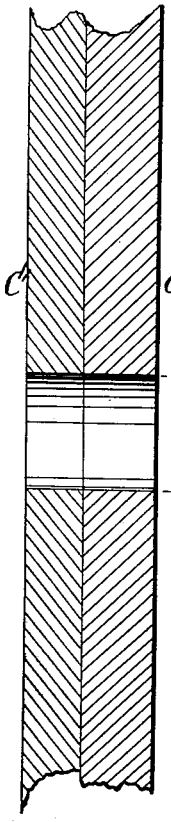
E. Clark,

Bolt Fastening,

No. 54,113, Patented Apr. 24, 1866.

Fig. 1.



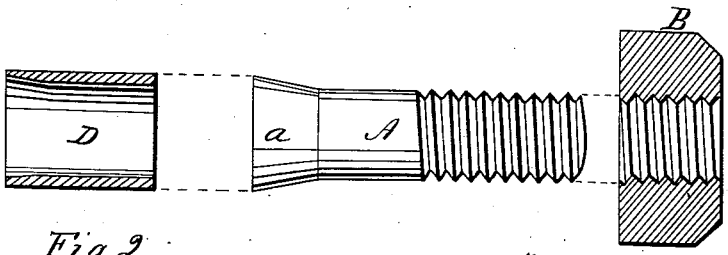


Fig. 2.

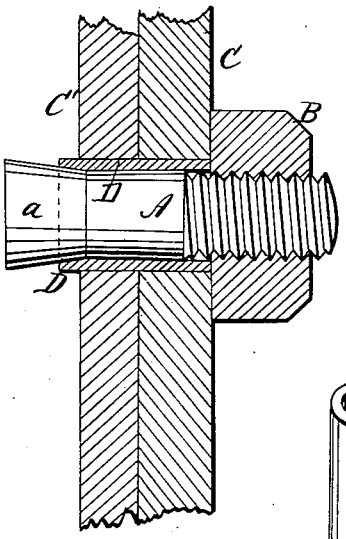


Fig. 3.

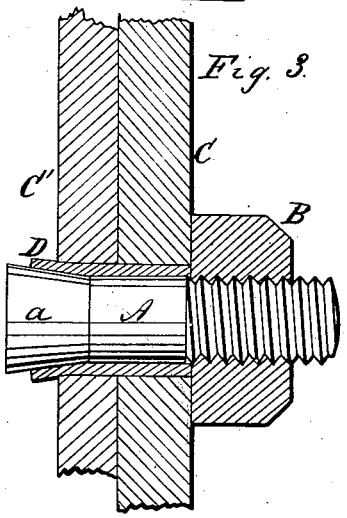
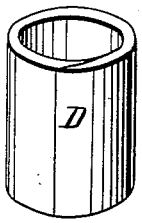


Fig. 4.



Witnesses;
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UNITED STATES PATENT OFFICE.

EDWARD CLARK, OF NEW YORK, N. Y.

IMPROVED BOLT-FASTENINGS FOR BOILER-HEADS.

Specification forming part of Letters Patent No. **54,113**, dated April 24, 1866.

To all whom it may concern:

Be it known that I, EDWARD CLARK, of the city and county of New York, State of New York, have invented a new and Improved Bolt-Fastening for Boiler-Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 shows the thimble, the bolt, the nut, and two plates to be secured together thereby, which bolt may be tubular or solid. Fig. 2 shows the bolt-fastening applied to two plates ready to be drawn together. Fig. 3 is a similar view, showing the bolt drawn tight. Fig. 4 is a perspective view of the thimble.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a bolt-fastening for boiler-plates and other purposes where it is inconvenient to apply bolts having enlarged heads.

The nature of my invention consists in the employment of bolt-fastenings of a cylindro-conical form, in conjunction with split tubes or thimbles, so that the bolts and thimbles can be readily passed through holes that are made through boiler or other plates, and said plates drawn snugly together by the use of nuts applied to the bolts, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

Bolt-fastenings hitherto used by boiler-workers are constructed with square heads, so that it is frequently necessary to make hand-holes through the plates of the boiler in order to insert the bolts, the heads being on the inside of the plates. To obviate this difficulty I construct the heads of my bolts of a conical form, as shown in the drawings, the cone being larger at its base than the stem of the bolt, and slightly less in diameter than the hole through the plates to receive it. This cylindro-conical bolt A has a male screw cut on its stem to receive a nut, B, and it is passed head first through the holes which are made through the plates C C′ to receive it.

In conjunction with such bolt I employ a split tube or thimble D, the external diameter of which is nearly equal to the bolt-holes through the boiler-plates, and the internal diameter of this tube D is slightly greater than the diameter of the stem of the bolt. One end of this tube may be made thinner than the opposite end, if desirable.

The manner of using this fastening is as follows: The tube D is slipped upon the stem of the bolt A, and both are passed through the plates C C′, as shown in Fig. 2. The nut B is screwed upon the outer end of the screw-stem A and set up against the outer plate. Then, by further screwing up the nut B the bolt is drawn in a direction with its length, and the circular head or cone *a* is caused to spread out the inner end of the thimble D, thus preventing the bolt from being drawn through the hole. As the conical head of the bolt expands the inner end of the tube or thimble D and increases its diameter it is obvious that the bolt-head cannot be drawn through the plates, consequently the fastening will be very secure and perfectly tight. The thimbles D should be longer than the thickness of the two plates or objects through which they are passed to allow the inner ends of the tubes to be expanded by the conical heads of the bolts as these bolts are set up. If desirable, washers may be interposed between the nuts and the outer ends of the tubes D.

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

1. The method of securing together boiler and other plates by the employment of conical-head bolts, in combination with tubes or thimbles, substantially as described.

2. The conical-head screw-bolt A, in combination with split tube D, substantially as described.

EDWARD CLARK.

Witnesses:

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