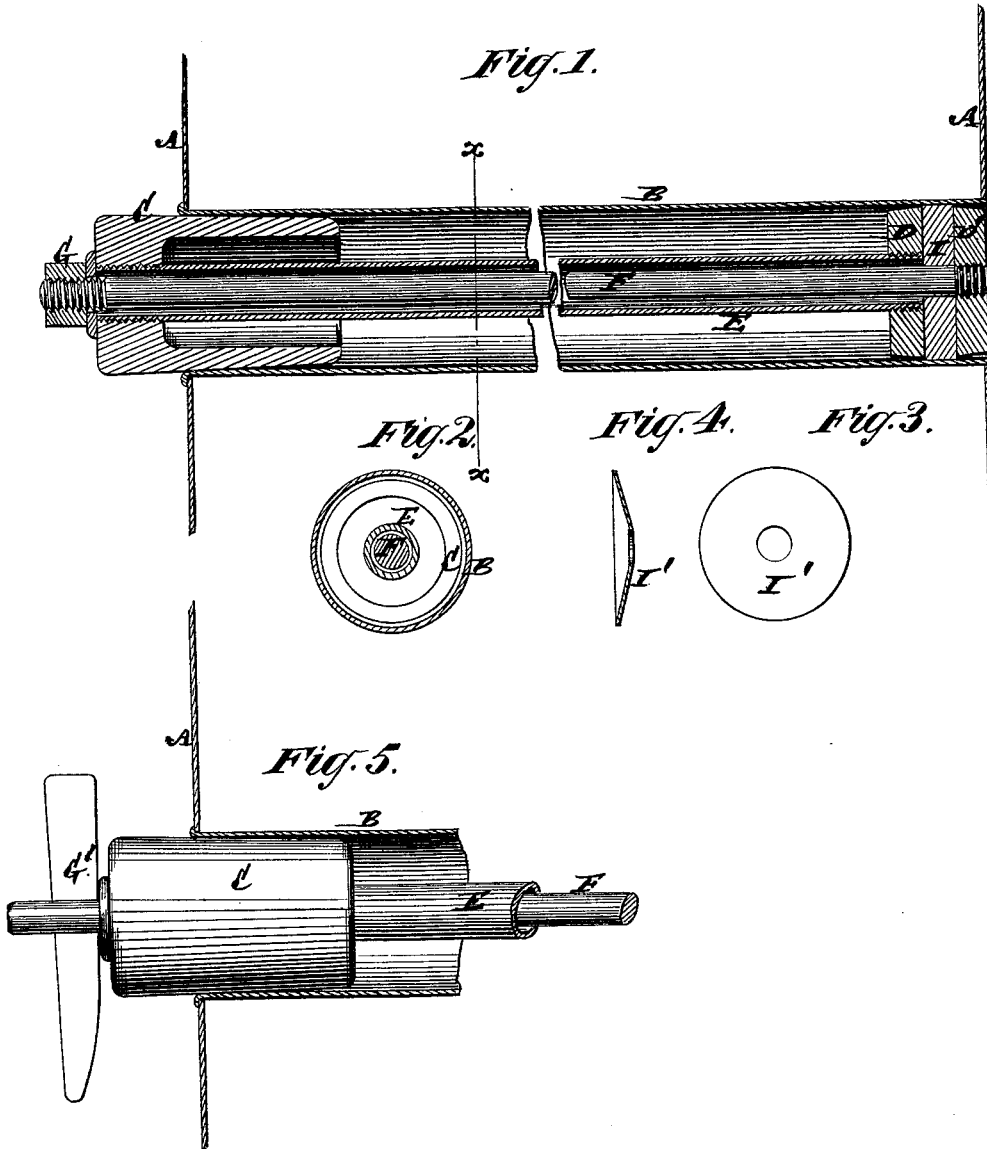


M. CORYELL.

STOP-PLUGS FOR BOILER AND OTHER TUBES.

No. 189,429.

Patented April 10, 1877.



Witnesses  
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# UNITED STATES PATENT OFFICE.

MIERS CORYELL, OF PARIS, FRANCE.

## IMPROVEMENT IN STOP-PLUGS FOR BOILERS AND OTHER TUBES.

Specification forming part of Letters Patent No. 189,429, dated April 10, 1877; application filed February 7, 1877.

*To all whom it may concern:*

Be it known that I, MIERS CORYELL, a citizen of the United States, at present residing at Paris, in the Republic of France, have invented a certain new and useful Improvement in Stop-Plugs for Boiler and Other Tubes or Flues; and I do hereby declare that the following is such a description of my invention as will enable others skilled in the art to which said invention belongs to make and use the same, reference being had to the accompanying drawing, which forms part of this specification.

Although this invention is applicable to other pipes or tubes passing through water spaces or chambers, and liable to leakage, and is, furthermore, applicable to other purposes than the one to which it is here shown applied, the invention is more particularly designed to be used as a water-stopping plug for boiler pipes, tubes, or flues.

The invention consists in a certain combination of a hollow tapering plug, which is forced into one end of the tube or flue to be stopped, an inner tube extending through such tube or flue, and secured at its one end to said plug and passing therethrough, an adjustable rod inclosed by said inner tube in its passage through the plug, an outer bulk-head fast to the outer end of said rod, an inner bulk-head near the same end thereof, and an expanding disk between said two bulk-heads, all as hereinafter described.

Figure 1 represents a vertical longitudinal section of a steam-boiler in part, having my invention applied; Fig. 2, a transverse section on the line *xx*; Figs. 3 and 4, face and transverse sections of a metallic disk used at one end of the plug; and Fig. 5, a vertical longitudinal section, in part, showing a modification of means for adjusting and tightening up the plug.

Referring, in the first instance, or more particularly, to Figs. 1 and 2 of the drawing, A, A are the tube-heads of a tubular steam-boiler, and B is one of the smoke tubes or flues thereof, secured in said heads.

The water-stopping plug which constitutes this invention, and which may be supposed to be applied to the tube B, when leaking in one or more places between the two heads A, A, is constructed in part of a tapering plug,

C, which is forced, water-tight, into one end of the tube, after the water-stopping plug or device has been adjusted to its required length. D is a disk or bulk-head, designed to occupy a position in the tube B near the firing end of the boiler. This disk or bulk-head is connected by a tube, E, with the tapering plug C. Extending through the tube E is a bolt, F, which serves to connect, in an adjustable manner, by means of a nut, G, at the plug end or head C of the device, or by means of a key or wedge, G', the plug-head C, with an outer disk, D', at the opposite end of the tube-stopping device, between which disk D' and the disk or bulk-head D is an india-rubber or other like elastic and expanding disk, I, or an expanding dish or corrugated metallic disk, I'. (See Figs. 3 and 4.)

The disks or bulk-heads D, D', and interposed expanding disk I or I', constitute the one end or head of the tube-stopping plug, and the plugging device C the opposite end or head thereof.

In the application of my improved tube-stopping plug, it is only necessary to adjust its two ends or heads to the required distance apart, and to insert it into the tube B, and, after forcing the plug-head C into a water-tight fit with one end of the tube B, to tighten up the expanding disk I or I' between the disks or bulk-heads D, D', by screwing up the nut G, or driving home the wedge G', so as to draw on the bolt F, and thereby to make a water-tight joint by the expanding disk I or I' within the tube at the fire end of the latter, or opposite end of said tube to that which is stopped by the plug-head C, or at any desired distance from the latter.

I claim—

The combination of the hollow tapering plug C, the tube E, secured at its one end to said plug and passing therethrough, the adjustable rod F, inclosed in its passage through said plug by the tube E, the outer bulk-head D', the inner bulk-head D, and the expanding disk I, the whole being arranged substantially as herein shown and described.

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Witnesses:

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