

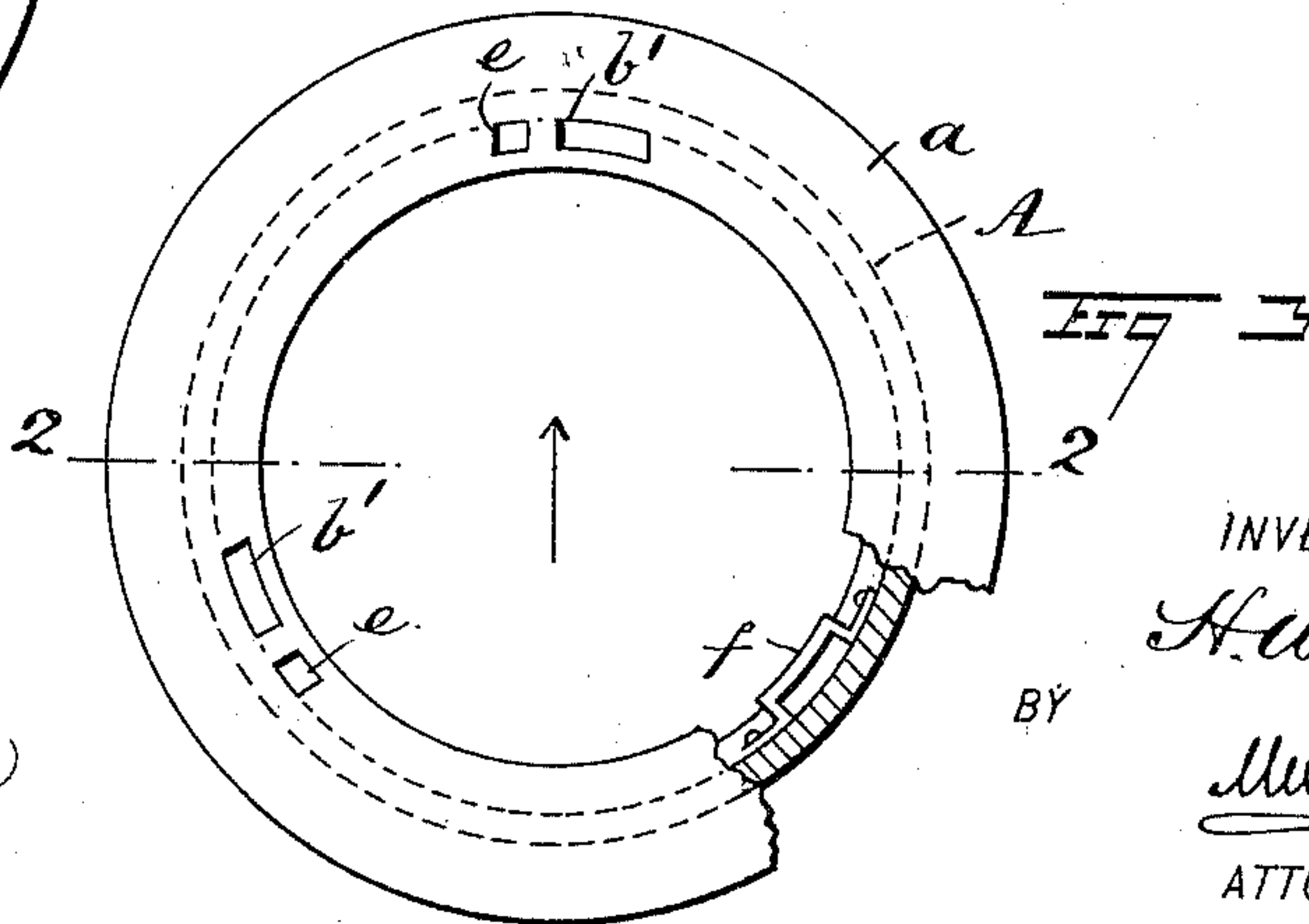
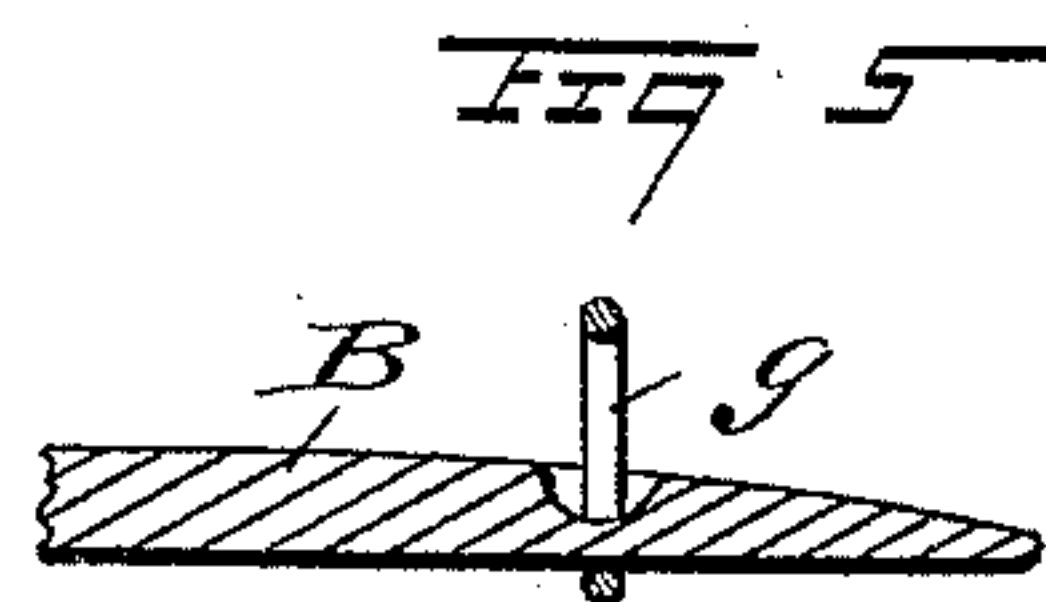
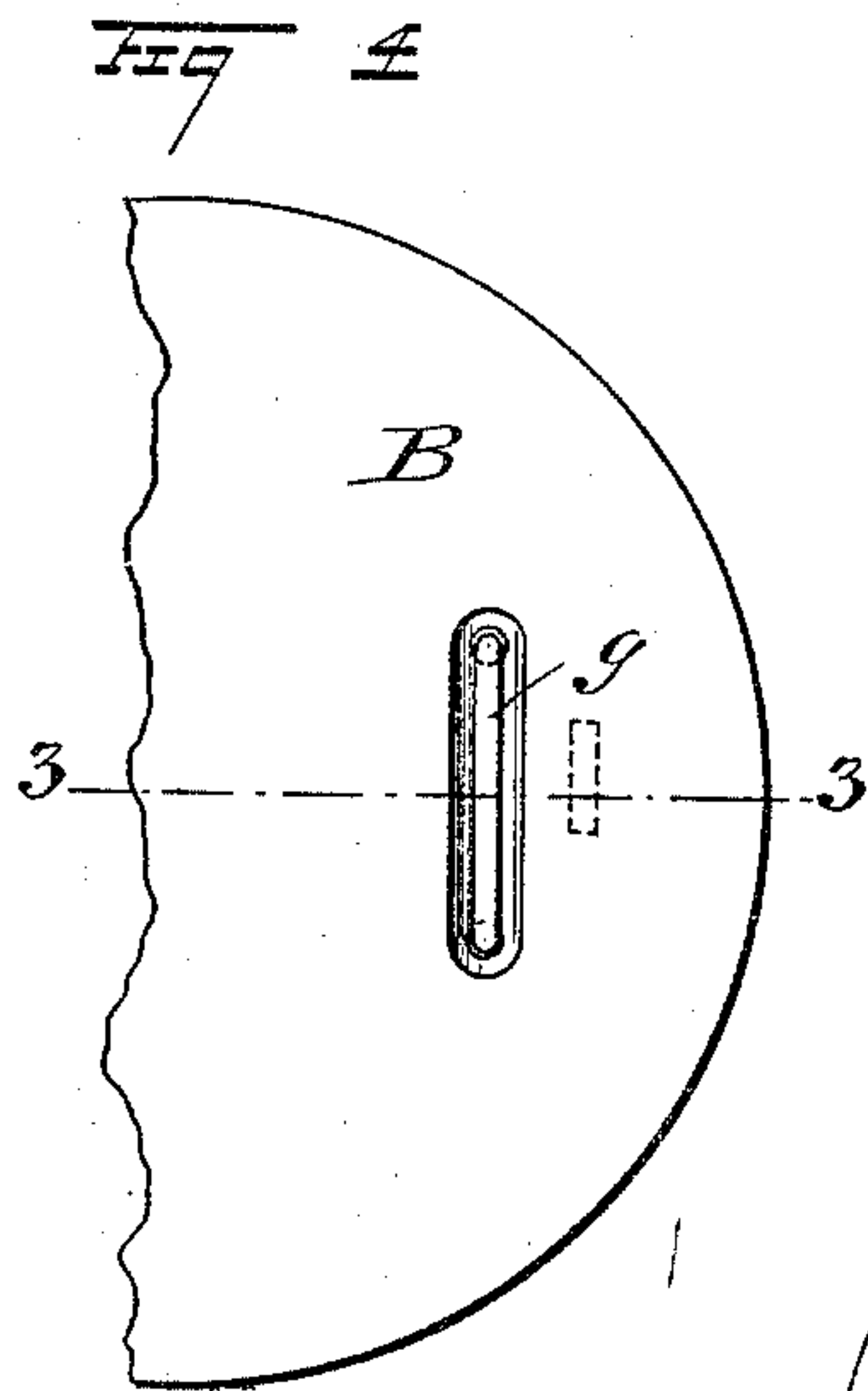
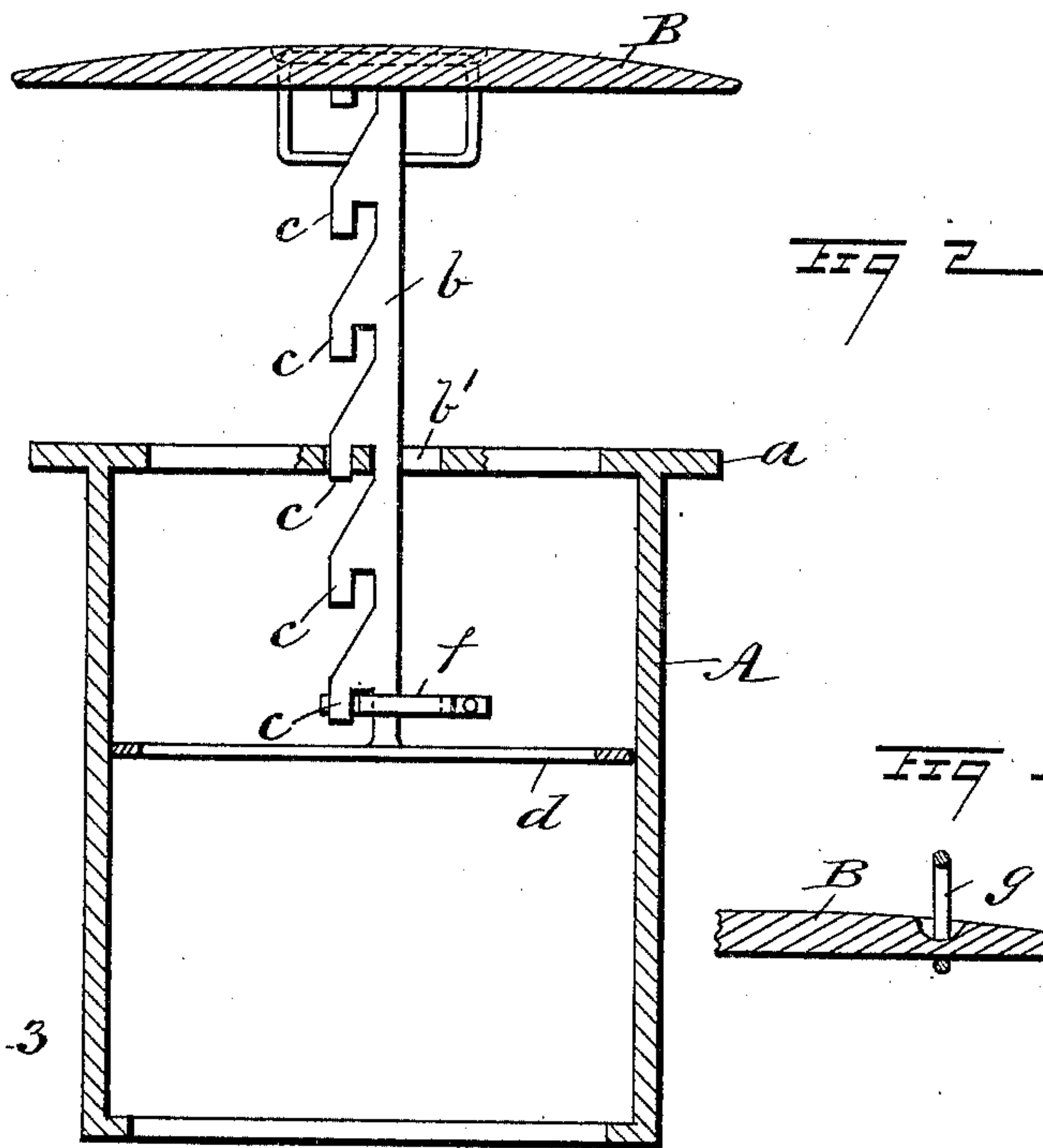
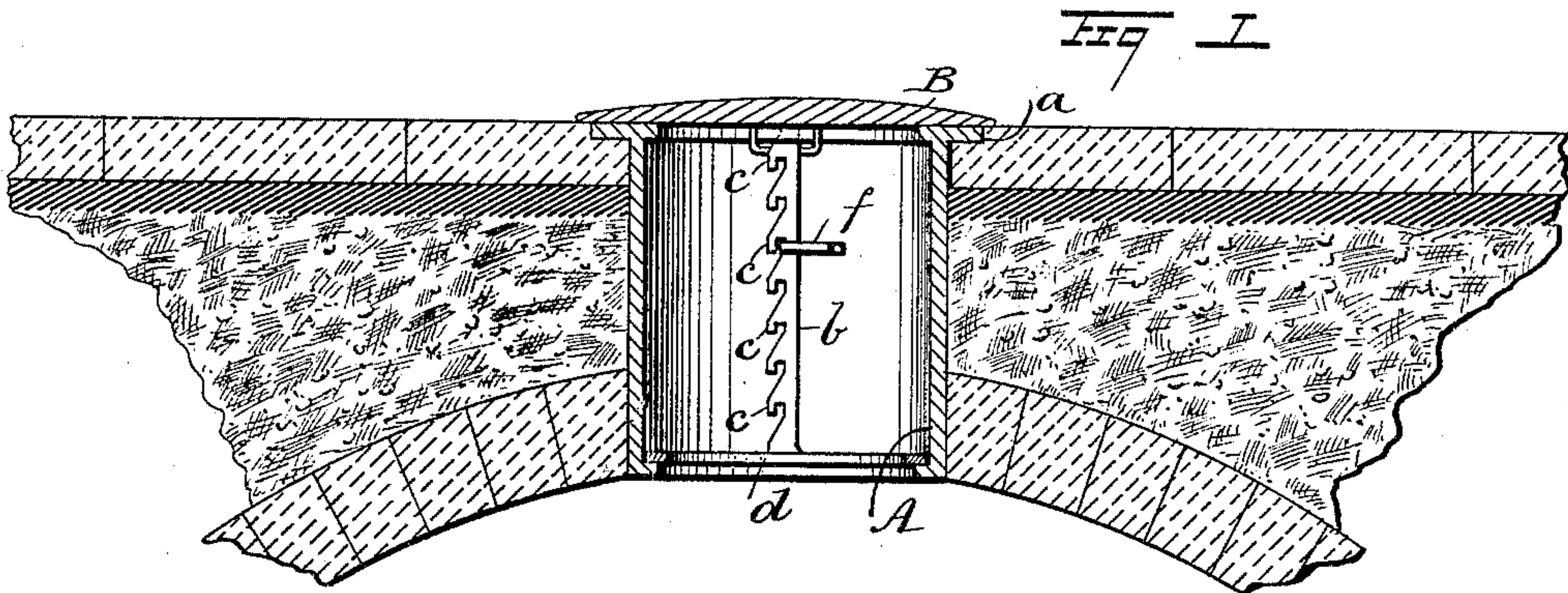
(No Model.)

2 Sheets—Sheet 1.

H. W. SAUER.  
VAULT COVER.

No. 436,639.

Patented Sept. 16, 1890.



WITNESSES:  
H. Walker  
C. Sedgwick

INVENTOR:  
H. W. Sauer  
BY  
Munn & Co  
ATTORNEYS

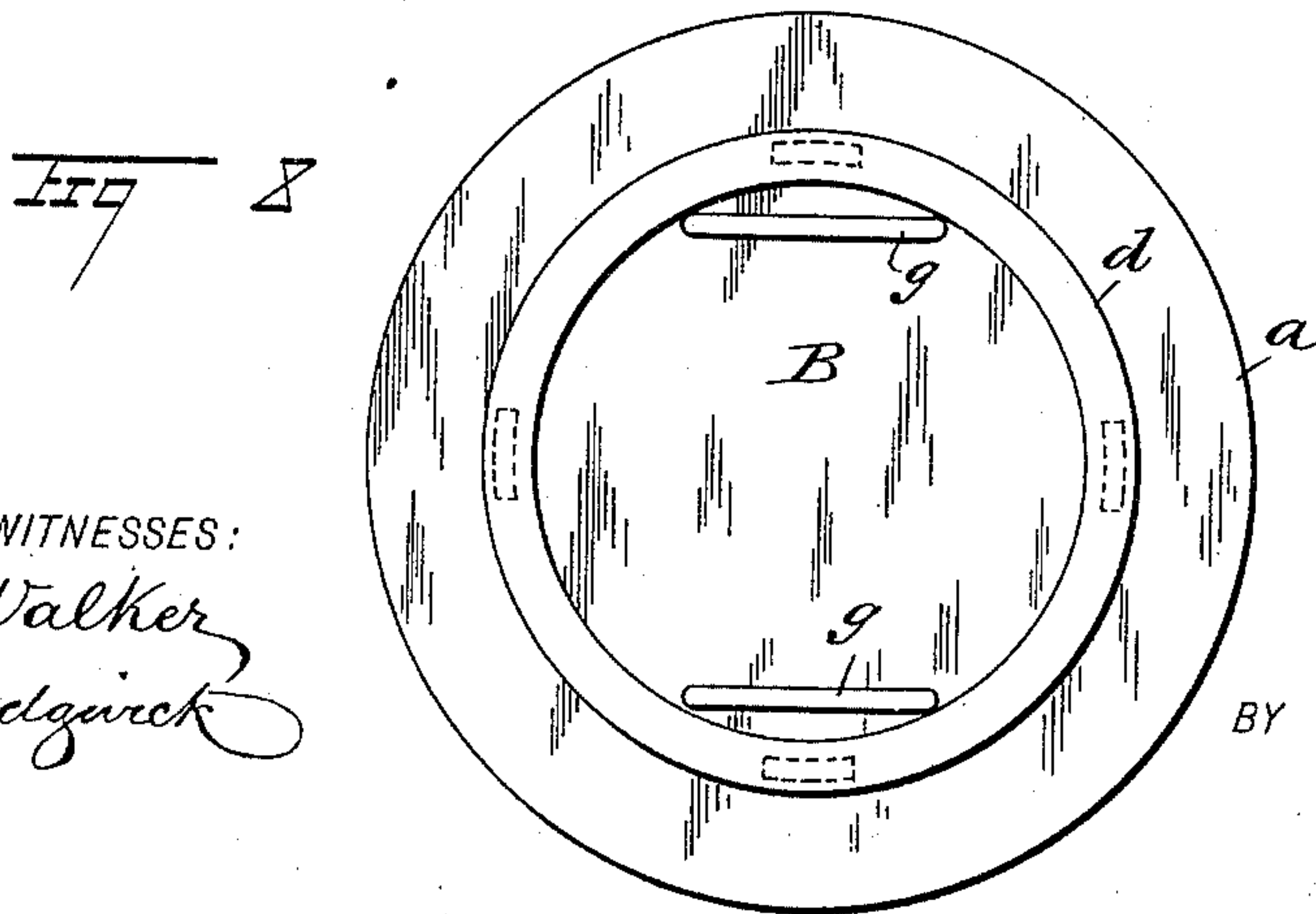
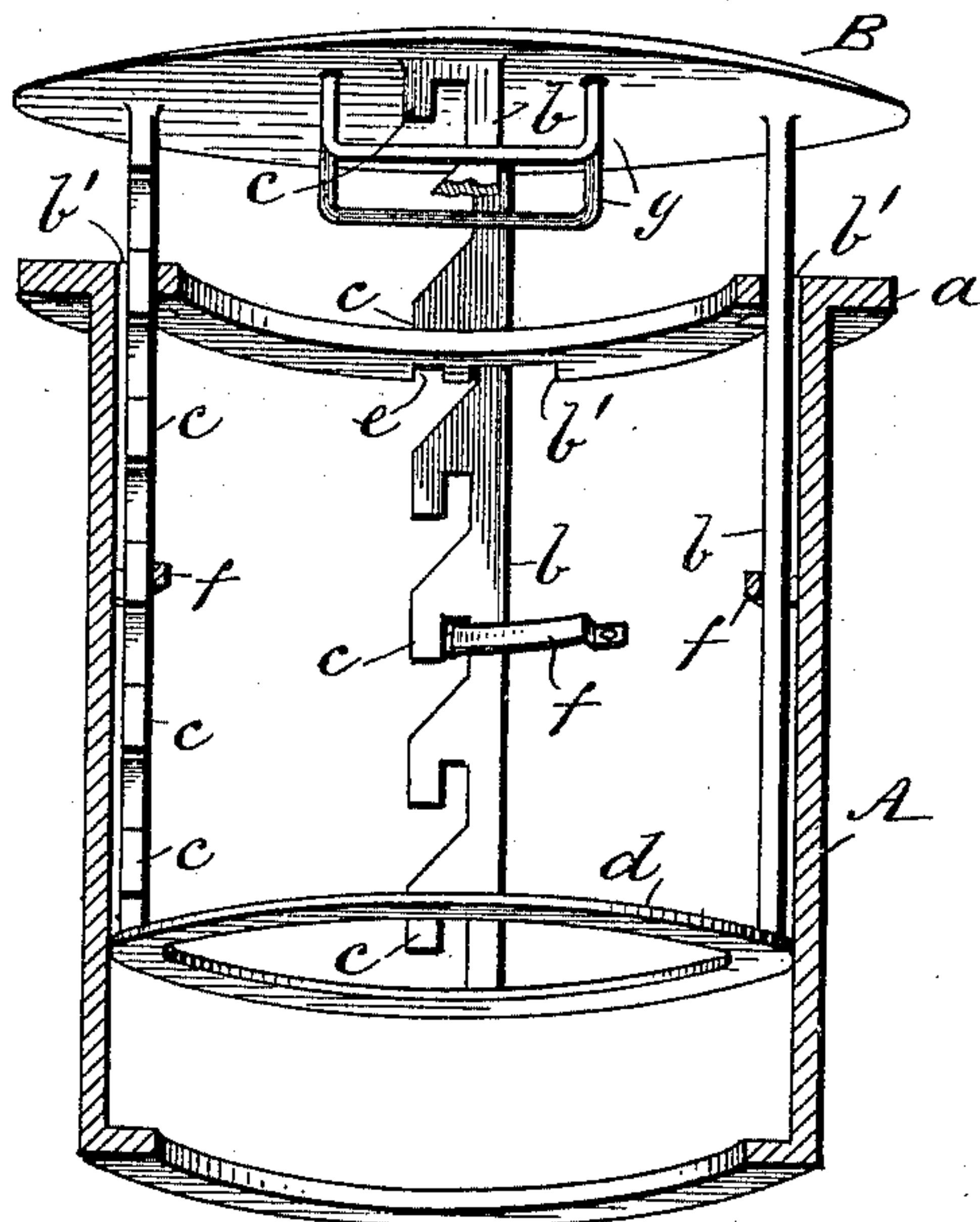
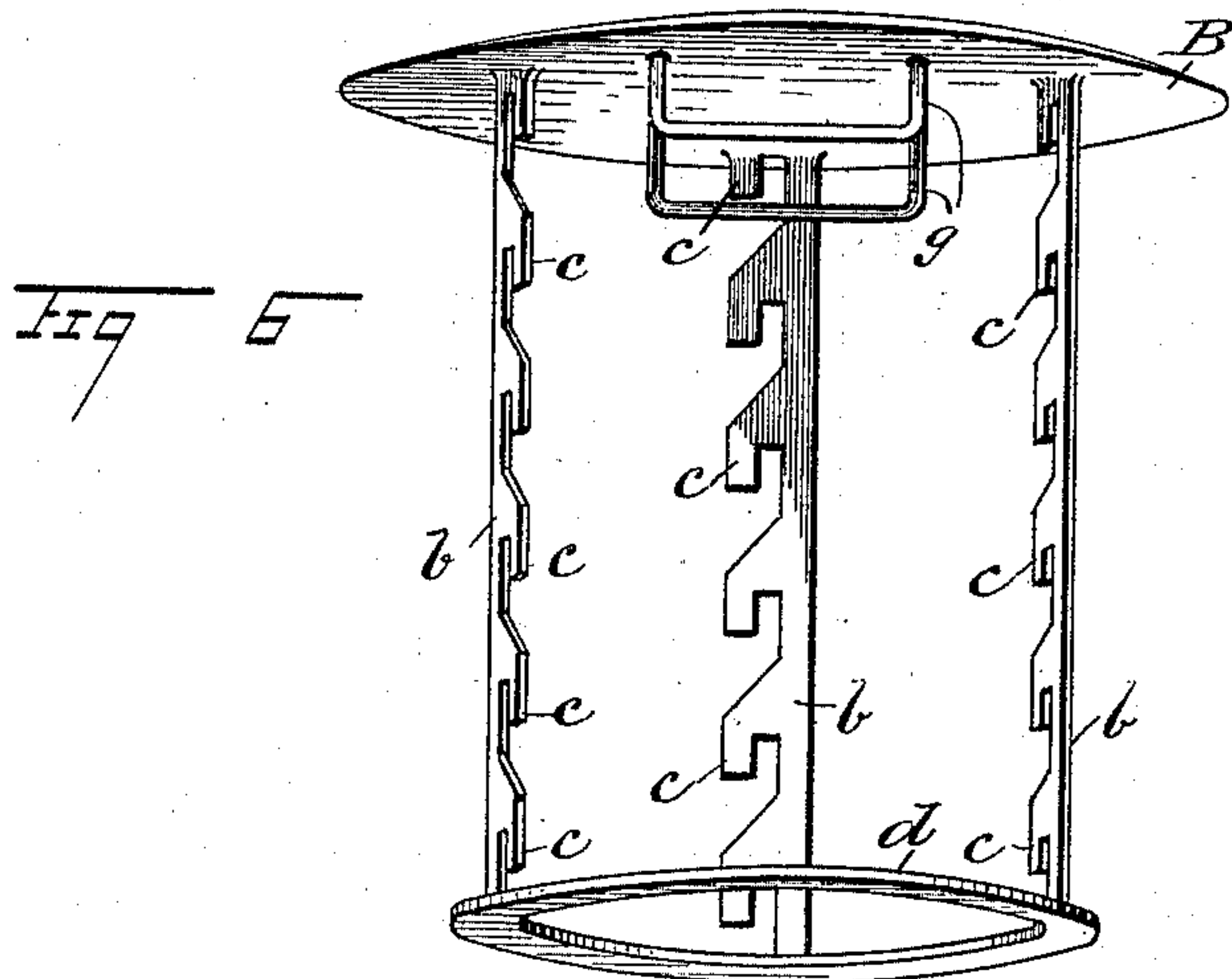
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# UNITED STATES PATENT OFFICE.

HENRY W. SAUER, OF NEW YORK, N. Y.

## VAULT-COVER.

SPECIFICATION forming part of Letters Patent No. 436,639, dated September 16, 1890.

Application filed February 26, 1890. Serial No. 341,801. (No model.)

### *To all whom it may concern:*

Be it known that I, HENRY W. SAUER, of the city, county, and State of New York, have invented a new and Improved Vault-Cover, of which the following is a full, clear, and exact description.

This invention relates to improvements in vault-hole covers, and has for its object to provide a cover which cannot be entirely removed from the aperture it is designed to close, thus avoiding contingency of accident to pedestrians, a further object being to provide means for supporting the vault-hole cover above the aperture, when desired, for purposes of ventilating and the introduction of coal or other material into the vault below the cover.

To these ends my invention consists in certain features of construction and combinations of parts, as is hereinafter described, and indicated in the claims.

Reference is to be made to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical axial section of the device in preferred form, located above a vault, a portion of which is shown. Fig. 2 is an enlarged detached view of the device shown in Fig. 1 in vertical section, taken on the line 2 2 in Fig. 3. Fig. 3 is a plan view of the cylindrical shell which forms a part of the device, enlarged and detached. Fig. 4 is a portion of the vault-hole cover. Fig. 5 is a cross-section of part of the cover, taken on the line 3 3 in Fig. 4. Fig. 6 is an enlarged perspective view of the vault-cover and supports for the same that are secured to it, this being the preferred form of said device. Fig. 7 is an elevation, partly sectional, showing the shell and a cover with its supports, the latter being increased in number, one being broken off to show the connection of the leg behind it with the shell; and Fig. 8 is a bottom plan view of the shell and cover, the supporting-legs of the latter being shown in dotted lines.

The lining thimble or shell A, that is inserted in the vault-hole, as shown in Fig. 1, is preferably made cylindrical in form, and is of suitable length to extend through the arched roof of the vault or subterranean structure it is intended to aperture, the preferred

use of the device being to afford a protected inlet from the paved sidewalk of a thoroughfare or highway to a vault below the same.

Upon the upper edge of the shell A a radial flange *a* is formed that is seated upon or embedded in the pavement and in turn receives the cover B, that is preferably made of metal and shaped as shown, the upper surface being made convex to give strength and also cause it to deflect water. The cover B is furnished with a true lower face where it is imposed upon the face of the radial flange *a*, and may project beyond said flange to prevent the infiltration of water through the joint made between the edge of the flange and the adjacent pavement.

At spaced distances three or more limbs *b* are secured to the cover B and project downwardly at right angles thereto in planes parallel to each other. Said limbs *b* are of suitable length proportioned to the elevation to be given the cover, being flat straight bars of metal, which are each notched on corresponding edges in a manner to form depending toes *c* thereon, which are spaced at proper intervals to permit them to effect their purpose. The limbs *b* are located at an equal distance from the center of the cover B, and are adapted to slide through the holes *b'* (see Fig. 3) in the flange *a*, their location being such with regard to the shell A that they may freely traverse these rectangular orifices and lie adjacent to the inner surface of the shell.

To the lower ends of the limbs *b* a flat ring *d* is secured, which is thus held parallel to the flange *a*, and in said flange proper-shaped perforations *e* are made near the rectangular orifices *b'*, leaving bars standing between each pair of holes *e b'*, said bars having a width between these holes of proper proportion to permit them to be readily engaged by the hook-shaped toe portions on the limbs *b* when the toes proper enter the holes *e* made for their reception.

At points equally distant from the flange *a* keepers *f* are secured to loosely embrace the bodies of the limbs *b*. These keepers being in the shape of rectangular loops have their end portions firmly attached to the inner surface of the shell A, their width being proportional to the breadth of the limbs, so that the latter may slide freely through them when



properly adjusted to effect the same. It is preferred that the width between the side walls of the keepers *f* be so proportioned and these pieces so located that when the toes *c* on the limbs *b* are interlocked with the flange *a* there will be a similar engagement of toes lower down on the limbs with the edges of the keepers *f*, thus re-enforcing the upper supports for the cover B, and when the cover is closed upon its seat there may be an interlocking engagement of the toes *c* with the keepers *f*, as shown in Fig. 1.

The handle-loops *g* are made in the form of integral rectangular loops or links, which are loosely secured to slide within mating perforations in the cover B, grooves of proper depth being formed in the top surface of the same, which grooves or channels extend between the holes wherein the handles slide, so that the grip piece or bar of each handle *g* will lie in its groove and afford a level surface for the cover.

In Figs. 7 and 8 the same general form of construction is maintained, the change from the preferred form consisting in furnishing four limbs *b* for the support of the cover B and a keeper *f* for each limb, there being a corresponding change made in the number and arrangement of the spaced orifices *e b'* in the flange *a*, whereby the same results will be secured.

In use the cover B may be raised until the ring *d* engages the keepers *f*, when a lateral movement of the bars that will cause the hook-shaped toes *c* to pass the side walls of the keepers and abut the edges of the limbs on the inner surfaces of these keepers will so locate the toes *c* that the lid or cover B will be held upwardly projected, as shown in Figs. 2 and 7, thus providing an opening below it into the shell A and vault below for ventilation or introduction of material. A reverse movement of the cover B, after it has been lifted so as to clear the toes *c* from their engagement with the flange *a* and keepers *f*, will permit the cover to be lowered upon its seat.

It is claimed for this device that the danger

incidental to the use of ordinary vault-hole covers in the matter of an exposure of the unguarded aperture to trap the limbs of unwary pedestrians is entirely avoided, the lid or cover being made non-removable by its manner of connection with the thimble or shell that lines the aperture into the vault, furnishes a substantial guard, and at the same time permits free ventilation, as well as access to the vault for introduction of coal or other material.

As ordinary vault-holes are of such a diametrical size as to require the complete removal of the cover for the passage through it of a man or even a boy, it is apparent that if the cover is secured by the limbs *b* to the shell A it will be a difficult feat to effect a felonious entrance within the vault through the limited space between two of the limbs and beneath the cover, so that it is a safeguard from burglary as well as a protection to public travel.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a cylindrical shell and a cover that may be seated on a radial flange of the shell, of spaced depending limbs, each having a series of spaced locking-toes on corresponding edges, which toes are adapted to interlock with holes in the radial flange of the shell, substantially as set forth.

2. The combination, with a cylindrical shell, a cover therefor adapted to be seated on a radial flange of the shell, and spaced limbs secured to the cover and depending therefrom, each limb provided with mating series of locking-toes adapted to enter holes in the radial flange and support the cover, of a keeper for each limb, secured to the shell so that the toes of the limbs may engage their edges, and a flat ring attached to the lower ends of the limbs, substantially as set forth.

HENRY W. SAUER.

Witnesses:

EDGAR TATE,  
C. SEDGWICK.