Richard C. Blake

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PATENTED JUL 4 1871

Improvement in

Steam-Gauges

Fig. 2

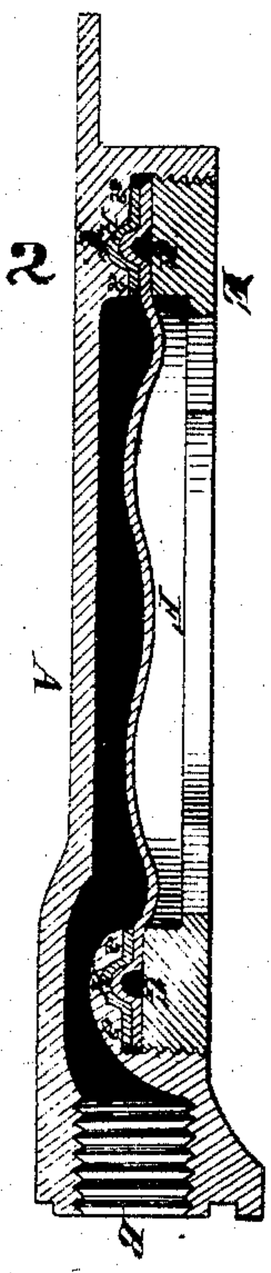
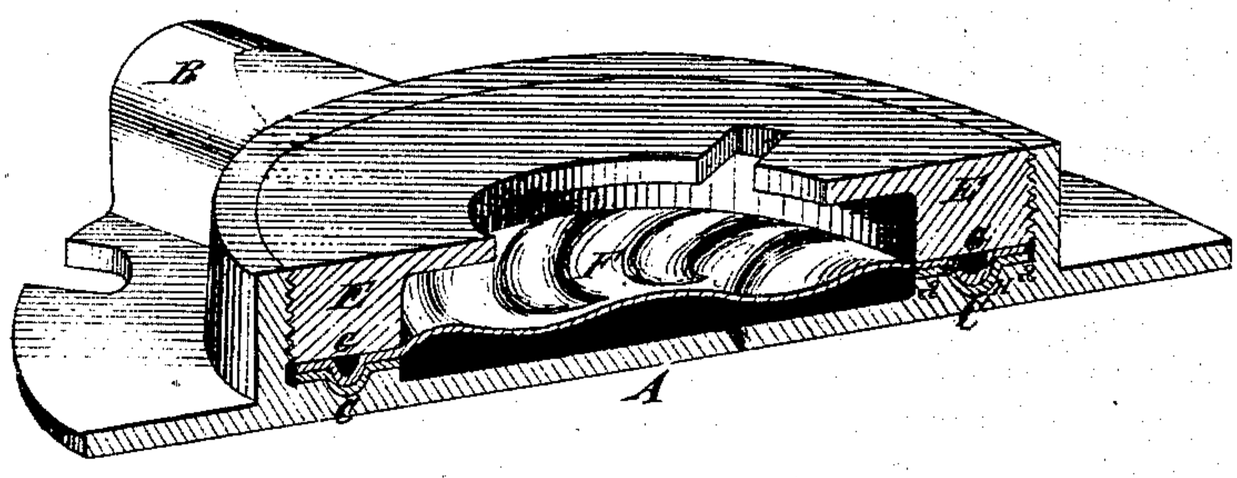


Fig. 1



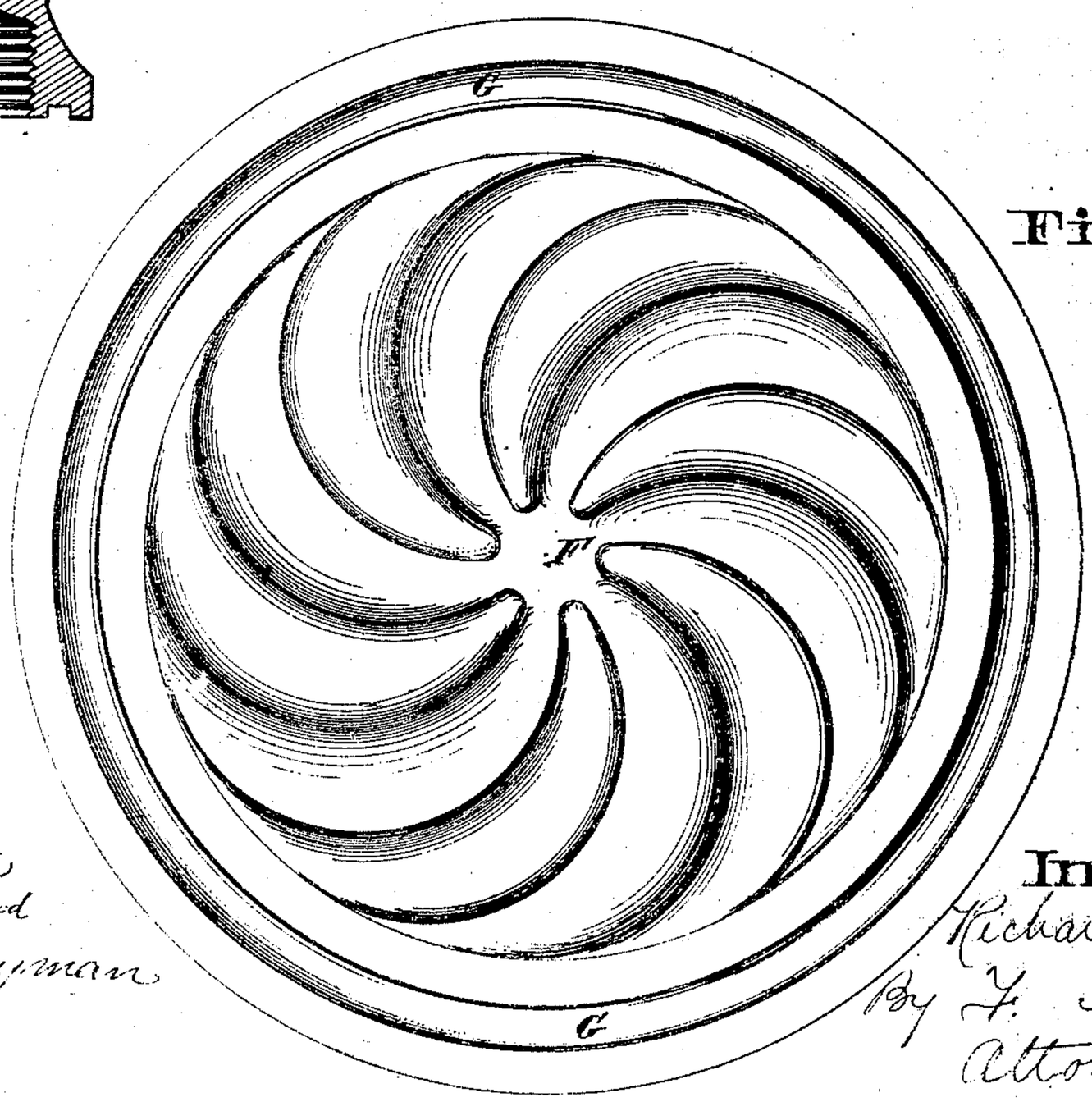


Fig. 3

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116,669

UNITED STATES PATENT OFFICE.

RICHARD C. BLAKE, OF CINCINNATI, OHIO.

IMPROVEMENT IN STEAM-GAUGES.

Specification forming part of Letters Patent No. 116,669, dated July 4, 1871.

To all whom it may concern:

Be it known that I, RICHARD C. BLAKE, of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Improvement in Steam-Gauges; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification.

My invention relates to devices for making a steam-joint between the diaphragm of a steam-gauge and its case; and consists in the provision of a stamped annular bead in the diaphragm about midway in the width of its joint-face, and a corresponding annular groove in the face of the gauge-case. This bead and groove, in connection with an interposed leaden gasket and a suitable compressing-follower above the diaphragm, serve, with but little pressure, to make a solid, unyielding, metallic, steam-tight joint, which is not perishable, as other steam-joints are, and, consequently, will not need renewal in the life of the gauge. The object of my invention is to dispense with the yielding perishable India-rubber gasket, which interferes with the correct indications of the gauge, and provide an unyielding metallic joint, as easy to make steam-tight as a rubber one.

Figure 1 is a sectional perspective view of the case, diaphragm, and follower. Fig. 2 is a central section of the same. Fig. 3 is a detached view of the diaphragm. The connecting mechanism between the diaphragm and dial and the dial itself are not shown in the drawing, as they do not enter into the invention.

A represents the back of the customary gauge-case, the steam being admitted at B. The joint-face *a* of the case is constructed of sufficient width to correspond with the width reserved for joint on the diaphragm, and a groove, C, is turned in it, as shown, which may be of any preferred form in cross-section, half-circle, V-shaped, or analogous form suited to perform the office. The case A is also constructed with an annular projection, D, screw-threaded in the interior for the reception of the follower E. The expansible or corrugated portion of the diaphragm F is constructed in accordance with the Letters Patent issued to me July 31, 1866, although I do not desire to confine myself to any particular form of corrugated diaphragm in my present invention. The portion of the diaphragm not corrugated is reserved to form the steam-joint, and corresponds in width to the face *a*. Midway in this steam-joint surface, or nearly so, I stamp a bead, G, in the diaphragm-plate, which corresponds in shape to the groove in the face *a*, and is located so as to come immediately opposite to the said groove. A gasket of lead, H, is interposed between the diaphragm F and the face *a*, which, when the follower E is screwed tightly down, is forced into the groove C by the bead G, the gasket originally being a common flat gasket. When so forced into the position shown in Figs. 1 and 2, a perfectly steam-tight joint is made, and with but little pressure or force exerted upon the follower, as the gasket is not pressed after it has once a complete metallic contact with the diaphragm and face *a* C. This joint will not permit the diaphragm to dip or move on the outer edge, and thus interfere with the indications, as is common with the rubber gaskets when the gauge is under pressure. It is also unlike rubber, in being imperishable under the influences of steam.

It has been customary in the manufacture of diaphragm steam-gauges to interpose a rubber diaphragm between the steam and the metallic diaphragm, to prevent corrosion of the latter. This is impracticable with my improved joint, and I therefore nickel-plate the diaphragm F G before or after it is tempered. This I have found sufficient to prevent corrosion. The follower E may be forced down by bolts, if preferred, the exterior thread shown being omitted in that case.

I claim—

In a diaphragm steam-gauge, the combination of the annular groove *a* in the face C of the case, metallic gasket H, diaphragm F having an annular bead, G, and follower E, to form a steam-joint, substantially as set forth.

In testimony of which invention I hereunto set my hand.

RICHARD C. BLAKE.

Witnesses:

FRANK MILLWARD,

HENRY MILLWARD.