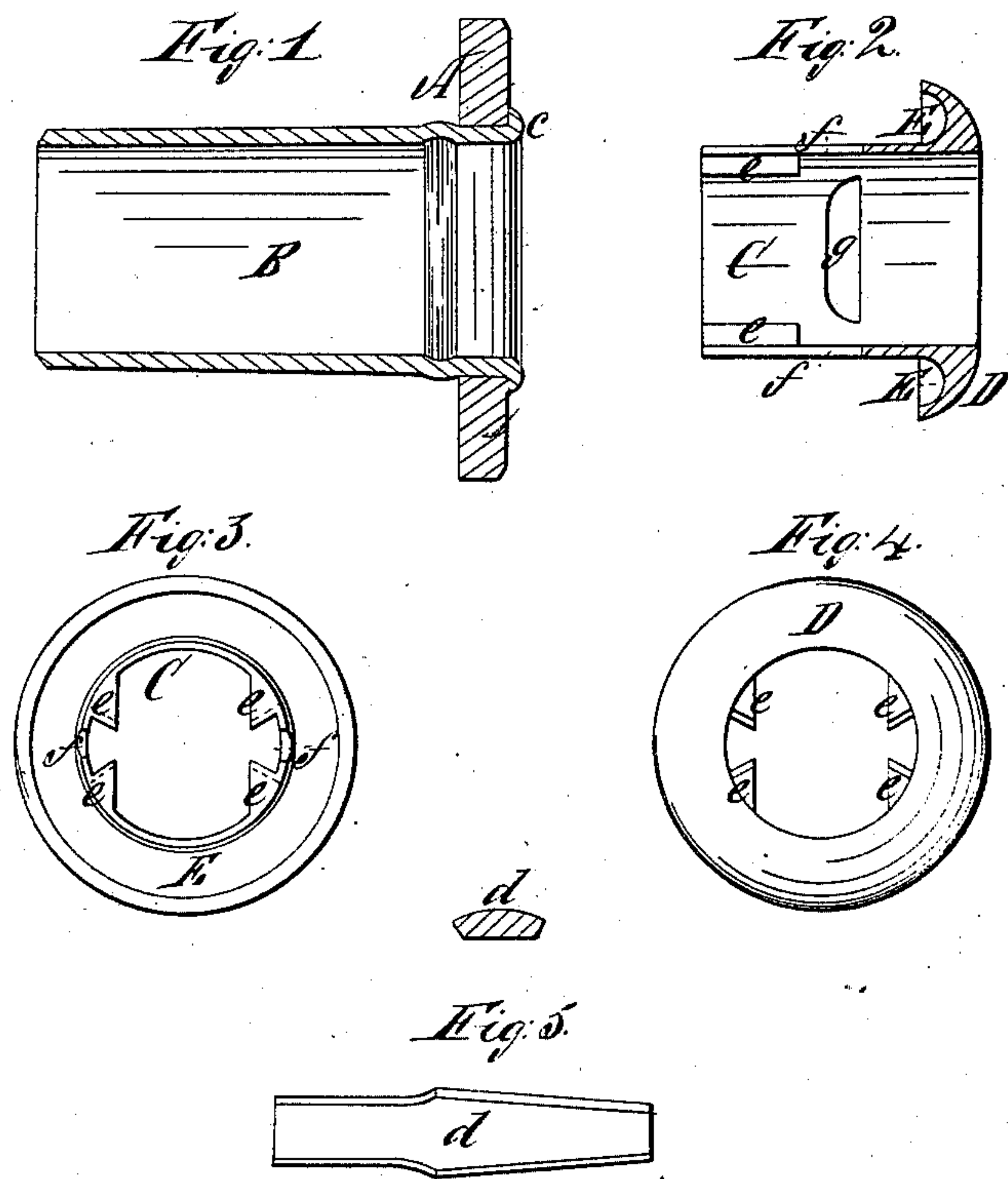


W. M. Sinclair,
Boiler-Flue Plug.
No 80,313. Patented July 28, 1868.



Witnesses:

H. W. Beadle
Sydney C. Smith

Inventor:

W. M. Sinclair
by Attorneys
Brown, Combs & Co

United States Patent Office.

WILLIAM M. SINCLAIR, OF BALTIMORE, MARYLAND.

Letters Patent No. 80,313, dated July 28, 1868.

IMPROVEMENT IN BOILER-FLUE PLUGS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM M. SINCLAIR, of the city and county of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Boiler-Flue Plugs for the stoppage of leaks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, through letters of reference marked thereon, forming part of this specification, and in which—

Figure 1 represents, in longitudinal section, a piece of boiler-tube, as connected with the boiler-plate.

Figure 2 is a central longitudinal section of a plug, constructed according to my invention.

Figure 3 is an inner end view of the same.

Figure 4 is an outer end view thereof.

Figure 5, a face and sectional view of a key for securing the plug in place.

The same letters occurring on the several figures indicate corresponding parts.

To enable others to make and use my invention, I will proceed to describe its construction and application, by referring to the drawings, in which—

A represents a portion of the end-sheet of a boiler, through an aperture in which the flue-tube B is riveted, in the ordinary manner, that is to say, having a slight annular swell, *b*, on the inner side of said sheet, and its end *c* turned outwardly against the outer side thereof.

In course of time, owing to the unequal expansion and contraction of the parts, and the intense heat to which the furnace-end of such flues is subjected, these connections will become leaky, and which commonly occurs suddenly, and whilst the boiler is in use, at which time it is essential that the leak be immediately stopped, or the boiler may, in a short time, become inoperative for the production of the necessary effective force.

To provide a remedy for this contingency is the object of my invention, and it consists in a simple, cheap, and effective means of stopping such leaks, and which may be applied at any time, whether the boiler be hot or cold, and without stopping the engine, or obstructing the flue-surface of such leaky tube after its application.

C represents a short tubular cylinder, made preferably of malleable cast iron, which has formed on its end a flange, D, convex on its outer side, and forming an annular gutter, E, on its inner side, for the reception of any suitable packing, in form of a washer or gasket. This tubular plug is inserted in the end of the flue-tube, extending therein a distance about equal to its diameter; more or less, and is retained there by means of one or more wedges, *d*, driven between lugs *e*, cast on the inner side of such tubular plug, and which plug is formed with longitudinal slots *f*, between each pair of lugs, *e*, extending from its inner end, from half to two-thirds of its length, and with circumferential slots or apertures *g*, which admit of the free expansion of the cylinder, and its firm retention in the flue, by driving home the wedges *d*.

In applying this plug, a gasket or any suitable packing is first placed around in the channel E, and the plug inserted in the end of the leaky tube by means of a rod or pair of tongs, and pressed home. The keys *d* may then be inserted in like manner, and driven to a bearing, so that the plug is expanded to fit tightly in the flue. The plug may then be driven in, to compress the packing around the end of the flue, so as to stop the leak, after which the wedges *d*, being again tightened, will retain it firmly in position.

The advantages of this plug over any other yet in use, are its simplicity of construction, being cast in one piece; it requires no finishing; the pair of keys or wedges usually desirable, may be cast together, and snapped asunder, and the facility with which it may be inserted, even across a hot fire, renders it a very desirable article in the hands of all engineers, whether of stationary, locomotive, or marine engines.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The flanged tubular plug C, constructed with a longitudinal slot or slots, *f*, between the lugs *e*, at its inner end, and a circumferential slot or slots, *g*, about in line with the end of the slots *f*, for use in combination with the wedge or wedges *d*, substantially as and for the purpose set forth.

WILLIAM M. SINCLAIR.

Witnesses:

JOSHUA REGESTER,
WM. H. BOWEN.