2 Sheets--Sheet 1.

A. MOON.

Floats for Steam-Boiler Safety-Gages.

No. 154,611. Patented Sept. 1, 1874.

Fig. 1.

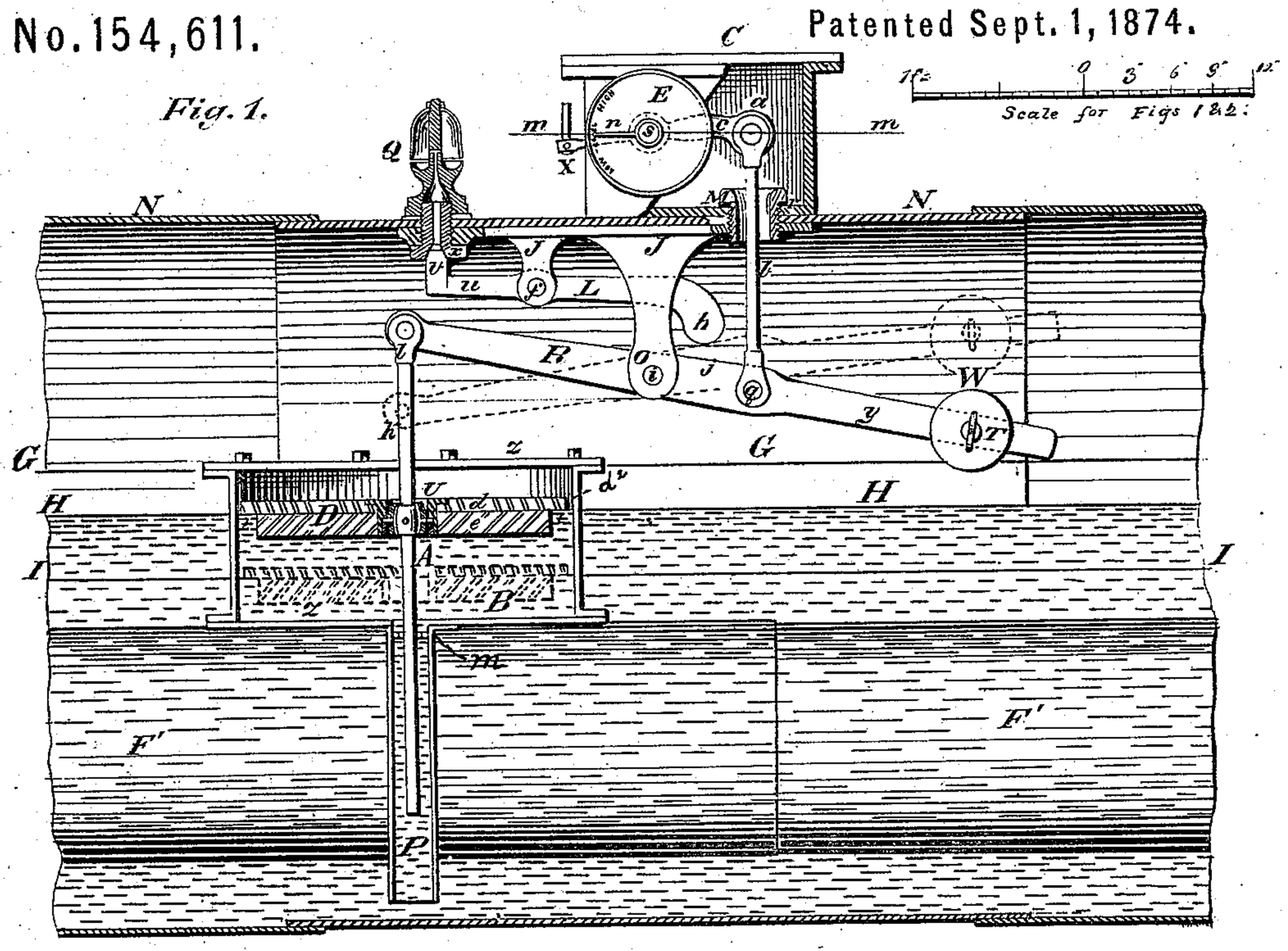
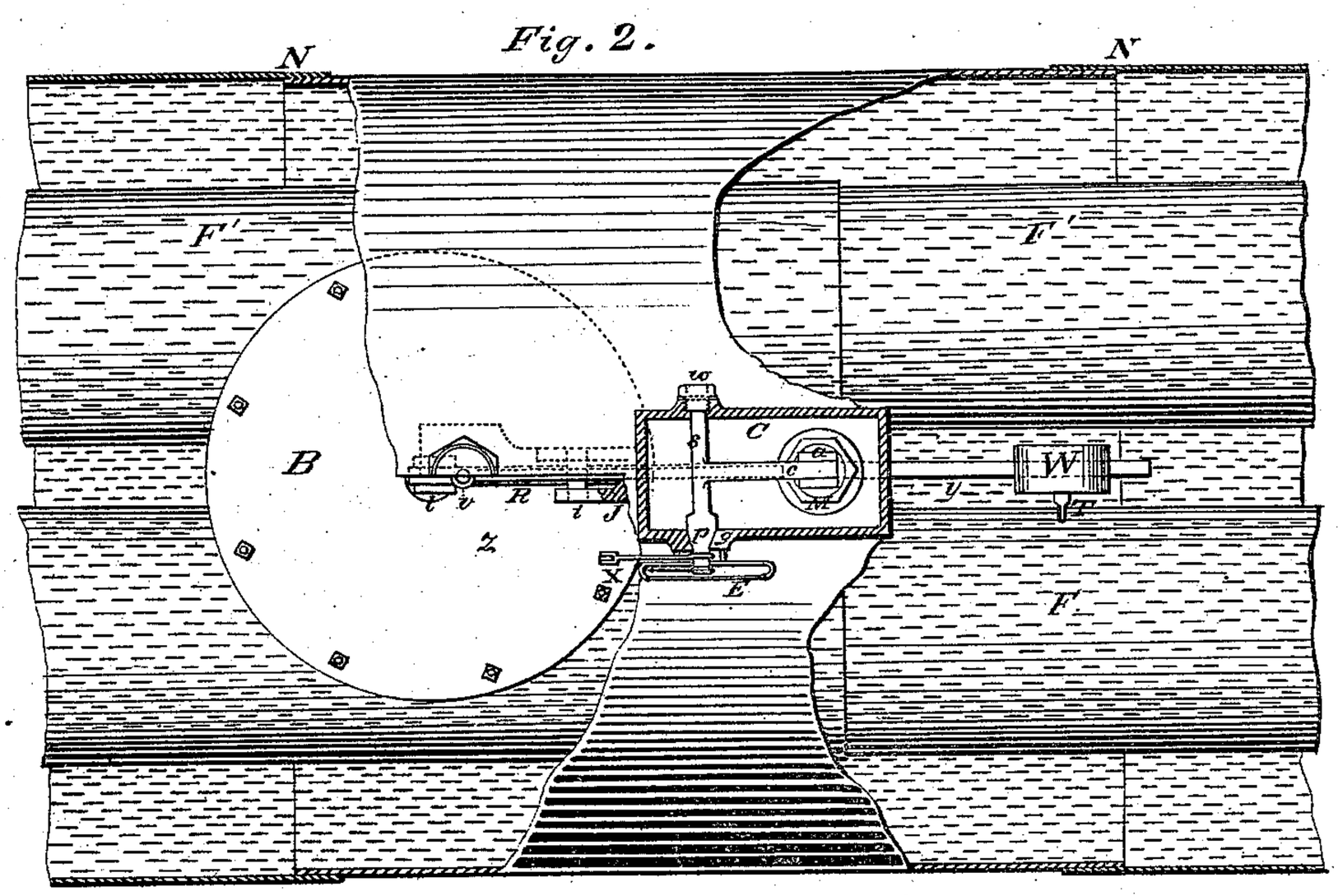


Fig. 2.



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2 Sheets--Sheet 2.

A. MOON.

Floats for Steam-Boiler Safety-Gages.

No. 154,611 Patented Sept. 1, 1874.

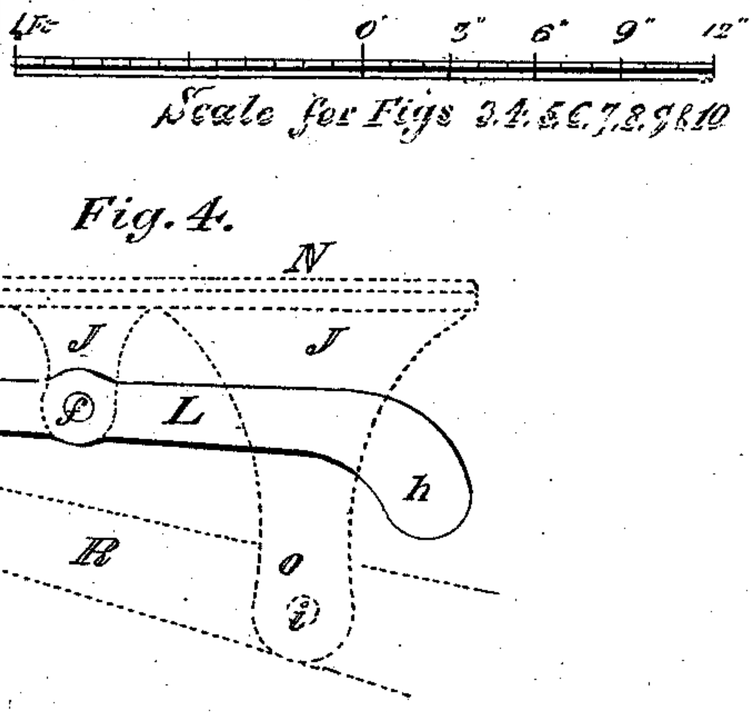

Fig. 4.

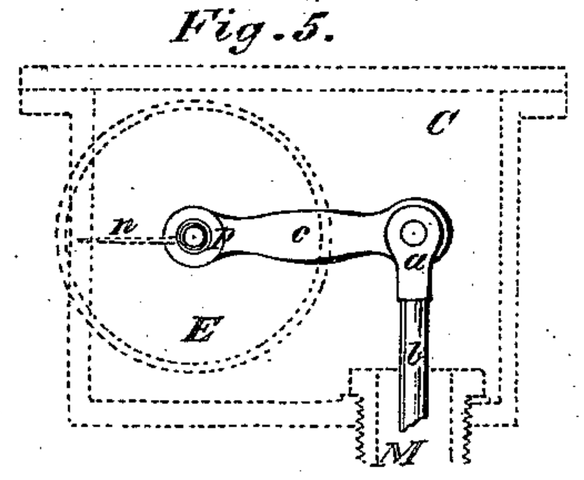

Fig. 5.

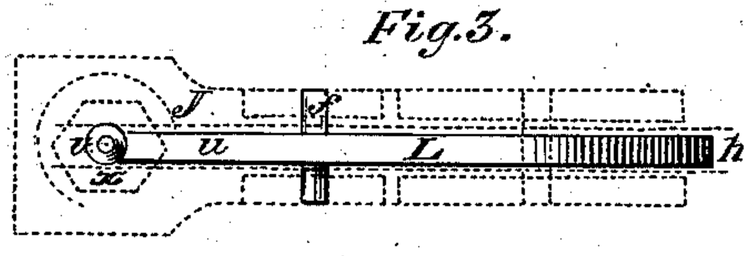

Fig. 3.

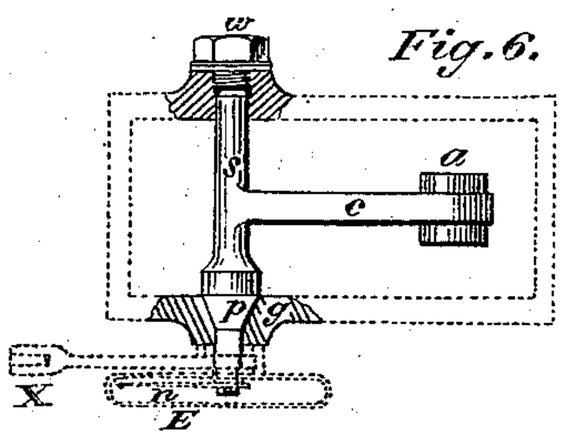

Fig. 6.

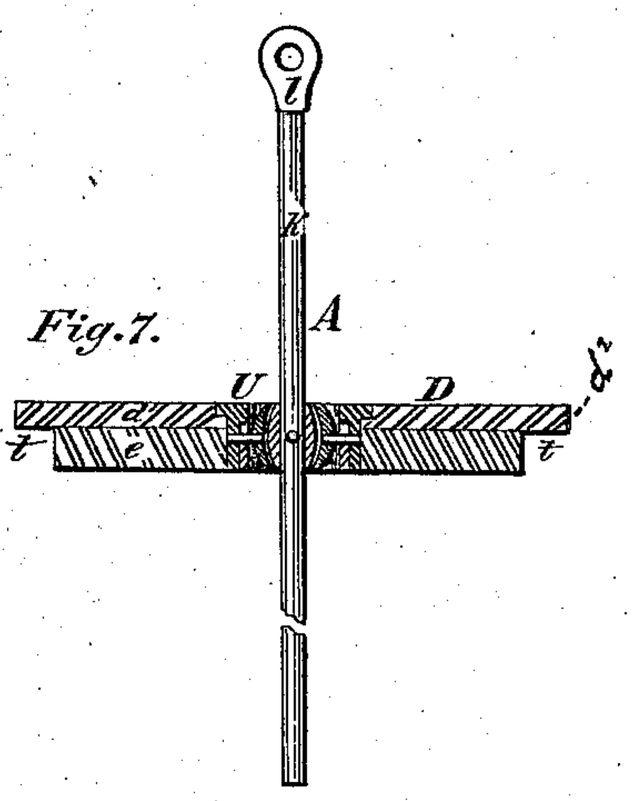

Fig. 7.

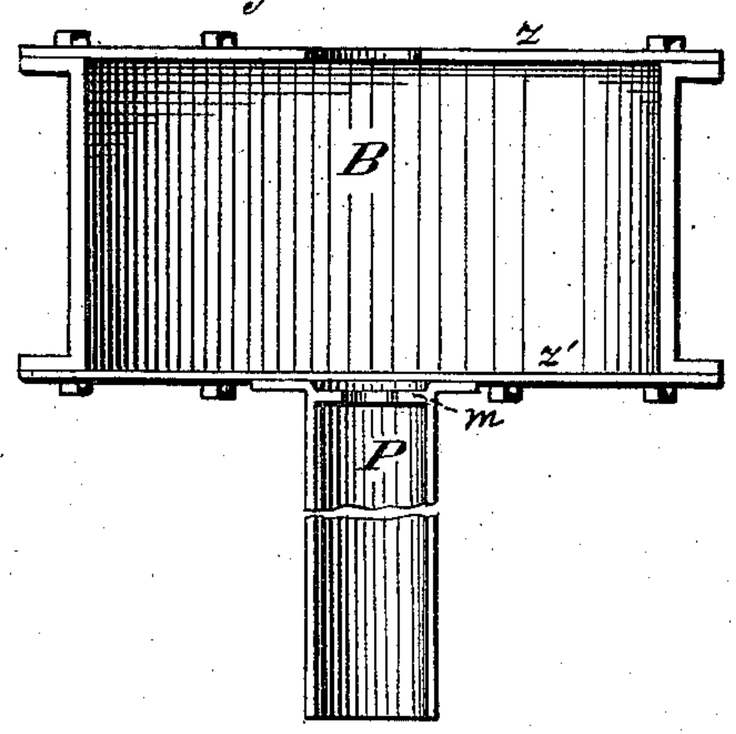

Fig. 9.

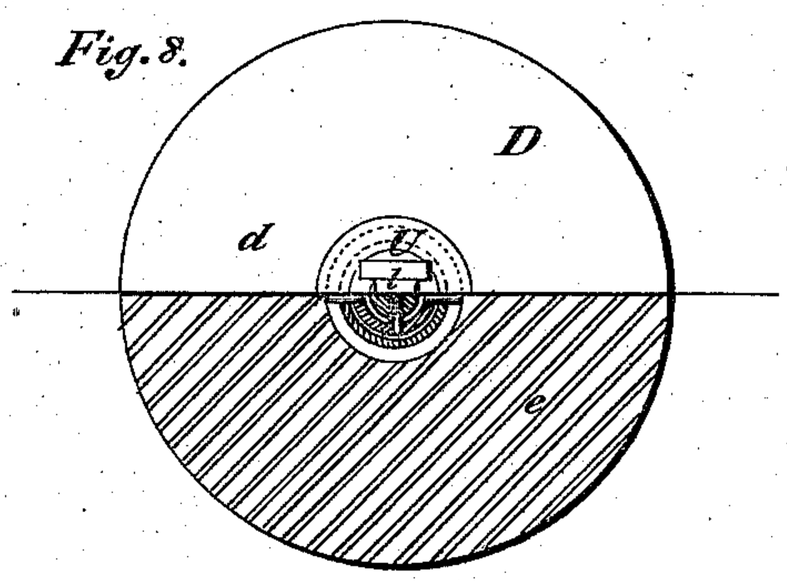

Fig. 8.

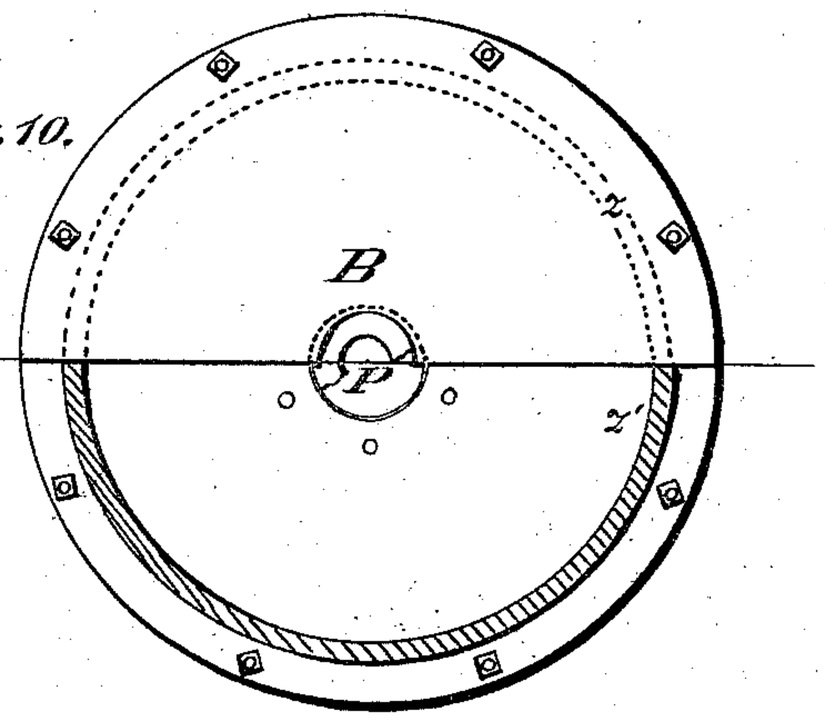

Fig. 10.

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UNITED STATES PATENT OFFICE.

ANDREW MOON, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN FLOATS FOR STEAM-BOILER SAFETY-GAGES.

Specification forming part of Letters Patent No. **154,611,** dated September 1, 1874; application filed October 4, 1873.

To all whom it may concern:

Be it known that I, ANDREW MOON, of the city and county of San Francisco, State of California, have invented an Improvement in Steam-Boiler Safety-Gages, of which the following is a specification:

My invention relates to an improvement in steam-boiler safety-gages, consisting essentially of two disks fastened together, the upper one being constructed of cork, and made to overlap the lower one, composed of a stony material, so as to form a combined disk, for attachment to a float that is so arranged as to actuate mechanism for noting on an exposed dial-plate the rise and fall of the water within the boiler, as well as to sound an alarm in case of such water falling to a dangerous level.

Figure 1 is a longitudinal vertical section of a double-flue steam-boiler provided with the safety water-gage, with attachments thereto, embodying my invention. Fig. 2 is a sectional plan of Fig. 1 through the line *m m*, with parts of the boiler broken away, so as to show the attachments to the safety water-gage embodying my invention. Figs. 3 and 4 are a side view and plan, respectively, of the lever L, detached from the other portions of the mechanism. Figs. 5 and 6 are a side view and plan, respectively, of the spindle to which the indicating-needle is attached. Fig. 7 is a vertical section through the center of the float, provided with the combined disk embodying my invention. Fig. 8 is a plan with lower half in section of Fig. 7. Fig. 9 is a vertical section of the cylindrical box provided with pipe for holding the float. Fig. 10 is a plan with lower half in section of Fig. 9.

A is the float, which consists of a spindle, K, provided with cross-head *l* at the top, and a disk, D, adjusted at right angles, near the middle, by a universal joint, U. This disk D, which embodies my invention, is composed of two disks screwed together, the upper one, *d*, being made of cork, and overlapping the lower one, composed of a stony material, by a flange, d^2, the object of this arrangement being to secure a greater stability by this flange, and greater durability to the disk by the use of cork in its construction, in combination with the stone. The float thus constructed is placed into a cylindrical box, B, which is fastened to the flues, and provided with top and bottom covers Z Z′, respectively, the top cover, Z, having a central hole for the spindle K to pass through for attachment to the mechanism above, and the bottom cover, Z′, having a central pipe fixed so as to reach to near the bottom of the boiler, and allow of the vertical movement of this spindle within it. To the cross-head *l* of the spindle K of this float one end of a lever, R, is attached, so as to pivot onto the bearing *o* of an iron frame, J, at *i*, the other end of this lever being shaped into a slide-bar, G, and provided with a movable sliding weight, W, adjusted by a screw, *t*, for balancing this float and attachments to the required position; and it is so arranged that the bottom of the upper cork disk shall just be in line with and rest on the surface of the water within the boiler. At a convenient distance from the pivot *i* of this lever-arm R, near the slide-bar *g*, a rod, *b*, pivots at *q*, and reaches through the top of the boiler into a small steam-chest, C, by means of an opening in the screw M, which is provided also for securing this steam-chest steam-tight to the boiler by the packing *r*, as well as to partially hold the iron frame J in position. To the cross-head *a* of this rod *b* the projecting arm *c* of a spindle, *s*, is attached, so that as the rod *b* is moved up and down, this arm *c* and spindle *s* will have a vertical reciprocating motion, and thus actuate backward or forward an indicating-needle, *n*, fixed to the end of this spindle, on a dial-face, E, the reading of which will denote the rise or fall of the water contained in the boiler. The ends of this spindle *s* are shaped into a conical form, and work in conically-prepared bearings provided in the walls of the steam-chest C, so that one end projects for the attachment of this needle *n*, and the other is covered by a steam-tight-fitting plug. To the bracket J a lever, L, is pivoted at *f*, one end being so curved and arranged that as the slide-bar arm of the lever R rises by the fall of the float, the portion between the pivot *i* and rod *b* will strike the end *h*, thus raising it, and causing the other end, forming a conical valve, *v*, to fall from its seating provided in its screw *x*, which secures the bracket J to the boiler from below, and also a whistle above,

so that when removed from its seating (where it is held by the upward pressure of the steam in the boiler) by the lever R striking the arm L, as described, the steam will rush into this whistle and give an alarm.

I do not claim the universal joint U, box B, and spindle *s*, with attachments, or valve *v*, as I am aware that these are not new; but

What I claim as my invention is—

The disk D, forming part of the float A, composed of two disks, the upper one, *d*, of cork, overlapping the lower one, composed of earthenware or stony material, by a flange, d^2, in combination with the mechanism herein described for actuating the indicating-needle *n* on the face E, and alarm-whistle, substantially as set forth and specified.

ANDREW MOON.

Witnesses:
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LIONEL VARICAS.