

No. 883,965.

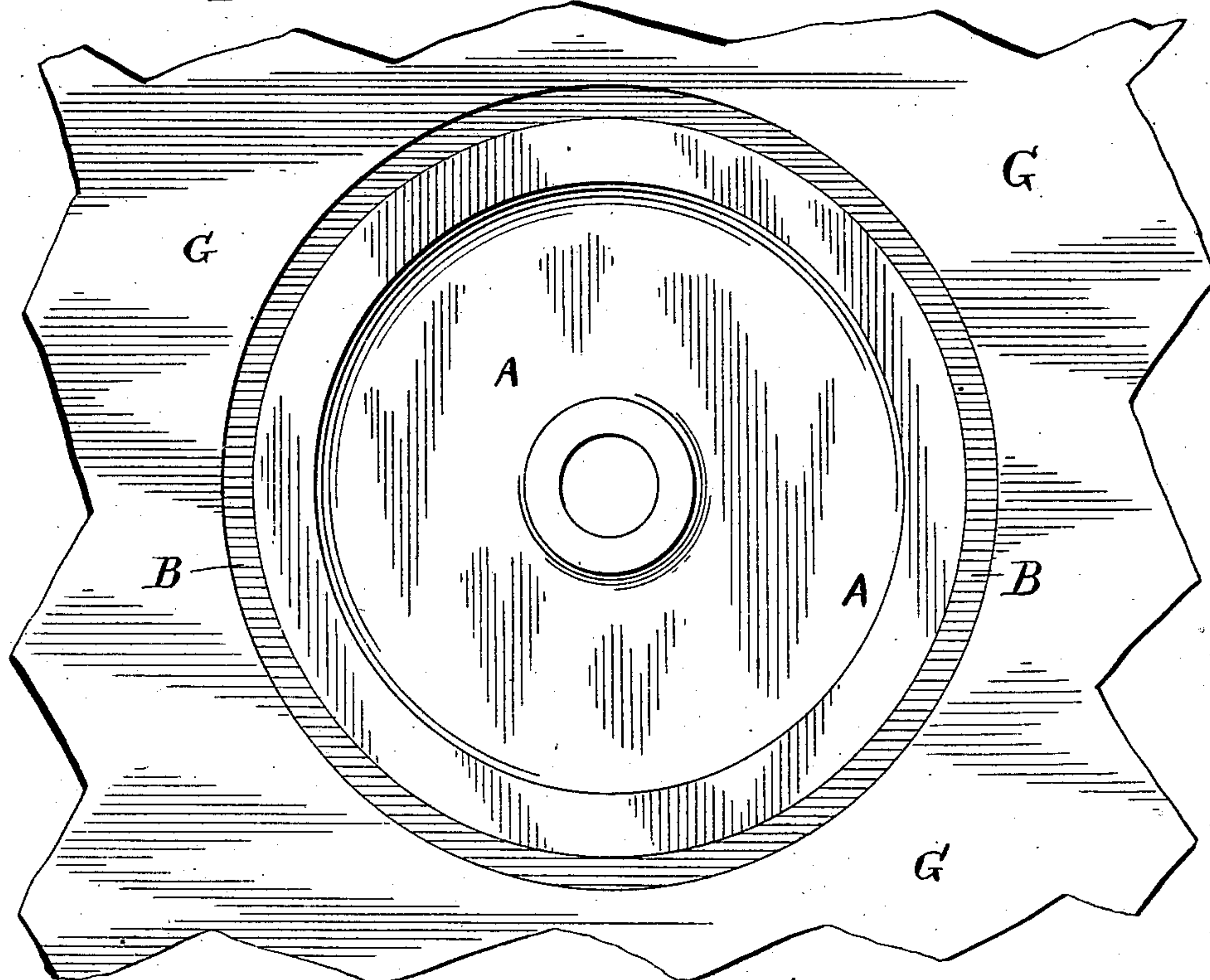
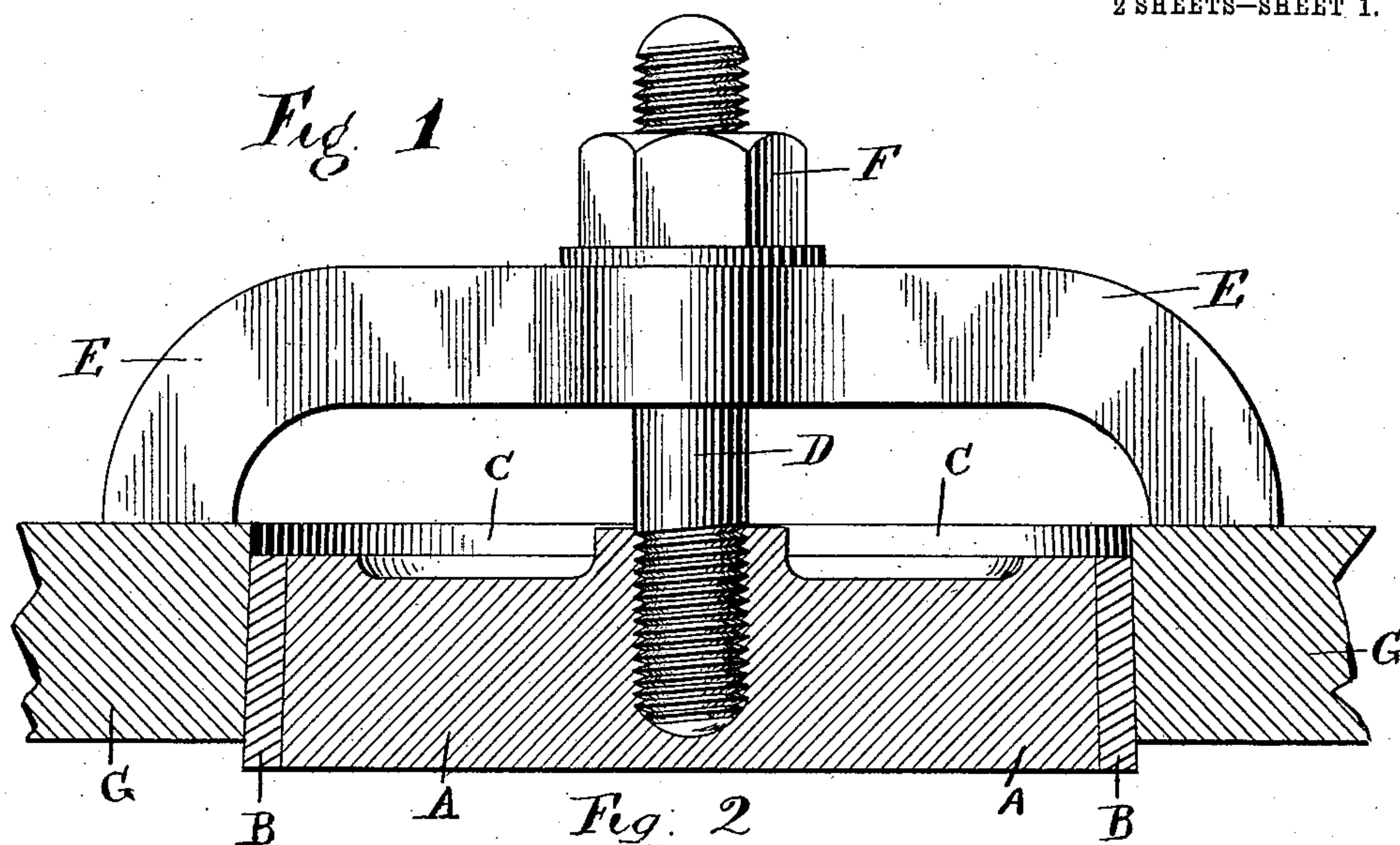
PATENTED APR. 7, 1908.

H. A. E. LIEBERT.

MANHOLE LID.

APPLICATION FILED AUG. 22, 1903.

2 SHEETS—SHEET 1.



Witnesses:
Thomas J. Byrne.
A. S. Dunham.

Inventor -
Henry A. E. Liebert, by
Kerr, Page & Cooper,
Atty.

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2 SHEETS—SHEET 2.

Fig. 3.

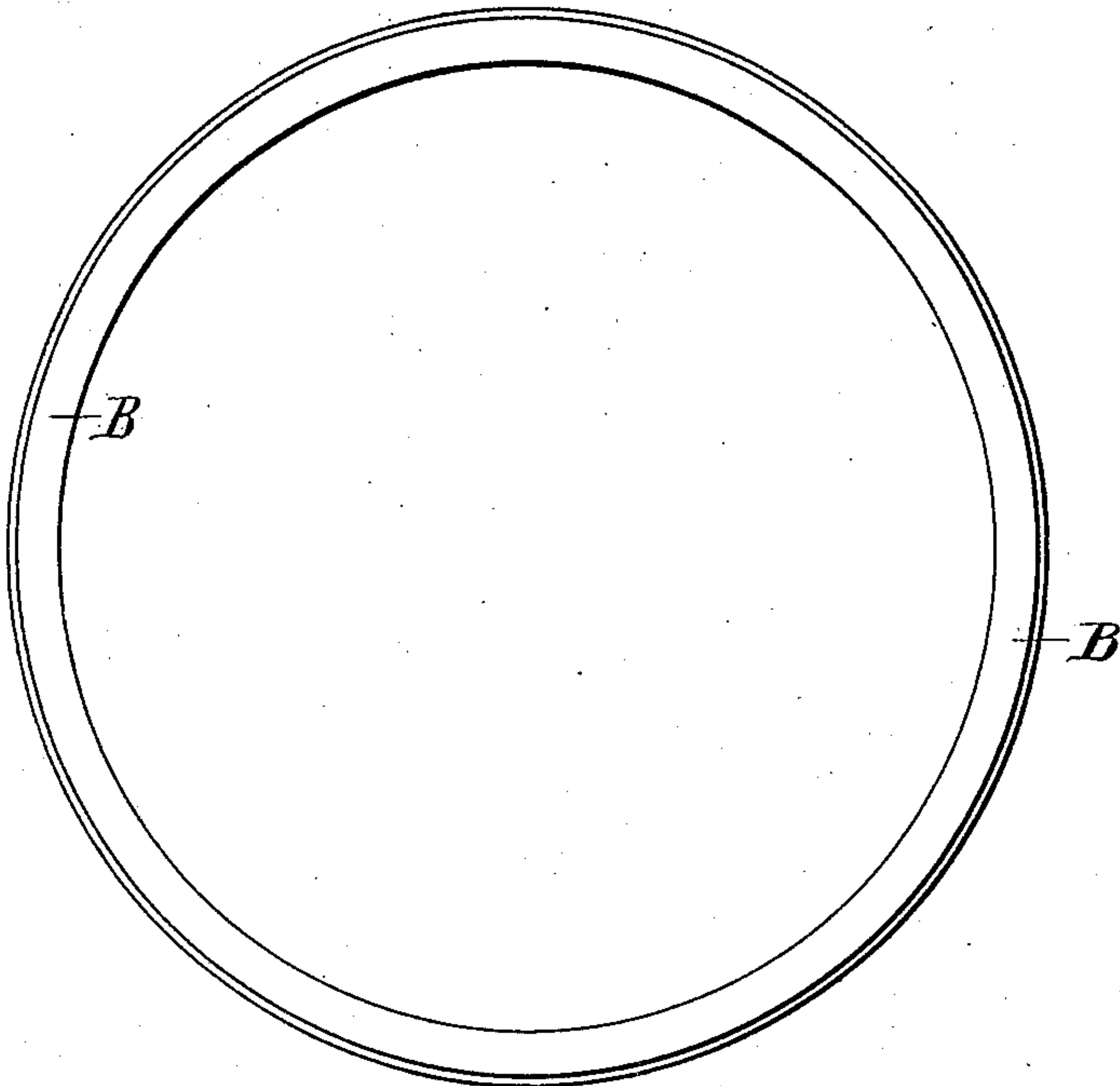
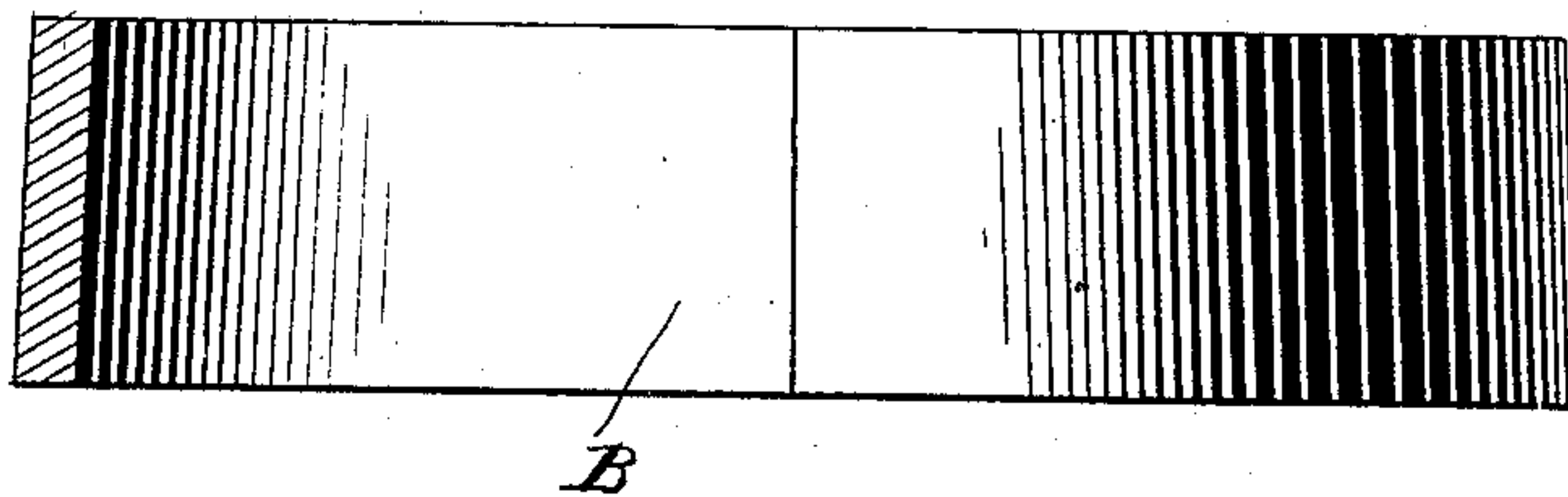


Fig. 4.



Witnesses:
Thomas J. Byrnes.
A. J. Dunham.

Inventor—
Henry A. E. Liebert, by
Kerr, Page & Cooper,
Atty.

UNITED STATES PATENT OFFICE.

HENRY ANTON EMIL LIEBERT, OF ROCHDALE, ENGLAND, ASSIGNOR TO E. GREEN AND SON LIMITED, OF WAKEFIELD, ENGLAND, A CORPORATION OF GREAT BRITAIN.

MANHOLE-LID.

No. 883,965.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed August 22, 1903. Serial No. 170,398.

To all whom it may concern:

Be it known that I, HENRY ANTON EMIL LIEBERT, subject of the King of Great Britain, residing at 180 Drake street, Rochdale, Lancashire, England, have invented certain new and useful Improvements in Manhole and Hand-Hole Lids for Fuel Economizers, Boilers, and the Like, of which the following is a specification.

10 The invention relates to the manhole and handhole lids of economizer top boxes, boilers, and the like, and will be clearly understood from the following description aided by the accompanying drawings, in
15 which

Figure 1 is a sectional elevation of my improved construction of lid applied to the top of a fuel economizer box or boiler, the ordinary Lewis bolt fixing it in position. Fig. 2
20 is a plan with the Lewis bolt removed. Fig. 3 is a plan of the flexible portion of the lid. Fig. 4 part sectional elevation of same.

In ordinary construction the lids have tapered edges, the smaller diameter being
25 on the outside of the box, in consequence these lids will not go through the hole they fit from the outside, but must be put in position from the inside of the box. For this reason a number of the lid holes are made
30 of such a shape that they will take the lids through from the outside; for instance, they are made oval, the oval holes in the box being closed by the oval lids. To attain this same object, I make a round compound lid
35 in two parts, A B, the center part A being rigid and the outer part B flexible, in such a way that at the moment the flexible part B is being put through a smaller hole than its greatest outside diameter it forms itself
40 into an oval, but the moment it is through its hole C it springs back into its original round shape for accurately fitting its rigid portion A from which it has momentarily been detached.

45 When the compound lid is in place it is securely held by the stud D being screwed to the bridge E by the nut F as is usual.

The diameter of the hole C which the compound lid A B has to fit, is so large that it admits all ordinary lids and also the rigid
50 centers A. By this means I get all the ordinary lids and all the rigid centers of the compound lids inside the box, also the flexible portions B of the compound lids, and by then assembling the compound lids in the
55 inside of the box all the lids can be put into position from the inside, the last lid being pulled up in the ordinary way which is at present in vogue.

The flexible portion B is preferably made
60 of the same material as the rigid portion (say cast iron) so as to allow of equal contraction and expansion, but such flexible portion may be made of material other than that of the rigid portion, such as cast iron
65 rigid portion and cast steel flexible portion.

What I claim and desire to secure by Letters Patent is:—

In a steam boiler or the like, the combination with a wall thereof having a circular
70 aperture, the edge surface of which flares toward the interior of the boiler; of a compound closure for the said aperture, consisting of a circular disk of metal having its edge inclined in correspondence with the surface
75 of the aperture, the greatest diameter of the disk being less than the shortest diameter of the aperture, and a resilient ring of spring metal the inner and outer surfaces of which
80 are inclined in correspondence with the contiguous surfaces of the aperture and the disk respectively, said ring being supported on the inclined edge of the disk but independent
of and freely separable from the latter, and
85 means connected to the disk for drawing the disk and ring firmly into engagement with the edge wall of the aperture.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY ANTON EMIL LIEBERT.

Witnesses:

JOHN WILLIAM THOMAS,
MALCOLM SMETHURST.