J. W. HARD.
Sectional Steam-Boiler.

No. 201,412. Patented March 19, 1878.

Fig. 1.

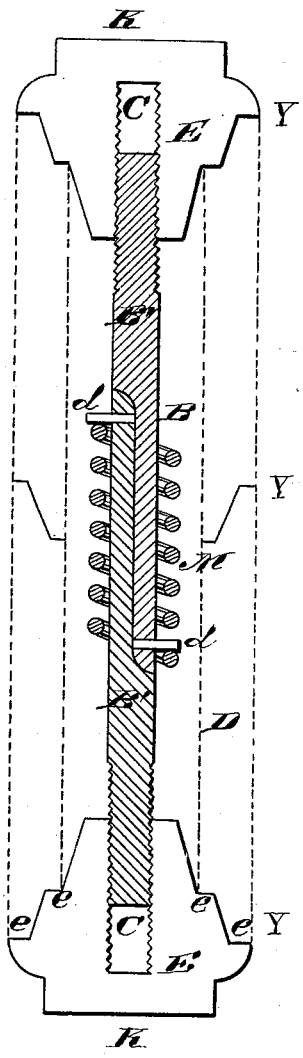


Fig. 2.

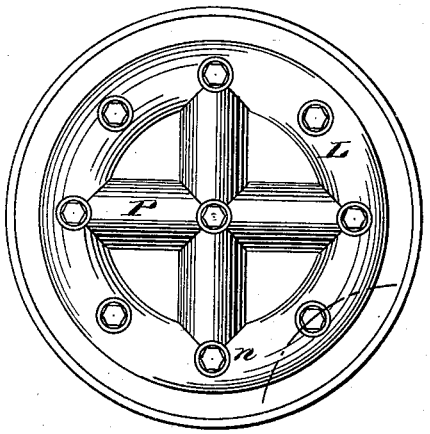
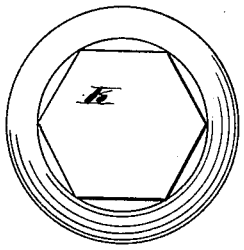


Fig. 3.



Witnesses,

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UNITED STATES PATENT OFFICE.

JOHN W. HARD, OF DECORAH, IOWA.

IMPROVEMENT IN SECTIONAL STEAM-BOILERS.

Specification forming part of Letters Patent No. **201,412**, dated March 19, 1878; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, JOHN W. HARD, of Decorah, in the county of Winneshiek and State of Iowa, have invented a new and valuable Improvement in Sectional Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a central vertical section of the spring-rod, taken through the line *x x* of Fig. 2. Fig. 2 is a plan view of a steam-boiler with my improved spring-rods applied. Fig. 3 is a detail view of one of the bosses.

The object of my invention is to improve the construction of sectional steam-boilers, and to make the sectional boilers free from liability of explosion.

This invention is designed as an improvement on the sectional steam-boiler shown in my Letters Patent dated May 23, 1876, No. 177,635; and the novelty consists in a spring bolt or rod made in two parts, connected together by a spring, the outer ends of which are attached to the upper and lower sections of the boiler.

In the accompanying drawings, A and D represent two sections of a steam-boiler, which may be of any size, shape, and construction, with a bevel or rabbet joint, Y. B represents the yielding spring bolt or rod, composed of two parts, B′ B′, the outer ends being screw-threaded at C, and engaging with screw-threaded perforations in the bosses or plugs K, and connected at their inner ends preferably by a spiral spring, M, encircling the parts, as shown in Fig. 1 of the drawings.

Near the inner ends of the parts B′ B′ are secured lugs or pins *d*, between which the spiral spring is confined.

Each boss K is provided with one or more shoulders, *e*, to serve as seats for the boiler-sections.

By the construction above described, it will be seen that any undue or sudden increase of steam or gases in the boiler will extend the yielding spring-bolt and open a vent for the escape of surplus steam, thereby preventing an explosion.

What I claim as my invention is—

1. In a sectional steam-boiler, a yielding spring bolt or rod, constructed substantially as described.

2. A yielding spring bolt or rod for sectional steam-boilers, composed of two parts united together at their inner ends by means of a spring, and having their outer ends screw-threaded, substantially as and for the purposes set forth.

3. The combination, with a sectional steam-boiler, jointed at the intersections and provided with screw-threaded bosses, of the yielding sectional bolt, screw-threaded at its outer ends, and provided with a spring for connecting the sections together, substantially as described.

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Witnesses:
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