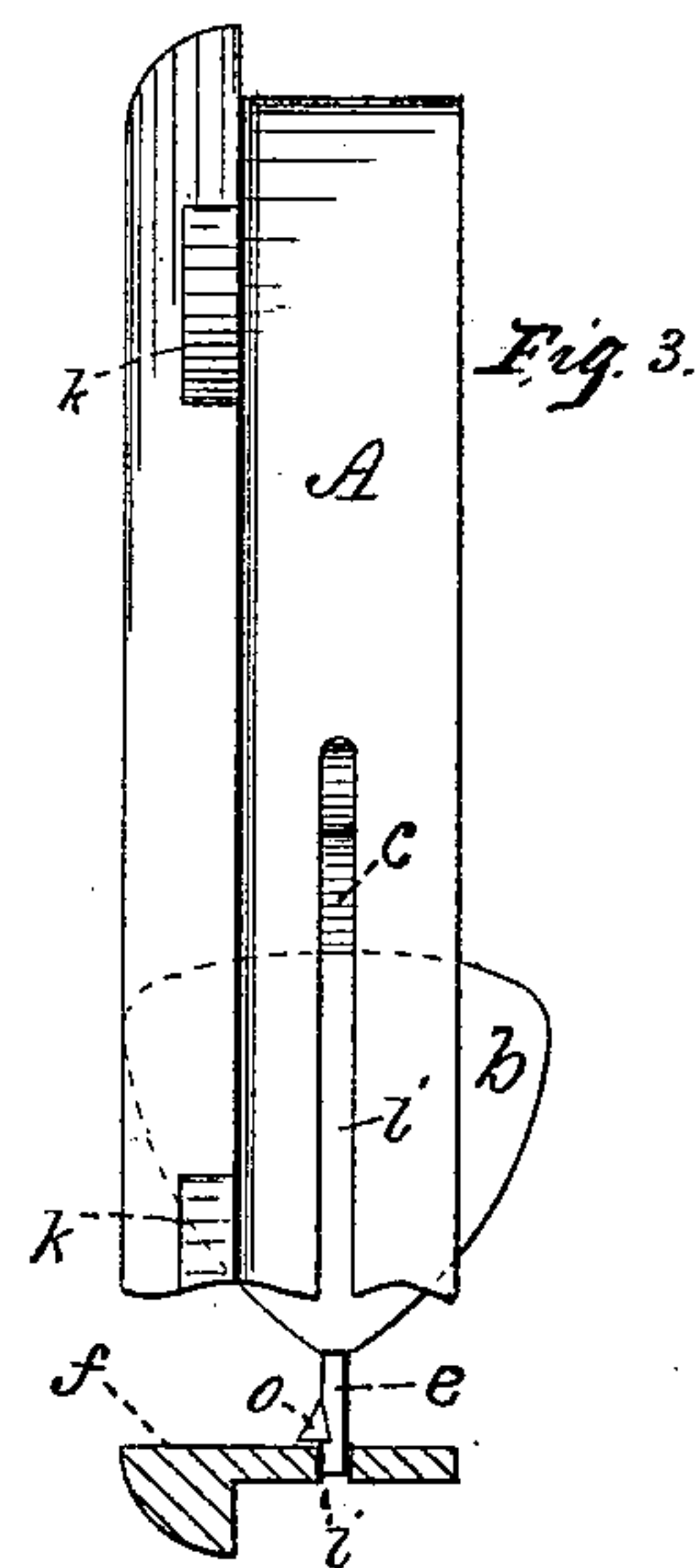
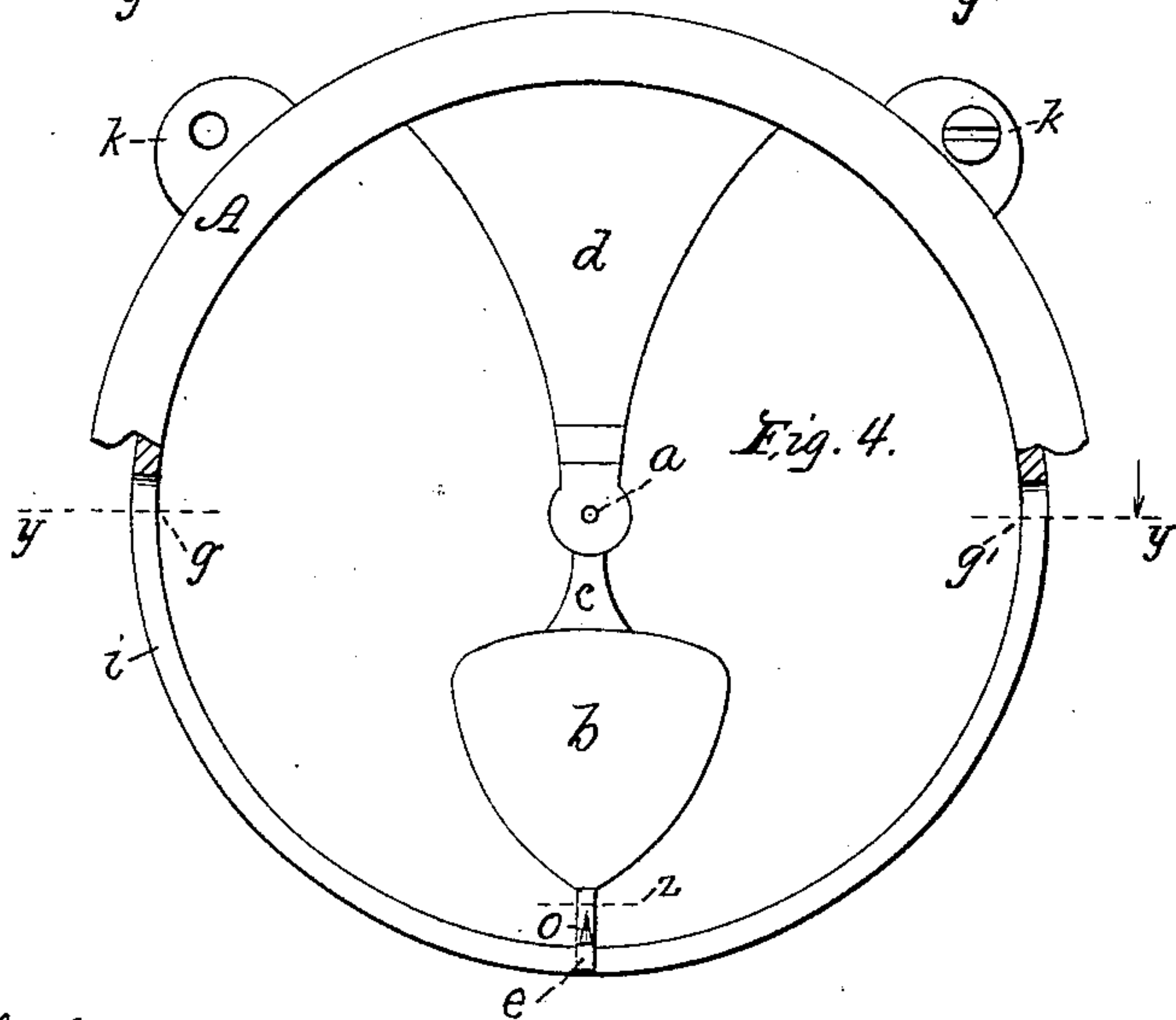
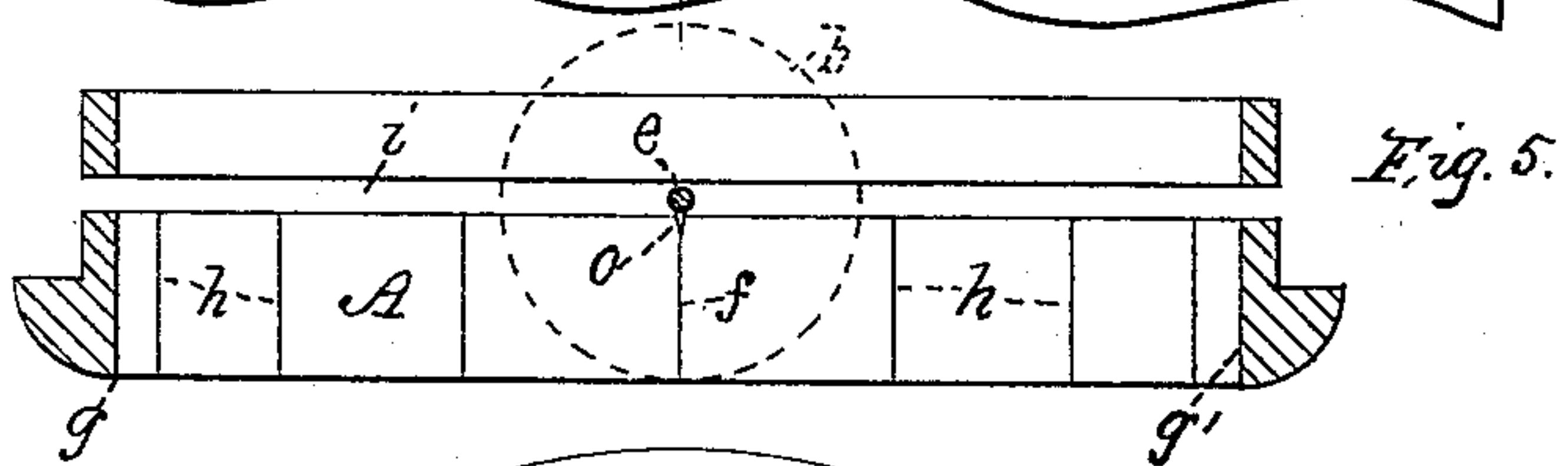
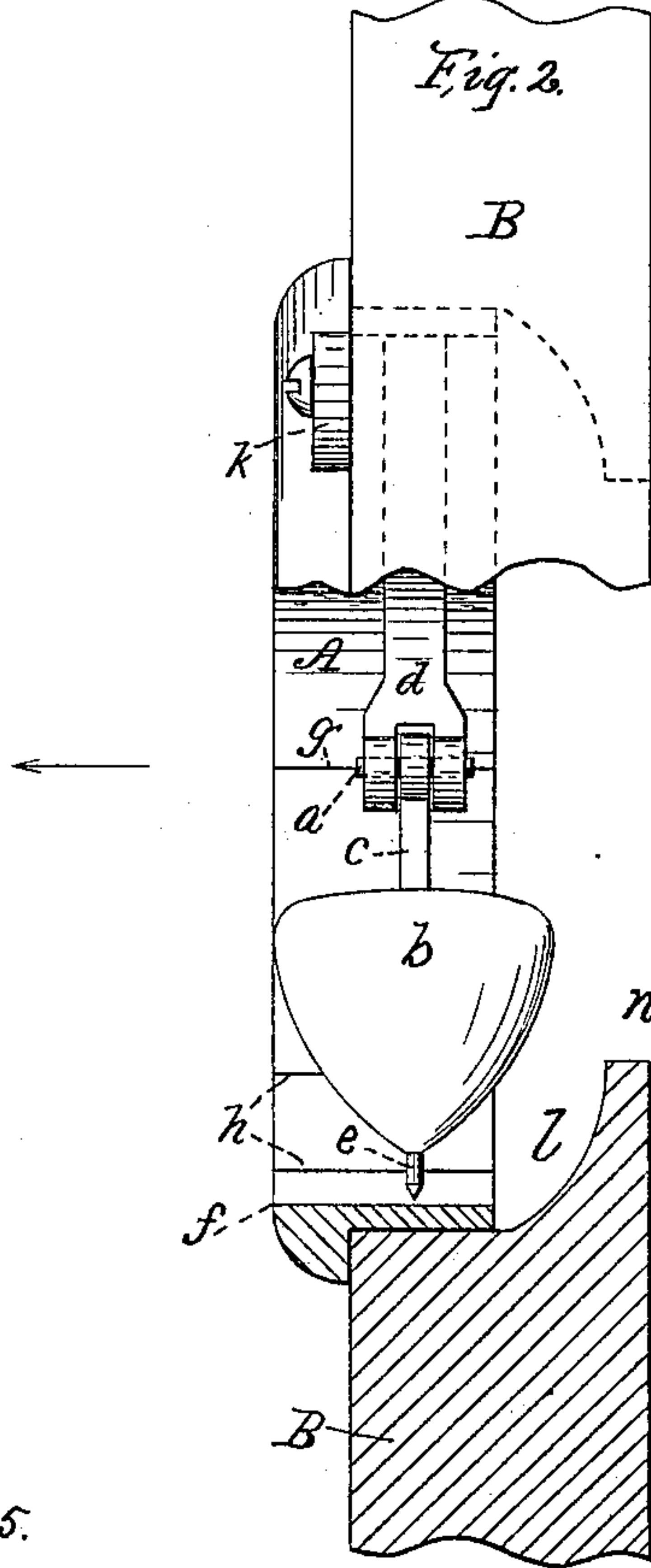
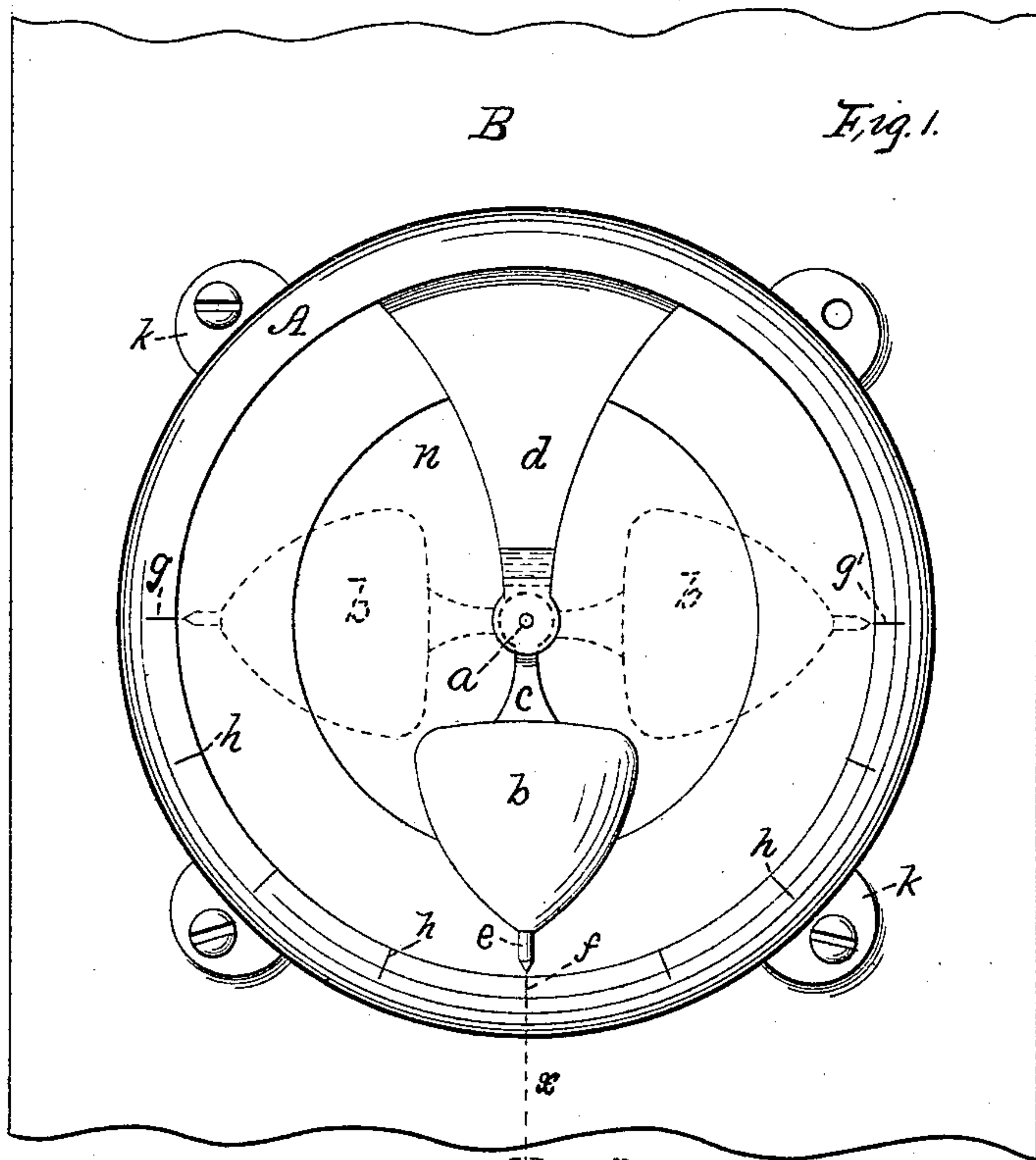


(No Model.)

C. RITZ.
PLUMB LEVEL.

No. 379,662.

Patented Mar. 20, 1888.



Attest:
M. L. McDermott.
L. S. Whitmore.

Inventor:
Charles Ritz.
By E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

CHARLES RITZ, OF ROCHESTER, NEW YORK.

PLUMB-LEVEL.

SPECIFICATION forming part of Letters Patent No. 379,662, dated March 20, 1888.

Application filed December 19, 1887. Serial No. 258,322. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RITZ, of Rochester, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in a Combined Plumb and Level, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of my invention is to produce a
10 combined gravity plumb and level without spirit or cord, for the use of mechanics and builders, the same being hereinafter fully described, and more particularly pointed out in the claim.

15 Referring to the drawings, Figure 1 is a plan of the device, the plummet being shown in various positions by full and dotted lines; Fig. 2, a side elevation of the same, seen as indicated by arrow in Fig. 1, parts below the
20 plummet being sectioned as on the dotted line x in Fig. 1; Fig. 3, an elevation of the metal frame, showing a modification of the same; Fig. 4, a plan of the parts shown in Fig. 3, a part being broken away; and Fig. 5, a diametrical section of the ring or frame, taken upon
25 the dotted line y in Fig. 4 and viewed as indicated by the arrow pointed thereon, the pointer being transversely sectioned upon the dotted line z .

30 Referring to the parts shown in the drawings, A is a ring, preferably made of metal, constituting a frame secured to a strip of wood, B, forming a rule or holder having parallel
35 edges and made of such dimensions as may be most convenient. A rule made of hard well-seasoned wood five inches wide by one and one-fourth inches thick and three feet long is a good size for builders' use. The rule is
40 formed with a circular cavity, l , in which to receive the frame, the latter being secured in place by means of ordinary screws passed through lugs k . The plummet, preferably
45 made of lead, is suspended from an axial pin, a , at the exact center of the circular frame at the end of a radial arm, d , rigid with the frame and divided at its free end to receive the
hanger c of the plummet.

The plummet is provided at its pointed end with an axial pointer, e , which, as shown in
50 Figs. 1 and 2, swings just clear of the inner curved surface of the frame. The frame is

formed with marks at f and g g' , parallel with its axis and radially upon the face of the frame, the former, f , being in an imaginary longitudinal line parallel with the edges of the
55 rule B and passing through the axis of the pivot a , while the lines g g' are in a diametrical line of the circular frame at right angles to said longitudinal line.

It will now be understood that while the
60 plummet swings freely upon the pivot a its axis will always be vertical from gravity when the plane of the frame is held vertically, and that when the pointer e points to the mark f , for instance, the edges of the rule will be truly
65 vertical; also, when the rule is turned in a vertical plane either to the right or left its edges will be truly horizontal when the pointer points to either mark g g' . Other intermediate marks, h , similar to those at f and g g' ,
70 may be put on the frame, according to the use to which the device is to be put.

Some of the circular frames I make with a slit, i , in each in a plane at right angles to the axis of the frame, in which case I make the
75 pointer e sufficiently long to occupy the slit, as shown in Figs. 3, 4, and 5. This slit extends something more than half-way around the frame, so the plummet may swing fully
80 ninety degrees either way from the central mark, f . The pointer, being within the slit, serves to hold the plummet within the frame and prevent it from swinging in a direction to
85 or from the rule when the latter is carelessly carried in the hand or laid aside. The jaws of the supporting-arm d , as shown in Fig. 2, serve to prevent this motion of the plummet; but for some uses the device formed with a
90 slit is preferable. When the device is made with the slit, a projecting pointing-edge, o , is formed at the side of the pointer e , to more exactly refer to the marks f , g , &c., on the frame.

In constructing the rule a circular hole, n , is usually formed, communicating between the
95 cavity l and the rear surface of the rule.

By means of this combined gravity plumb
and level, builders and mechanics are enabled to test both the perpendicularity and horizontality of the parts of their work, and by its
100 use the objectionable plumb-line is avoided, and also the glass tubes filled with spirits. This device is also serviceable for the civil

engineer in determining approximately the degree of the declivity of hills, &c., in topographical work.

What I claim as my invention is—

- 5 In combination with a bar or rule, a circular frame secured thereto, formed with a slit occupying a plane parallel with the plane of the frame, a supporting-arm rigid with the frame, and a plummet provided with an axial
10 pointer suspended from said arm upon a pivot

having its axis coinciding with the axis of the frame, the pointer of the plummet occupying said slit in the frame and formed with a laterally-projecting pointing-edge, said frame being formed with lines or marks to be referred to by said pointing-edge. 15

CHAS. RITZ.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.