

No. 778,121.

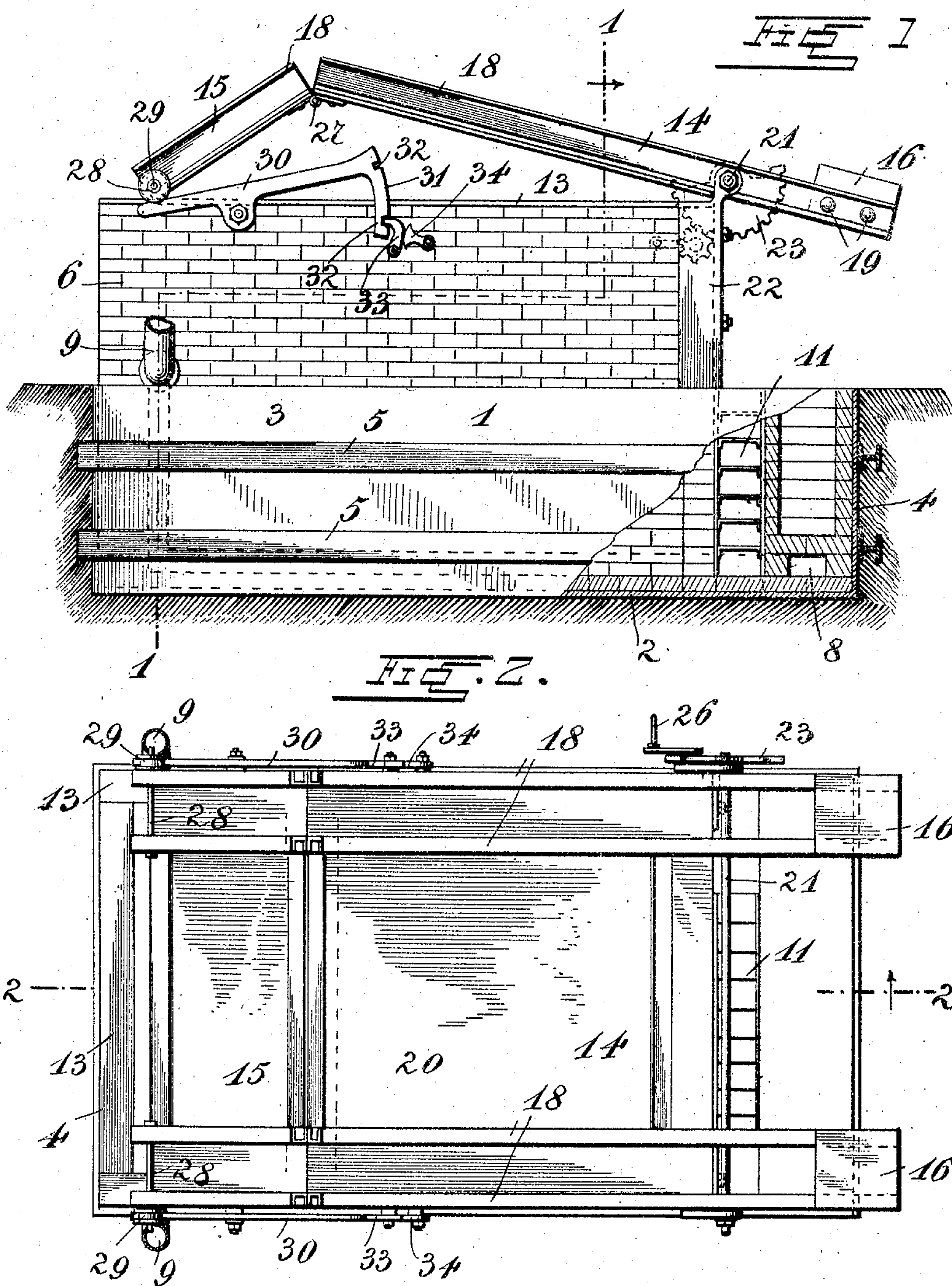
PATENTED DEC. 20, 1904.

J. ELSNER.
FOUNDRY OVEN.

APPLICATION FILED SEPT. 15, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
C. L. Hilton
L. O. Hilton

Inventor
Joseph Elsner
by *A. R. Wilson*
Attorney

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3 SHEETS—SHEET 2.

FIG. 3.

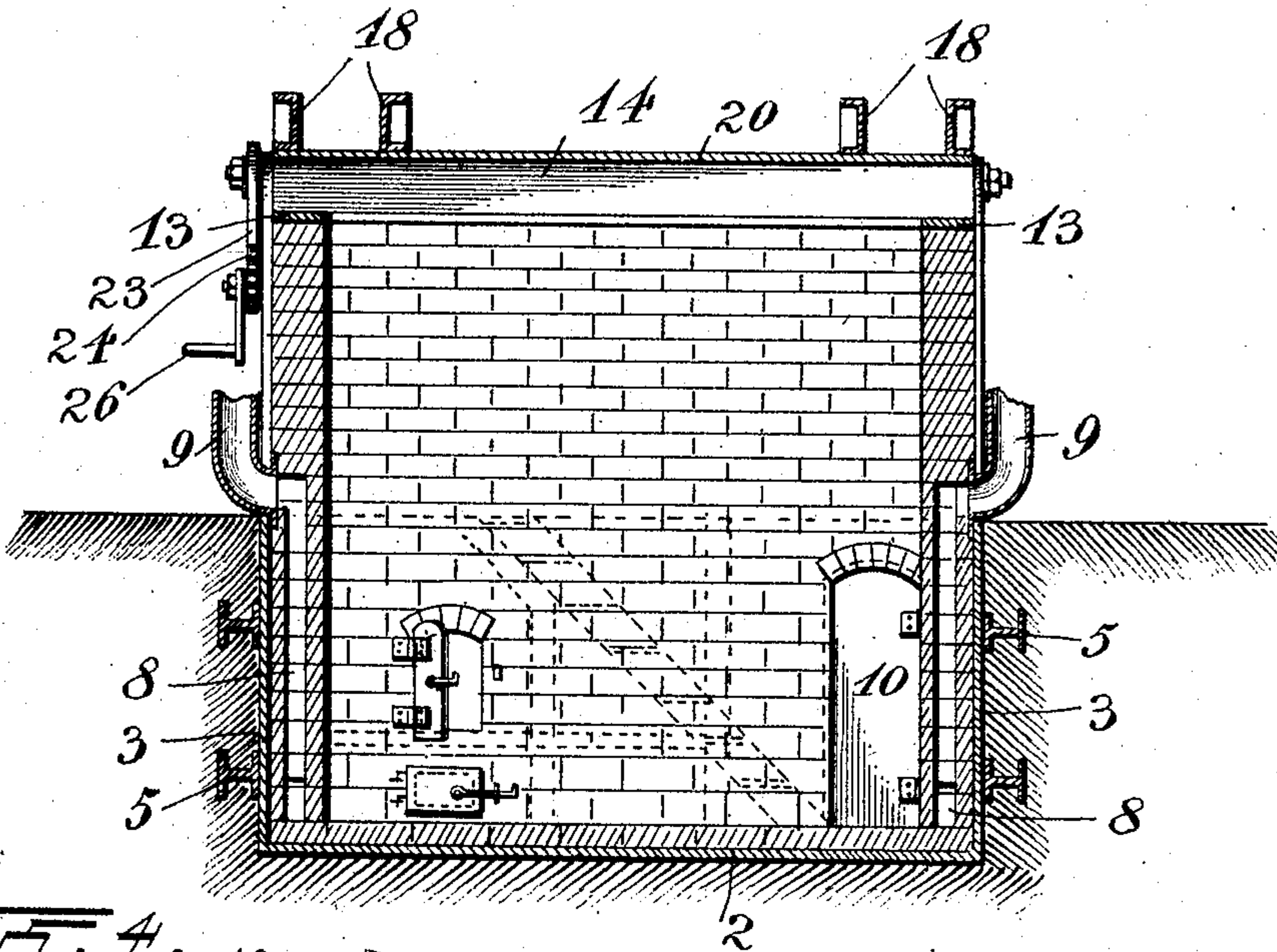
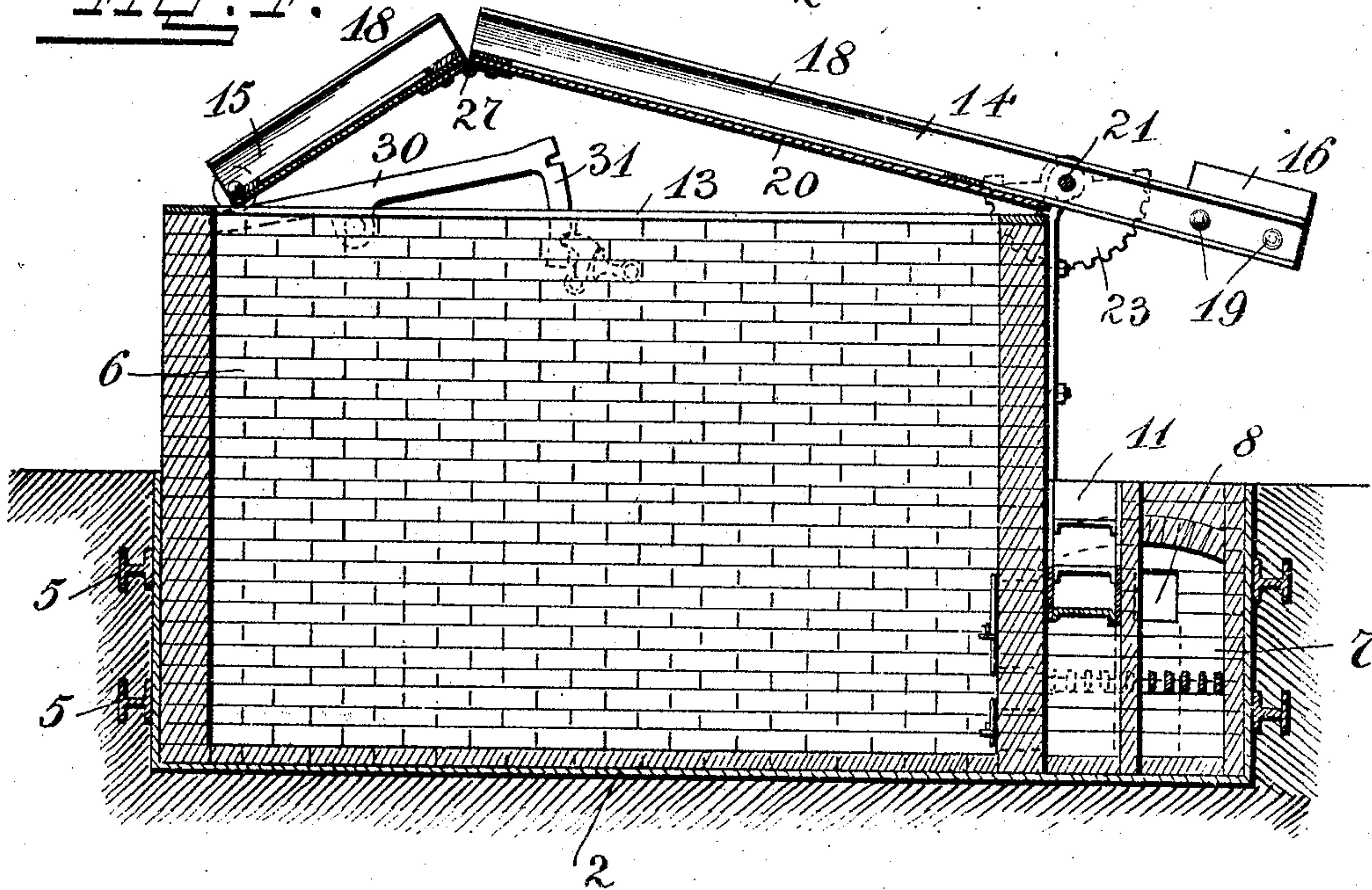


FIG. 4.



Witnesses
C. Hunter
L. O. Hilton.

Inventor
Joseph Elsner
by A. B. Wilson
Attorney

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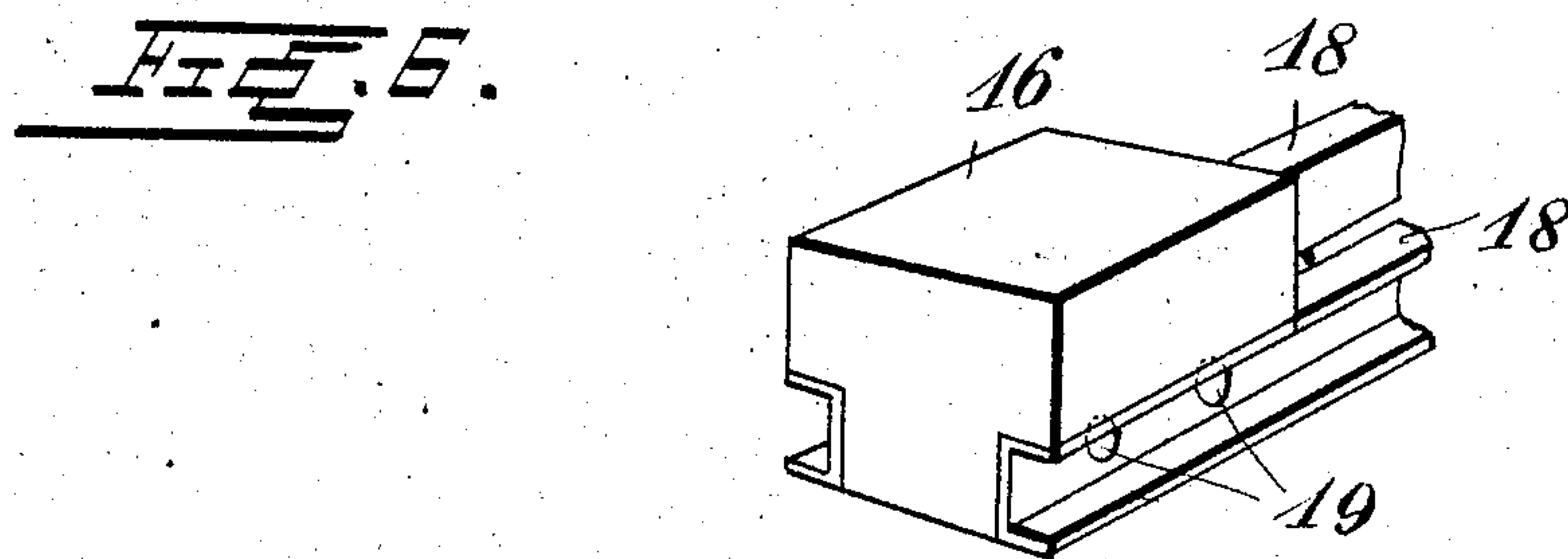
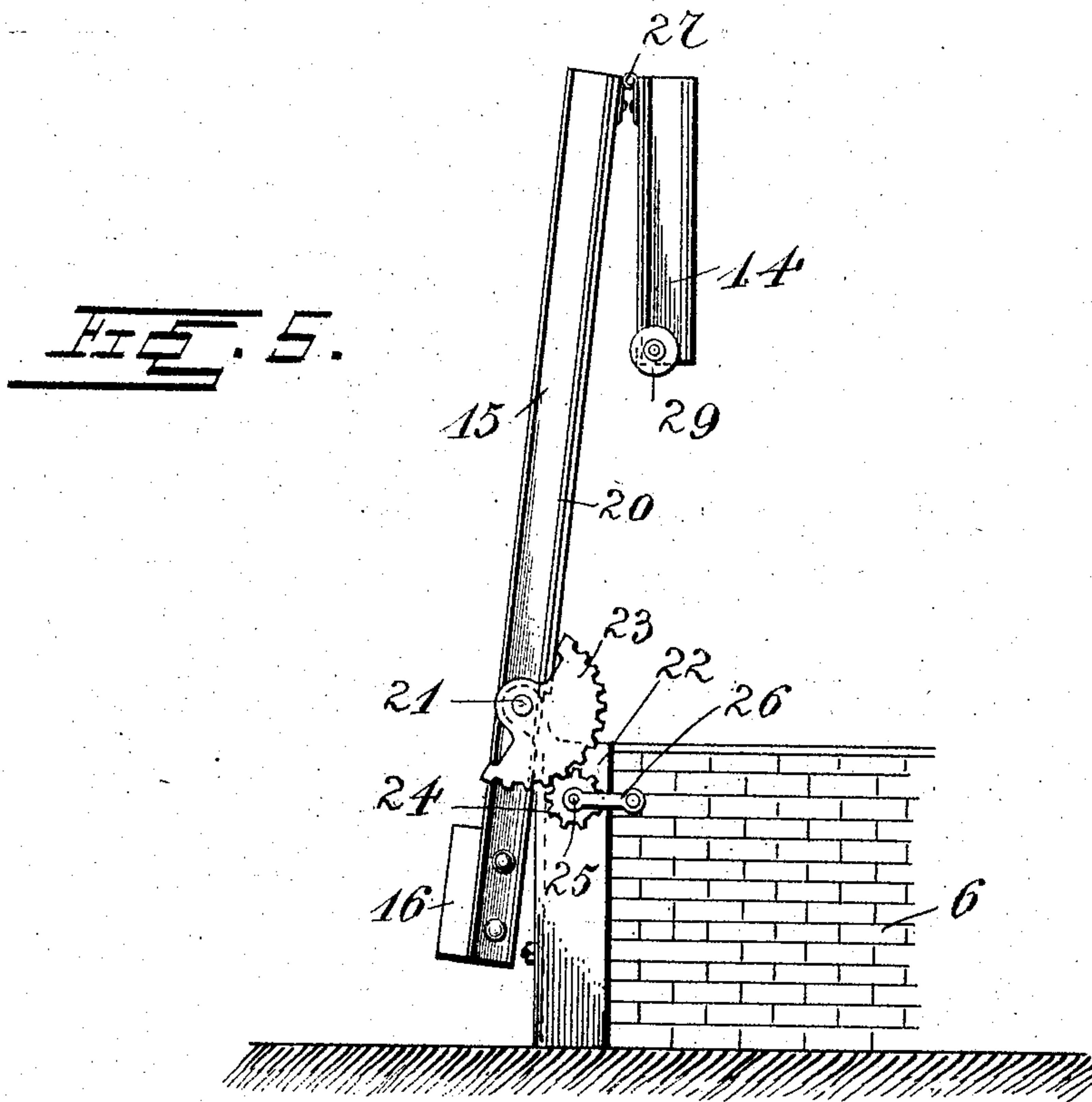
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NO MODEL.

3 SHEETS—SHEET 3.



Witnesses

C. Minton
L. O. Hilton

Inventor

Joseph Elsner

by *A. B. Wilson*

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH ELSNER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF
TO HENRY BIEGEL, OF WEST ALLIS, WISCONSIN.

FOUNDRY-OVEN.

SPECIFICATION forming part of Letters Patent No. 778,121, dated December 20, 1904.

Application filed September 15, 1904. Serial No. 224,582.

To all whom it may concern:

Be it known that I, JOSEPH ELSNER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Foundry-Ovens; and I do 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.

This invention relates to foundry-ovens designed for the purpose of annealing castings and drying molds, and one of the principal objects of the invention is to economize in the space necessary for the construction of such ovens.

Heretofore foundry-ovens have been provided with large doors and tracks passing into the oven to support large trucks for carrying the castings and molds and depositing them in the oven. The space occupied by the tracks is quite valuable in a foundry, and one of the purposes of my invention is to dispense with tracks, cars, and other means of carrying the castings and molds into the oven and in this way saving the space which such an arrangement would require.

Another object is to provide an oven with a counterbalance sectional trap-door at the top of the oven and with means for operating said door for the purpose of gaining access to the oven through the top thereof.

These and other objects are attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side view and partial section of an oven constructed in accordance with my invention, showing the trap-door partially open. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section on the line 1 1, Fig. 1. Fig. 4 is a longitudinal section on the line 2 2, Fig. 2. Fig. 5 is a detail elevation of the trap-door when fully opened and showing the mechanism for opening and closing the same, and Fig. 6 is a detail perspective view of one portion of a counterbalance or weight for opening the trap-door.

Referring to the drawings for a more particular description of the invention, the nu-

meral 1 designates a sheet-metal casing comprising a bottom 2, side walls 3, and end walls 4, said casing being arranged to entirely surround the oven at its lower portion. To brace the side and end walls of the casing, I-beams 5 are provided, said I-beams being bolted to said walls at the required distance apart to form a strong and durable outer wall for the lower part of the oven. The mason-work 6 of the oven is built within the metal casing 1 and extends some distance above it. A fire-space or furnace 7 of the usual or any preferred construction is provided at one end of the structure, the products of combustion passing through the flue 8 and the chimney 9. A door 10 gives access to the interior and a stairway 11 leads down to the furnace. The top of the oven is provided with metal binding-strips 13, which extend around the upper edge of the oven and form a casing for the trap-door, which will now be described. The trap-door consists of two sections 14 15, the section 14 extending out beyond the wall of the structure and being provided with a counterbalance-weight 16, said counterbalance consisting of a solid-iron weight recessed at opposite sides, as at 17, and fitted within the recesses are the longitudinal metal channel-irons 18, secured by bolts 19 to the weight. The channel-irons extend from end to end of the trap-door section. Upon reference to Fig. 2 it will be seen that two such counterbalance-weights are shown, one at each side of the trap-door section. The trap-door proper is formed of metal plates 20, said plates extending across between the outer channel-irons and secured thereto. The trap-door section 14 is pivoted upon a rod 21, passing through the channel-irons and pivoted at its ends in brackets 22, secured to the corners of the structure. The rod 21 is connected to a sector 23, designed to engage a pinion 24, connected to a shaft 25, provided with a crank 26, thus providing means for elevating and opening the trap-door by hand, assisted by the counterbalance-weights. The other section, 15, of the trap-door is hinged at 27 to the section 14, and said short section is constructed of channel-irons and plates in a manner similar to section 14.

Short shafts 28 extend through the channel-irons, and journaled upon the ends of said shafts are grooved wheels 29, said wheels being adapted to engage guides 30, pivoted at 5 opposite sides of the oven at the top. The guides 30 at one end are provided with sector-racks 31, having notches 32 for the engagement of the catches 33, pivoted to the side walls of the oven. For holding the 10 catches in place pivoted buttons 34 are provided. The guides 30 serve when adjusted in their upper position as inclined bearings or tracks upon which the wheels 29 are adapted to ride upward while the trap-door is being 15 opened. When the door is closed, the catch 33 and button 34 hold the guides 30 down to a position to permit the trap-door to close down.

From the foregoing description the operation of my oven will be fully understood without a more extended explanation. When it 20 is desired to anneal heavy steel castings and dry the molds, the trap-door is opened in the manner previously described and the castings and molds are hoisted into the oven and placed 25 upon the floor by a crane or other suitable means, after which the trap-door is closed and locked. Fire is then started in the furnace and the heat is maintained for a suitable period, when the trap-door is opened for the re- 30 moval of the castings and molds.

It is to be noted that by means of my construction the space usually occupied by tracks may be made available for other purposes, since access to my oven is gained entirely 35 through the upper portion.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this in- 40 vention.

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

1. An oven for annealing castings and drying molds comprising a metal casing, mason- 45 work walls within the casing, a trap-door at

the top of the oven, said trap-door comprising two sections hinged together, one of said sections provided with a counterbalance-weight, a sector and a pinion for raising said 50 section, and the other section having grooved wheels at the outer end thereof and guides pivoted to the oven, to serve as tracks for said grooved wheels, substantially as described.

2. In an oven for annealing castings and drying molds, a trap-door comprising two sections hinged together, one of said sections provided with a counterbalance-weight and means for elevating said section, the other section 60 provided with guide-wheels, guides for the wheels, said guides being pivoted, and means for holding said guides in two positions, substantially as described.

3. In an oven of the character described, a trap-door consisting of two sections hinged together, one of said sections being provided 65 with a sector, a pinion for engaging the sector, and a crank for operating the pinion and elevating both sections of the door, in combination with pivoted guides and means for 70 holding them in inclined positions to guide the outer end of one of the sections of the door, substantially as described.

4. In an oven of the character described, a metallic casing surrounding the oven at its 75 lower portion, I-beams secured to the outer walls of said casing to brace the same, masonry walls within the casing containing a fireplace, a trap-door consisting of two sections hinged together and pivoted at the top of the 80 oven, adjustable guides for one section of the door, and a counterbalance and means for operating the other section, substantially as described.

In testimony whereof I have hereunto set 85 my hand in presence of two subscribing witnesses.

JOSEPH ELSNER.

Witnesses:

H. J. LINDENMANN,
WM. J. RIORDAN.