

P. RIECKE.

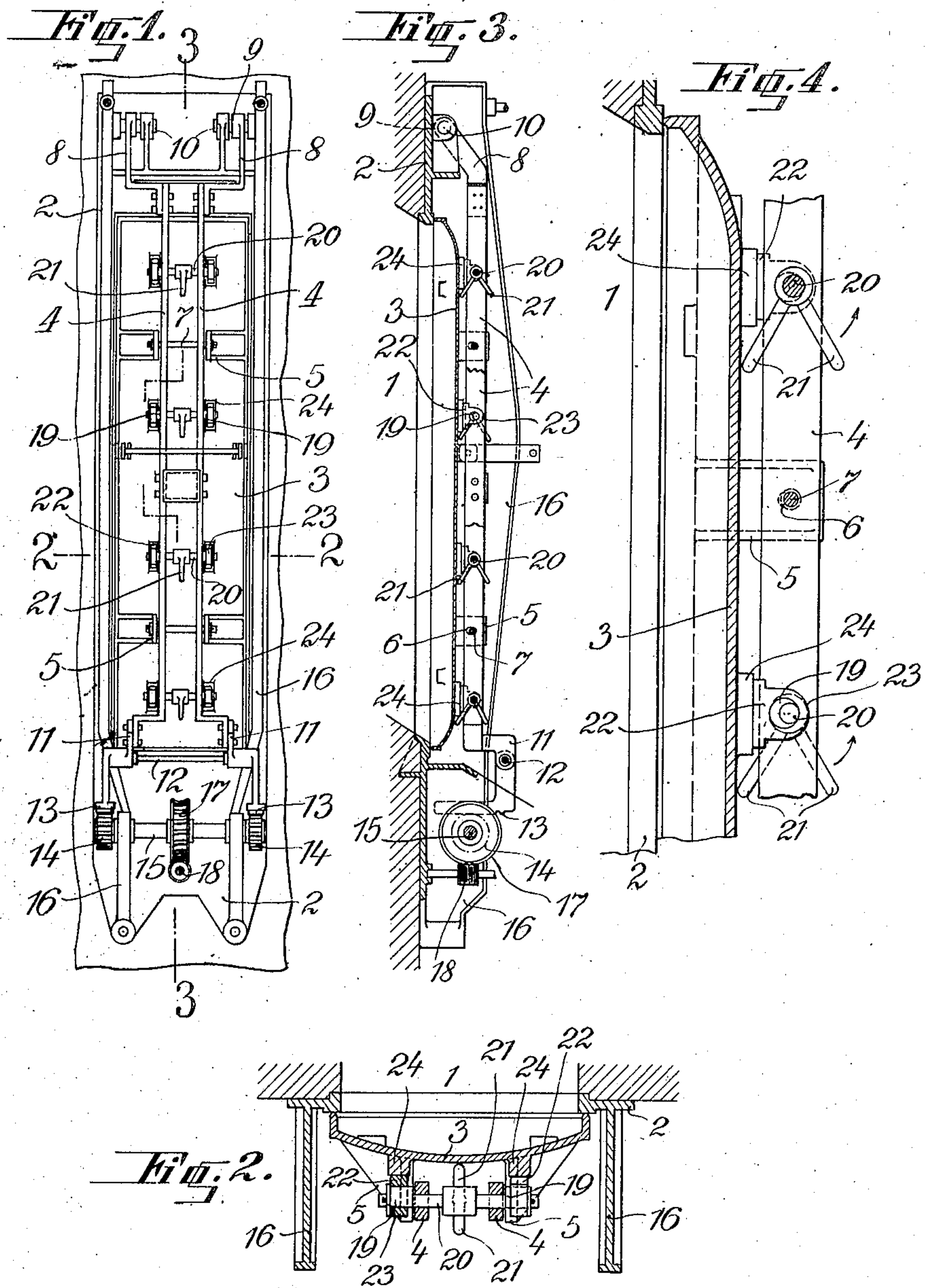
DEVICE FOR PRESSING THE DOORS OF OVENS AGAINST THEIR SEATS.

APPLICATION FILED DEC. 11, 1909.

962,669.

Patented June 28, 1910.

2 SHEETS—SHEET 1.



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Inventor:
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2 SHEETS—SHEET 2.

Fig. 5.

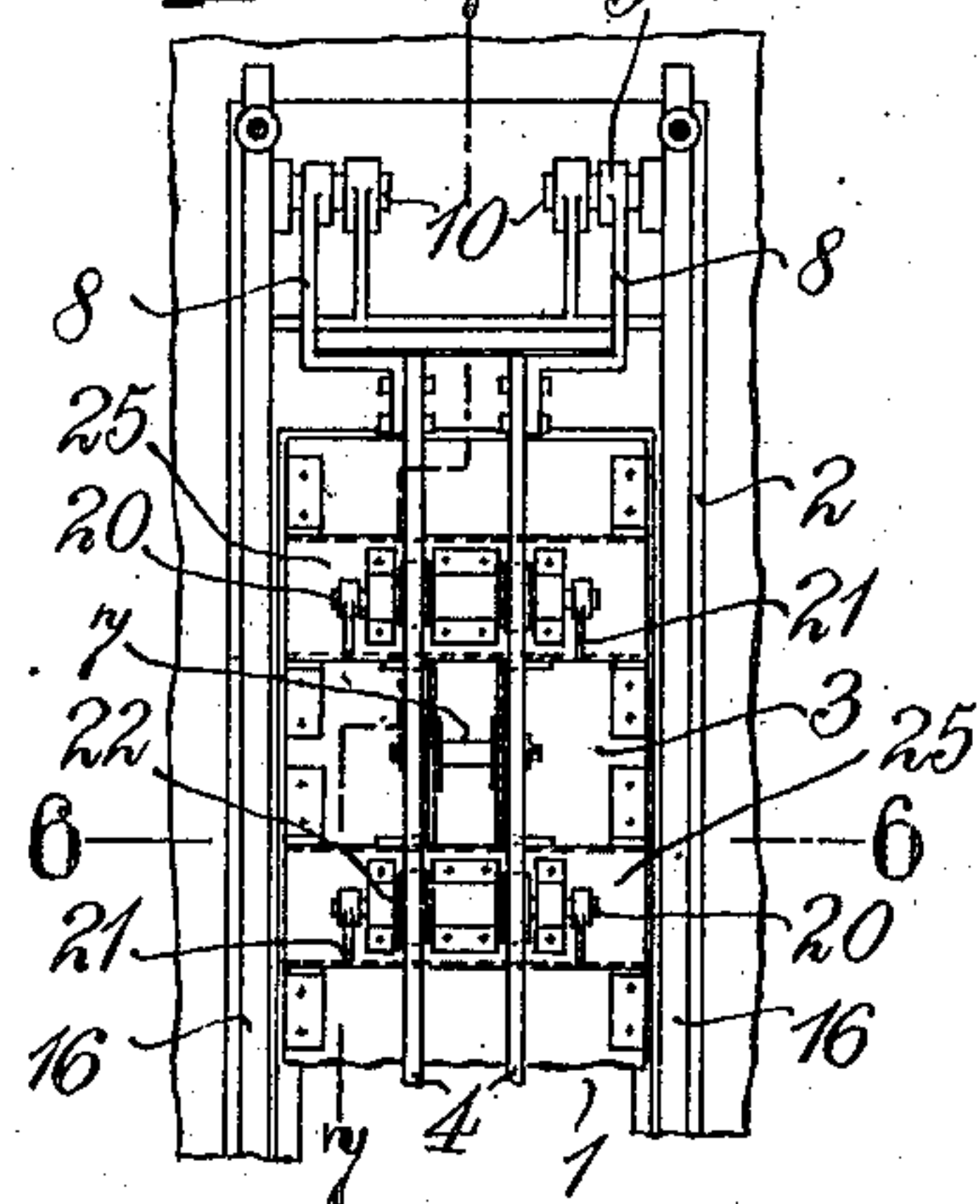


Fig. 6.

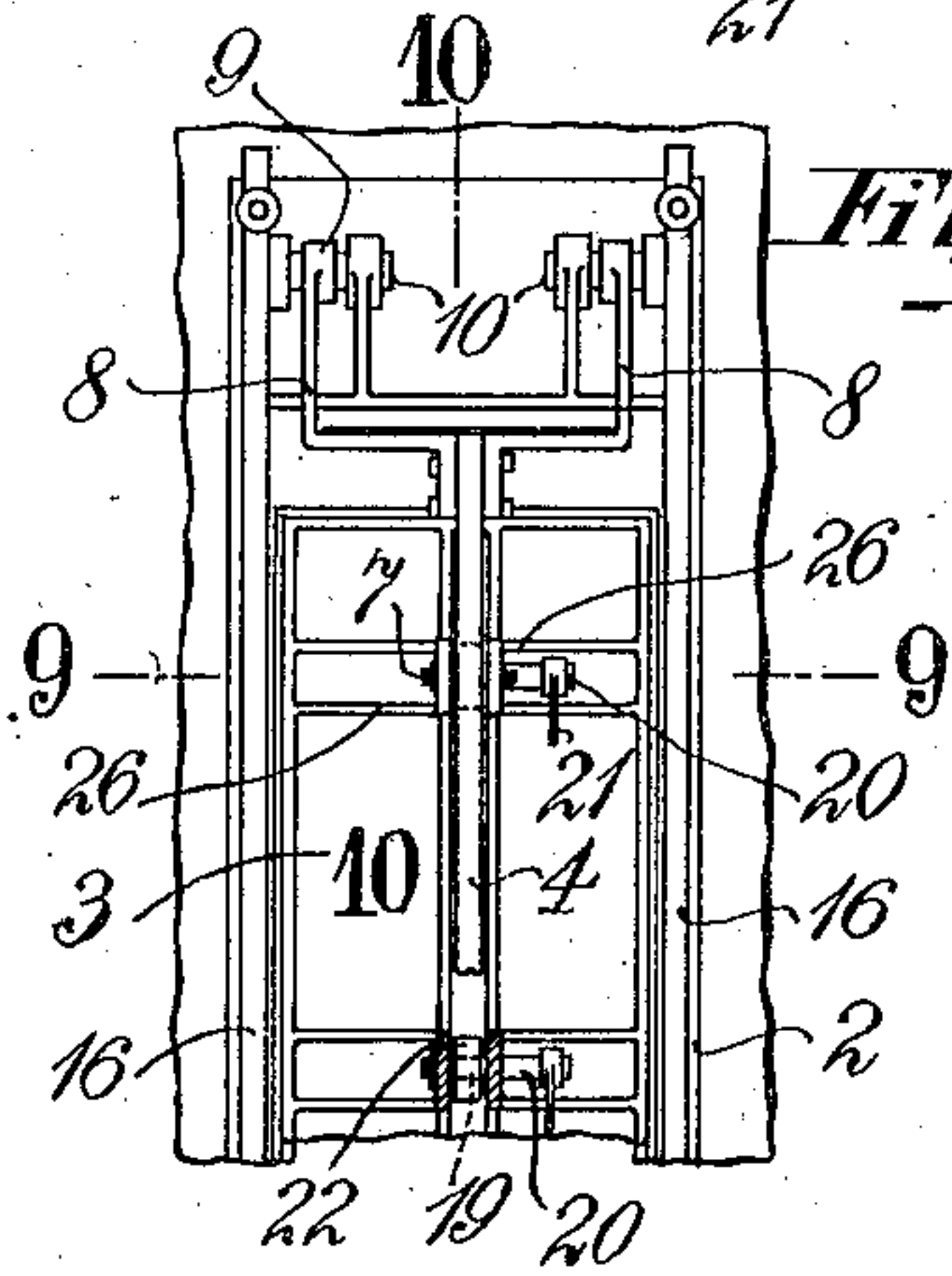
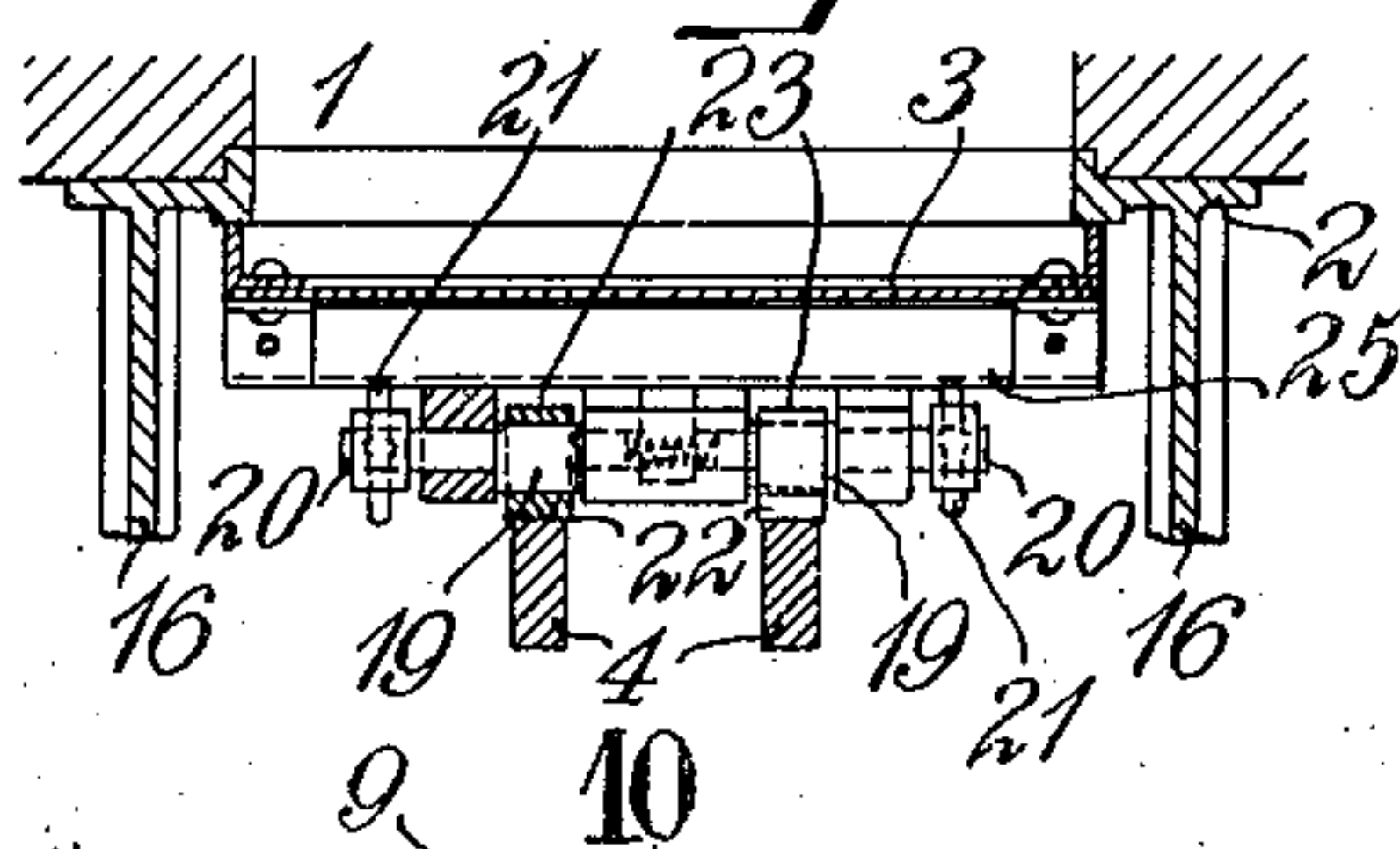


Fig. 8.

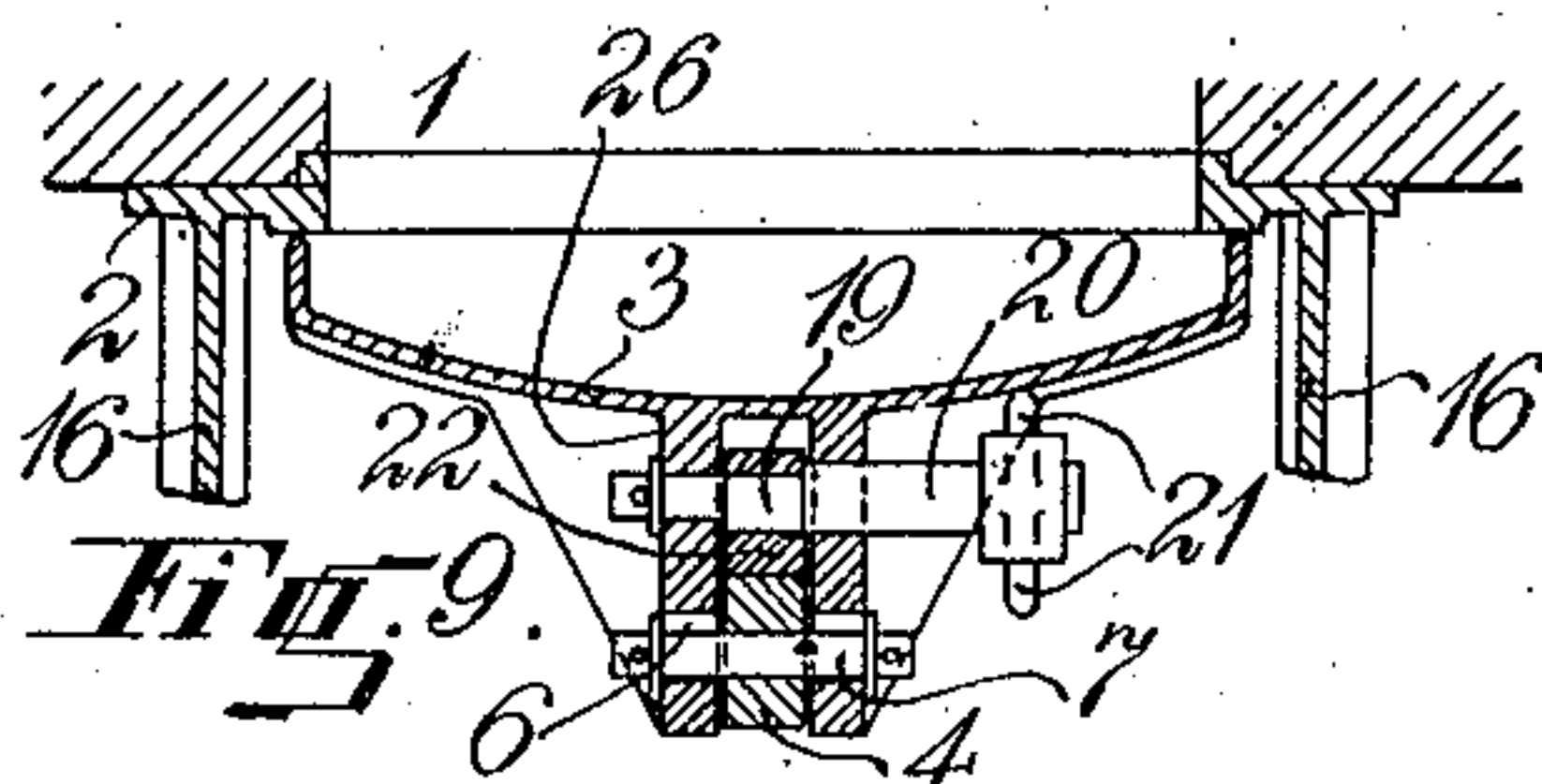


Fig. 9.

Witnesses:
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Fig. 7.

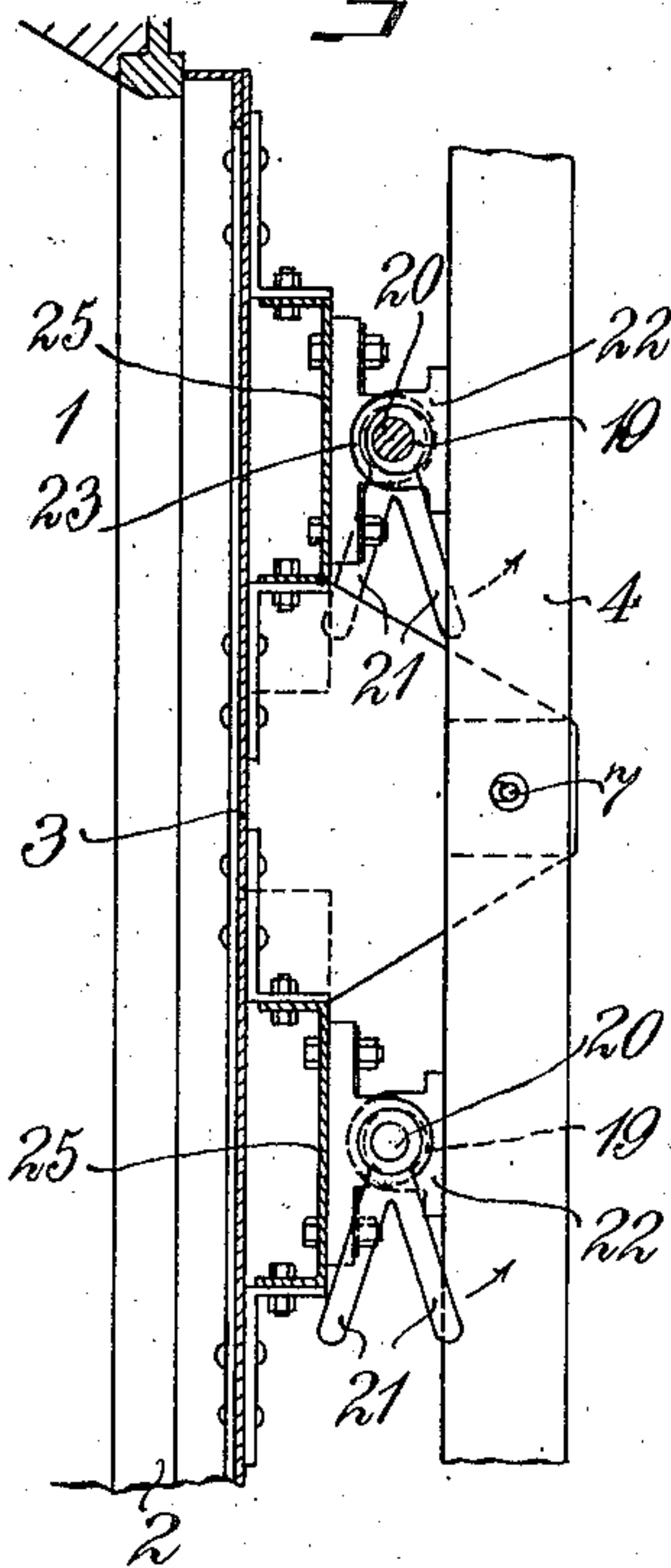
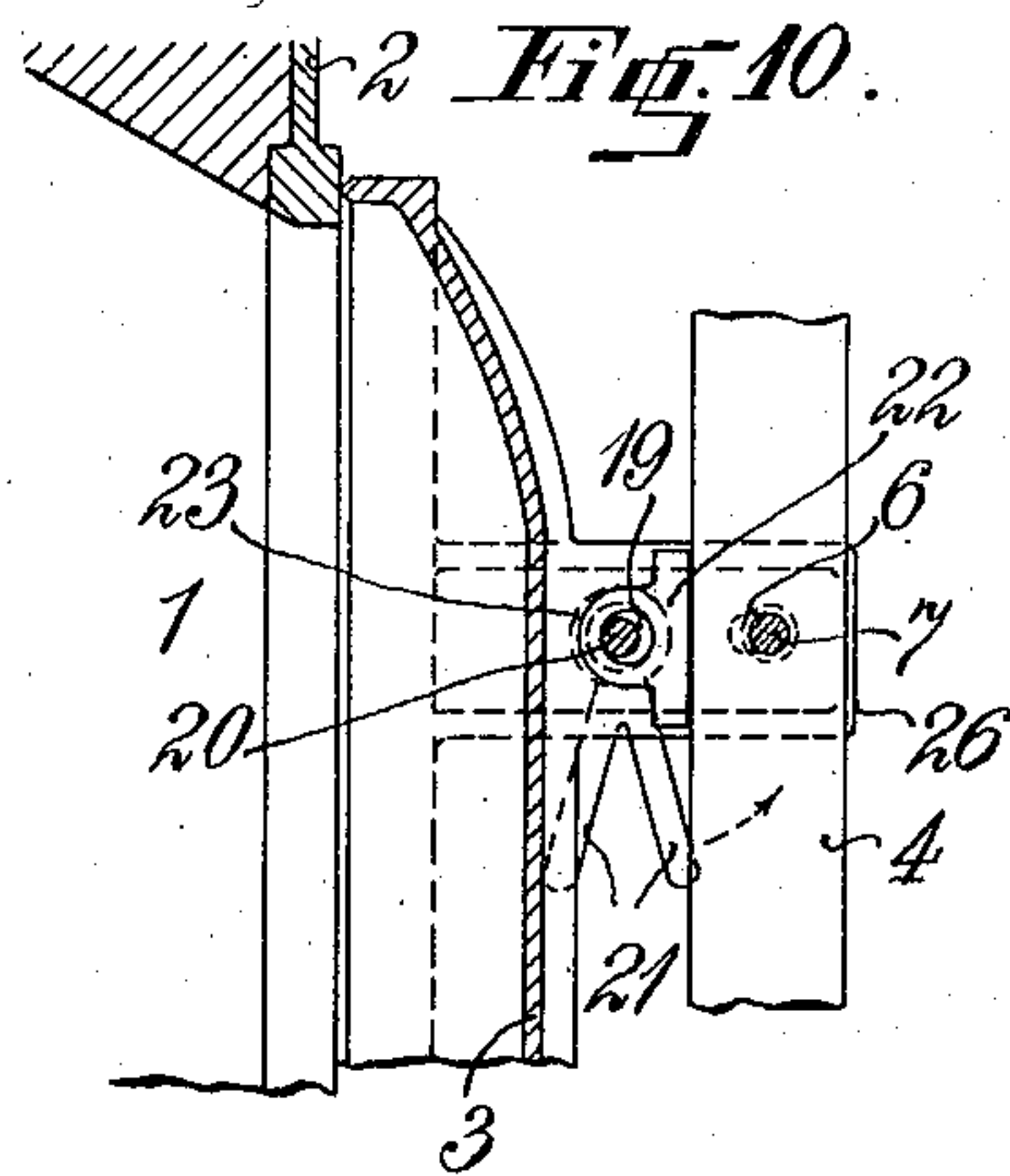


Fig. 10.



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UNITED STATES PATENT OFFICE.

PAUL RIECKE, OF DESSAU, GERMANY, ASSIGNOR TO OFENBAU-GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF MUNICH, GERMANY; A CORPORATION OF GERMANY.

DEVICE FOR PRESSING THE DOORS OF OVENS AGAINST THEIR SEATS.

962,669.

Specification of Letters Patent. Patented June 28, 1910.

Application filed December 11, 1909. Serial No. 532,690.

To all whom it may concern:

Be it known that I, PAUL RIECKE, chief engineer; a subject of the Emperor of Germany, and resident of Dessau, in the Duchy of Anhalt and Empire of Germany, have invented certain new and useful Improvements in Devices for Pressing the Doors of Ovens Against Their Seats, of which the following is a specification.

10 This invention relates to mechanism for pressing doors or covers on to their frames or seats and is particularly applicable for use in connection with the doors of ovens or gas retorts.

15 The gas-tight closing of doors, which in modern retorts or ovens are of large dimensions, offers special difficulties, since the door has considerable length and consequently pressure at the upper or lower end or at both ends only does not insure a thoroughly gas-tight joint between the door and its frame. To overcome this difficulty, it has already been suggested to provide tension bows on the door which extend over the whole length thereof and are brought into contact with the door by means of eccentrics, by the turning of which a local pressure can be exerted on the body of the door. With mechanism of this nature the turning of the eccentrics not only presses the door body forward against its seat, but tends simultaneously to displace it to a small extent in a longitudinal direction by the lateral thrust of the eccentric. If now the uppermost eccentric is first tightened, it can exert its full effect upon the door body. But in tightening the next eccentric below the door body which has been somewhat displaced in a longitudinal direction by the turning of the first bolt, cannot follow the lateral thrust of the second eccentric, so that the latter can exert no appreciable pressure upon the door body. The case is the same when the other eccentrics are turned so that the door is not in reality pressed against its frame by the eccentrics with an equal pressure at the various places where the eccentrics are arranged.

45 The object of the present improvement is to prevent longitudinal displacement of the door to be closed, and according to this invention the eccentrics, while being turned, bear on slide shoes either on the door body or on the inner side of the tension bows, according as the said eccentrics find their bear-

ing in the tension bows or on the door body. 55 When the eccentrics are turned, only the pressure they exert at right angles to the door body comes into effect, while their lateral thrust only produces movement of the slide shoes. 60

Several constructions of the mechanism according to this invention are shown in the accompanying drawings, in which,

Figure 1 is a front view of a rectangular gas-retort door provided with eccentrics arranged in pairs on either side of the central axis thereof, Fig. 2 is a cross section on an enlarged scale on the line 2—2 of Fig. 1, Fig. 3 is a longitudinal section on the line 3—3 of Fig. 1, Fig. 4 shows the upper part of Fig. 3 on an enlarged scale, Fig. 5 is a front elevation of the upper part of a modified form of the door, the eccentrics being mounted on the door and engaging slide shoes on the tension bows, Fig. 6 is a cross section on the line 6—6 of Fig. 5, Fig. 7 is a longitudinal section on an enlarged scale on the line 7—7 of Fig. 5, Fig. 8 is a front elevation of the upper part of a third form of the door, the eccentrics being arranged in one line and journaled on the door, Fig. 9 is a cross section on the line 9—9 of Fig. 8, and Fig. 10 is a longitudinal section on an enlarged scale on the line 10—10 of Fig. 8.

85 In Figs. 1 to 4, the pressing mechanism is mounted on the door 3 which bears against a frame 2, set in a gas retort or chamber 1. The door 3 has longitudinal tension bows 4, connected to it by means of distance pieces 5, mounted at right angles to the face of the door and having longitudinal slots 6 receiving horizontal bolts 7 on the tension bows 4. The tension bows 4, of which two, arranged parallel to each other, are shown in Figs. 1-4, have on their upper ends angle members 8 provided with eyes 9 journaled on horizontal pivots 10, about which the door 3 can turn. As in prior constructions the lower ends of the tension bows 4 terminate in angle members 11, which are connected with each other by a cross bar 12 and are formed on their under surface as toothed racks 13. Pinions 14 keyed on a shaft 15, journaled in the lower part of the side pieces 16 of the door frame 2, engage the toothed racks 13 and a worm wheel 17, keyed on the center of the shaft 15, engages a worm 18 journaled in the lower part of the door frame 105

2, so that the worm wheel 17 and the pinions 14, on the same shaft, can be rotated by the worm 18, and the toothed racks 13 thus be moved toward or away from the door frame 2. To press the door 3 firmly to the frame 2, the shafts 20 of eccentrics 19, which are symmetrically arranged, according to Figs. 1-4, at both sides of the bows 4 and are journaled above each other at predetermined distances in the bows 4, are provided with handles 21. The pressure of the eccentrics 19 on the door body 3 is transmitted through shoes 22, in the eyes 23 of which the eccentrics are mounted. The slide shoes 22 either are free to move relatively to the door or may slide over bearing surfaces 24 on the door 3, as shown in Figs. 1-4.

The above construction enables the eccentrics 19, which are spaced at suitable distances, to exert a clamping only between the door body 3 and the tension bows 4, while their lateral thrust causes a displacement of the slide shoes 22 on the bearing surfaces 24, without displacing the door body proper 3 longitudinally.

In the form shown in Figs. 5 to 7, the eccentrics 19, arranged beneath the tension bows 4 at both sides of the latter, are journaled with their shafts 20 in U-shaped supports 25 on the door 3, while their slide shoes 22 bear against the inner side of the tension bows 4. When the eccentrics 19 are turned to press the door 3 on to its frame, the slide shoes 22 are accordingly displaced on the tension bows 4 in their longitudinal direction. Handles 21 are arranged at both ends of the shafts 20 of the eccentrics in this construction.

In the arrangement shown in Figs. 8-10, only one tension bow 4, lying above the center of the door 3, is used, being connected to the door 3 by eccentrics 19 which lie between two vertical ribs 26 of the door 3 and carry handles 21 on one end of their shafts 20. The slide shoes 22 of the eccentrics 19 bear against the inner side of the bow 4.

It will be understood that the arrangement of the slide shoes, cooperating with the eccentrics as described, can be modified in many ways without departing from this invention. Further, the known worm-operated mechanism shown in Figs. 1 and 2 may be replaced by some other suitable construction.

What I claim is:—

1. In a device for pressing the doors of ovens against their seats, the combination with an oven having an opening and a movable door for closing the same, of tension members extending over the door and connected to move in unison therewith as the

door is opened or closed, of means for locking said tension members to the oven, of eccentrics pivoted to the door and arranged to press the door against its frame, and of slide shoes interposed between the door and said tension members.

2. The combination with a door frame and a movable door adapted to engage said frame, of a tension member connected with the door to move in unison therewith as the door is opened or closed, the connection being made with play to allow the door a limited movement toward and from the tension member, means for locking the tension member to the frame, a slide interposed between said door and the tension member and movable relatively to one of them transversely of the direction in which the door is movable relatively to the tension member, and relatively to the other in a direction in line with the closing movement of the door, and means for removing said slide to press the door against its frame.

3. The combination with a door frame and a movable door adapted to engage said frame, of a tension member pivoted to the door frame and carrying the door, the connection between the door and the tension member being a loose one so as to allow the door to move toward and from the tension member to a limited extent, means for locking the tension member to the frame, a slide interposed between the door and the tension member and movable relatively to one of them transversely of the direction in which the door is movable relatively to the tension member, and relatively to the other in a direction in line with the closing movement of the door, and means for moving said slide to press the door against its frame.

4. The combination of a door frame, a tension member one end of which is pivoted to said frame, means for locking the other end of the tension member to the frame, a door adapted to engage the frame and carried by the said tension member, the connection being a loose one to allow the door to move transversely toward and from the frame to a limited extent when the tension member is locked to the frame, a slide interposed between the door and the tension member and movable transversely in relation to one of them and lengthwise relatively to the other, and means for moving said slide to press the door against its frame.

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

PAUL RIECKE.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.

It is hereby certified that in Letters Patent No. 962,669, granted June 28, 1910, upon the application of Paul Riecke, of Dessau, Germany, for an improvement in "Devices for Pressing the Doors of Ovens Against Their Seats," errors appear in the printed specification requiring correction as follows: Page 2, line 20, after the word "clamping" the word *pressure* should be inserted, and same page, line 83, the word "removing" should read *moving*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of July, A. D., 1910.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.