

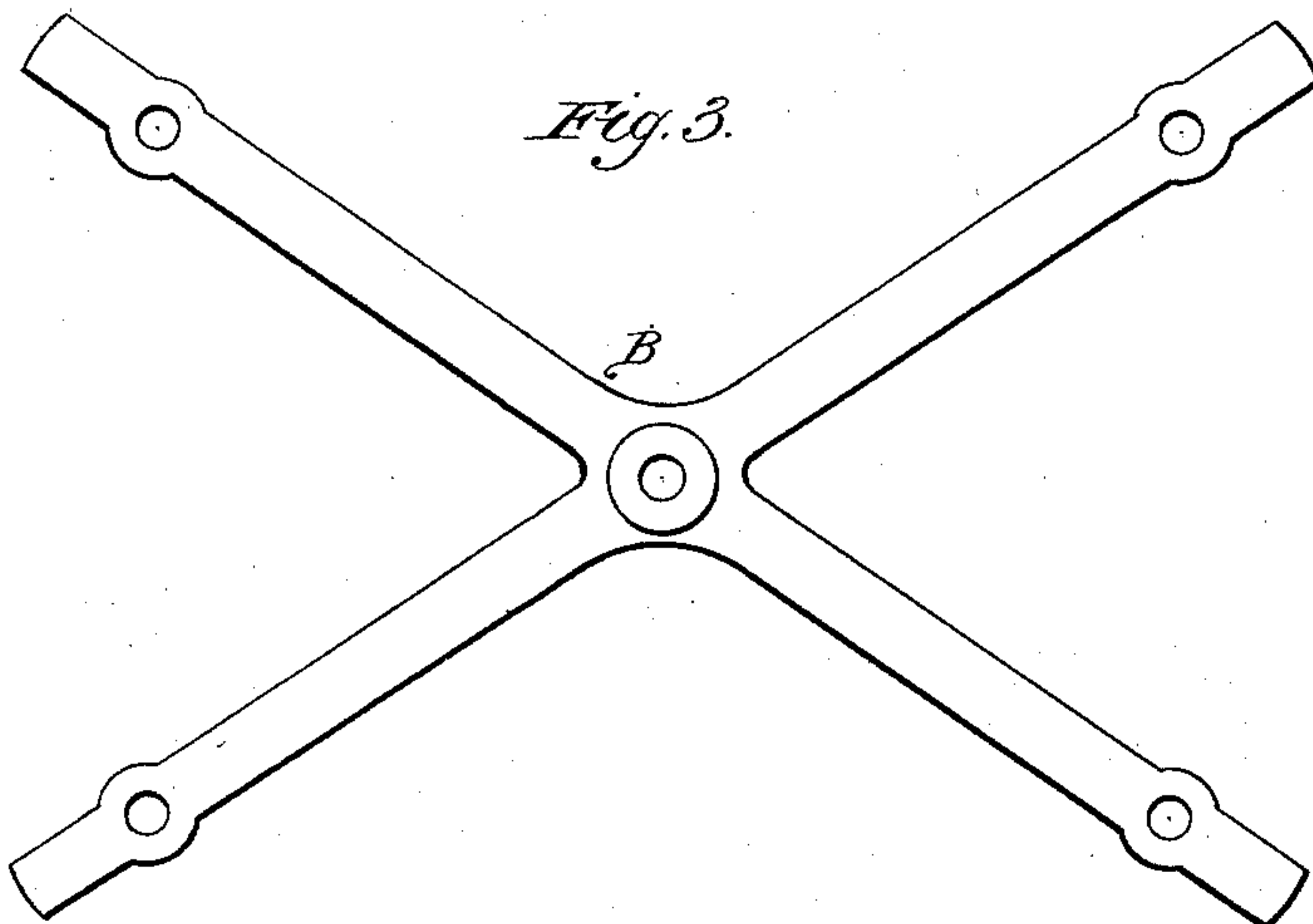
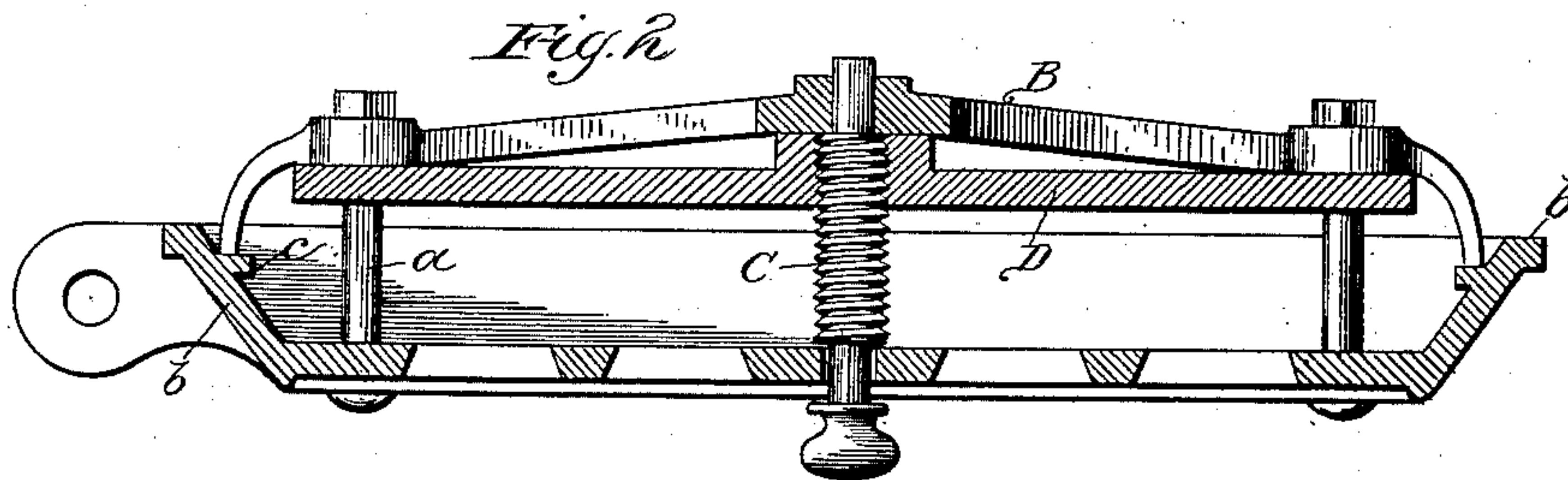
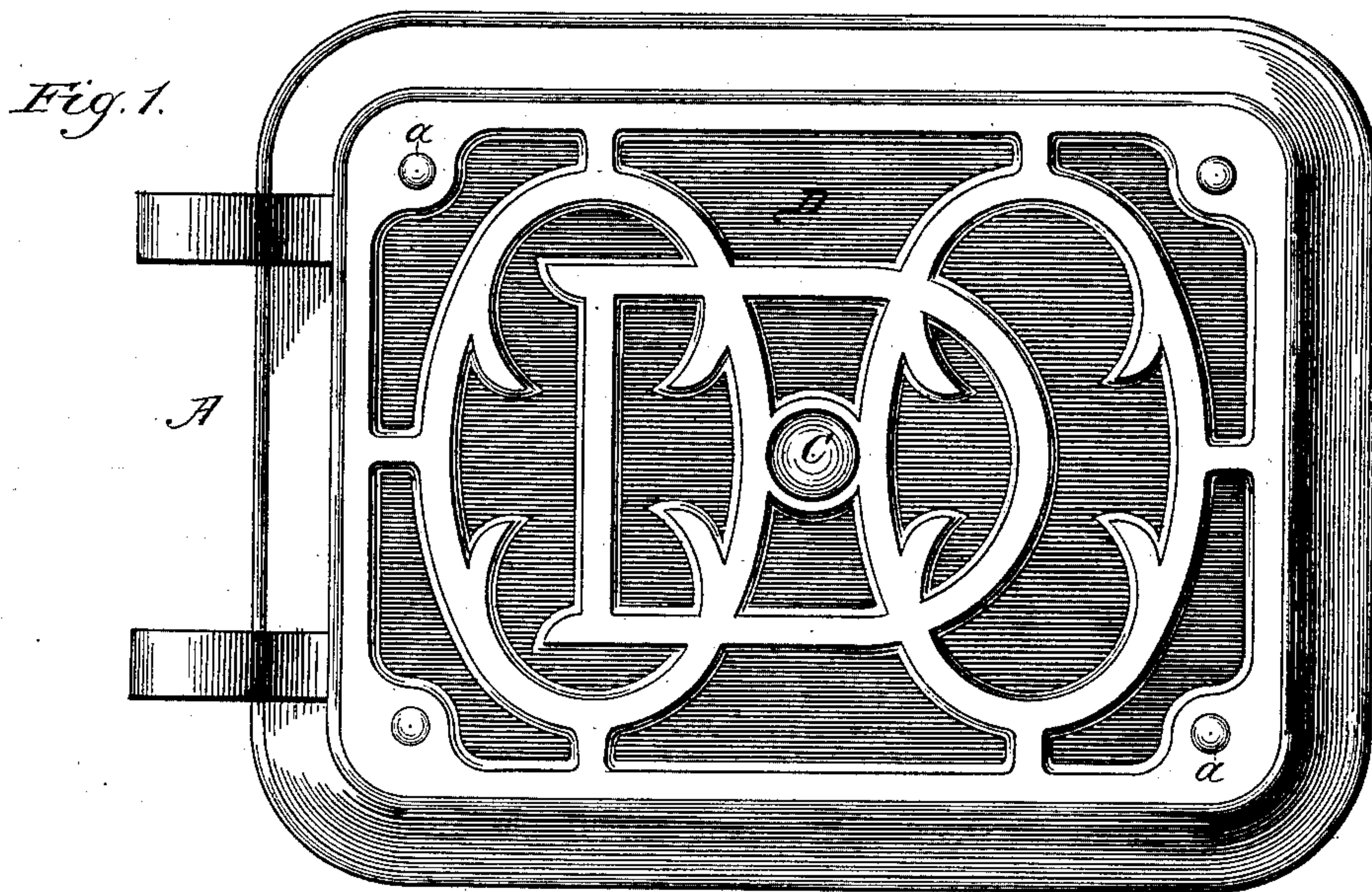
(No Model.)

O. D. ORVIS.

FURNACE DOOR.

No. 371,094.

Patented Oct. 4, 1887.



Witnesses.

Will B. Quimby,
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UNITED STATES PATENT OFFICE.

ORLAND D. ORVIS, OF CHICAGO, ILLINOIS.

FURNACE-DOOR.

SPECIFICATION forming part of Letters Patent No. 371,094, dated October 4, 1887.

Application filed May 14, 1885. Serial No. 165,422. (No model.)

To all whom it may concern:

Be it known that I, ORLAND D. ORVIS, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Furnace-Doors, of which the following is a specification.

This invention relates to improvements in furnace-doors in which apertures are provided for admitting a direct current of air to the fire-chamber of a furnace.

The objects of this invention are to admit through a furnace-door an indirect current of air to the fire-chamber, and in such a manner that the said current may be regulated and partially heated before its escape into the fire-chamber. I attain these objects by devices illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a furnace-door embodying my invention; Fig. 2, a central longitudinal section of the same, and Fig. 3 a plan view of the plate supported against the inner side of the door and forming a bearing for the draft-adjusting screw.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Drafts in furnace-doors leading to the fire-chamber have heretofore been objectionable because of their admitting a direct and dense volume of cold air, which, instead of promoting, retards combustion, because of its absorption of the heat already evolved, and proportionately reducing the temperature of the fire-chamber.

In order to successfully utilize a current of air admitted through the door-opening to the fire-chamber of a furnace, I have provided a furnace-door, A, hinged in the usual manner, and having its panels removed or an open scroll-work substituted, or else the panel provided with a series of perforations or slots, as desired, so that air-currents may pass through the door. Passing through the door are bolts *a*, to which is secured a skeleton plate, B, in a plane beyond the door-flange *b*, which flange is provided with lugs or projections *c*, forming a seat for and against which said plate is held by the bolts. Passing centrally through the door and bearing at its opposite end in the plate, and screw-threaded to its extremities, is a shaft, C, the screw-threaded portion of

which works in a solid deflecting-plate, D, which may be of metal or vitrified clay.

Deflecting-plate D is of an area equal to the door inside of its flanges, and is guided on the bolts *a* by perforations or slots, as may be preferred, the engagement of the screw-shaft with this plate providing for the adjustment of the latter toward and from the door for regulating the volume of air admitted to the air-chamber. Air admitted through a door of this construction is first heated by contact with the deflecting-plate, and then, passing over all four edges of the plate, is directed in a thin sheet along and in close proximity to the heated liners in the doorway in its passage to the fire-chamber, which it enters in a highly-heated condition, not possible if thrown through the center of the doorway. By this means the door is best utilized and at its full capacity, consistent with the avoidance of admitting a direct and dense volume of cold air, with all of its objectionable features, while at the same time ample provision is made for conveniently and successfully regulating the supply of air.

Instead of operating the plate D by means of a screw-shaft, it would be no departure from my invention to employ a toggle-joint between said plate and the door and manipulate such a joint by means of a lever.

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

1. The door and the skeleton plate secured thereto, in combination with an intermediate deflecting-plate and means for adjusting said plate so as to regulate the passage of air into the fire-chamber, substantially as described.

2. The door, the skeleton plate seated against the door, and bolts for clamping said plate to the door, in combination with a deflecting-plate free to slide guided upon said bolts, substantially as described.

3. The door, the skeleton plate, and the deflecting-plate, in combination with a shaft bearing in the door and the skeleton plate, and provided with screw-threads working in the deflecting-plate, substantially as described.

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Witnesses:

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