

No. 663,676.

Patented Dec. 11, 1900.

J. ILLINGWORTH.  
CRUCIBLE SHAKER.

(Application filed Sept. 14, 1900.)

(No Model.)

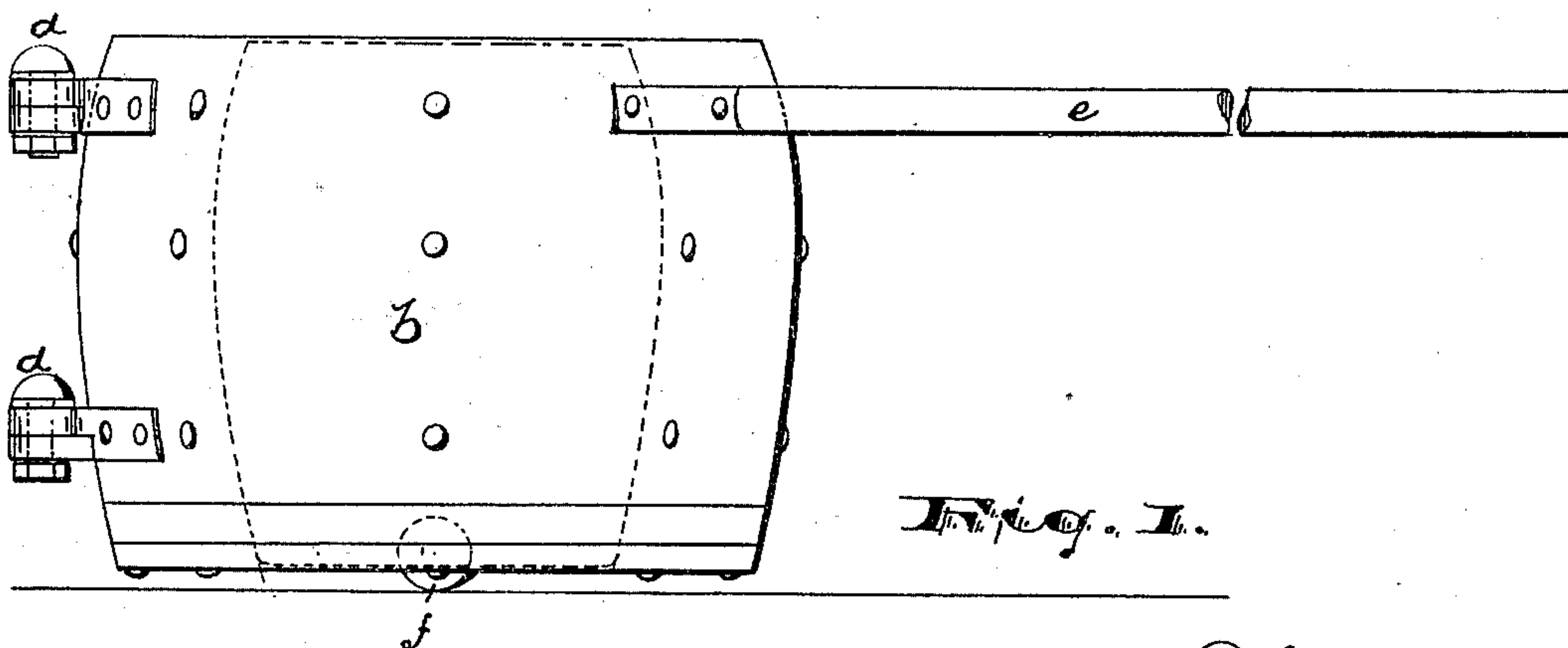


Fig. 1.

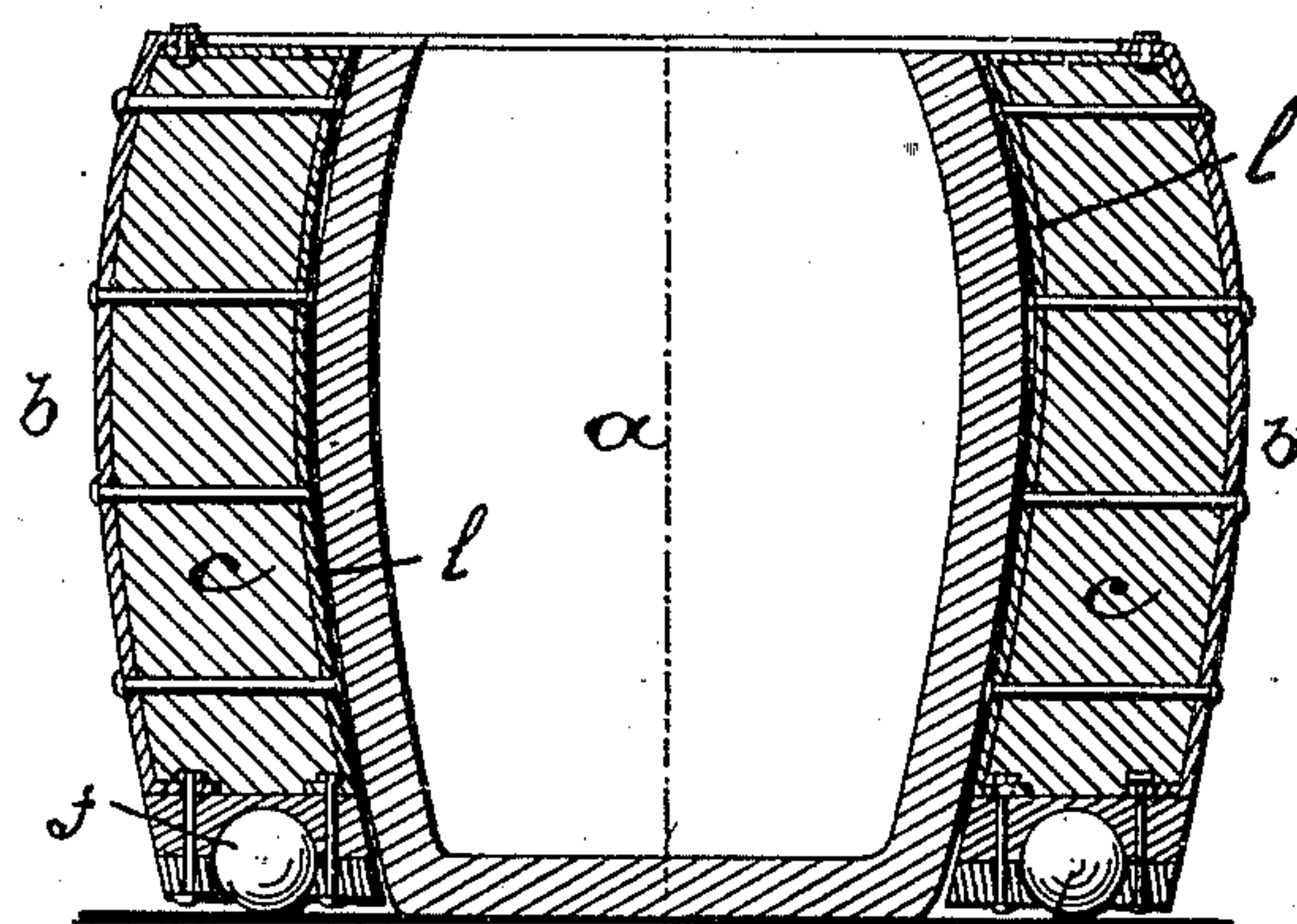


Fig. 2.

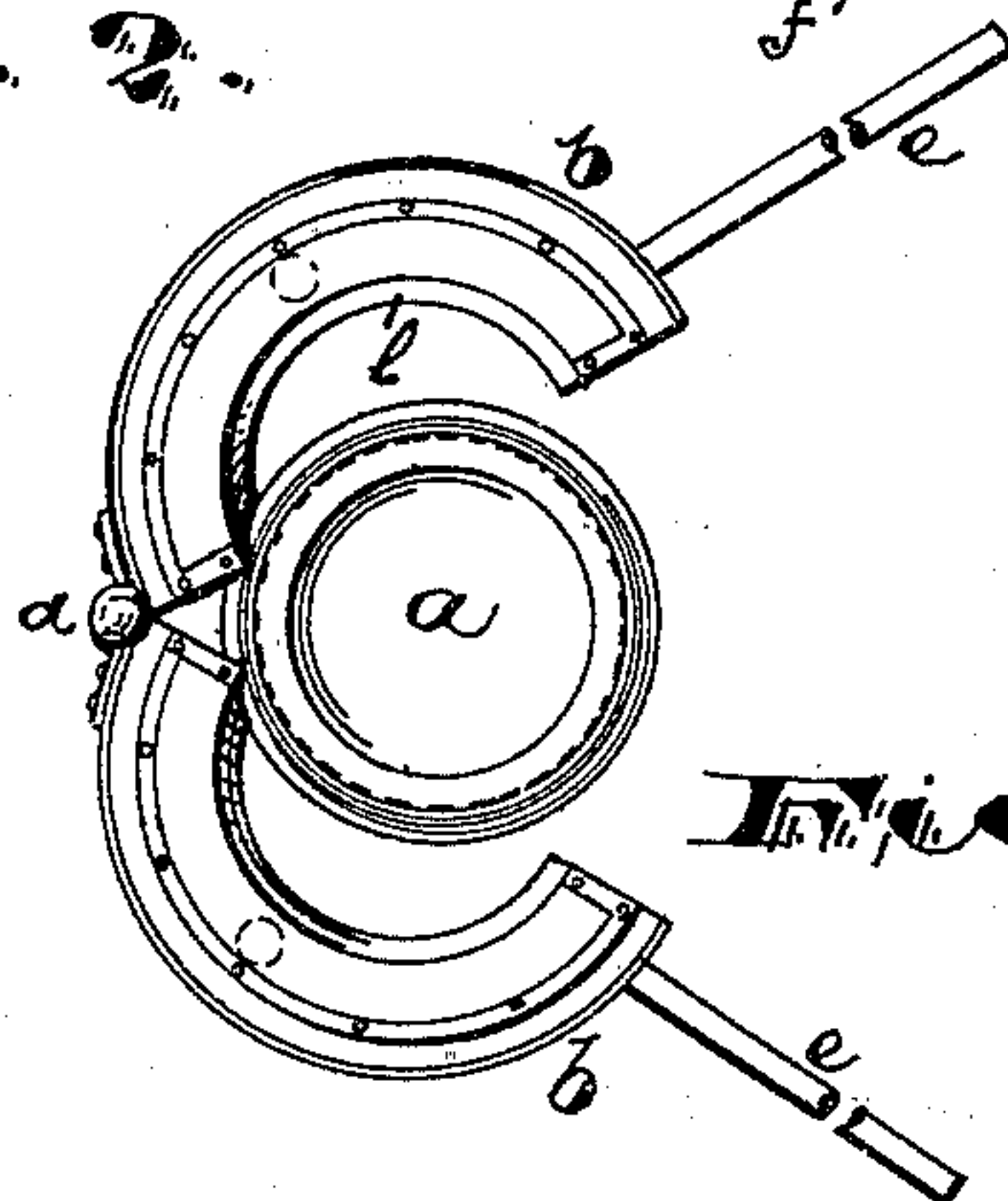


Fig. 4.

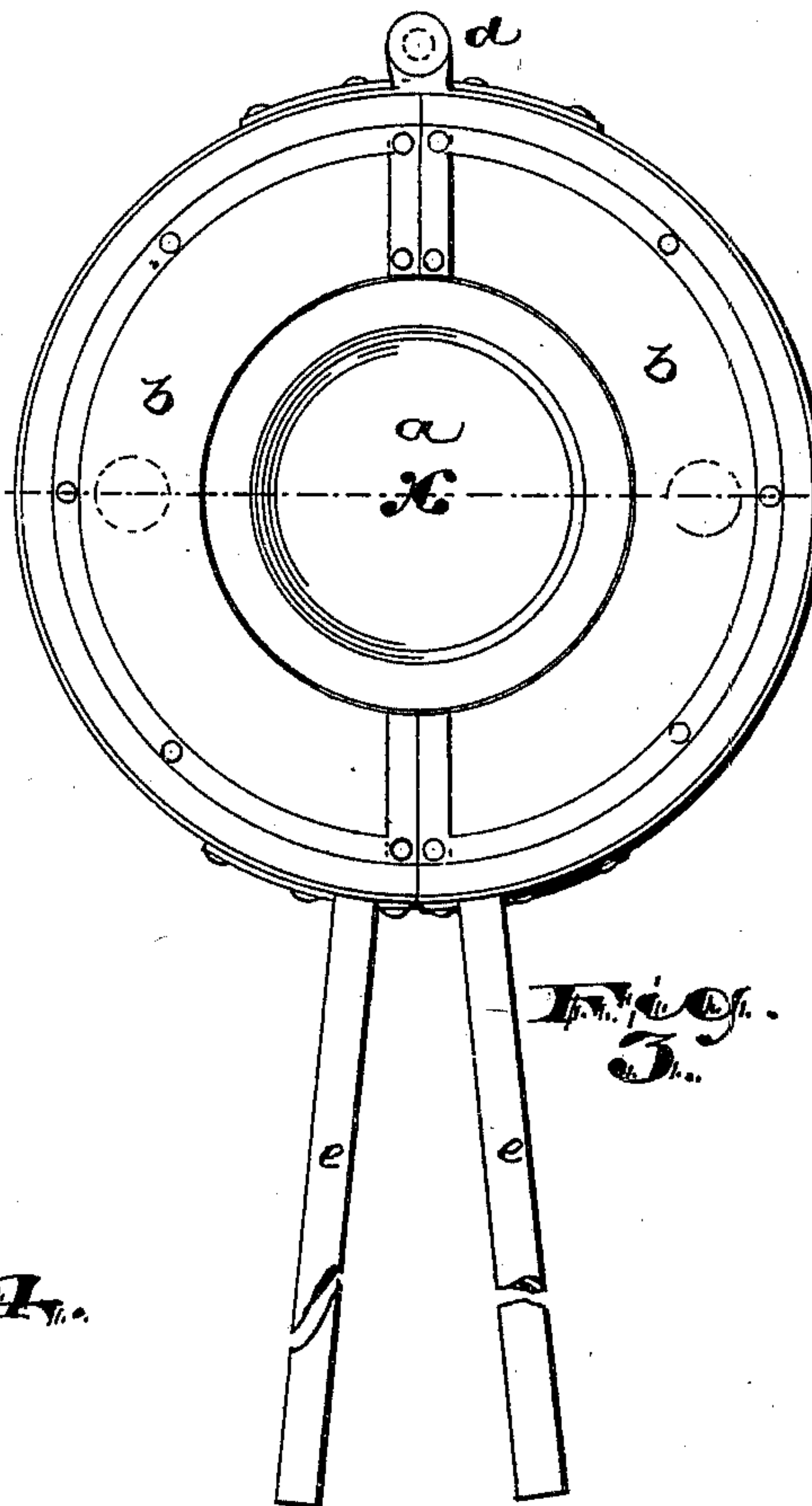


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## CRUCIBLE-SHAKER.

SPECIFICATION forming part of Letters Patent No. 663,676, dated December 11, 1900.

Application filed September 14, 1900. Serial No. 29,993. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ILLINGWORTH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Crucible-Shakers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of shakers adapted for use in charging crucibles with steel after said crucibles have already been heated, the heated crucibles being refilled while still hot to prevent the injury to the crucible due to the cooling.

The object of this invention is to provide a shaker for crucibles which while serving effectually to retain the heat of the crucible and guard the person shaking the device from the heat may be conveniently operated by hand to cause a settling of the charge of metal within the heated crucible preliminary to the insertion of the charged pot or crucible into the furnace.

The invention consists in the improved crucible-shaker and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the views, Figure 1 is a side elevation of the improved shaker. Fig. 2 is a section of the same, taken at line *x*, Fig. 3. Fig. 3 is a plan of the device closed around the crucible; and Fig. 4 is a plan, on a reduced scale, showing the shaker open to permit the insertion or withdrawal of the crucible or pot.

In said drawings, *a* indicates the crucible or pot, *b b* the shaker-jaws adapted to inclose said pot, the interior walls of said jaws being shaped to conform to the outside of said pot, so that the latter will or may be held firmly in position with relation to said jaws when the said jaws are closed, as in Fig. 3. Said jaws are formed hollow and are prefer-

ably of sheet metal and the interior chambers are filled with asbestos *c* or other non-conductor of heat. Thus the filled walls of the jaws serve as guards for protecting the workman and as retainers for the heat, confining the heat within the crucible to a very great extent, so that it is saved to be utilized in heating the next charge of metal and in maintaining the temperature of the crucible, whereby the latter is prevented from cooling to a degree that would cause a disintegration of its structure. The jaws are semicircular in plan and at the back are hinged together, as at *d*, and at the open front are provided with horizontal handles *e e*, by which the jaws may be held together and the device shaken or manipulated, as hereinafter more fully described.

At the bottom of the jaws, at the opposite sides thereof, are provided downwardly-projecting ball-casters *f f*, which serve as supporting-bearings on which the jaws, with the crucible contained therebetween, can be reciprocally tilted first toward the front and then toward the rear to cause a striking of the shaker or the crucible therein against the supporting-bed, by which operation a settling of the contents is effected, so that a fuel charge may be filled into the pot. The ball-supports *f f* not only permit an easy rocking or tilting of the shaker, but also serves as means facilitating the opening and closing of the jaws and the transportation of the pot from one point in the factory or shop to another. The balls are held in place by any of the means commonly employed in the construction of ball-casters.

The asbestos is not exposed to the mechanical action of the crucible thereon as heretofore in my prior inventions in this line of art, but is protected by a lining *l* of sheet metal, bolted in place, as indicated in Fig. 2.

In operation the jaws are simply closed around the pot, the latter being either raised a little from the floor, as indicated in Fig. 1, or standing directly upon the bed or ground, and then the shaker is tilted reciprocally by pressing down upon the handles and raising them again, as will be understood. As the charge in the pot settles new pieces of steel are placed at the top, and this continues until the pot is well filled, when the crucible,



still hot from the previous melting, is returned to the furnace.

Having thus described the invention, what I claim as new is—

- 5 1. The improved hand-shaker for crucibles, comprising a pair of hinged jaws having handles to facilitate opening and closing and having balls projecting down from the underside, substantially as set forth.
- 10 2. The improved crucible-shaker, comprising a pair of hinged jaws having handles, arranged at the free ends of said jaws, opposite the hinged ends, said handles being adapted to be brought to lie near together when the
- 15 jaws are closed to facilitate the shaking of said jaws and the crucible therein, said jaws being hollow semicircular parts filled with a non-conductor of heat and having an interior lining of metal, substantially as set forth.
- 20 3. The improved hand-shaker for crucibles, comprising semicircular jaws hinged together at the back and provided with handles at the front, and at opposite sides at the bottom having downward projections on which the jaws
- 25 may be tilted, substantially as set forth.
4. The improved crucible-shaker comprising semicircular jaws joined together at one side and provided with handles at the oppo-

site side, and at the bottom between said hinged and handled parts having downwardly-projecting casters on which said jaws may be tilted, and rolled from place to place, substantially as set forth. 30

5. The improved crucible-shaker comprising jaws, adapted to grasp the crucible there- 35 between, said jaws each having a caster directly beneath, upon which said sections may ride when being separated, or tilted in the act of shaking, and means for tilting said jaws as they stand on said casters, substantially as set forth. 40

6. The improved crucible-shaker, comprising jaws conforming to the periphery of the crucible and adapted to inclose the same from top to bottom and provided with a non-con- 45 ductor of heat lined interiorly with metal, said jaws being hinged together and provided with handles, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of 50 August, 1900.

JOHN ILLINGWORTH.

Witnesses:

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C. B. PITNEY.