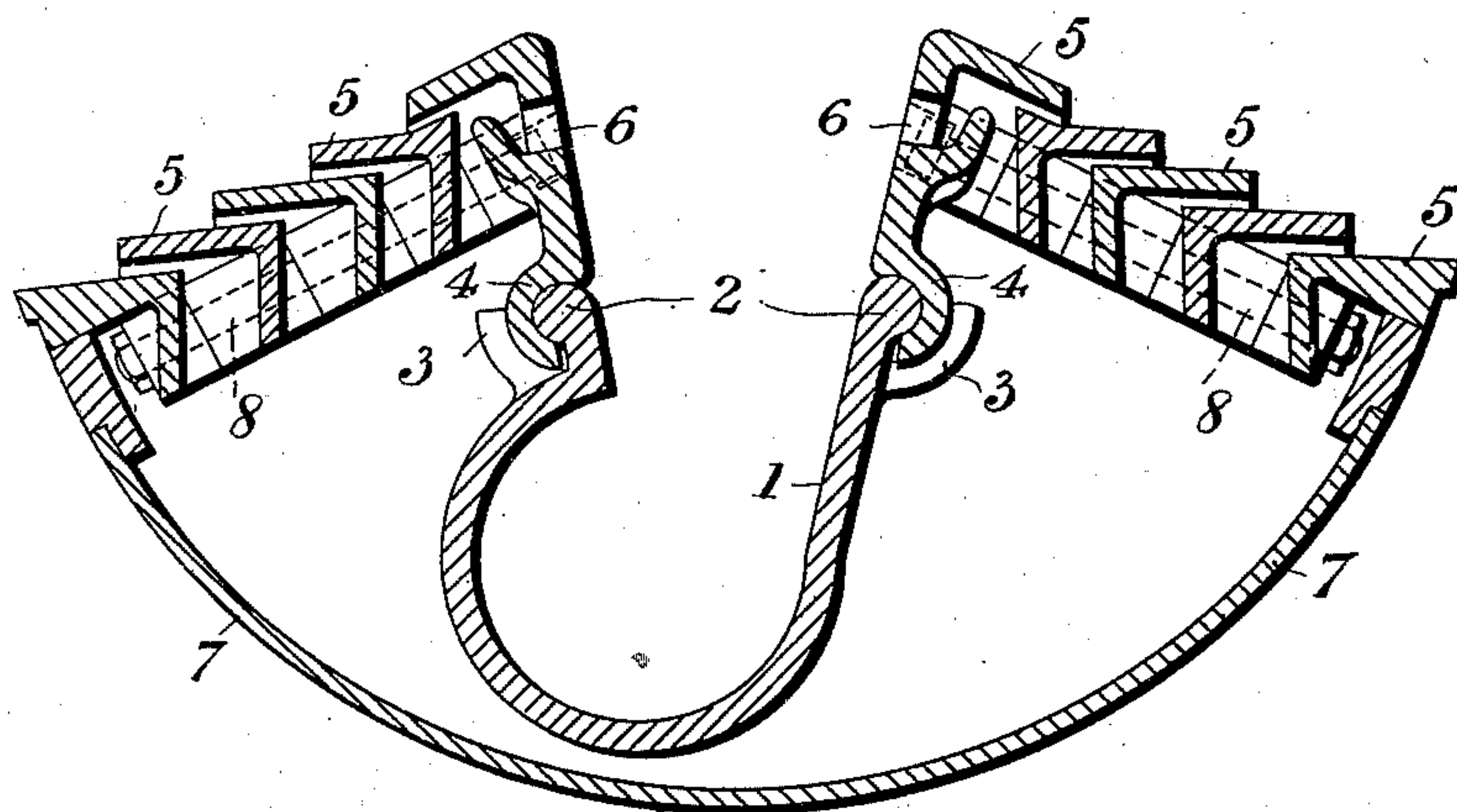
W. R. WOOD.
FURNACE GRATE.

(Application filed Apr. 2, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES.

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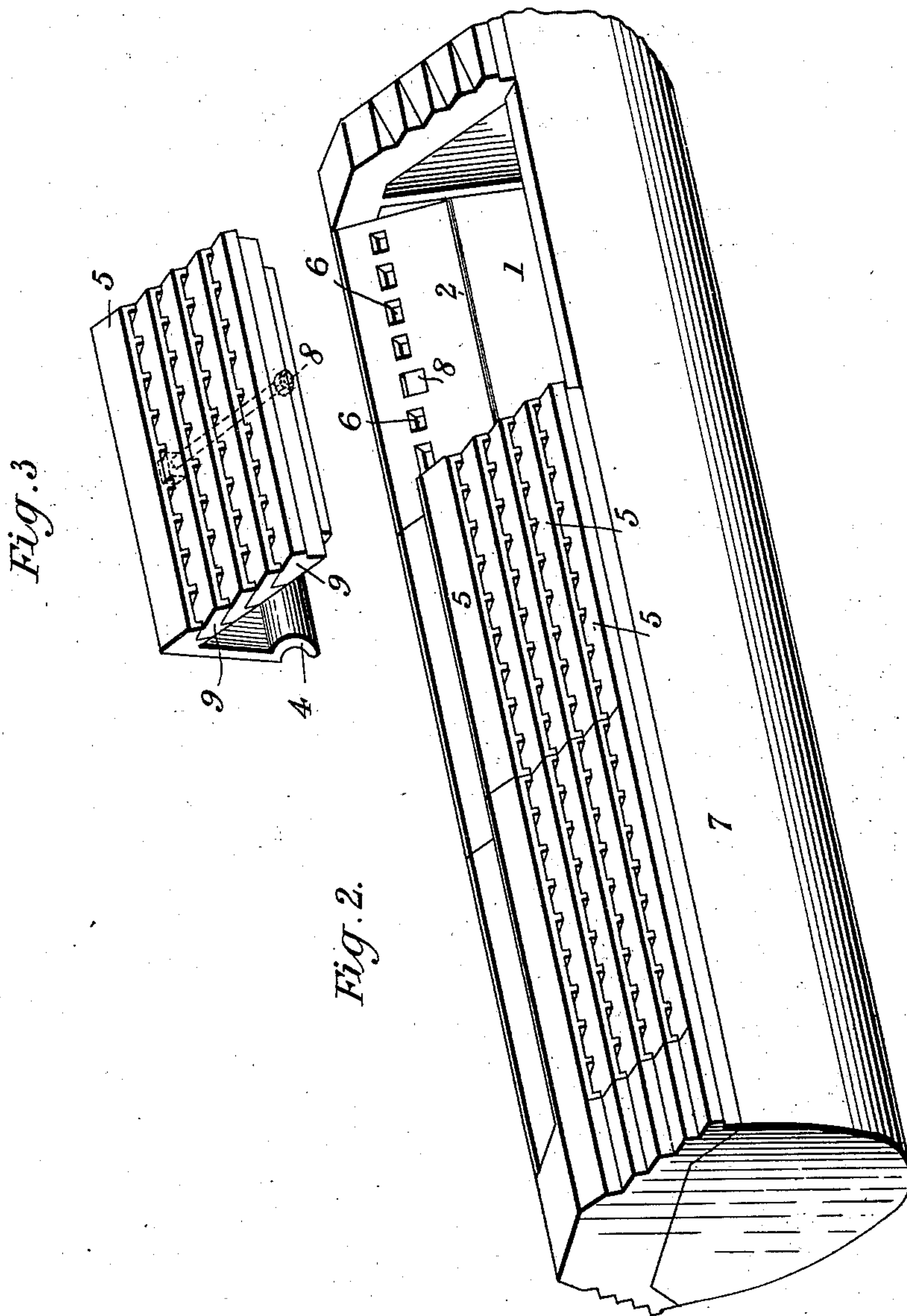
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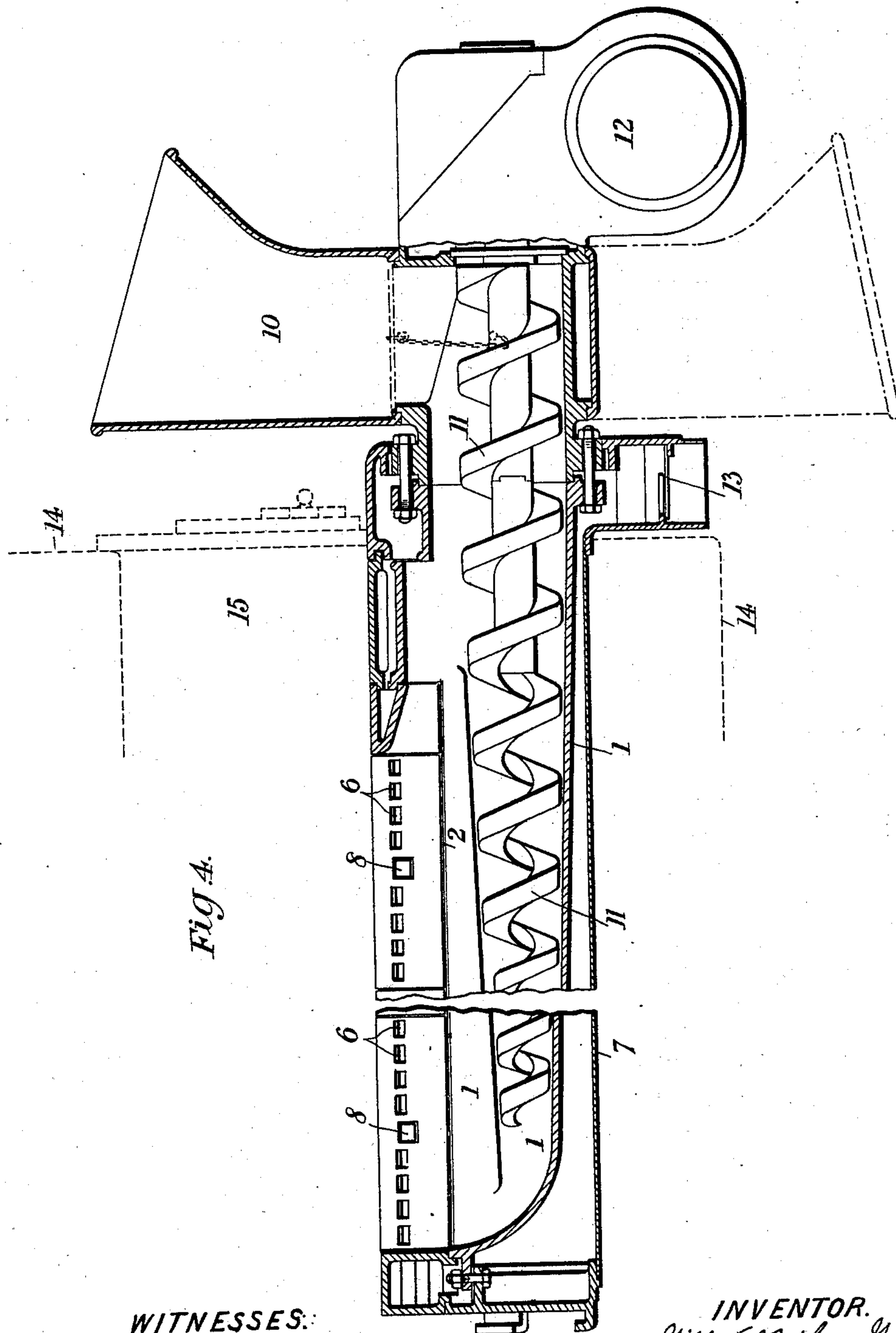
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILFRED ROTHERY WOOD, OF LONDON, ENGLAND, ASSIGNOR TO THE
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FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 664,521, dated December 25, 1900.

Application filed April 2, 1900. Serial No. 11,167. (No model.)

To all whom it may concern:

Be it known that I, WILFRED ROTHERY WOOD, engineer, a citizen of the United States of America, residing at 18 Walbrook, London, England, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a specification.

Furnaces in which the fuel is fed from below by means of a pusher or feed-screw are well known; and the object of this invention is to provide a suitable grate for the fuel as it leaves the magazine.

In order that the invention may be fully understood, reference is made to the accompanying drawings, which illustrate a form of grate particularly suitable for use in the flues of Lancashire or Galloway boilers and in part also illustrate the invention when used in conjunction with a movable feed-hopper, as described in the specification of my Patent No. 655,819, dated August 14, 1900, and with a feed-screw, that portion beneath the furnace-chamber being without a core or stem, as described in my application filed October 26, 1899, Serial No. 734,842. It will be evident, however, that the form and arrangement of the fire-bars may be employed in other furnaces and with other forms of feeding devices and hoppers.

In said drawings, Figure 1 is a cross-section of the fire-bars, feed-screw casing, and air-jacket. Fig. 2 is a view in perspective of a series of fire-bars mounted upon an air-jacket and feed-screw casing. Fig. 3 is a detached view of a portion of the grate removed from Fig. 2, and Fig. 4 is a vertical section illustrating the application of such a grate to the flue of a Lancashire boiler.

In the drawings, 1 represents the pusher or screw-casing, which is formed with bulbs or heads 2 and lugs or ears 3. Resting on heads 2 and engaging with ears 3 is the lower end 4 of the top fire-bar 5, which is provided with draft-opening 6. Each fire-bar 5 has substantially an angle-bar cross-section and the outer ends overlap the inner end of the next succeeding bar, thus forming a stepped grate in which there is no tendency of the fuel to fall between the bars. The outer bar 5 is attached to the air-jacket 7, and the intermediate bars are held in position by a rod or

bolt 8, so that a draft-space is left between each bar.

In Fig. 4 the feed-hopper is indicated by 10, the feed-screw by 11, the motor by 12, the inlet for air to jacket 7 at 13, the boiler by dotted lines 14, and its flue by 15.

With this construction an even draft from air-jacket 7 passes through the fuel throughout the grate, and while in working position the bars are prevented from being forced out of place by the fuel rising in the magazine, yet when it is desired any given section of bars can be removed by simply disconnecting the outer bar 5 from air-jacket 7 and turning up the entire section of bars on head 2, as on a hinge, so as to release the engagement between the head 2 and the lower end 4 of the top fire-bar, when the whole section can be lifted out and a fresh section inserted, if desired.

It will be noted that the grate taken as a whole is formed of a series of separate sections, and each bar 5 of each section is provided with distance-pieces 9, as shown at the end of Fig. 3, to keep the bars in proper position when secured by bolt 8.

What is claimed is—

1. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that the outer end of each bar overlaps the inner end of the succeeding bar substantially as and for the purpose described.

2. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that the outer end of each bar overlaps the inner end of the succeeding bar, a fuel-feed casing provided with a head and a curved end on the inner fire-bar adapted to engage with said head substantially as and for the purpose described.

3. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that

the outer end of each bar overlaps the inner end of the succeeding bar and an air-jacket secured to the outermost fire-bar substantially as and for the purpose described.

- 5 4. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, a bar or bolt holding said fire-bars in operative position so that the outer end of each bar overlaps the inner end of the
10 succeeding bar, a fuel-feed casing provided with a head, a curved end on the inner fire-

bar adapted to engage with said head, and an air-jacket secured to the outermost fire-bar substantially as and for the purpose described.

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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILFRED ROTHERY WOOD.

Witnesses:

GEO. J. B. FRANKLIN,
T. J. OSMAN.