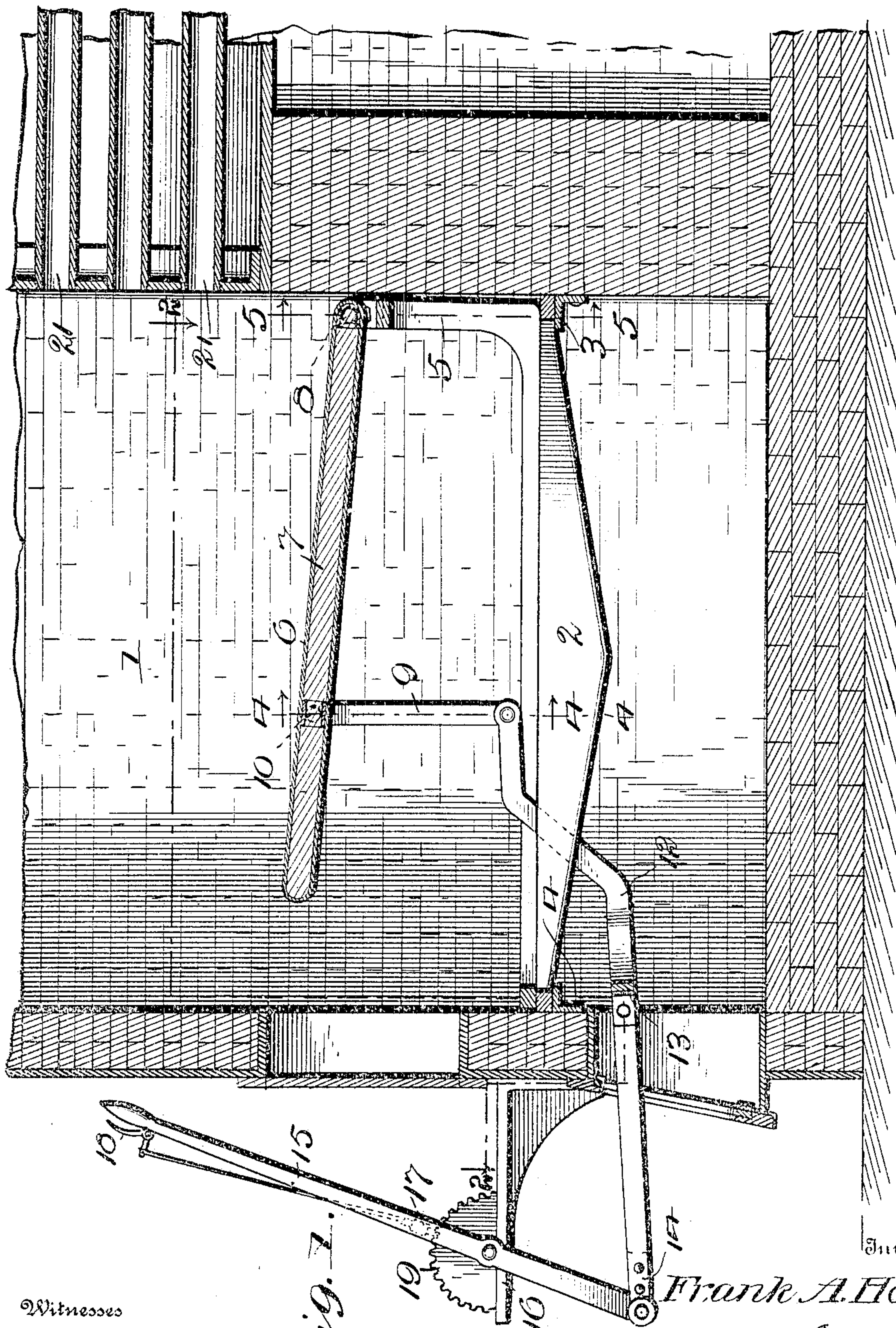


No. 788,046.

PATENTED APR. 25, 1905.

F. A. HOEFT.  
ATTACHMENT FOR FURNACES.  
APPLICATION FILED SEPT. 26, 1904.

3 SHEETS—SHEET 1.



Witnesses

J. C. Barry  
S. W. Fitzgerald.

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Inventor

Frank A. Hoefst

विष्णु

W. G. FitzGerald

Attorney &c.



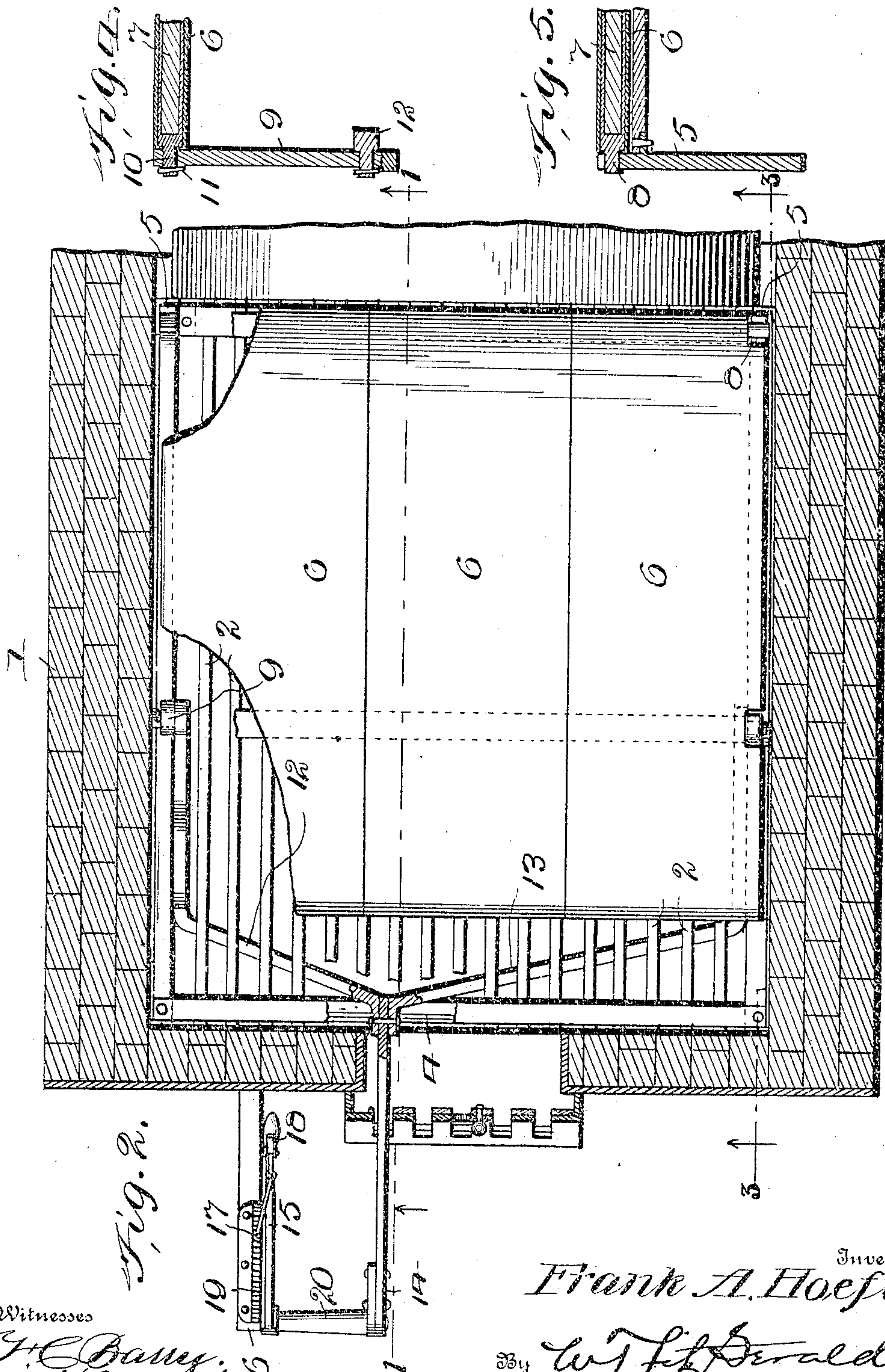
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3 SHEETS—SHEET 2.



Witnesses

*J. C. Barry.*  
*S. W. Fitzgerald*

Inventor  
*Frank A. Hoeft*

By *W. J. Fitzgerald*

Attorney



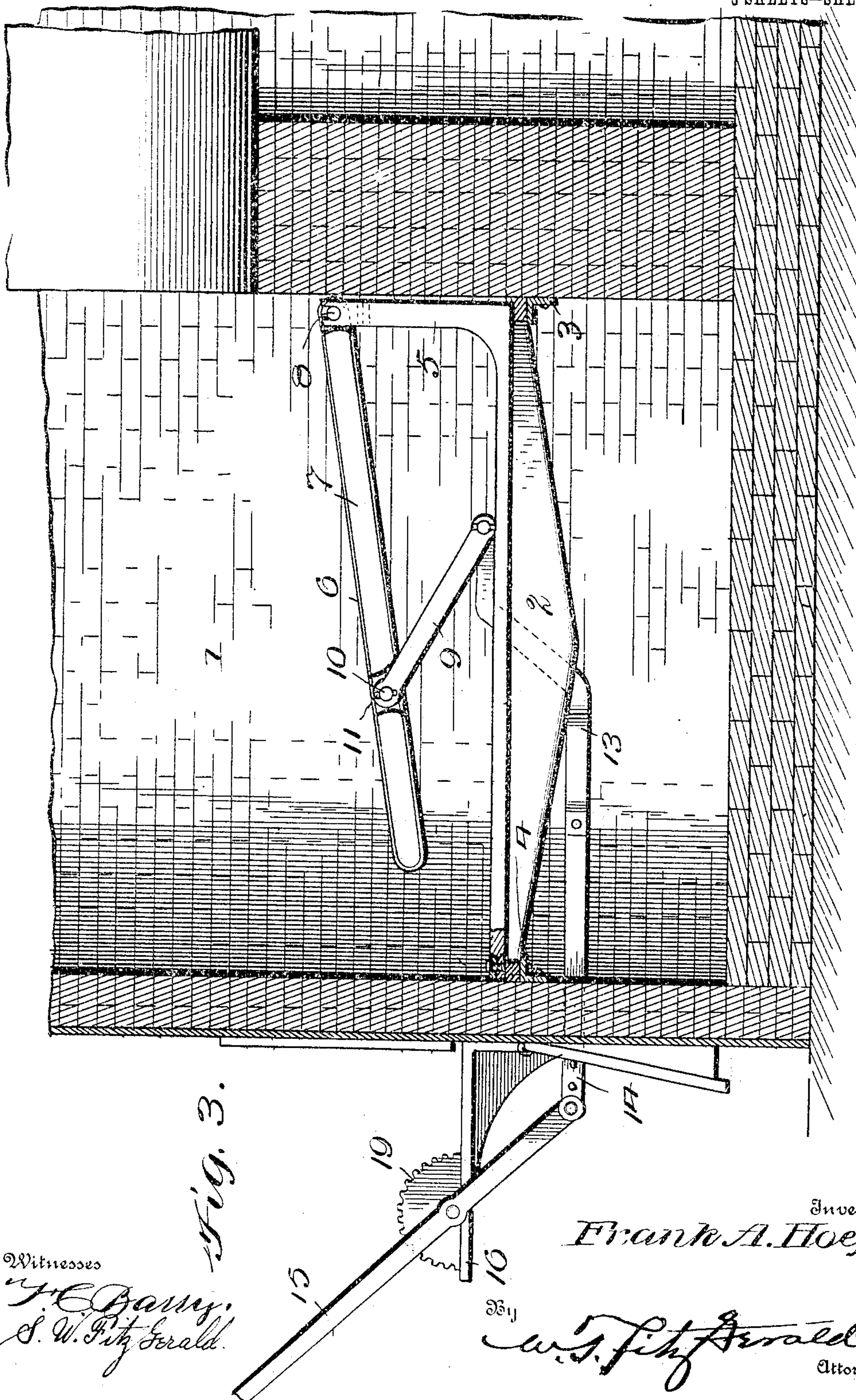
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3 SHEETS—SHEET 3.





# UNITED STATES PATENT OFFICE.

FRANK A. HOEFT, OF LATONA, MINNESOTA.

## ATTACHMENT FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 788,046, dated April 25, 1905.

Application filed September 26, 1904. Serial No. 225,984.

*To all whom it may concern:*

Be it known that I, FRANK A. HOEFT, a citizen of the United States, residing at Latona, in the county of Hubbard and State of Minnesota, have invented certain new and useful Improvements in Attachments for Furnaces; 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.

My invention relates to furnaces, and more particularly to an attachment for a furnace of the usual or any preferred construction, whereby straw, hay, or other light trashy material may be efficiently employed as a fuel; and my invention consists of certain novel features of combination and construction of parts, the preferred form whereof will be hereinafter clearly set forth, and pointed out in the claim.

The main object of my invention is to provide a simple though reliably efficient attachment of the character specified, whereby any furnace or fire box may be readily fitted for burning light trashy fuel, as hay, straw and weeds, or the like, at the same time attaining uniform though fierce combustion, which will be amply sufficient for the production of steam.

A further object of my invention is to enable my attachment to be used upon a furnace without liability to clog the flues of the boiler with unconsumed particles of fuel.

Other objects and advantages will be hereinafter made clearly apparent, reference being had to the accompanying drawings, which are made a part of this application, and in which—

Figure 1 is a longitudinal sectional view of my invention complete applied to use upon the fire box of a boiler as seen from the dotted line 1 1 on Fig. 2. Fig. 2 is a top plan view of my invention as applied to use upon the furnace or fire box as seen from the dotted line 2 2 on Fig. 1, the furnace-walls being shown in section. Fig. 3 is a side elevation of my attachment complete ready for use as seen from the dotted line 3 3 on Fig. 2, the walls of the furnace being shown in section.

Fig. 4 is a sectional detail view taken on line 4 4 of Fig. 1. Fig. 5 is a sectional detail of

part of my invention as taken on line 5 5 of Fig. 1.

For convenience of reference to the various details and coöperating accessories of my invention numerals will be employed, the same numeral applying to a similar part throughout the several views.

Referring to the numerals on the drawings, 1 designates the combustion-chamber or fire-box, across the lower portion of which I secure a plurality of grate-bars 2, reliably supported in any preferred way, as upon the supporting-ledges 3 and 4, secured to the walls of the furnace in any preferred way, whereby said grate-bars may be permanently or removably held in place, as deemed most desirable. I also provide within the furnace or fire box the upwardly-extending standards 5, there being preferably two of said standards, one at each inner corner of the fire-box, said standards being of a proper height to support the inner end of a fuel-covering plate which comprises an outer metallic casing 6 and an inner packing 7, of fire-brick or other heat-resisting material. On each of the inner corners of said plate I provide an outwardly-directed lug 8, designed to fit within a recess provided in the upper ends of the standards 5, whereby the plate will be pivotally mounted in position, and in order to raise and lower the outer end, or the end adjacent to the door of the combustion-chamber, I provide suitable controlling mechanism, consisting in this instance of a pair of depending link members 9, pivotally connected to each side of the plate, as by the lugs or journals 10, carried by said plate, the link-section being held in union with said lugs or journals in any desired way, as by the pins 11. The lower ends of the link members 9 are pivotally united each to its respective branch 12 and 13 of the controlling-lever 14, which latter extends out through the outer door and is operatively connected to the controlling-lever 15, which latter is mounted in any preferred way, as upon the bracket 16, and is provided with the usual thumb-controlling detent 17, operated by the thumb-lever 18 and placed in coöperative relation with the segmental rack-bar 19, all of which parts are clearly shown in the drawings.



By reference to Fig. 2 it will be observed that the controlling-lever and the supporting-bracket may be disposed to one side and out of the way by employing the link connection 5 or arm 20 upon the end of the controlling-lever 14, and it is obvious that by throwing the upper end of the controlling-lever 15 inward the plate comprising the members 6 and 7, as before explained, may be elevated or lowered 10 at its outer end, and as said plate is designed to rest normally upon the mass of hay, straw, or the like placed upon the grate-bars it is obvious that the point of combustion of said material will be around the edges, and more 15 particularly along the front part of said mass, the products of combustion passing over the plate and through the boiler-flues 21, as will be clearly obvious.

When it is desired to charge or supply the 20 furnace-box with a requisite amount of straw, hay, cornstalks, or the like, the controlling-lever 15 is thrown inward, which incidentally raises the outer edge of what may be termed the "damper-plate" or "covering member" 6 25 to the fullest extent, when the furnace-door may be opened and the material forced under the damper-plate until the space thereunder is completely filled. The controlling-lever 15 is then moved outward at its upper end, which 30 causes the damper-plate to rest upon the mass of material disposed upon the grate-bars and insuring that the said mass will be held against instantaneous or too rapid combustion, since the combustion can only take place around 35 the edges of the mass of material under the plate.

The various parts of my invention may be

cheaply and expeditiously manufactured and each readily assembled in its respective operative position, and while I have described the 40 preferred combination and construction of parts I desire to comprehend in this application all such substantial equivalents and substitutes as may be considered as falling fairly within the scope of my invention. 45

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

The herein-described attachment for the fire-boxes of furnaces, comprising the combination with the grate-bars, of a pair of standards erected thereon and located near the inner ends; a damper-plate consisting of an outer 50 metallic covering and an inner filling of fire-clay or the like pivotally mounted at its inner end upon said standards and extending over the grate-bars; a controlling-shaft 14 having a bifurcated inner end the branches of which are placed in pivotal communication with the 60 outer end of the damper-plate by means of the link members 9 and a controlling-lever 15 operatively mounted in position and pivotally connected to the shaft 14 whereby said shaft may be reciprocated and the damper-plate 65 raised or lowered at its outer end, all combined substantially as specified and for the purpose set forth.

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

FRANK A. HOEFT.

Witnesses:

MARTIN J. LYNCH,  
W. N. HULSE.