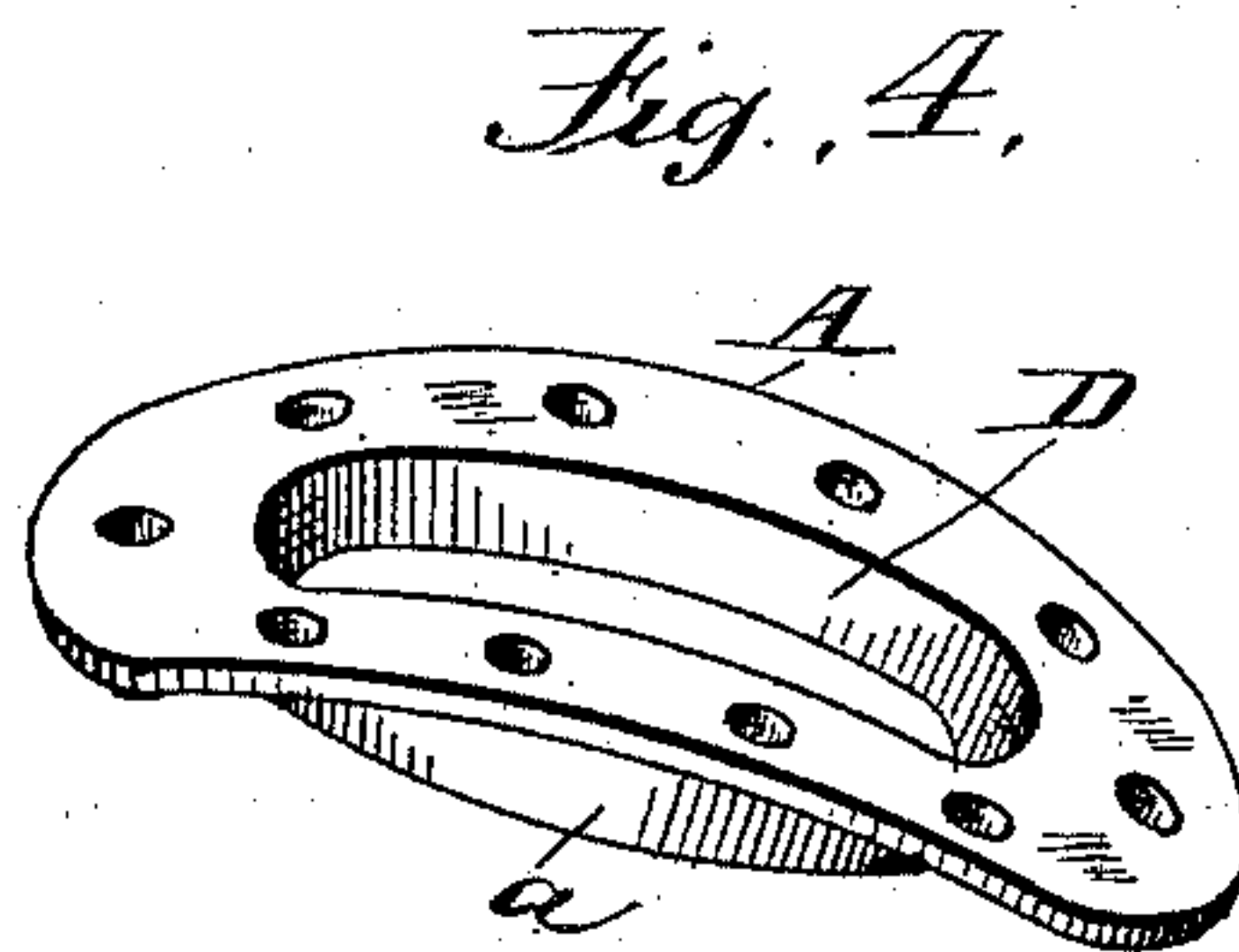
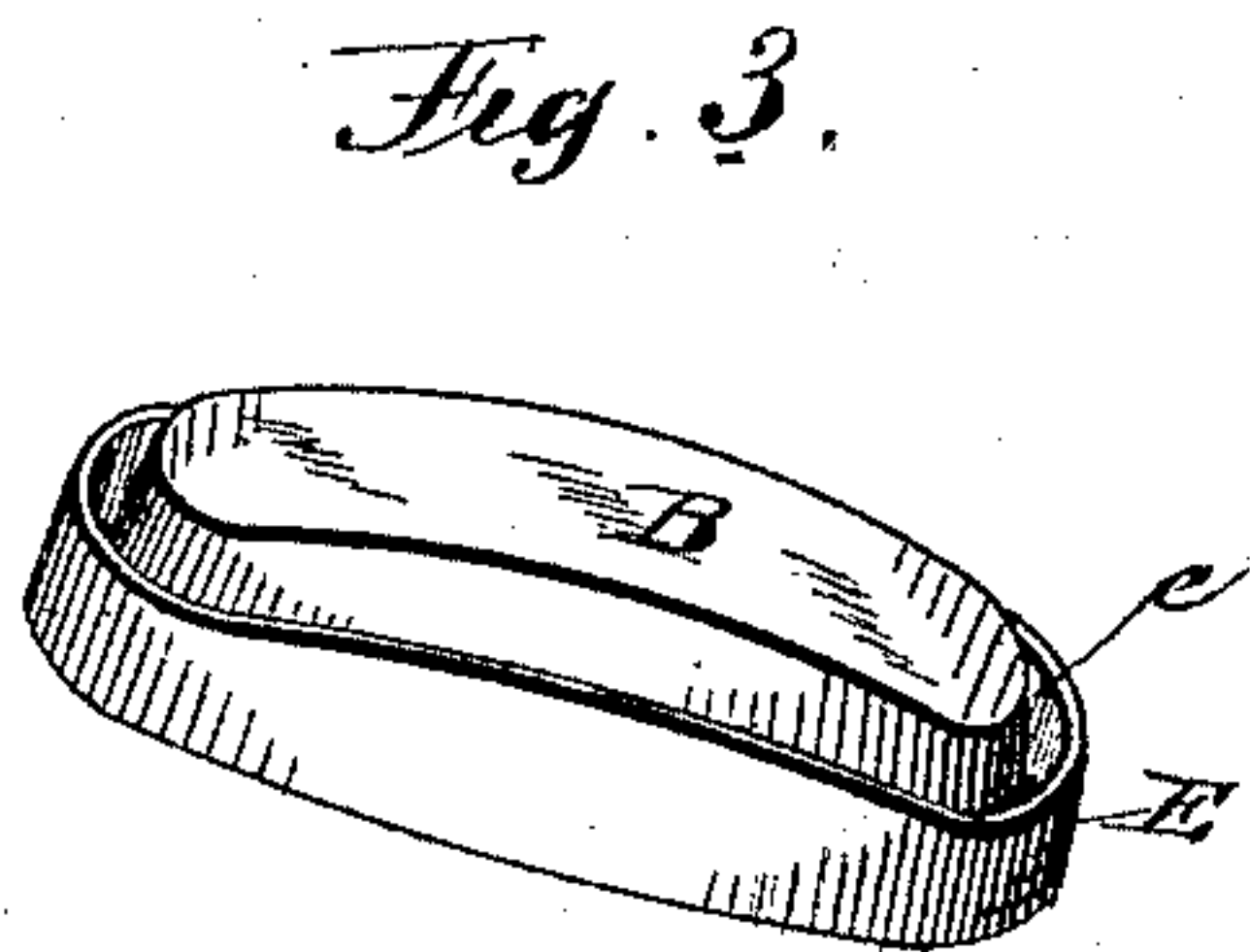
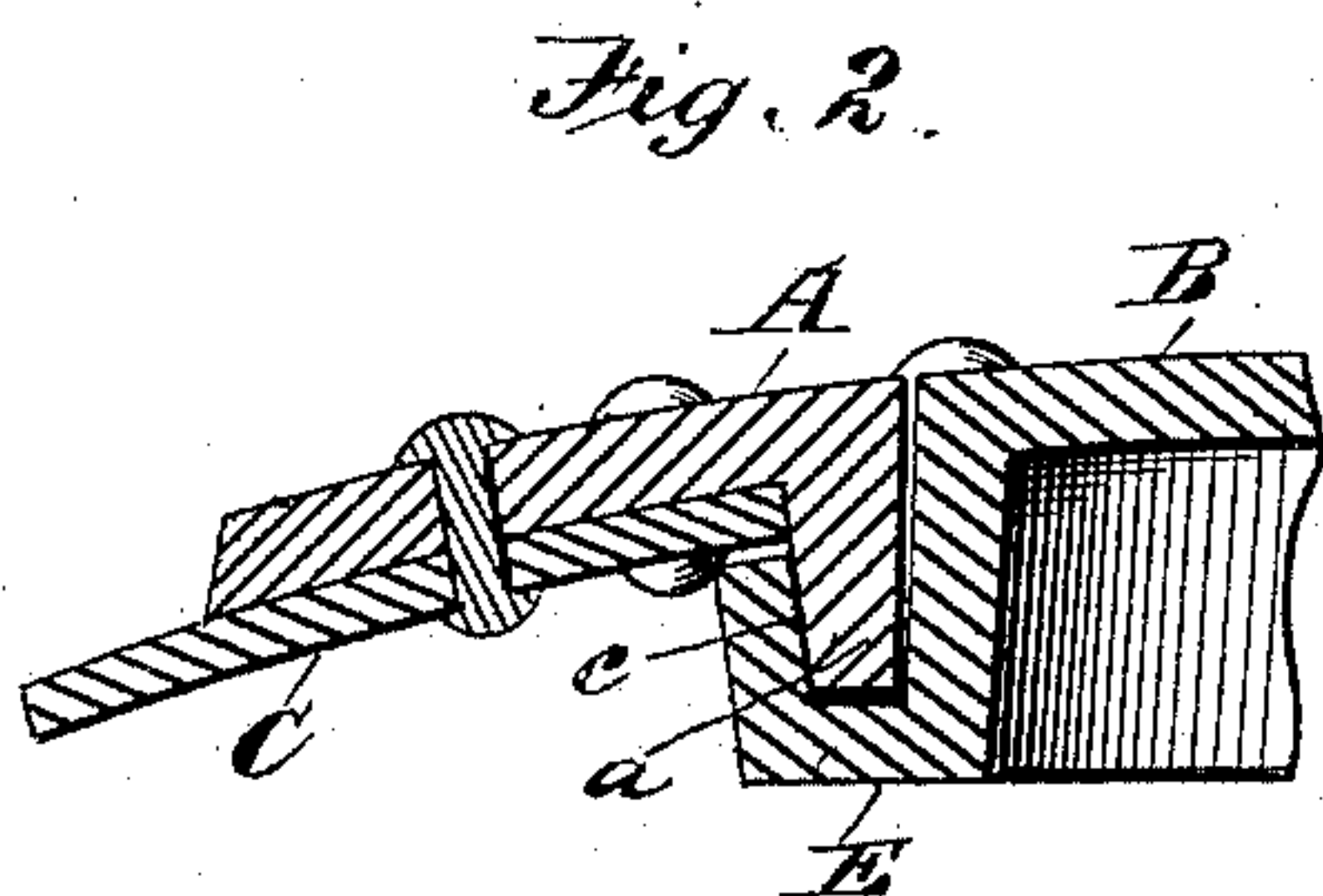
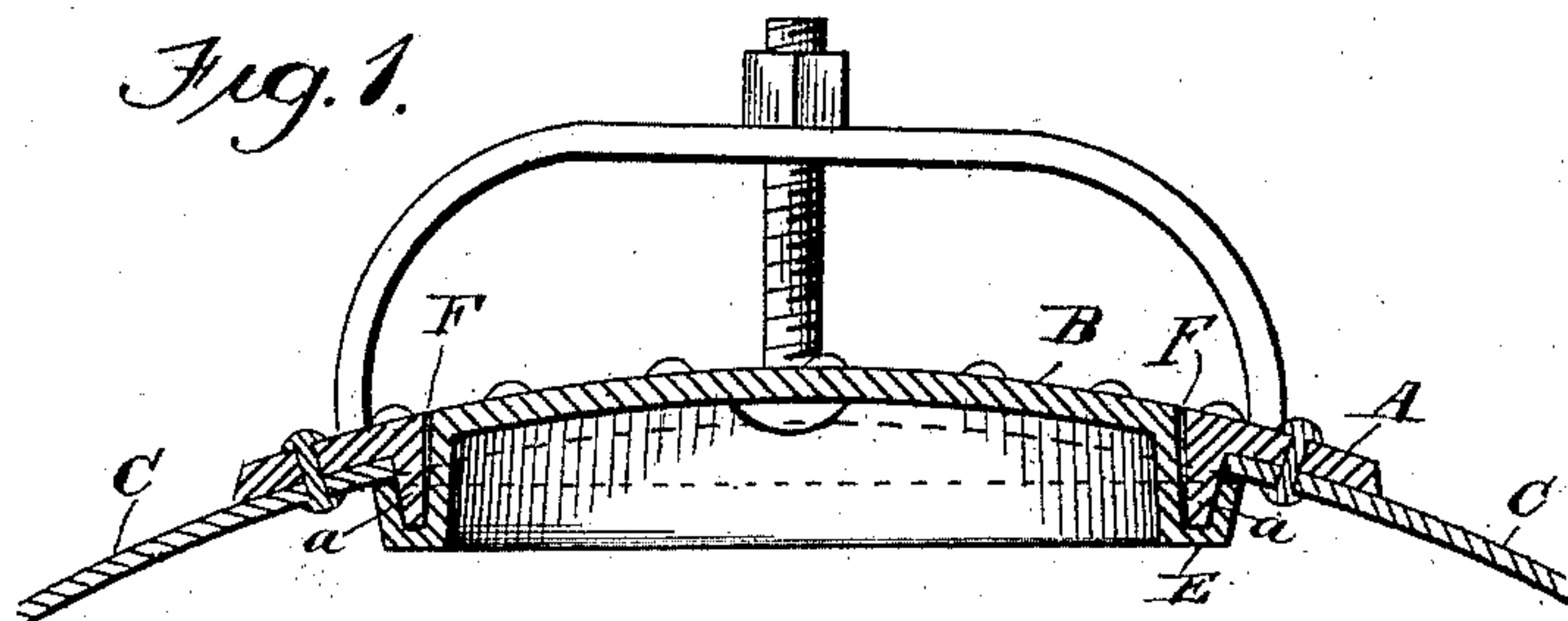


(No Model.)

N. NEWMAN.
MANHOLE COVER FOR STEAM BOILERS.

No. 474,028.

Patented May 3, 1892.



Witnesses

Wm. H. H. Knight
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UNITED STATES PATENT OFFICE.

NELSON NEWMAN, OF SPRINGFIELD, ILLINOIS, ASSIGNOR OF TWO-THIRDS
TO GEO. A. SANDERS AND SAMUEL J. WILLETT, OF SAME PLACE.

MANHOLE-COVER FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 474,028, dated May 3, 1892.

Application filed June 10, 1891. Serial No. 395,778. (No model.)

To all whom it may concern:

Be it known that I, NELSON NEWMAN, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Manhole-Covers for Steam-Boilers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The present invention relates to improvements in manholes for steam-boilers, which will be hereinafter fully described, and particularly pointed out in the annexed claim.

Prior to my invention the shell of a boiler was bent around the manhole-opening to form a right-angled integral flange, and the cover was arranged within the boiler-shell and provided with a groove or channel to receive said integral flange of the boiler-shell. This contrivance is quite expensive, as it necessitates the bending of the shell by special tools; and it is the object of my invention to overcome such defect by the provision of means which can be readily applied to any boiler-shell at a greatly-reduced cost and at the same time secure the necessary steam-tight joints between the parts and the boiler-shell.

With these ends in view the present improvement consists of a boiler-plate having a right-angled flange, which plate is riveted to the shell and the joint calked, and a cover lying within the plate flush with the outer face thereof and having its inner part below the exposed face provided with an upturned flange, forming an annular channel or groove for the reception of the flange on the boiler-plate, the joint between the cover and plate being rendered secure and steam-tight by calking.

One of the essential parts of my improvement consists in calking the joint between the boiler-plate and boiler-shell and between the boiler-plate and the cover, whereby I secure perfectly steam-tight joints and prevent the leakage of steam and packing between the cover and the boiler-plate, and to perform

the operation of calking the joints without necessitating the workmen to enter the boiler I find it necessary to make the cover and plate of malleable iron, which can be calked the same as wrought-iron, and said calking operation can be performed as well from the outside of the boiler as from the inside thereof.

In the accompanying drawings, Figure 1 is a sectional view showing the boiler plate and cover applied and secured to a boiler-shell, as contemplated by my invention. Fig. 2 is an enlarged detail view of the joint between the flange of the boiler-plate and the upturned end of the cover. Fig. 3 is a perspective view of the cover, and Fig. 4 is a detail perspective view of the boiler-plate.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the boiler-plate.

B is the manhole-cover, and C is the boiler-shell.

In applying my improvement to any form of boiler I simply cut a hole therein of the usual size and form for manholes, and to this shell so perforated I secure the plate A, which is of such form and dimensions as to tightly fit in the manhole previously provided in the shell. This plate A is securely fastened to the boiler-shell in the usual manner, as by riveting, and the plate is made right-angled in cross-section, or provided at its inner part with a right-angled flange *a*, which flange is of such depth that it projects through the boiler-shell, past the inner face thereof, and extends into the boiler. The joint between the plate A and the shell is rendered steam-tight by calking in the usual manner, and to accomplish this successfully without requiring the workman to enter the boiler this plate is made of malleable iron, as has been explained.

Within the plate A is fitted the cover B, and this cover is held in place to the plate and the shell by means of the well-known yoke-and-bolt fastening, as illustrated in Fig. 1 of the drawings. This cover is of such size and shape as to correspond to the interior of the plate A, and the cover is arranged to fit snugly within the plate and so that its outer exposed surface lies flush with the exposed

surface of the plate, thus presenting a smooth joint. The inner edge of the cover B, which is made hollow, as shown, is turned or folded over upon itself, forming the vertical flange E, and this flange is arranged out of lateral contact with the cover, so that the channel or groove *c* is formed between the flange and the body of the cover. The flange and channel being within the cover and the latter being fitted snugly within the plate, the flange *a* on the plate is made to fit tightly into the channel or groove, and the joint between the plate and the cover is calked at F in the usual manner, so as to render the joint between the cover and plate perfectly steam-tight and prevent the escape of steam and the packing from the joint between the cover and plate, as is obvious.

Of course the opening D in the plate A should be of such size that the workman can readily pass through the same into or out of the boiler, said opening being preferably elliptical in form.

To make or perform the calking of the

joint between the cover and plate, I make the cover out of malleable iron, the same as the boiler-plate, which renders it possible to calk the joint at F from the outside of the shell.

What I claim as new is—

The combination, with a boiler-shell, of the separate right-angled plate united thereto and having the joint between itself and the shell rendered steam-tight by calking, and the cover fitted within the plate, with the exposed face of the same flush with the plate and having its inner edge doubled or folded upon itself and forming a groove or channel which receives the flange of the plate, the joint between the plate and cover being rendered steam-tight by calking the same and the leakage of steam and packing being obviated by fitting the cover within the plate, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

NELSON NEWMAN.

Witnesses:

DORA ADAMS,

GEO. A. SANDERS.