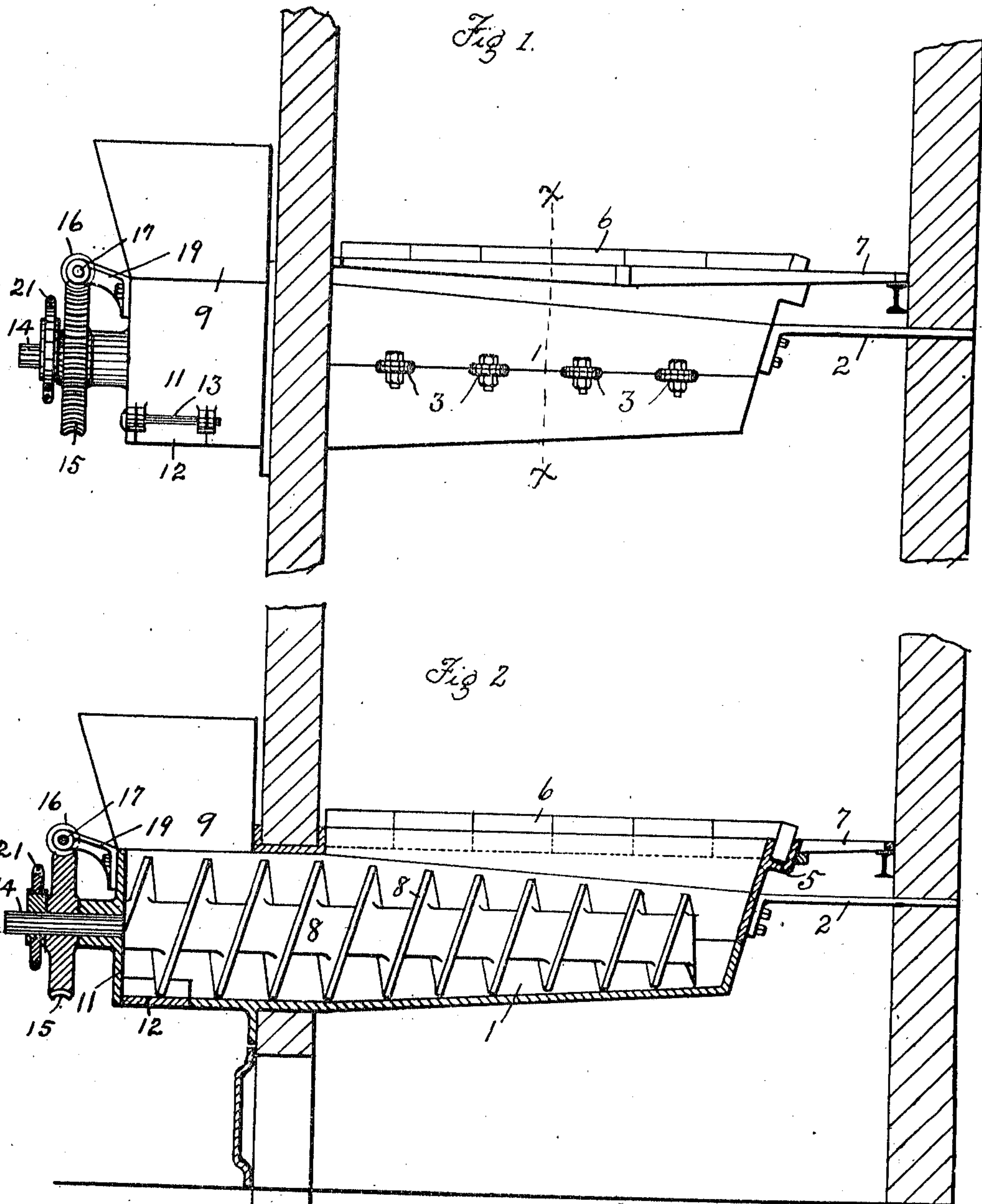


W. H. H. STINEMAN.
STOKER.
APPLICATION FILED SEPT. 8, 1910.

984,316.

Patented Feb. 14, 1911.
2 SHEETS—SHEET 1.



Witnesses:
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2 SHEETS—SHEET 2.

Fig 3.

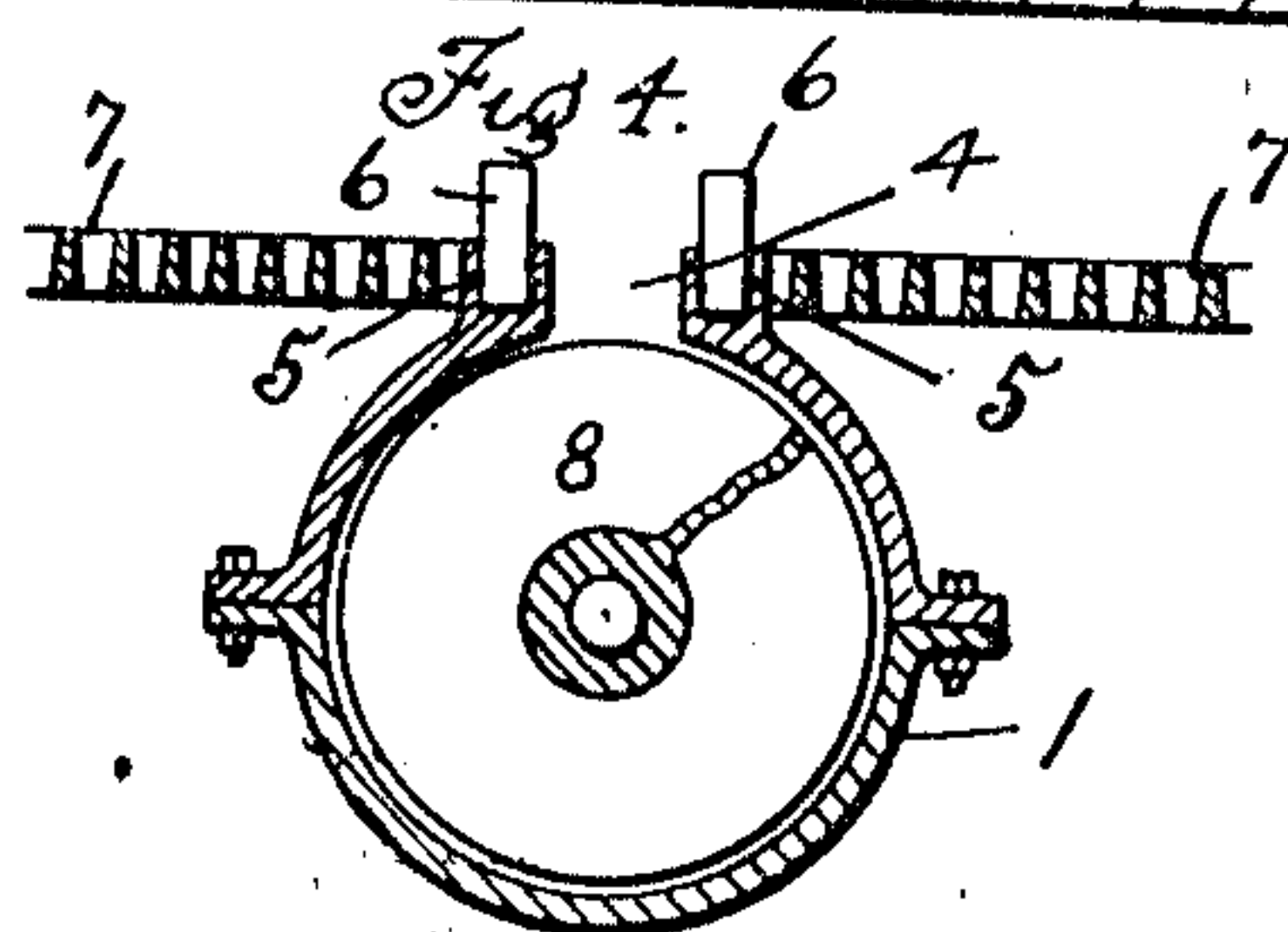
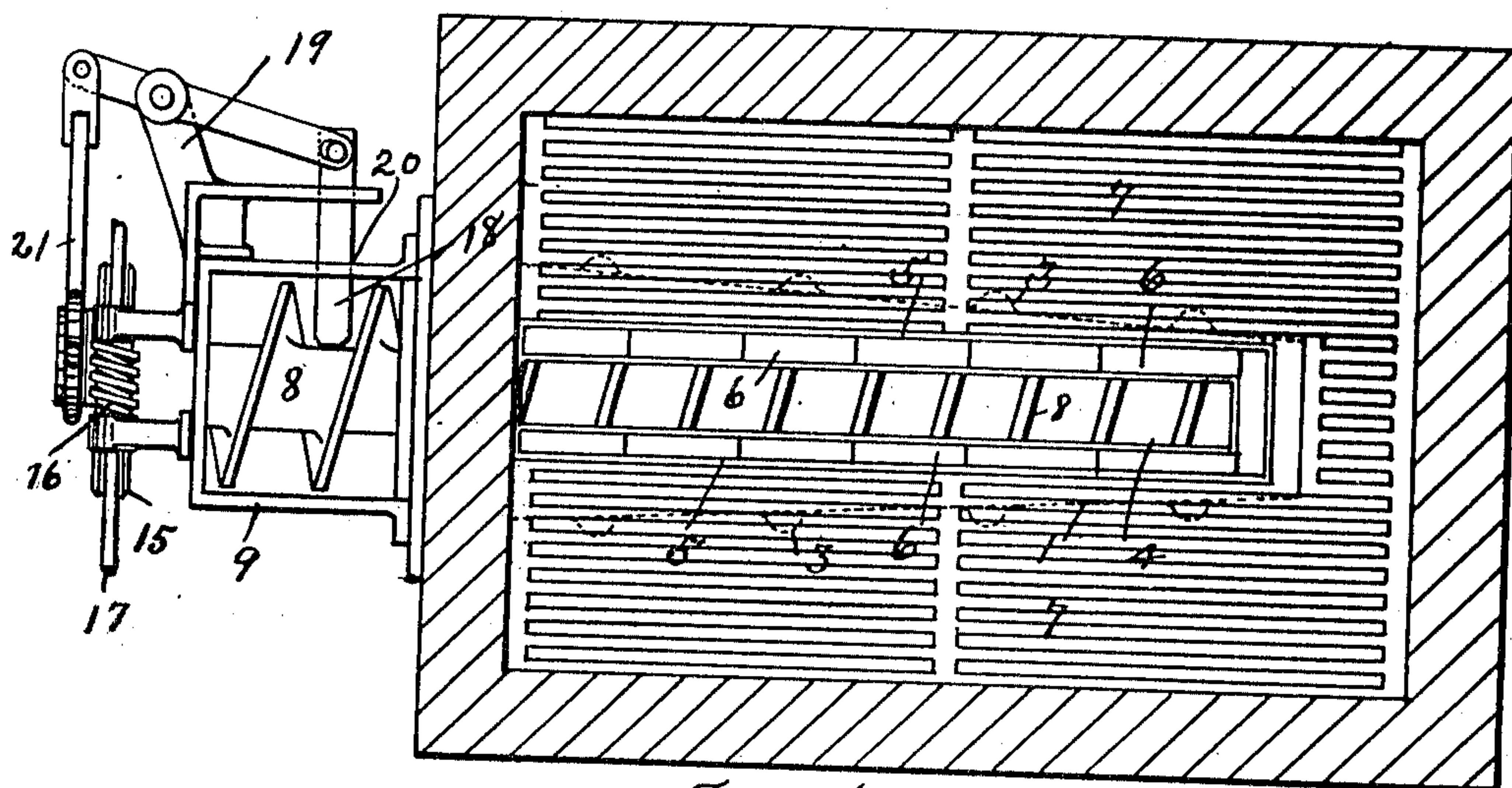
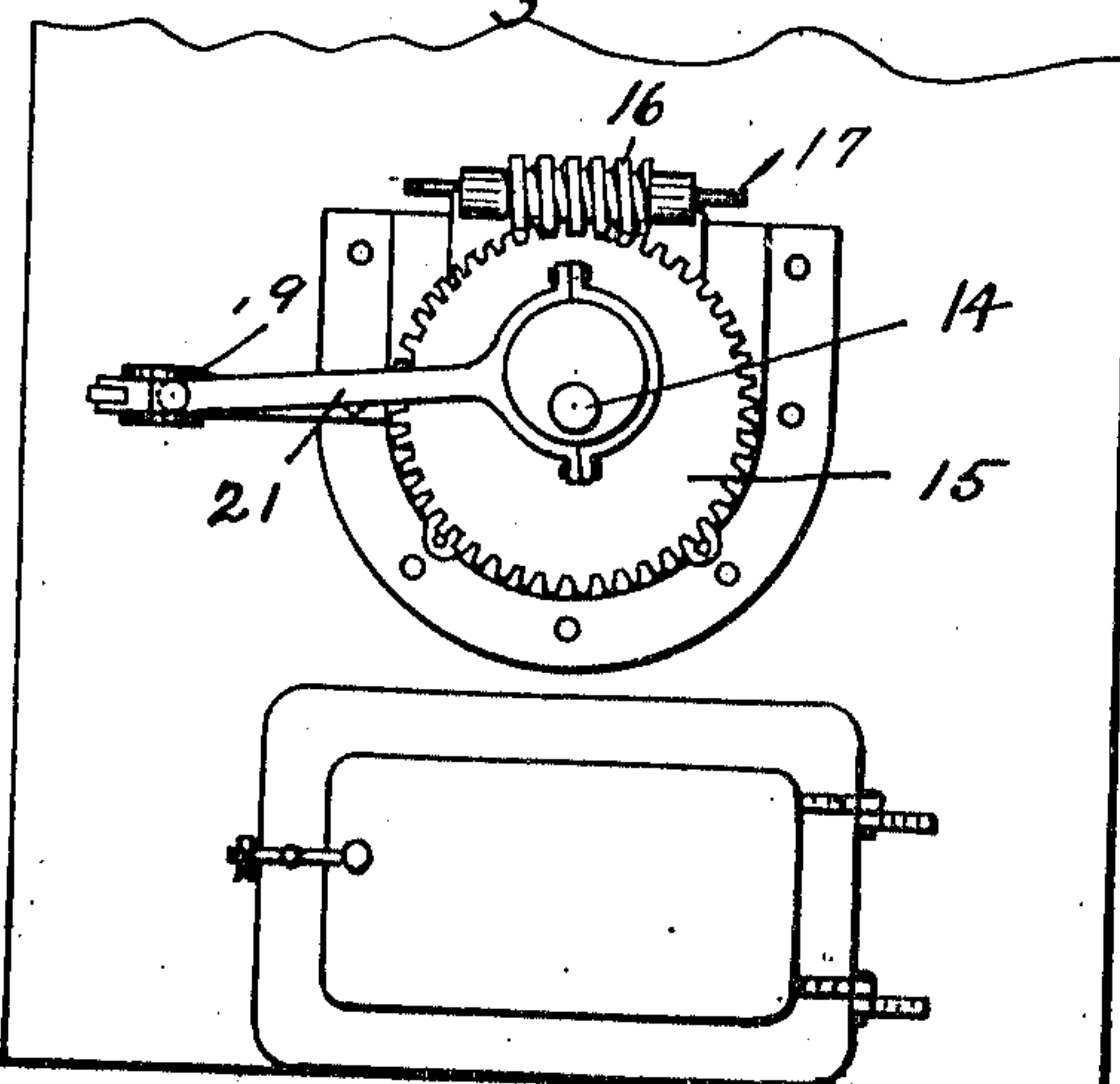


Fig 5.



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UNITED STATES PATENT OFFICE.

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TO ARTHUR WEGEFARTH, OF BALTIMORE, MARYLAND.

STOKER.

984,316.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed September 8, 1910. Serial No. 581,014.

To all whom it may concern:

Be it known that I, WILLIAM H. H. STINEMAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Stokers, of which the following is a specification.

My invention relates to improvements in furnaces and especially to that class in which
10 the coal or other fuel is fed from the bottom of the furnace to the under side of the fire. In this class of devices the greatest efficiency and extent of fire surface are obtained, by providing a graduated fuel conveyer, by means of which a portion of the
15 fuel will be forced out of the magazine throughout its entire length, so that an equal distribution of the fuel to the fire will be accomplished. By graduating the feed device along the length of the fire box in the
20 direction of the feed, the fuel will be distributed and deposited along the length of the fire box under the fire in even quantities to maintain a uniform supply throughout the
25 area thereof.

The object of my invention is to provide a graduated conveyer to reduce the carrying capacity thereof toward the rear of the fire-box, whereby a uniform distribution of the
30 fuel in the fire-box will be maintained. And to provide a graduated magazine having a uniform outlet to the fire-box provided around the edge with fire-brick.

My invention consists of the novel construction and arrangement of the parts and combination of parts hereinafter more fully
35 set forth in the following specification and pointed out in detail in the claims.

In the accompanying drawings—Figure 1
40 is a side elevation of a fire-box, showing my invention applied thereto. Fig. 2 is a vertical longitudinal section of Fig. 1. Fig. 3 is a plan view of Fig. 1. Fig. 4 is a vertical sectional view on the line $x-x$ of Fig. 1.
45 Fig. 5 is an end view.

Referring to the accompanying drawings, forming part of this specification, and in which like reference numerals designate like parts throughout the several views thereof,
50 1 designates a cylindrical cone-shaped magazine projecting through the front wall of the furnace and supported at its rear end by the supports 2 which latter have one end bolted to the magazine and the other end
55 projecting into the rear wall of the furnace.

This magazine 1 is made of two sections bolted together at 3. The upper section is provided with a uniform opening 4 and a channel 5 extending around the upper edge of said opening and into which the fire bricks 60
6 are fitted. The grate 7 has its upper surface flush with the upper surface of the channel 5. It will be seen that by having the channel 5 around the edge of the opening 4
it is not necessary to fasten the fire bricks 6
65 in place and they can readily be removed and new ones inserted when desired.

The conveyer 8 has its front end journaled in the front of the hopper 9 and is straight, or uniform in size, back to the inner surface
70 of the front wall of the furnace, at which point it begins to taper to the rear end thereof, resting in, and conforming to, the cone shape of the magazine 1. The shaft of the conveyer, as well as the conveyer itself, is
75 hollow which allows the air to pass into the magazine 1.

At the front of the magazine 1 is arranged a hopper 9 communicating therewith, and having a neck 11 into which the front end of
80 the conveyer extends, the said hopper being slightly tapered or flared at its mouth. The conveyer 8 is cone-shaped or tapered from a point adjacent the inner surface of the front wall of the furnace to the rear end, thus
85 reducing its carrying capacity toward the rear of the fire box, which will cause the fuel to be forced up through the opening 4 over the fire bricks 6 as it is carried along the said magazine, thereby producing a uniform dis-
90 tribution of the fuel over the grate 7 throughout the entire length of the fire-box. The fire resting over the opening 4 of the magazine 1 will keep the latter constantly
95 filled and cause the conveyer to feed the fuel through the opening 4 uniformly throughout its entire length.

It is found from experience that the greatest heat exists at a point surrounding the opening of the magazine to the fire-box, 100 frequently causing the burning out of the grate bars at this point. To obviate this objection I provide a channel 5 around the opening 4 from the magazine into which are fitted the fire bricks 6 and project slightly
105 above the grate, thus causing the coal to roll over these bricks before entering onto the grate.

In the bottom of the neck 11 of the hopper is a door 12 hinged at one side and held up 110

in position by a pin 13. This door 12 may be opened to remove any hard or lumpy object from the hopper, or for the purpose of emptying the magazine, in which latter event the rotation of the conveyer is simply reversed which will cause the coal to be carried back to the hopper and out of the door 12.

On the front end of the shaft 14 of the conveyer is a gear wheel 15 which meshes with the worm 16 on the shaft 17. This shaft 17 is driven by any suitable source of power. A plunger 18 has its rear end pivoted to a lug 19 on the side of the hopper and its front end projecting through an opening 20 into the neck of the hopper. An eccentric 21 connects the said plunger with the gear wheel 15 and as the latter rotates it operates the front end of said plunger in and out of the opening 20 between the flights of the conveyer. This plunger operates to prevent any hard or lumpy object from remaining in or choking the conveyer as it rotates. The plunger 18 also acts as a cut-off to hold the coal so that the conveyer will force it along in the magazine and assure a continuous feeding of the same.

By feeding the fuel to the fire box from under the fire in the manner shown and described, no smoke will escape from the furnace as all gases will be consumed and a more perfect combustion produced, resulting in a great saving of fuel, and economy in operation.

Having thus described my invention, what I claim is:

1. In an underfeed furnace, the combination of a fire-box provided with a fuel support, a substantially horizontal magazine within said fire box having at its top a uniform opening extending substantially from end to end thereof, fire bricks supported at the sides of said opening and extending above the same, a screw conveyer within said magazine, the upper surface of said conveyer being below said opening, and a plunger at the forward end of said conveyer movable into and out of operative position with respect to the space between the flights thereof.

2. In an underfeed furnace, the combination of a fire-box provided with a fuel support, a substantially horizontal magazine within said fire-box having at its top a uniform opening extending substantially from end to end thereof and a channel at the upper edge of said opening, fire bricks supported in said channel and extending above said opening, a screw conveyer within said magazine, the upper surface of said conveyer being below said opening, and a plunger at the forward end of said conveyer movable into and out of operative position with respect to the space between the flights thereof.

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

WILLIAM H. H. STINEMAN.

Witnesses:

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ROBERT C. RHODES.