

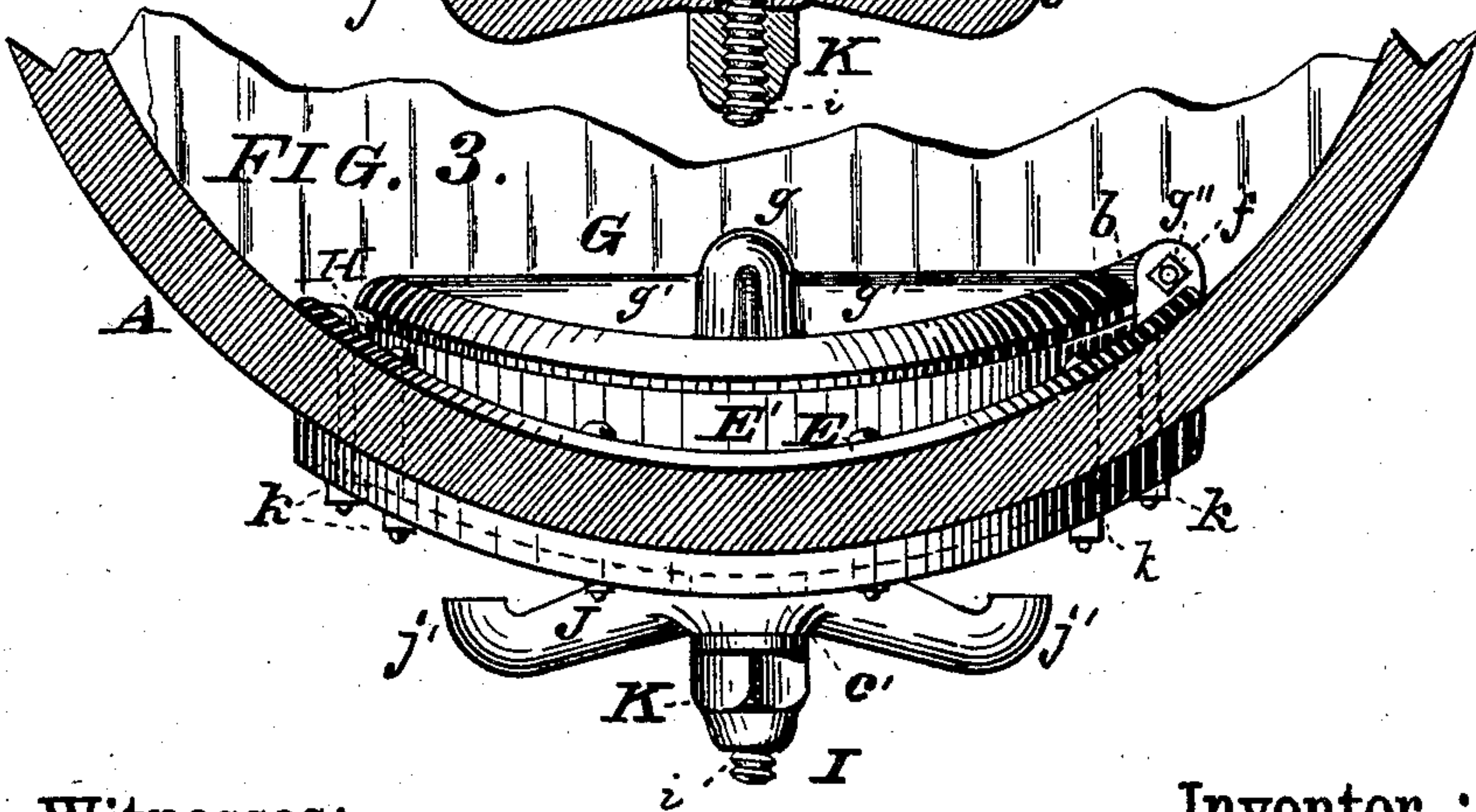
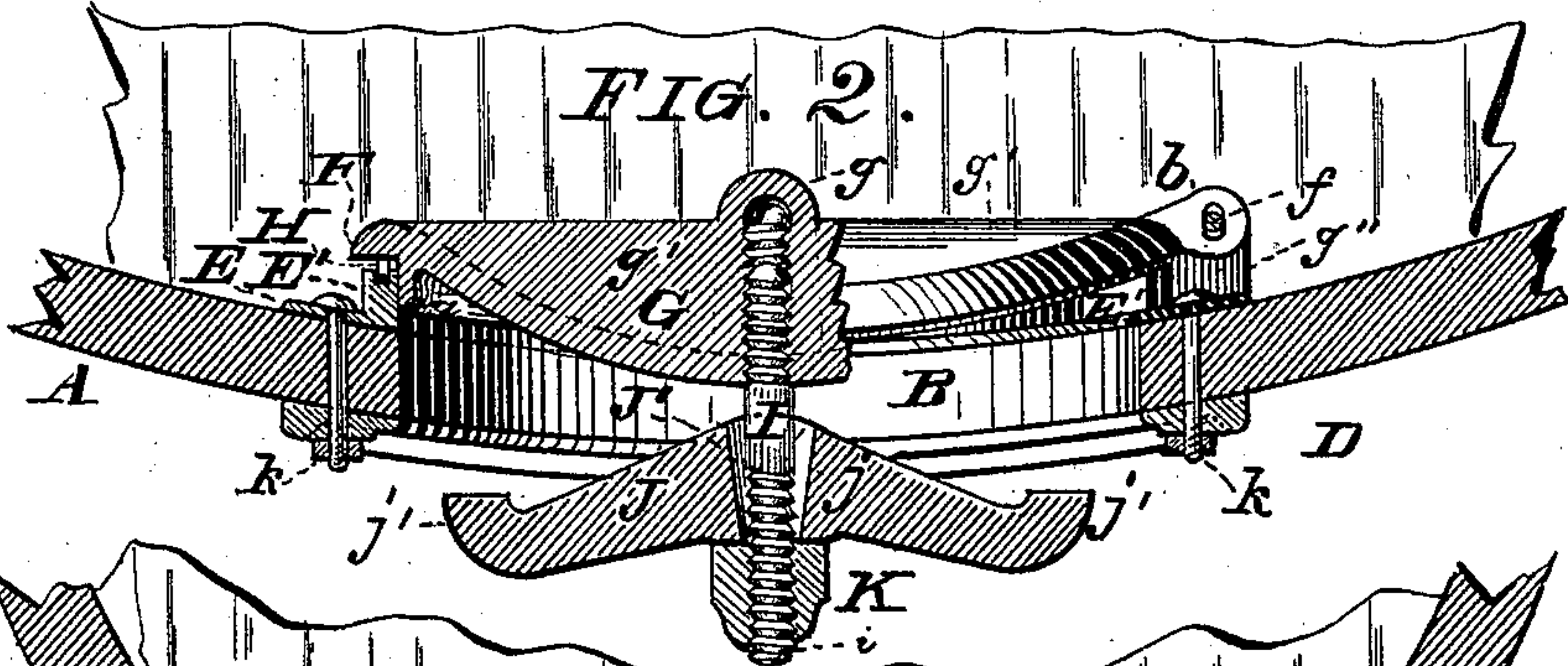
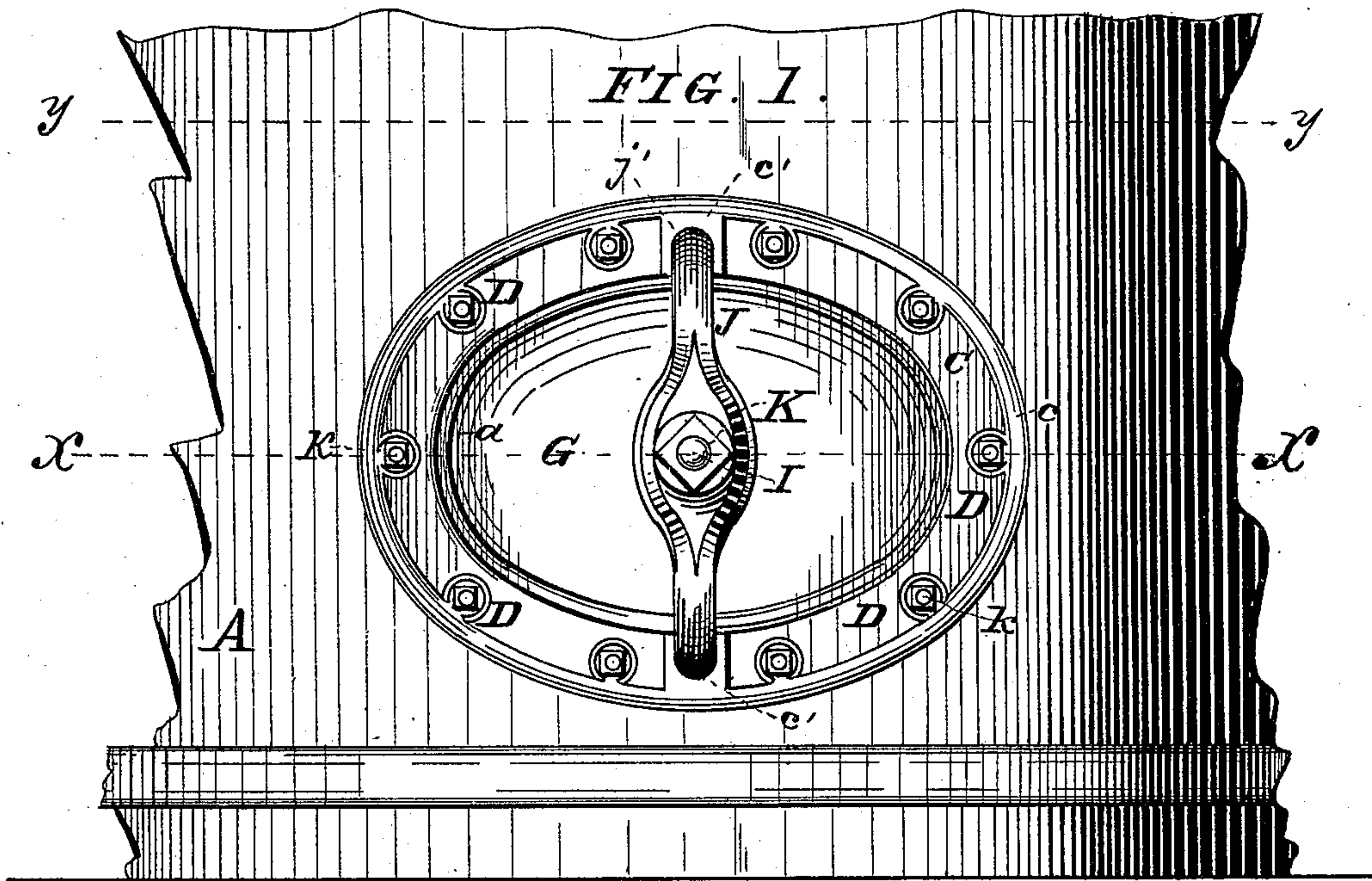
(No Model.)

W. HEISER.

MANHOLE FITTING FOR BREWERS' VATS, &c.

No. 574,420.

Patented Jan. 5, 1897.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM HEISER, OF BUFFALO, NEW YORK.

MANHOLE-FITTING FOR BREWERS' VATS, &c.

SPECIFICATION forming part of Letters Patent No. 574,420, dated January 5, 1897.

Application filed April 17, 1895. Serial No. 546,046. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HEISER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Manhole-Fittings for Brewers' Vats; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to improvements in manhole-fittings for brewers' storage-vats and similar wooden vessels; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate my said invention more fully, Figure 1 is a front elevation of a portion of a storage-vat provided with my improved manhole-fittings. Fig. 2 is a sectional plan in line $x x$ of Fig. 1. Fig. 3 is a similar view taken in line $y y$ of Fig. 1.

Like parts are designated by corresponding letters of reference in all the figures.

The object of my present invention is the production of strong, durable, serviceable, and cheap fittings for the manholes of wooden and iron vessels, such as brewers' storage-vats, &c. These vessels are usually made in sizes ranging from three feet in diameter to twenty feet, so that vats of different diameter require a different pattern for the fittings. These vats are provided with heads at both ends, and they are so made as to be capable of being hermetically closed, while for the purpose of cleaning and other obvious reasons it is necessary that access can be had to the interior thereof, which is accomplished through the manhole and fittings having a door or cover which can be opened and hermetically closed. These manhole-fittings I construct in my improved manner so that I can produce them at a very reasonable figure and amply strong to sustain the strain to which they are subjected.

A in the drawings represents a portion of a

wooden vessel made from staves in the usual manner. In this vessel there is a manhole B of elliptical shape and of sufficient size to permit the passage of a man to the interior of said vessel A. This manhole I provide with metallic fittings consisting of an elliptical outside ring C, having around its exterior edge a projecting strengthening-bead c and in its face a series of bosses D, provided with holes for the passage of bolts k , by means of which the fittings are secured to the staves, and at opposite points (through the minor axis of the ellipse) bearing-plates c' , and an inside ring E', having a lateral flange E, corresponding in size with the outside ring and fitting the inner curve of the staves of the vessel A. This inside ring has in its flange E holes matching those in the outside ring, for the purpose of receiving the bolts k already referred to, and it has also two projecting lugs g'' , (one of them is shown as removed in Fig. 2 of the drawings to show details of construction,) to which is hinged a cover or door G by a bolt f , said door having a deeply-curved concavo-convex body provided centrally with a boss g and on the back side and through the minor and major axes of the ellipse with strengthening-ribs g' , a lug b being provided and arranged to engage the lugs g'' , so as to form a hinge for said door, the bolt-hole in said lug b being made oblong in shape to permit the door being tightly drawn to the face of the ring E', while a projecting ring a , formed on the flange of the door, assists in guiding the said door into its proper position when being closed.

The face of the inside ring E' is not only an ellipse, but it is also curved to a diameter of a circle of about four feet and six inches, as shown in Figs. 2 and 3, so that this curvature forms a mean for vats of from three to six feet in diameter, while for larger vats I curve this face to a diameter of a circle of about eight feet, this being about the mean diameter of the larger vats, it being understood that the curvature of the lateral flange of the inside ring always corresponds to that of the inner surface of the vessel, while the curvature of the bearing-face of said inside ring is not only different from that of the said flange, but has also its center located at a different point. In other words, the two curves are

not drawn from a common center and are therefore not concentric. By thus curving the face of the inside ring, of which I use a different pattern for each size of vat or vessel in which the curvature of the lateral flange corresponds with the inner curvature of said vessel, but of which the bearing-ring has a face the curvature of which is the same for several sizes, I am enabled to make two sizes of doors serve for all the different sizes of vats, while at the same time I produce a stronger and more serviceable fitting than has heretofore been devised and as will hereinafter more fully appear.

The boss *g* is bored or cored to receive a stud-bolt *I*, projecting from the outer surface of the door and adapted to receive a clamp or yoke *J* and a fastening-nut *K* upon its outer screw-threaded portion *i*. This yoke or clamp has two outer bearing portions *j'* resting, when in proper position, upon the bearing-plates *c'* of the face-ring *C*, and it is provided with a central tapering hole *j*, as clearly illustrated in Fig. 2, so that it may not only revolve upon the stud *I*, but also rock upon the same, and thereby allow its being placed in such a position that it may swing through the manhole *B* when the door *G* is being inwardly swung around its pivotal bolt *f*. This is an essential feature because, a few turns of the fastening-nut *K* in the proper direction being all that it requires to enable the door to be opened or closed, the entire removal of the yoke *J* for the purpose of opening the door is unnecessary.

In the face of the inner ring *E'* there is a groove or recess receiving a gasket or packing-ring *H*, which, being confined within said groove, cannot spread and will therefore remain in serviceable condition for a very long time. Upon it (the gasket) bears the projecting flange *F* of the door *G*, and thereby makes a tight joint.

It will now be observed that the outside and the flange on the inside ring vary in their curvature with the diameter of the vessel to which they are applied and that different patterns have to be used for each size of vat; but since the curvature of the face of the inside ring is alike in all sizes from three to six feet and also alike in all larger sizes I need but two patterns for all the doors, and since these doors are the only part of the fittings that are in any manner liable to damage by unskilful use I am enabled to supply these doors at any time and be sure of a proper fit.

I have heretofore patented and manufactured a manhole-fitting in which the face of the inside ring is straight or plane. I find in practice, however, that if the front and inside

rings are not properly fitted to the staves they will adapt themselves to the staves by flexure, but this will result in affecting the plane of the inside bearing-ring and cause the door, which remains in its original perfect condition, to improperly fit the bearing-ring and when leakage occurs at the packing and the door is drawn up tightly to stop the leak to cause breakage of the said door. By curving the face of the inside ring and placing the packing or gasket into a groove in said face I find that a good tight bearing can be readily obtained even if the inside ring should have been sprung out of true in applying it to the staves as long as the difference between the ring and the flange of the door is not too great, and that no breakage of the door occurs.

The body of the yoke *J* is deeply curved toward the door, so as to bring it into close proximity of the same and to project but little beyond the face of the vat, which in cellars having but a limited space is of considerable importance and also prevents to a great extent interference with the passage in front of the vessel, there being usually a large number of these vats used in a cellar.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. A manhole-fitting for wooden or metallic vessels, consisting of an elliptical outside ring and an elliptical inside ring, both secured to the shell of said vessel around the manhole thereof, an elliptical door within said shell and hinged to the inside ring, a stud projecting from said door and provided with a fastening-nut, and a yoke upon said stud and adapted to swing through the manhole-opening, said inner ring having a curved bearing differing in curvature from that of said shell and provided with a gasket and adapted to engage with the curved flange on said door, whereby one of said doors is adapted for use in connection with several sizes of shells, as and for the object set forth.

2. In a manhole-fitting, an inside ring having a lateral flange, as described, the face of said inside ring having the curvature of a circle differing from that of the flange, the two circles having their centers differently located, as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM HEISER.

Attest:

ALBERT G. HEISER,
GEORGE A. HEISER.