

R. D. GRANGER.

GRATE.

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924,346.

Patented June 8, 1909.

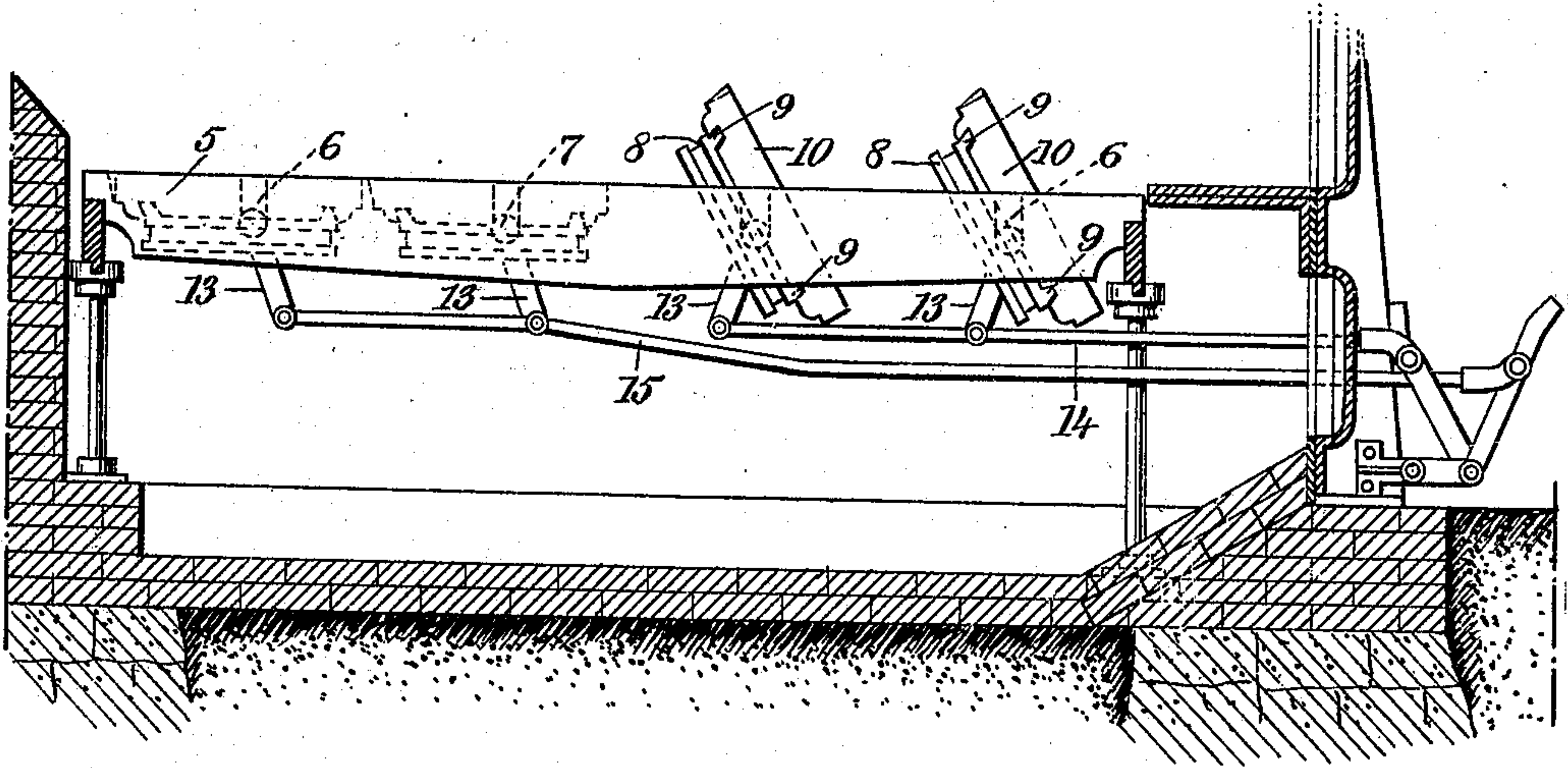


Fig. 1

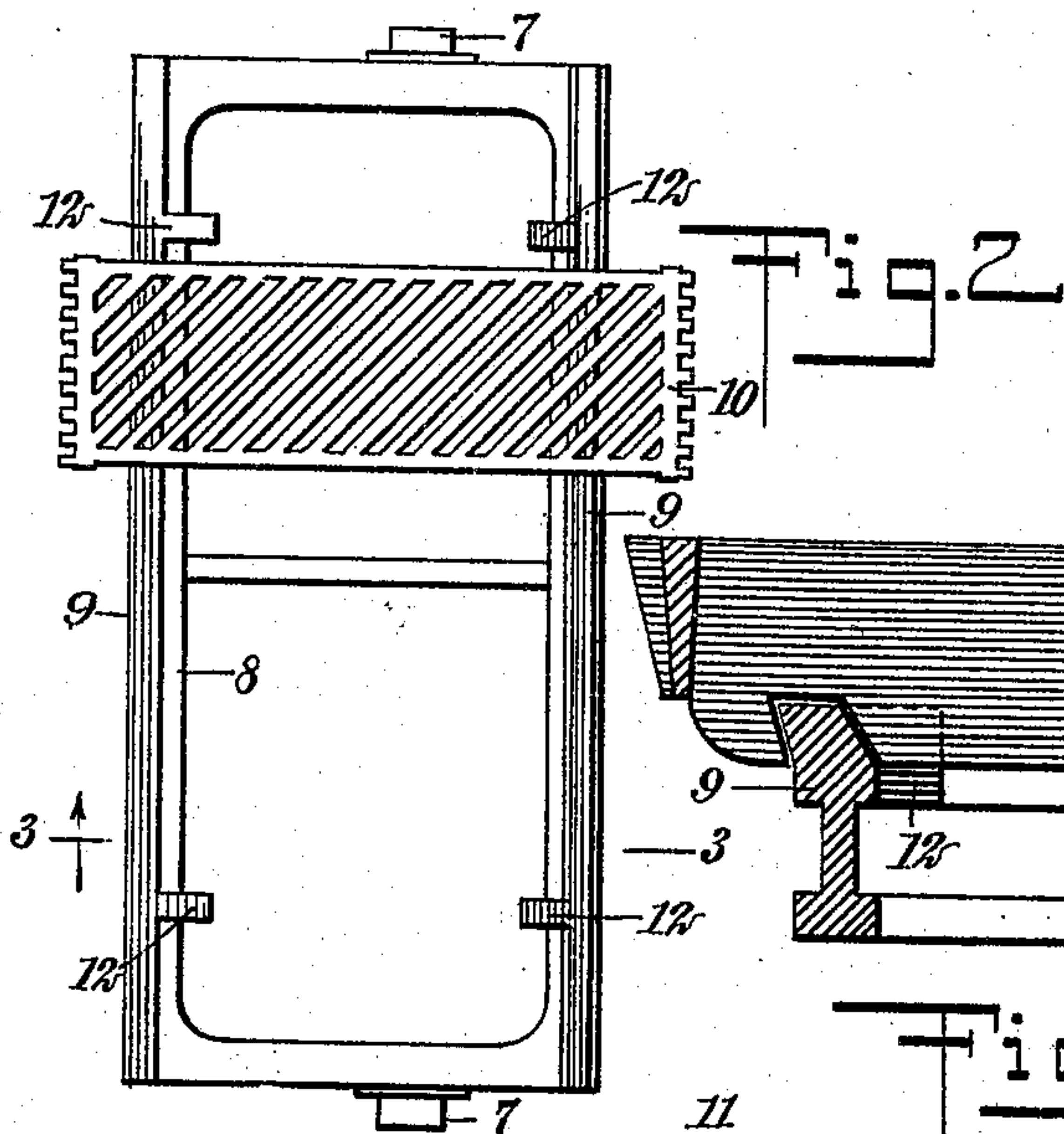


Fig. 2

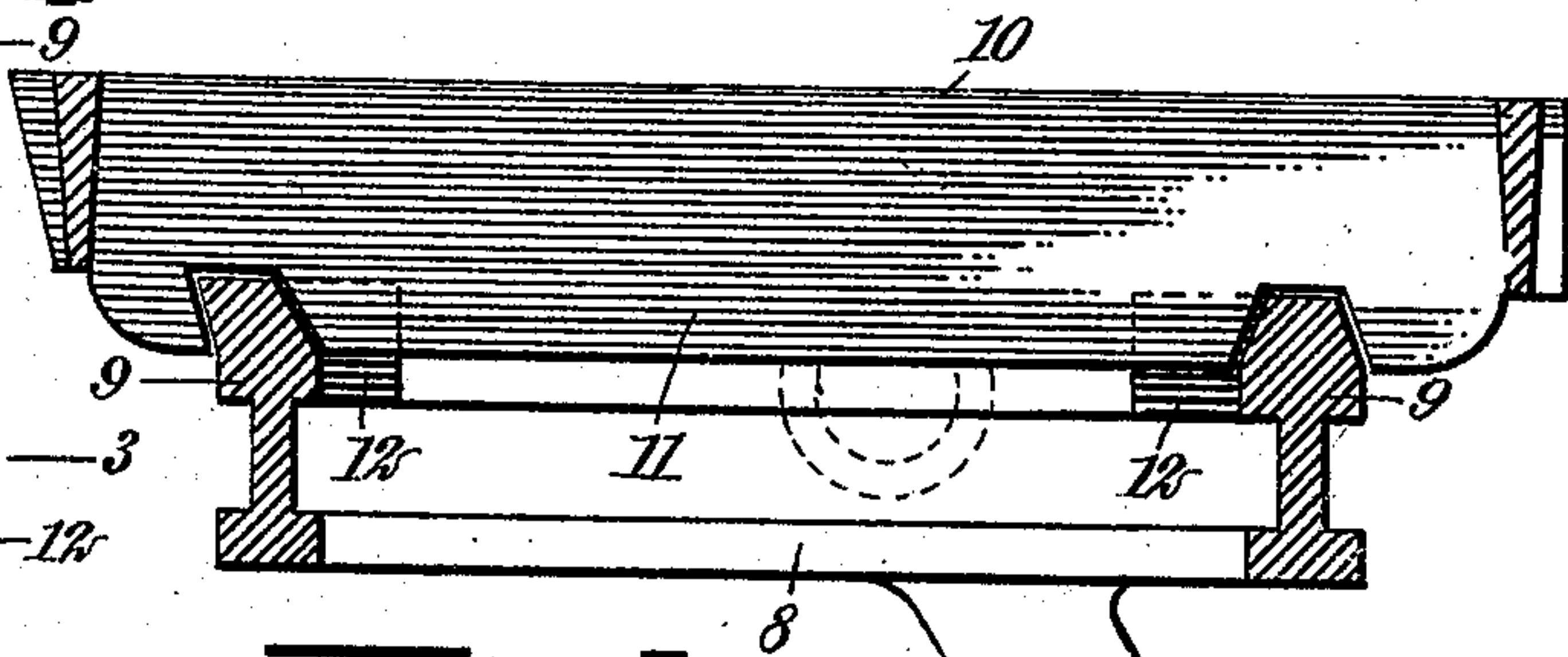


Fig. 3

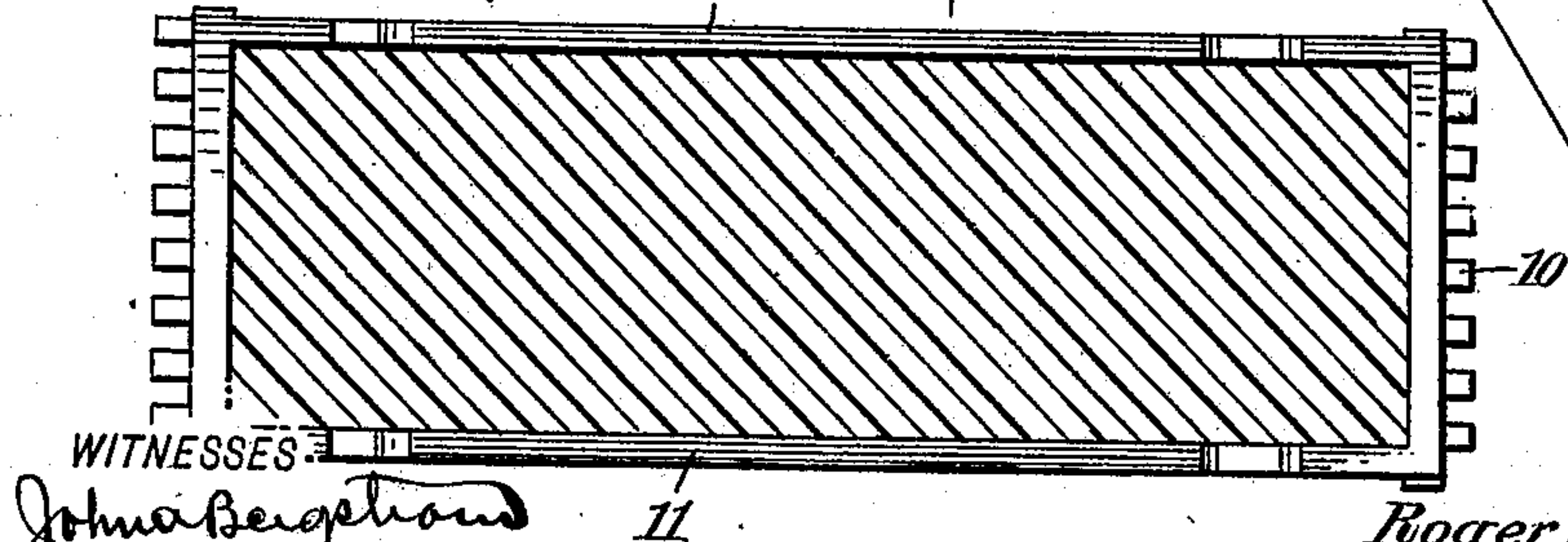


Fig. 4

WITNESSES  
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# UNITED STATES PATENT OFFICE.

ROGER D. GRANGER, OF NEW YORK, N. Y.

## GRATE.

No. 924,346.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed October 16, 1908. Serial No. 458,136.

*To all whom it may concern:*

Be it known that I, ROGER D. GRANGER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Grate, of which the following is a full, clear, and exact description.

The invention is an improvement in furnace grates and belongs to that class of such appliances in which a number of cradles are rockingly mounted, each cradle carrying a series of removable grate-bars arranged transversely thereon, the grate-bars having side flanges spaced apart and slotted on their under edges to fit over the side bars of the cradle. Prior to my invention it has been the practice to support these bars near the center only, this manner of support after short usage causing the bars to sag at the ends and finally break. In accordance with my invention I construct the cradle with longitudinal angular ribs at opposite sides, the ribs being elevated above the top of the cradle, with one of the ribs arranged normal to the plane of the cradle, and the other inclining with respect thereto, and the side flanges of the grate-bars slotted closely adjacent to the ends to receive and fit the ribs.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section through a furnace having my improved grate; Fig. 2 is a plan of one of the cradles, showing one of the grate bars in place; Fig. 3 is a cross-section substantially on the line 3—3 of Fig. 2, looking in the direction of the arrow; and Fig. 4 is an inverted plan of one of the grate bars.

In applying my improved grate to the furnace fire box, the conventional frame 5 is used, in which seats or bearings 6, as shown in dotted outline in Fig. 1, are provided for the trunnions 7 of the cradles 8, four of such cradles being generally used in each section of the box and arranged transversely thereof. The cradles, as constructed in accordance with my invention, each have angular ribs or flanges 9 at opposite sides on their upper

faces, one of said flanges being approximately normal to the plane of the cradle, and the other inclining laterally upwardly and outwardly with respect thereto. The ribs 9 are arranged longitudinally of the cradle at opposite sides and are of diminished width at the top. Each cradle is designed to carry a number of grate bars 10, each having side flanges 11 which are slotted on their lower edges near each end for receiving and fitting over the ribs 9 of the cradle, thus necessitating one of the slots being constructed at an inclination to fit over the laterally-inclined rib 9, which operates to lock that end of the grate bar to the cradle and prevent its disengagement therefrom when the cradles are tilted, as illustrated in Fig. 1, the inclined ribs of the cradles when the cradles are thus moved, being at the top. The bars are prevented from shifting lengthwise of the cradle by lugs 12 which are integral or otherwise rigid with the ribs 9 and project inwardly, the ribs being arranged near the opposite ends of the cradle and engage at the inside of the inner flange of each outer bar. In applying the grate bars to the cradle, the bar is first engaged at that end which seats on the inclined rib, when the opposite end of the bar may be dropped in place. In removing the bars, the ends engaging the upright rib must be first lifted before the opposite ends can be disengaged. Each cradle is provided with the customary depending arm 13, by which it is rocked with suitable dumping mechanisms, which in the present illustration of my invention are shown to consist of two lever-actuated rods 14 and 15, with each bar connected to the arms of a pair of adjacent cradles.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a grate, the combination of a cradle having ribs on the upper face thereof at opposite sides, and a grate bar slotted at the bottom near each end to fit over and seat on said ribs, one of said ribs being laterally inclined to prevent the grate bar from dropping from the cradle when the cradle is tilted to one side to a dumping position.

2. In a grate, the combination of a cradle

having longitudinal ribs at opposite sides,  
each rib being of diminished width at the  
top, and a grate bar having side flanges slot-  
ted near each end to fit over said ribs, one of  
5 said ribs inclining with respect to the plane  
of the cradle to prevent the grate bars from  
dropping off when the cradle is tilted to one  
side to a dumping position.

In testimony whereof I have signed my  
name to this specification in the presence of 10  
two subscribing witnesses.

ROGER D. GRANGER.

Witnesses:

W. W. HOLT,  
JOHN P. DAVIS.