

(No Model.)

2 Sheets—Sheet 1.

T. L. STURTEVANT.

SCREEN.

No. 316,920.

Patented Apr. 28, 1885.

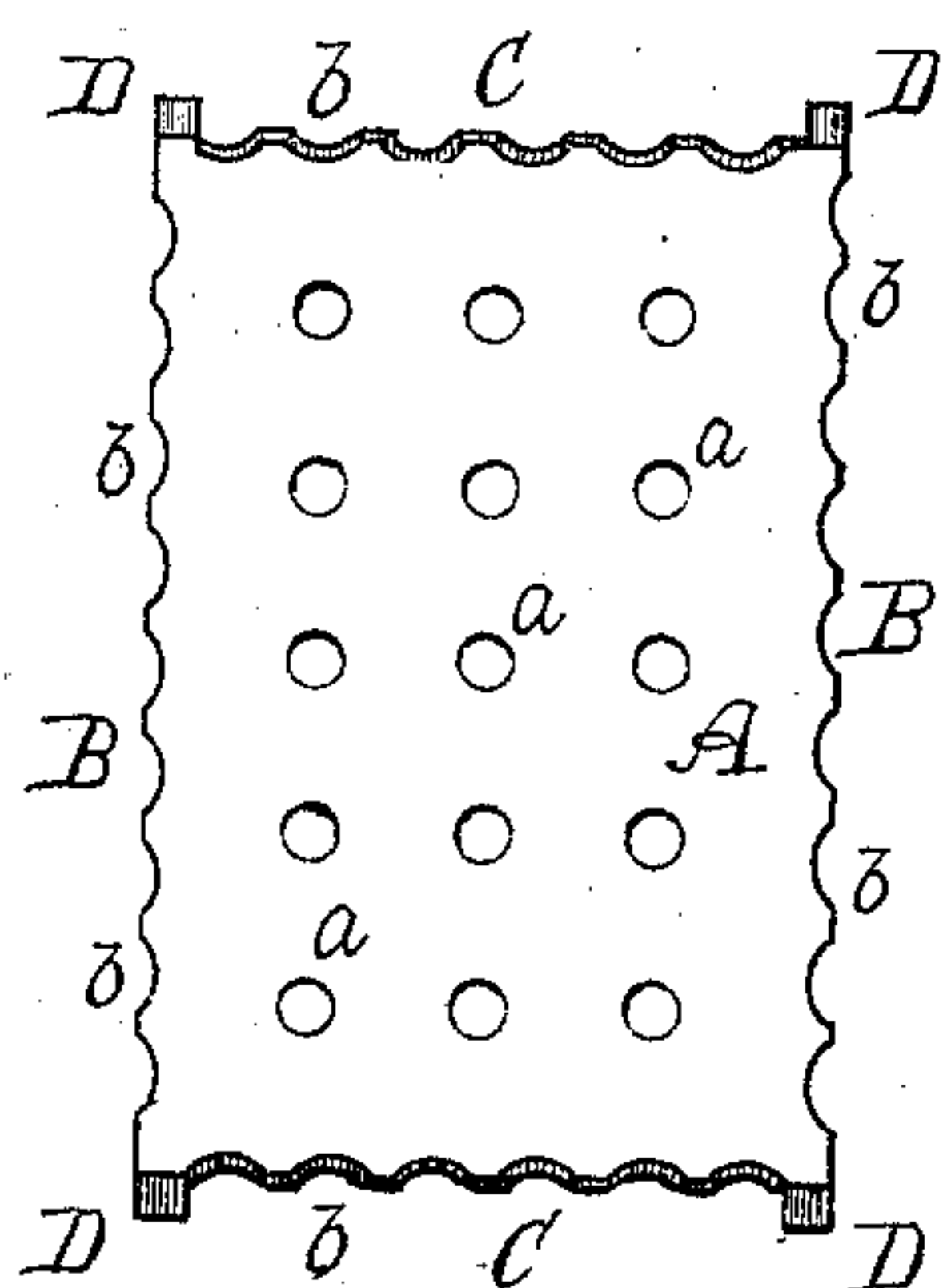
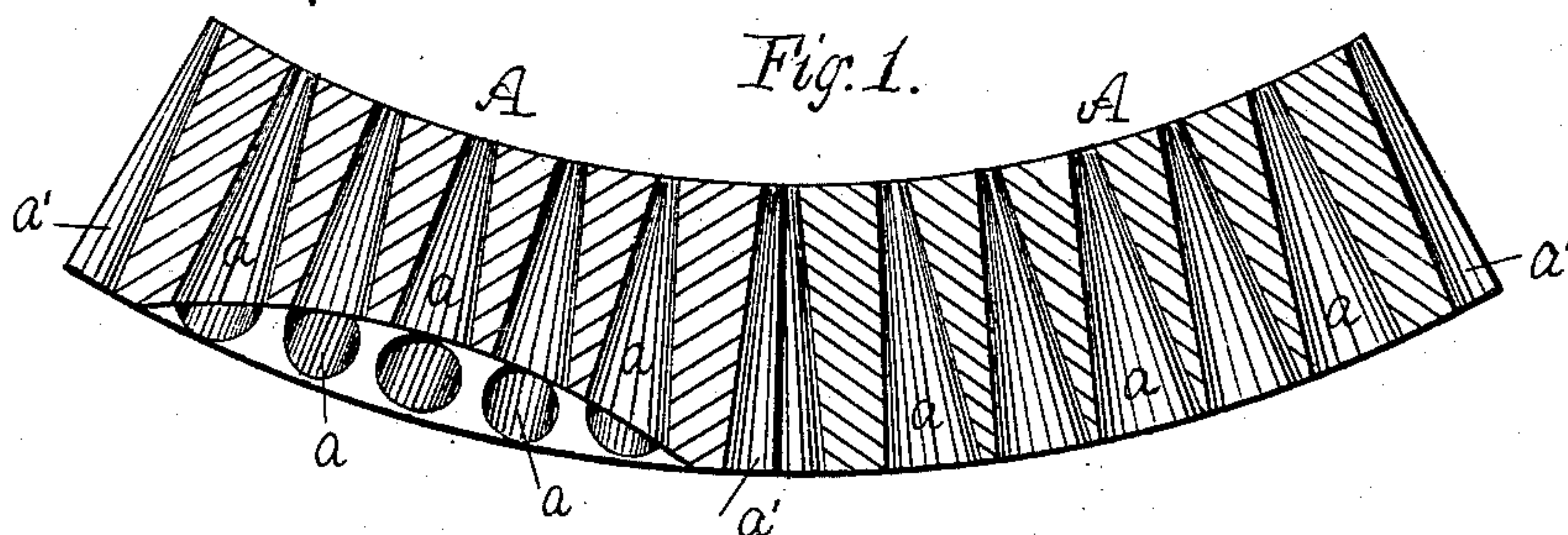


Fig. 2.

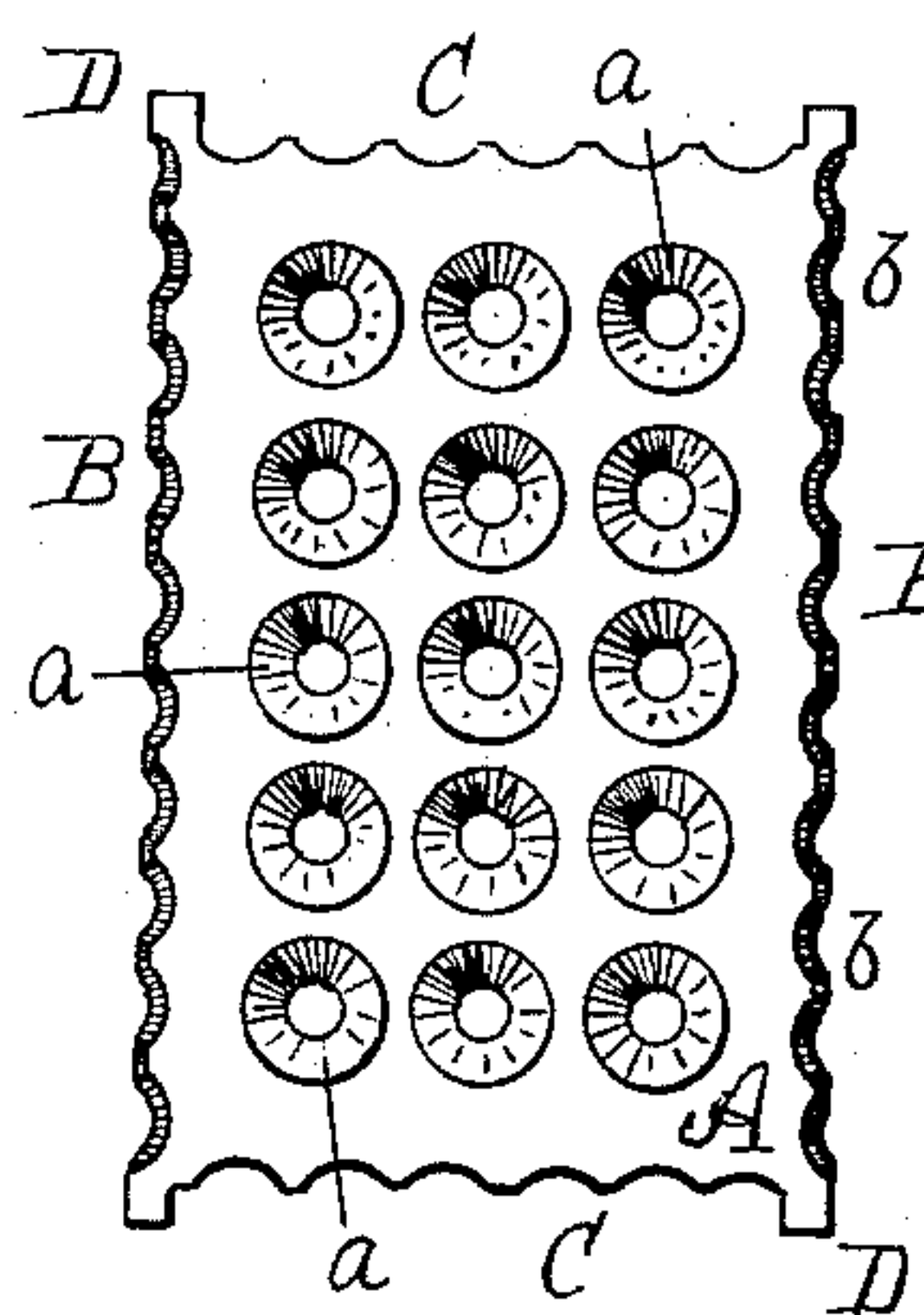


Fig. 3.

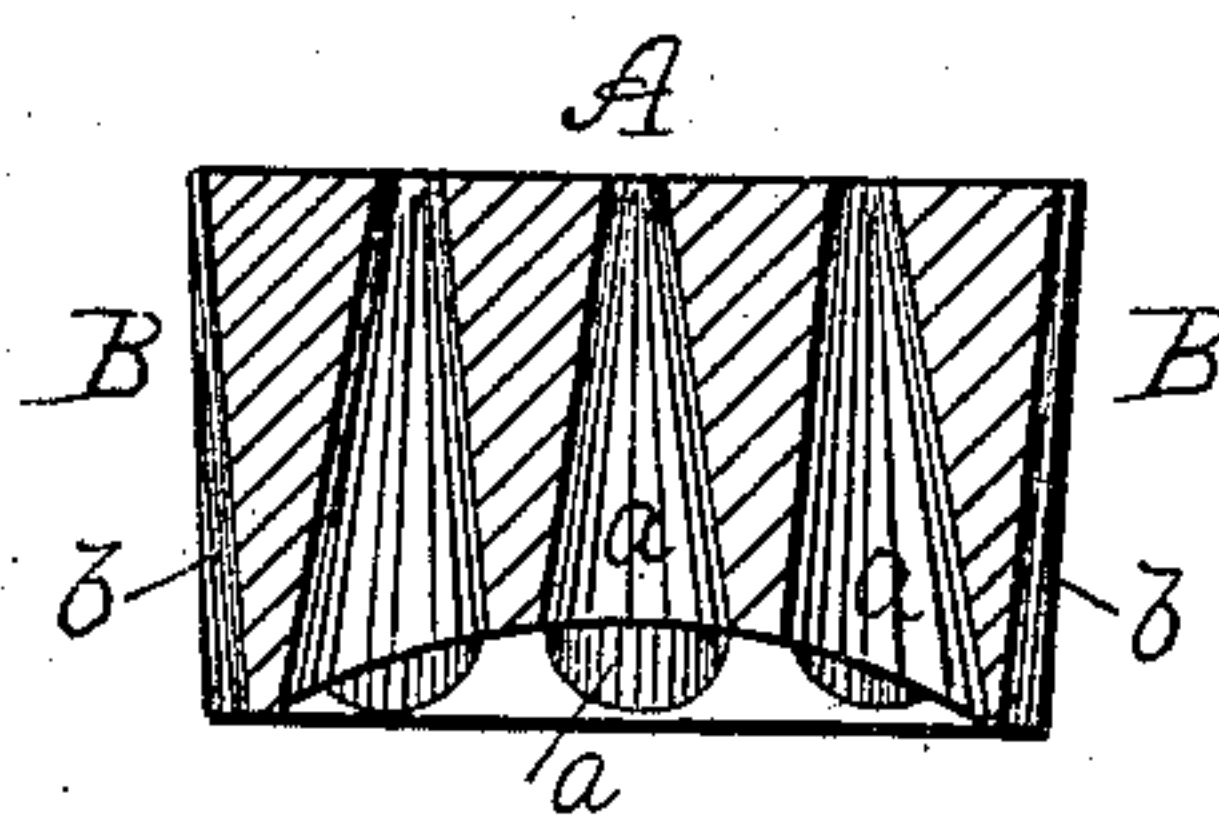


Fig. 4.

Witnesses.

H. E. Lodge
A. F. Hayden.

Inventor.

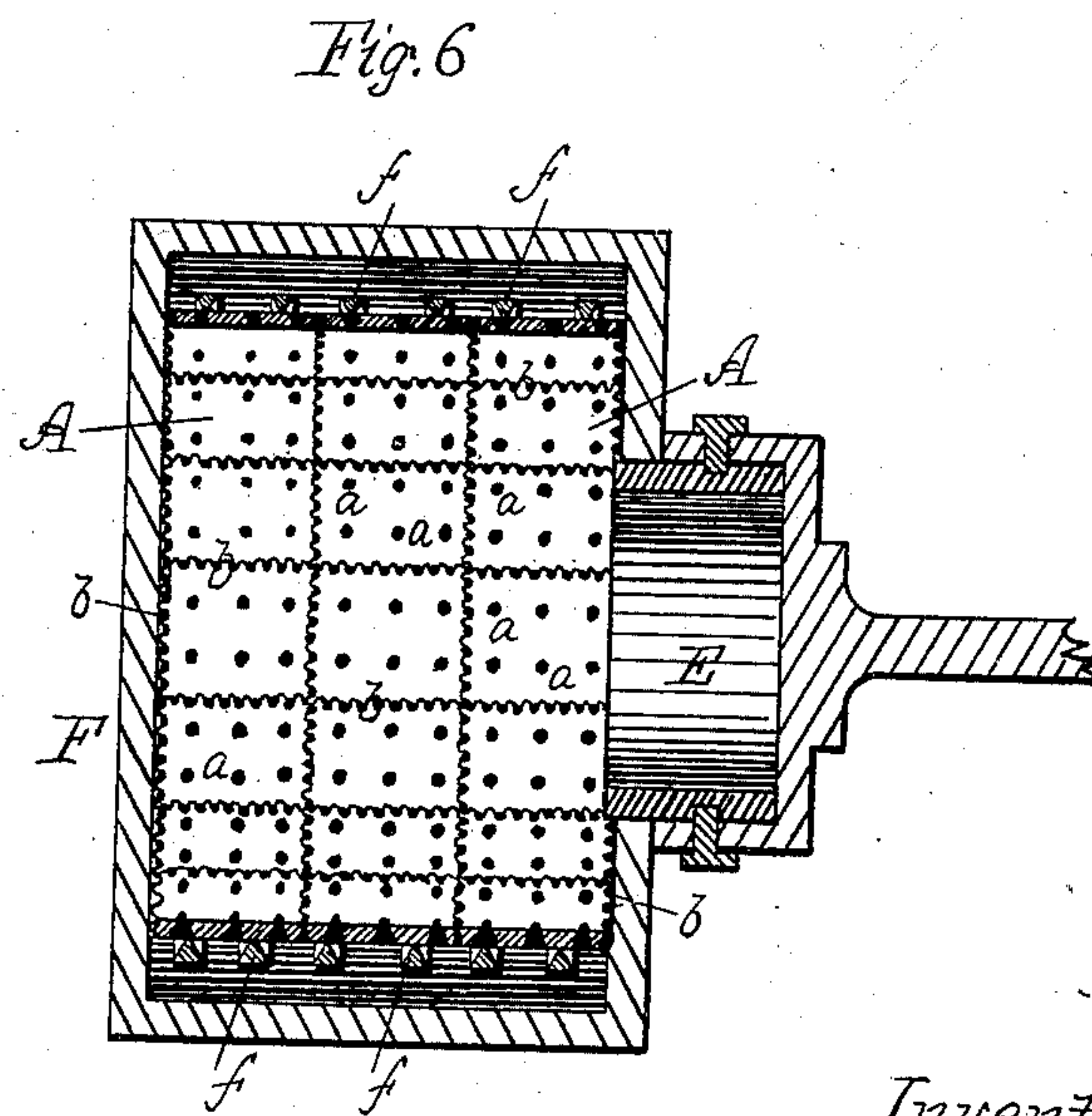
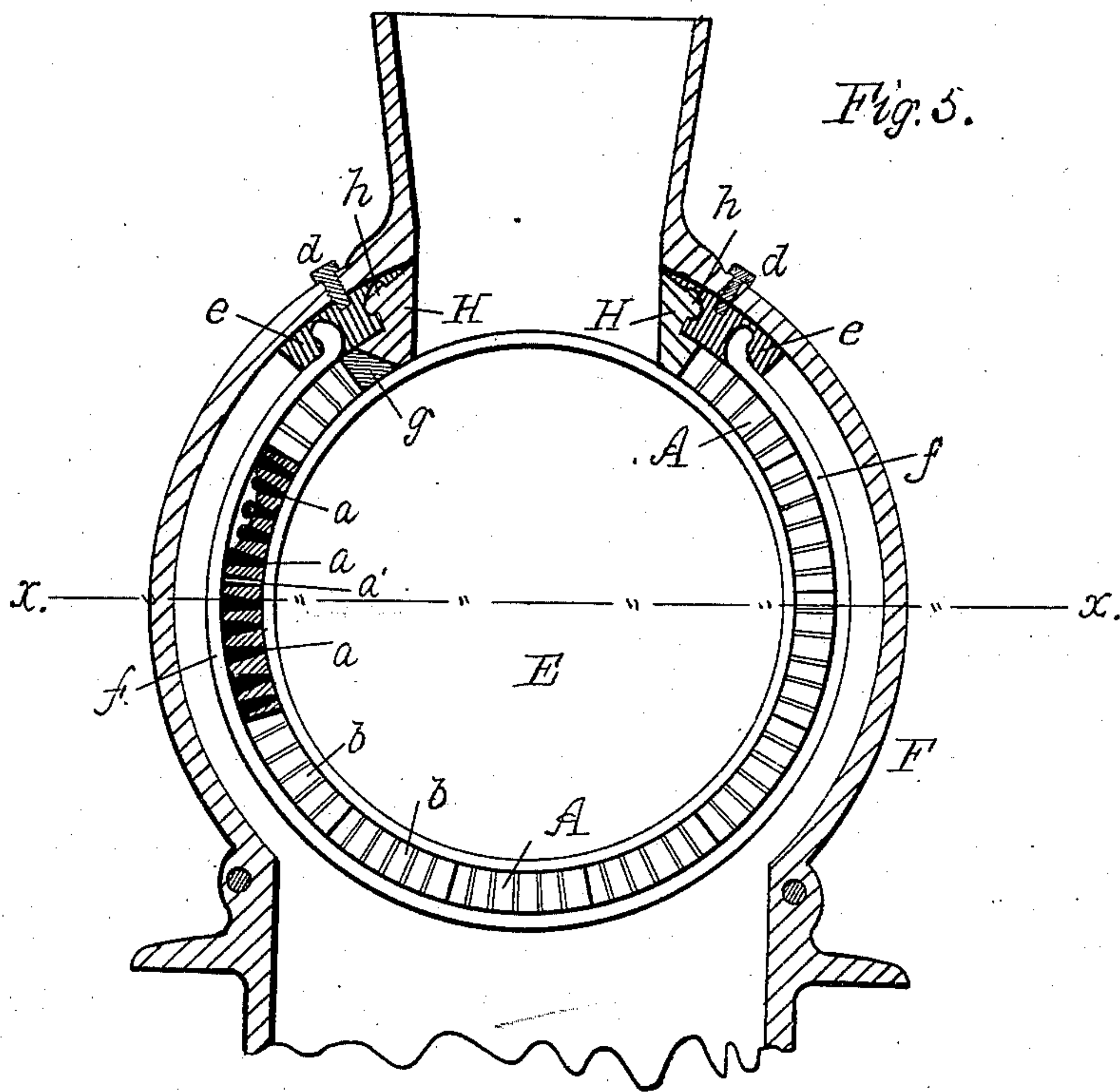
Thomas L. Sturtevant.

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A. J. Hayden

Inventor.
Thomas L. Sturtevant.

UNITED STATES PATENT OFFICE.

THOMAS LEGGETT STURTEVANT, OF FRAMINGHAM, MASSACHUSETTS, ASSIGNOR TO THE STURTEVANT MILL COMPANY, OF PORTLAND, MAINE.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 316,920, dated April 28, 1885.

Application filed August 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LEGGETT STURTEVANT, a citizen of the United States, residing at Framingham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Screens; 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 or figures of reference marked thereon, which form a part of this specification.

This invention relates to screens, more particularly those which are composed of several similar sections forming the screen as an entirety, whereby any of the individual parts may be easily removed, when worn, and new ones substituted at small expense.

The screen embodying my improvements is suitable to any purpose where screening is to be performed, but is more particularly adapted in the grinding or reduction of hard materials—such as ores, phosphates, rocks, or analogous substances—where there is great friction and wear; and it consists of a series of chilled perforated metal plates, having perforations, which are tapered or cone-shaped, while the sides and ends of said plates are fluted or corrugated and slightly “battered,” so that the abutting parts of the individual plates may likewise form tapering perforations as additional screening-surface for the particles in process of reduction.

The drawings accompanying this specification represent, in Figure 1, a longitudinal section of two plates in position, while Fig. 2 is a plan of the interior, and Fig. 3 a similar view of the exterior, surface of a plate embodying my invention. Fig. 4 is a vertical transverse section of a plate. Figs. 5 and 6 represent the adaption of the screen to an attrition-mill, the former view being a vertical section through such a mill, and the latter a horizontal section through Fig. 5 on the line *x x*.

In the drawings, A represents a rectangular metal plate, formed preferably of hard or chilled iron or steel, with its exterior and in-

terior surfaces formed in the present instance on the arcs of concentric circles whose radii are such as to fit the casing in which the screen, as an entirety, is to be employed. These individual plates or screens A A, &c., are transversely perforated with tapered or cone-shaped holes *a a*, whose sides are chilled, with the apex of the cone toward the center of the casing, this taper being formed to prevent clogging of the screen and allow the ground material to pass more freely and readily away. I have further laterally fluted or corrugated the plates A A, &c., as shown at *b b* in the drawings, and have slightly beveled or sloped the sides B B and ends C C where corrugated, so that when the screens are placed together the abutting edges will form additional screening-surface. The slight batter given to the sides give to the corrugations the same taper as that shown in the holes *a a*, &c. (See *a' a'*, Fig. 1.)

To enable the individual screens to be securely and rigidly bound together, I have left the corners D D, &c., integral, so that a firm bearing may be secured when wedging the parts together to form a whole. When the plates A A constitute a flat screen, the corners D D are at right angles to the sides, or the plates are squared; but when constructed to fit a circular casing the end corners are then beveled radially with said casing at that point. Furthermore, to give greater strength and lightness to the entire screen, I have formed a concavity in the exterior face of each plate, as shown in Fig. 1 of the drawings.

Instead of boring the holes *a a* of the form shown, I find a very efficient chilled screen can be cast in the exact form, as above described, by previously constructing a number of iron cones of the shape and size required for the tapered holes *a a*, &c. These chills are previous to use shellacked and finished with black lead. By this process the holes *a a* can be constructed and cast with perfectly smooth peripheries, which prevent the adhesion of ground material, while at the same time the chills have so thoroughly hardened the metal that it is not impaired by wear, although very great.

This form of screen is especially adapted to

that class of attrition-mills (a notable instance of which is shown and described in Letters Patent issued to myself on the 28th day of March, 1882) in which a rotary head moves
 5 within a fixed circular casing. The adaptation to said class of mills of the hereinbefore-described screens is shown in Figs. 5 and 6 of the drawings, in which E represents the rotary head and F the casing. To the upper
 10 portion of the circular part of the latter I have secured by bolts *d d* metal blocks *ee*, &c., in which are securely cast bands or hoops *ff*, triangular in cross-section, with the apex or knife-edge projecting toward the center of the casing, and upon which rest the screen-plates *aa*,
 15 &c. These circular screen-supports are formed, as shown, so that they may give the plates a continuous firm bearing, but at the same time shall present in the knife-edge a minimum obstruction to the passage of ground material
 20 over it. In the present arrangement I have disposed two circular supports, *f f*, for each

successive series of plates, and when the entire number is in place a wedge, *g*, driven home secures the whole as an entirety. 25

I claim—

1. A screen composed of a series of plates which are beveled and corrugated at their contiguous ends for the purpose set forth.

2. A screen-plate having its sides and ends 30 beveled and corrugated, said plate being also provided with perforations, substantially as set forth.

3. A screen-plate having a concavity in its outer face, and provided with perforations 35 opening into said concavity, substantially as set forth.

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

THOMAS LEGGETT STURTEVANT.

Witnesses:

H. E. LODGE,

A. F. HAYDEN.