(No Model.) 2 Sheets—Sheet 1.

G. F. SPEER.

PEEP HOLE FOR CUPOLA FURNACES.

No. 581,014. Patented Apr. 20, 1897.

Fig. 1.

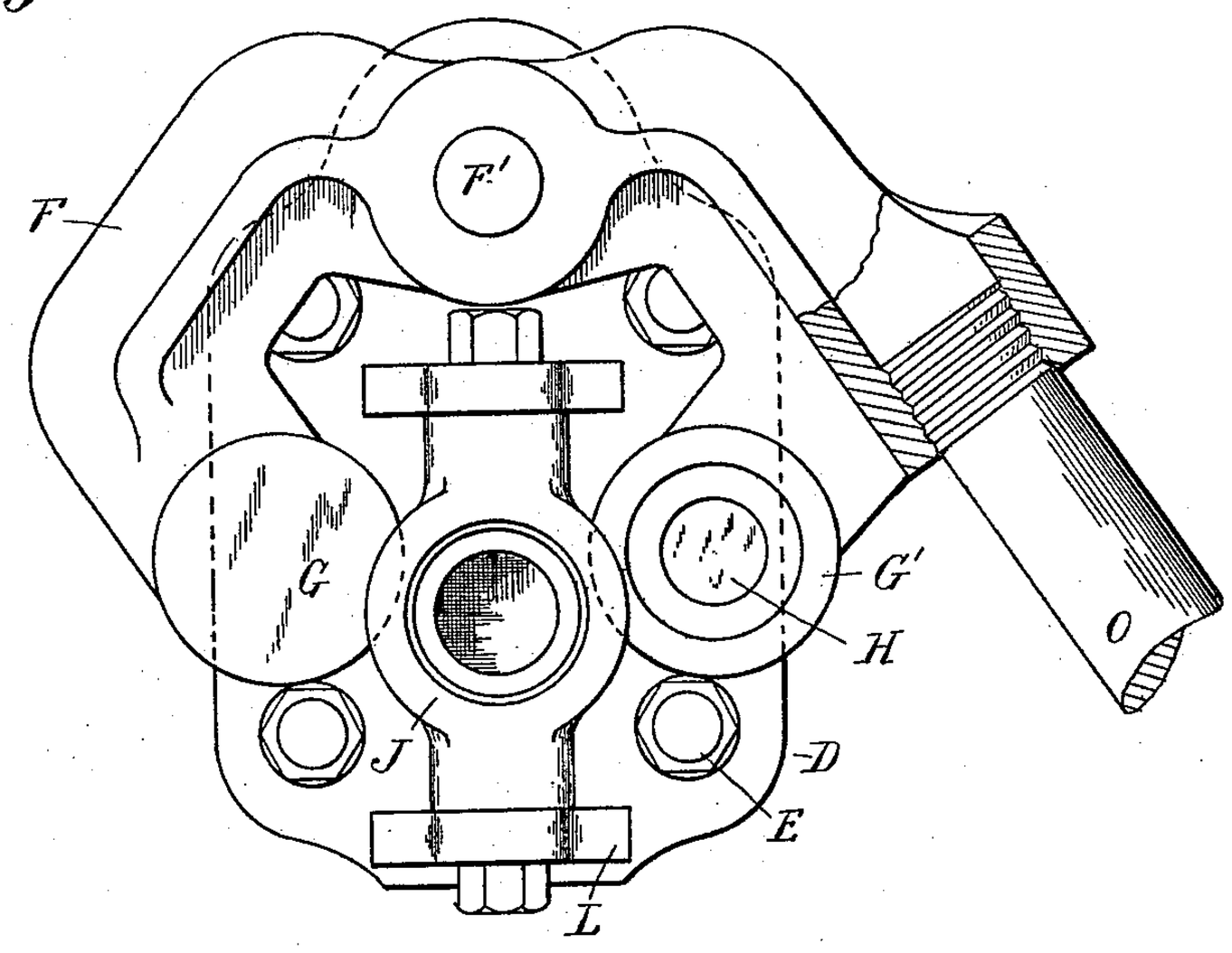
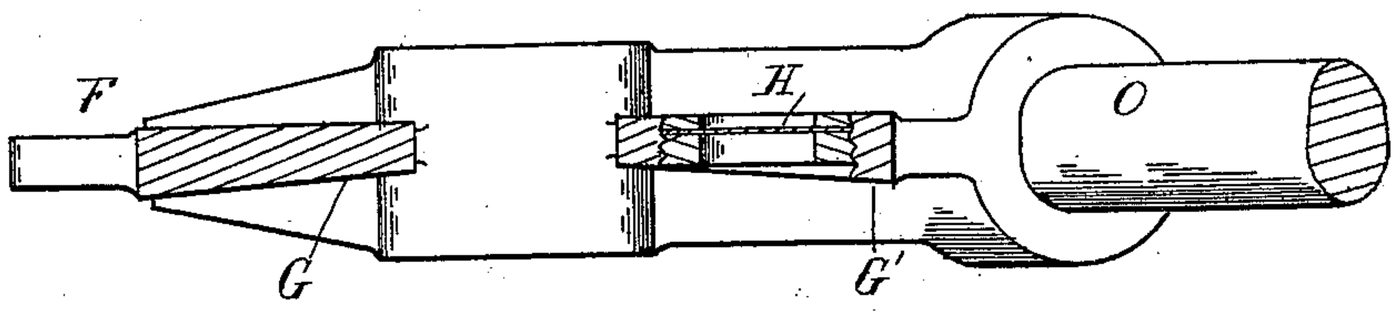


Fig. 2.



Witnesses
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A. F. Barthel.

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(No Model.) 2 Sheets—Sheet 2.

G. F. SPEER.

PEEP HOLE FOR CUPOLA FURNACES.

No. 581,014. Patented Apr. 20, 1897.

Fig. 4.

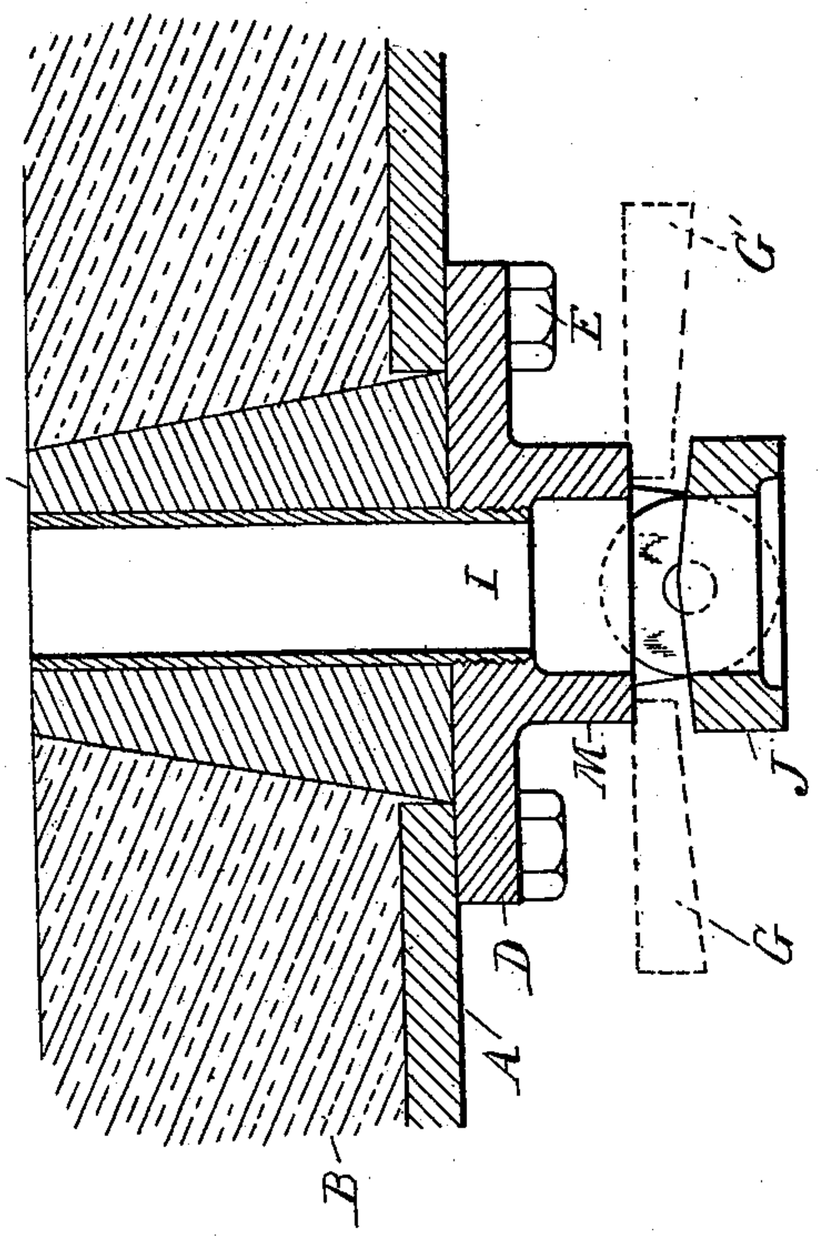

Fig. 3.

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UNITED STATES PATENT OFFICE.

GARRET F. SPEER, OF CANISTEO, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE HOYT-SPEER COMPOUND GAS COMPANY, LIMITED, OF DETROIT, MICHIGAN.

PEEP-HOLE FOR CUPOLA-FURNACES.

SPECIFICATION forming part of Letters Patent No. 581,014, dated April 20, 1897.

Application filed November 27, 1894. Serial No. 530,142. (No model.)

To all whom it may concern:

Be it known that I, GARRET F. SPEER, a citizen of the United States, residing at Canisteo, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Peep-Holes for Cupola-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of a device known as a "peep-hole," for inspecting the interior of cupola-furnaces while in operation, and particularly in the construction of an apertured plate with two shutters, one an opaque or blank shutter and one a transparent shutter, either of which may be used to close the aperture through the plate, and further in the construction of a conical brick forming the facing for the plate, and which may be detached from the outside for repair or replacing, all as more fully hereinafter described.

In the drawings, Figure 1 is a front elevation of my improved device. Fig. 2 is a horizontal section through the shutters of the spectacle-frame. Fig. 3 is a vertical central section through my device and through the wall of the cupola, illustrating the construction of the detachable brick portion of the peep-hole; and Fig. 4 is a horizontal section on line *x x*, Fig. 3.

A is a cupola-casing, preferably of sheet iron or steel, and B is the brick lining thereof. At any desired point in the casing and lining an aperture is made for a peep-hole device. A conical aperture is made in the brick lining, and in this aperture is inserted a centrally-apertured conical brick C, which fits tightly in the brick lining, preferably without cement or mortar.

Around the aperture in the casing is secured the apertured plate D, its aperture being in line with the aperture through the brickwork. This plate may be secured in position in any desired manner, such as by the bolts E, entering the casing.

F is a frame, and from the shape of which I have shown it I will call it a "spectacle-frame." This frame is pivoted upon the stud F′, projecting from the upper portion of the plate, and has two arms projecting, respectively, on opposite sides of its pivot, provided with the shutters G and G′. The shutter G is a blank or opaque shutter, adapted to close the aperture through the plate, and the shutter G′ is ring-shaped and provided with a central transparent disk H, adapted to register with the aperture through the plate and thus permit of inspecting the interior of the furnace therethrough without subjecting the operator to the heat. When through inspecting the interior, the operator simply shifts the spectacle-frame and closes the aperture through the plate by means of the opaque shutter.

The aperture through the plate is preferably screw-threaded to receive the end of the pipe I, which projects inwardly into the aperture in the conical brick and thus insures an alinement of the parts.

The outer face of the shutters is preferably beveled or inclined, as shown in Fig. 2, and is adapted to strike the inner face of the backing-ring J, pivotally supported in the lugs L opposite the aperture in the plate, rocking that ring slightly out of parallelism with the bearing-ring M on the plate, and thus wedging the shutter tightly against the seat, making a tight joint thereon and acting as a stop therefor.

In case the brick C becomes damaged it may be removed by first removing the plate D, and a new one inserted, the plate restored, and the parts will again be in perfect operating condition.

O is an actuating-arm for the spectacle-frame.

What I claim as my invention is—

1. In a peep-hole, for cupola-furnaces, the combination of an apertured plate, a spectacle-frame pivoted to the plate beside the aperture, an opaque shutter and a transparent shutter in the ends of the frame and adapted to be brought opposite the aperture in the plate and having inclined outer faces and a backing against which the inclined faces engage, substantially as described.

2. In a peep-hole for cupola-furnaces, the combination of an apertured plate, a spectacle-frame pivoted to the plate beside the

aperture, an opaque shutter, and a transparent shutter at opposite ends of the frame, and a back-ring separated from the plate and against the inner face of which the shutters are adapted to engage, substantially as described.

3. In a peep-hole for gas cupolas or furnaces, the combination of an apertured plate, a frame having an opaque and a transparent shutter arranged so that either may be brought opposite the aperture in the plate and a centrally-pivoted back-ring against the inner face of which the shutters are adapted to engage, substantially as described.

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

GARRET F. SPEER.

Witnesses:

JAMES WHITTEMORE,

L. J. WHITTEMORE.