

No. 771,166.

PATENTED SEPT. 27, 1904.

R. H. McCOY.  
FURNACE.

APPLICATION FILED OCT. 19, 1903.

NO MODEL.

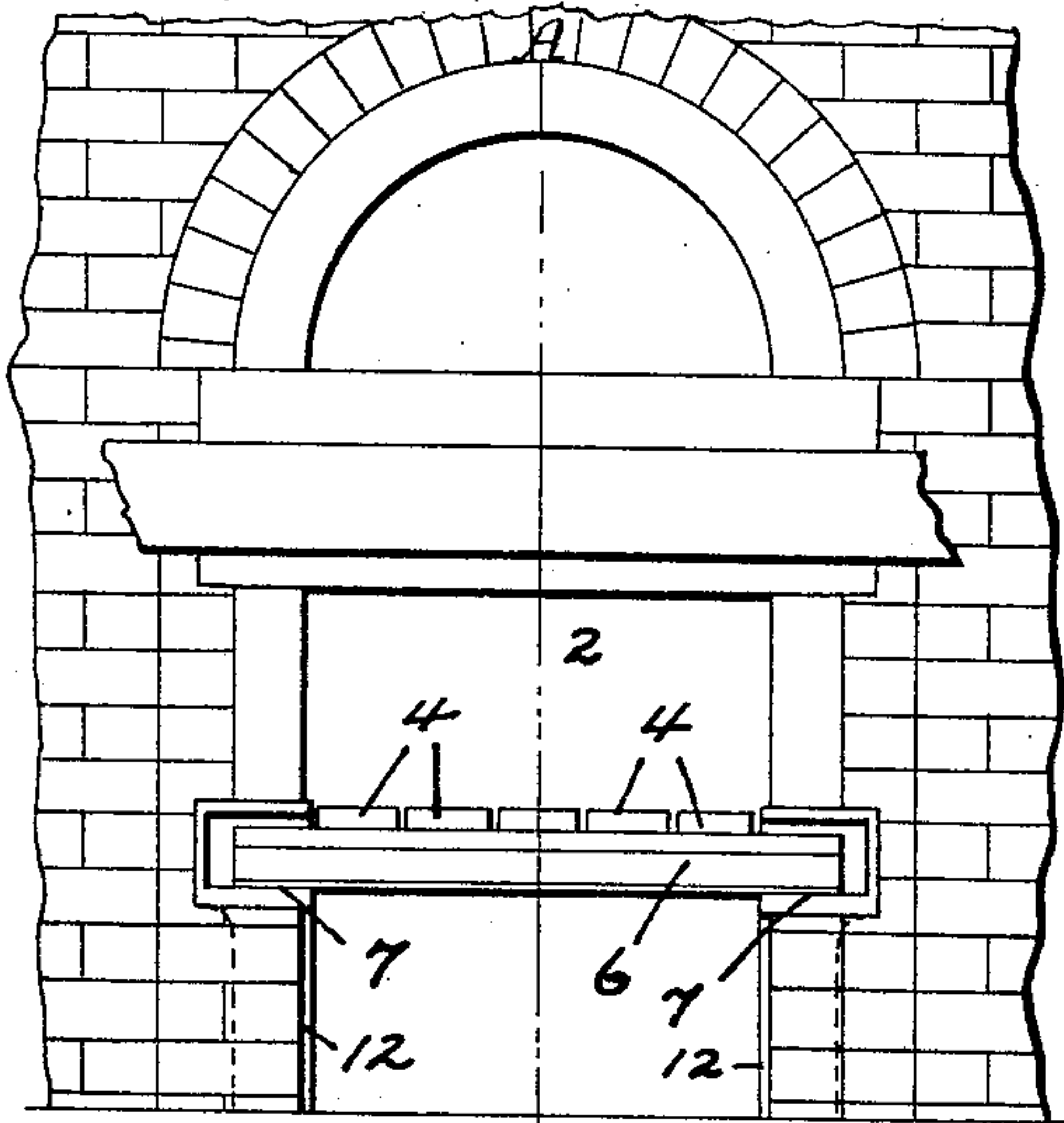


FIG. 1.

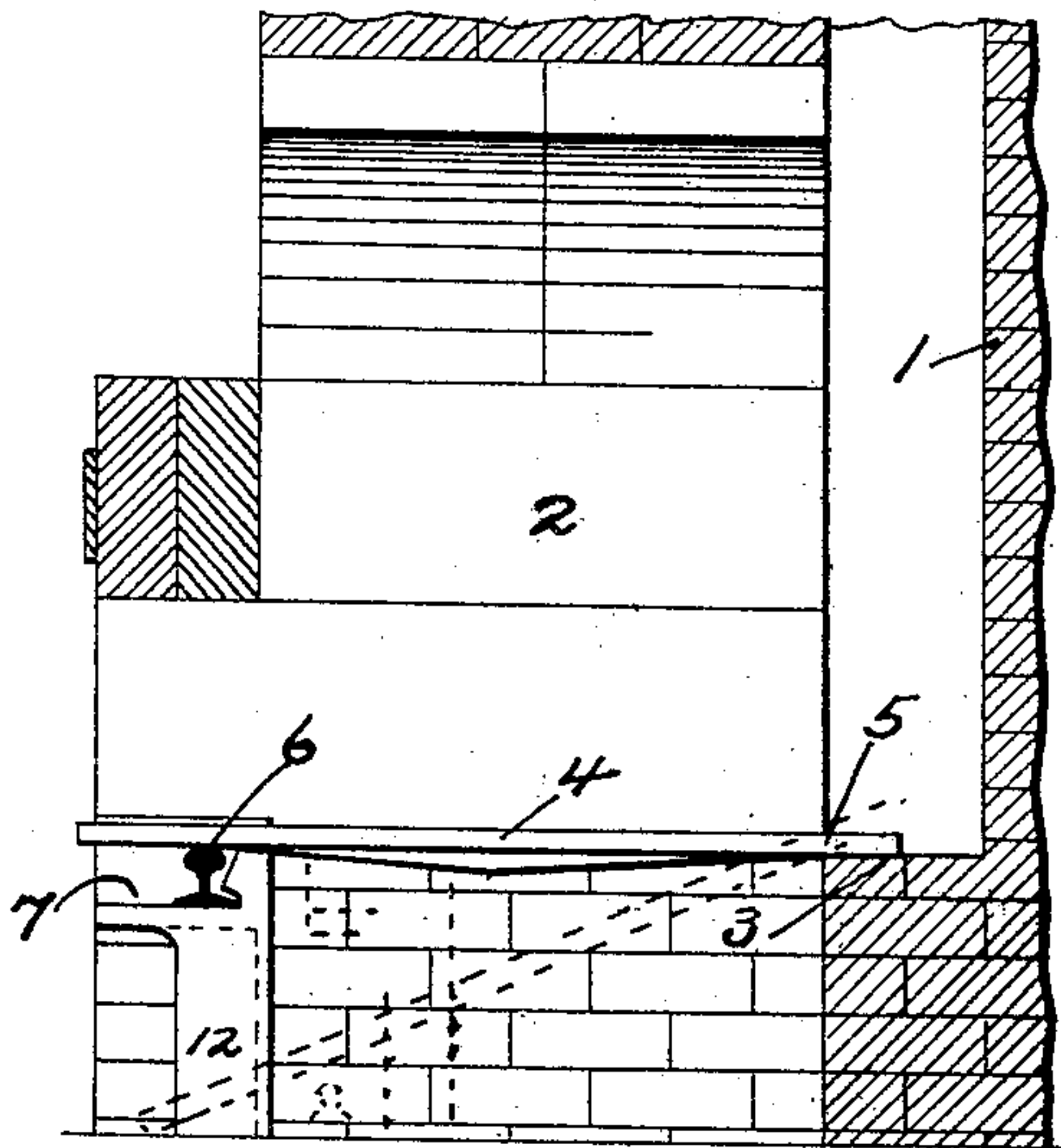


FIG. 2.

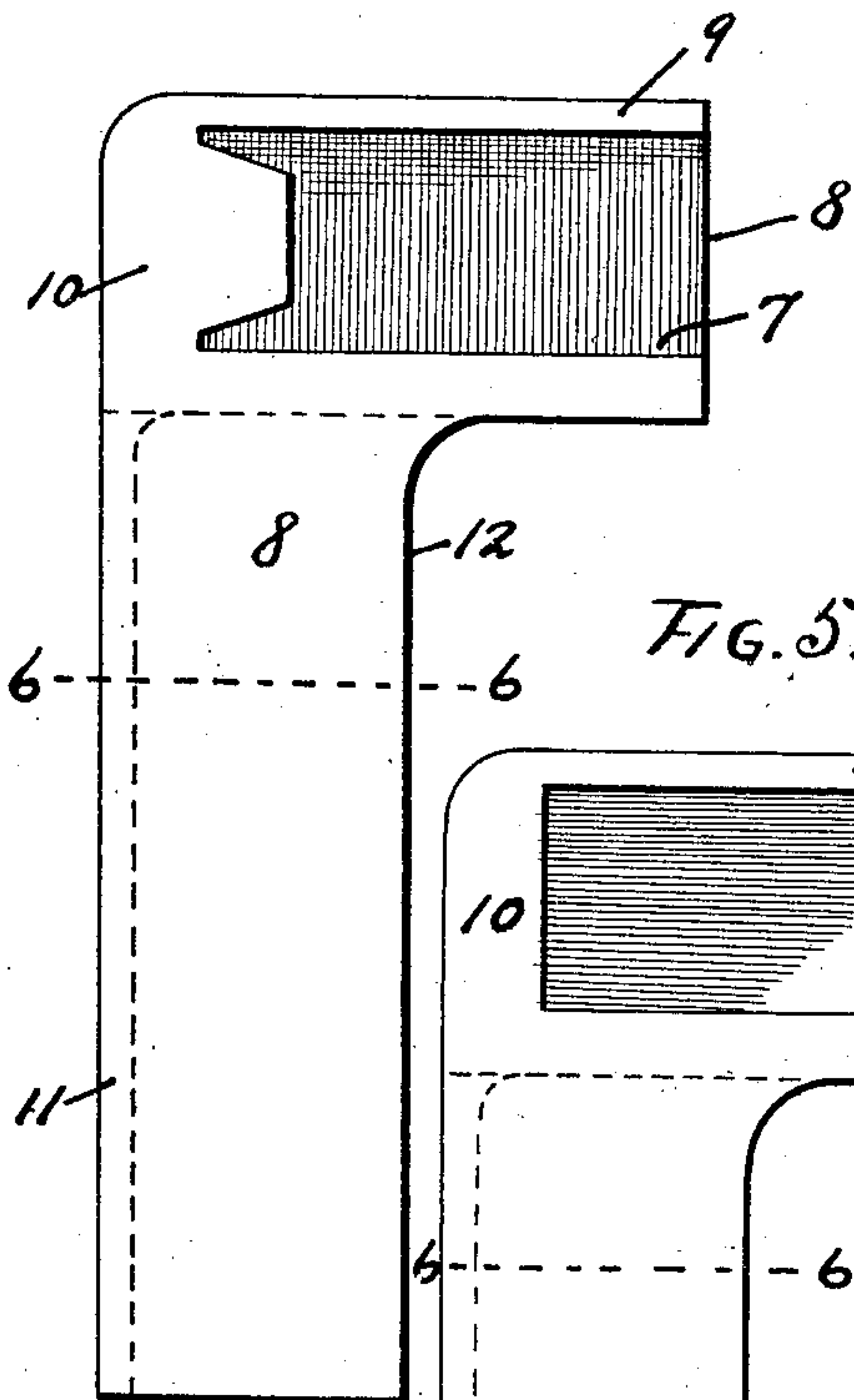


FIG. 3.

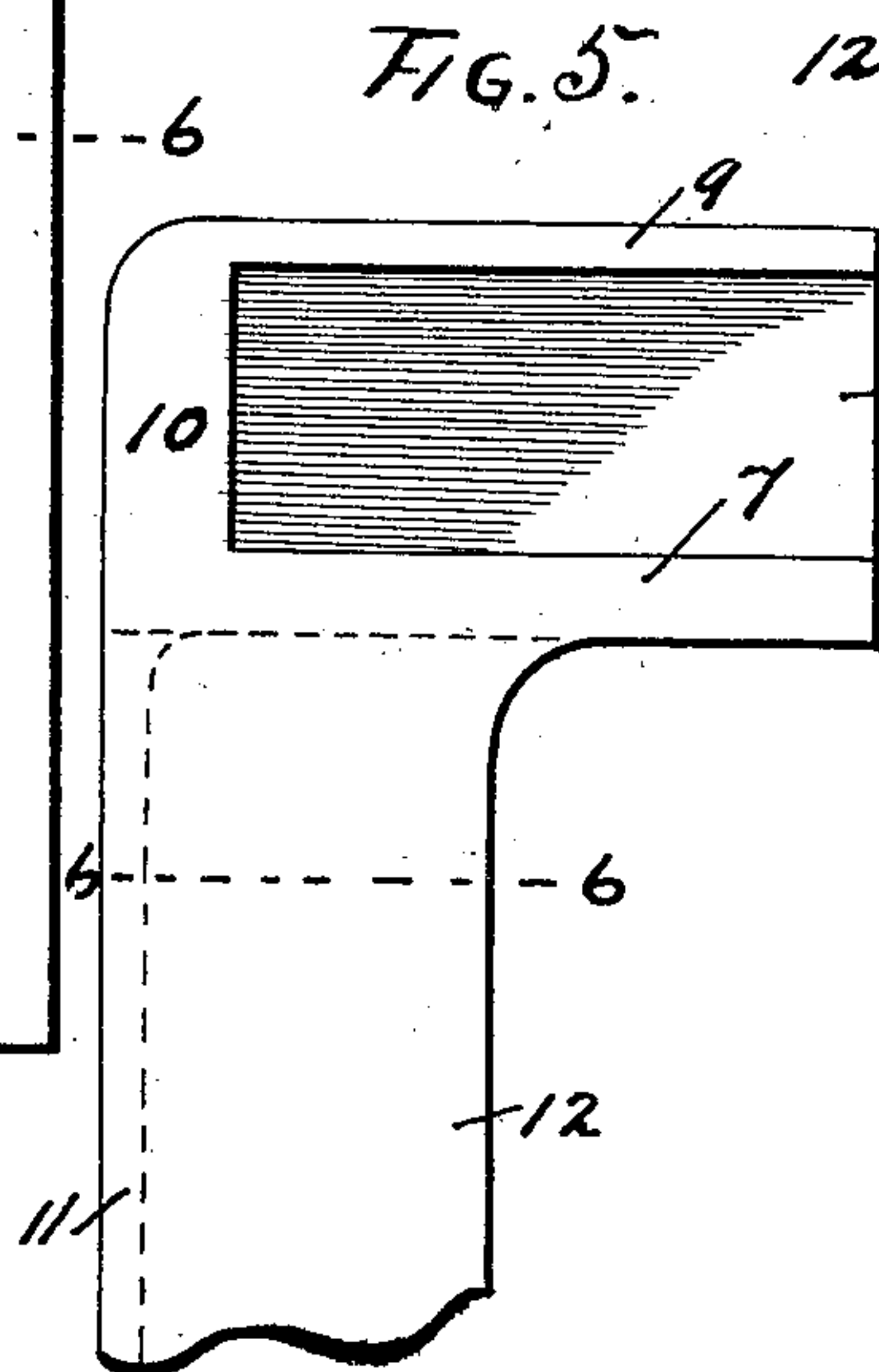


FIG. 5.

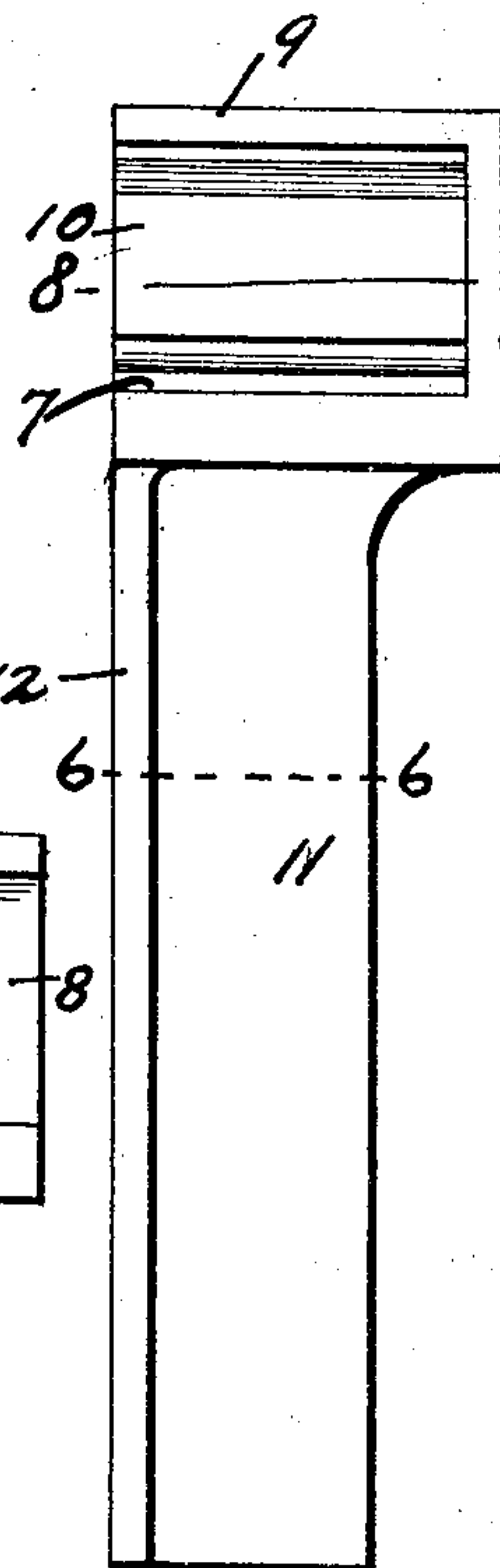


FIG. 4.

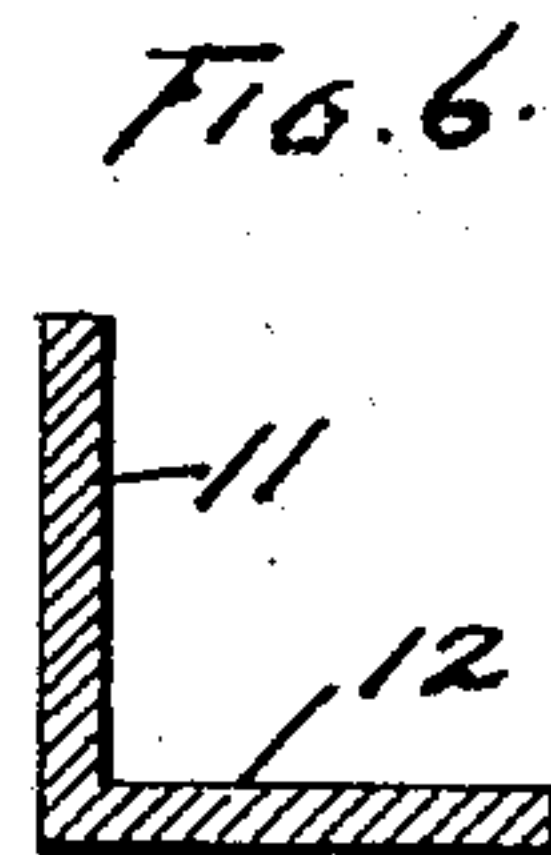


FIG. 6.

Witnesses  
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# UNITED STATES PATENT OFFICE.

ROLLAND H. McCOY, OF MONMOUTH, ILLINOIS.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 771,166, dated September 27, 1904.

Application filed October 19, 1903. Serial No. 177,716. (No model.)

*To all whom it may concern:*

Be it known that I, ROLLAND H. McCOY, a citizen of the United States, residing at Monmouth, in the county of Warren and State of Illinois, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

In furnaces used for some purposes—for example, furnaces used in kilns for baking pottery and the like—it is frequently necessary to draw the fire quickly at the instant the baking is completed.

The principal object of the present invention is to provide a furnace having grate-bars so supported that the drawing of the fire may be quickly accomplished.

It is also well known that in furnaces that are used for producing and maintaining high temperatures clinkers adhere to the grate-bars and bind them together and to the side wall of the furnace with such tenacity that it is extremely difficult to remove them with a rake or poker.

Another object of the invention is to provide means whereby such clinkers can be easily and quickly broken away.

In order to accomplish these objects, I support the grate-bars at the front of the furnace by means of a displaceable rail or cross-piece which can be easily and quickly drawn out of place by the fireman, permitting the front ends of all of the grate-bars to drop. The rear ends of the grate-bars being supported by a shoulder on the muffle-wall or bridge-wall, the dropping of the front ends will bring all of the grate-bars into inclined positions, so that so much of the fire as is not dumped by the mere act of removing the support from the front ends of the grate-bars may be easily and quickly removed by means of a rake or the like. This sudden dropping of the front ends of all the grate-bars also has the effect of agitating them, and this agitation has the effect of completely breaking away all clinkers that adhere to them, especially at the rear ends.

The invention consists in the features of novelty that are hereinafter described.

In the accompanying drawings, which are made a part of this specification, Figure 1 is

a front elevation of a furnace embodying the invention. Fig. 2 is a vertical section thereof on the line A B, Fig. 1. Figs. 3 and 4 are elevations, viewed from positions at right angles to each other, of a metallic part, preferably a fitting. Fig. 5 is an elevation similar to Fig. 3, showing a slight modification. Fig. 6 is a horizontal section on the line 6 6, Fig. 3 or Fig. 5.

The walls of the furnace are preferably built of brick. The present invention is not concerned with either the material of which they are built or with their construction or configuration further than as hereinafter described.

As shown in the drawings, there is a muffle-wall 1 at the rear end of the fire-box or combustion-chamber 2, and this wall is so built as to provide a shoulder 3, upon which the rear ends of the grate-bars 4 rest, the shoulder being of sufficient horizontal extent to permit the grate-bars to overlap it so far that the forward corner 5 of the shoulder provides a fulcrum about which the grate-bars move when their forward ends are allowed to fall. The front ends of the grate-bars are supported by a displaceable rail 6, preferably having the cross-sectional shape of a T-rail, such as is used for steam-railways. At its ends this rail 6 is supported by horizontal shoulders 7. These shoulders preferably are metallic and are integral with metallic fittings 8, which are preferably of cast metal, one being located on each side of the ash-pit. Each of these fittings comprises a horizontal portion which provides the shoulder 7, a vertical portion 8, rising from the shoulder at the outer edge thereof, a second horizontal portion 9, proceeding inward from the top of the portion 8, a vertical portion 10, bounding the space defined by the portions 7, 8, and 9, a vertical portion 11, depending from the shoulder 7 and built into the side wall of the ash-pit, and a vertical portion 12, disposed at right angles to the portion 11, as shown in Fig. 6, and lying against the wall of the ash-pit.

The construction or configuration of the rear wall 10, which closes the space bounded by the parts 7, 8, and 9, is such, as shown in



Figs. 3 and 4, as to provide spaces for receiving the top and bottom flanges of the rail 6, or, as shown in Fig. 5, it may have a vertical wall. In any event the fitting provides by its shoulder 7 a support upon which the rail 6 rests and along which said rail may be drawn forward, passing the front ends of the grate-bars when it is desired to draw the fire. In addition to this it has a vertical depending flange 12, lying against the side wall of the ash-pit and providing means for protecting the lower tiers of bricks of which the ash-pit is built when the rail is drawn out of place and the grate-bars allowed to fall. It will of course be understood that the laterally-projecting upper horizontal portion of the fitting, comprising the parts 7, 8, 9, and 10, are set into the masonry or other furnace structure, so that the parts 7, 8, and 9 provide a recess opening into the furnace and also open at the front of the furnace, so that at the instant when it is necessary to draw the fire the rail 6 may be withdrawn from beneath the forward ends of the grate-bars, allowing the latter to fall in the manner and with the results already described.

What I claim as new, and desire to secure by Letters Patent, is—

1. A furnace having, at the rear end of the fire-box, a muffle-wall provided with a shoulder, a grate made up of independent, individual grate-bars all of which have their rear ends supported by said shoulder so as to be separately and independently removable therefrom, a displaceable rail or beam supporting the forward ends of all of the grate-bars, and horizontal shoulders supporting the ends of said rail, whereby it may be displaced from

beneath the forward ends of the grate-bars, allowing them to fall, substantially as described.

2. A furnace having grate-bars, a rail or beam supporting the forward ends of the grate-bars, and fittings having portions built in the side walls of the furnace, a horizontal portion providing a shoulder, on which the ends of said rail or beam rest and are adapted to slide substantially as described.

3. A furnace having a fire-box, a muffle-wall provided with a shoulder, a grate made up of individual grate-bars, the rear ends of all of which are removably and separately supported by said shoulder, whereby they may be removed separately and independently of each other, a rail or beam supporting the forward ends of all of said grate-bars, and fittings built in the side walls of the furnace so as to be flush therewith, said fittings having shoulders on which the ends of said rail or beam rest and are adapted to slide, substantially as described.

4. A furnace having grate-bars, means for supporting the rear ends of said bars, a rail or beam for supporting the forward ends of said bars, and fittings for supporting the ends of said bars and for protecting the side walls of the ash-pit, said fittings having shoulders upon which said rail or bar rests and is adapted to slide, flanges built into the walls, and flanges lying against the faces of the walls, substantially as described.

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Witnesses:

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