(No Model.)

T. GLOVER & W. ARMSTRONG.

SCRAPER FOR CLEANING STEAM BOILERS.

No. 440,028. Patented Nov. 4, 1890.

Fig. 1.

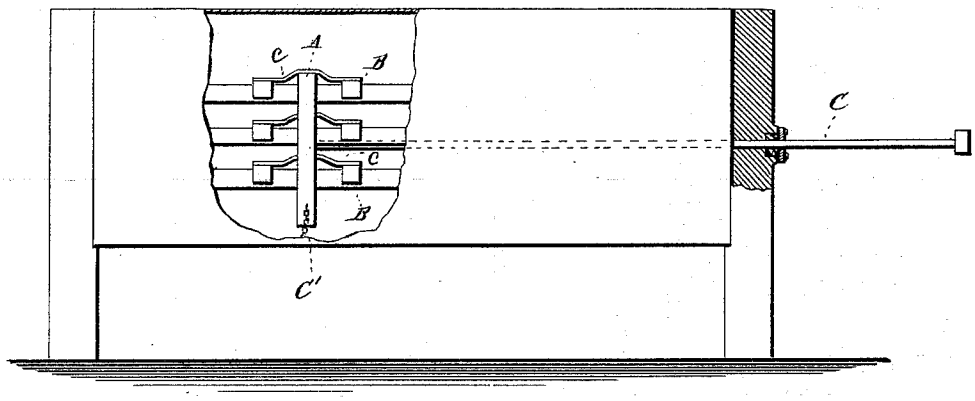


Fig. 2.

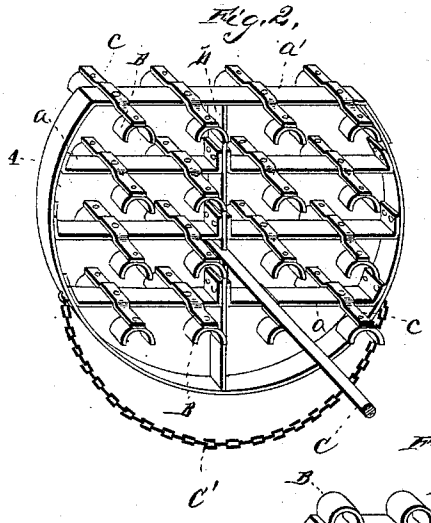


Fig. 3.

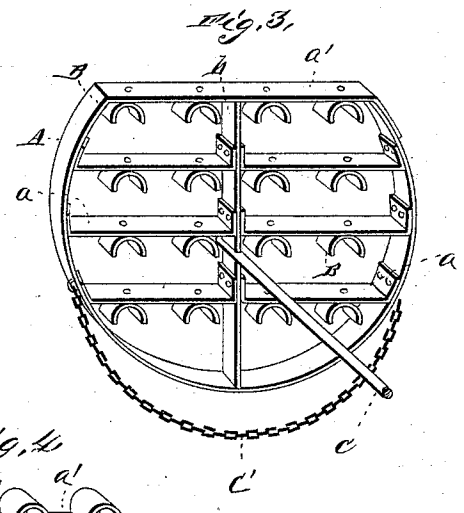
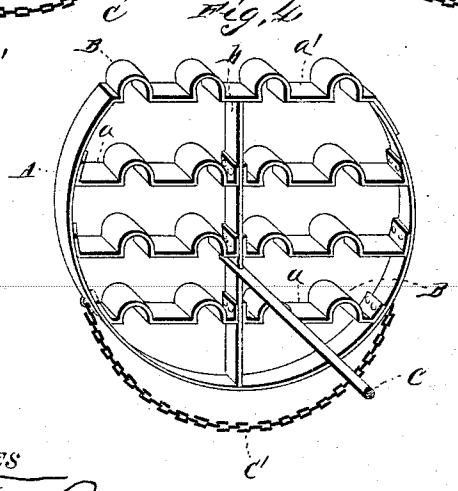


Fig. 4.



WITNESSES

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SCRAPER FOR CLEANING STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 440,028, dated November 4, 1890.

Application filed July 18, 1890. Serial No. 359,171. (No model.)

To all whom it may concern:

Be it known that we, TAYLOR GLOVER and WILLIAM ARMSTRONG, citizens of the United States, and residents of Maryville, in the county of Nodaway and State of Missouri, have invented certain new and useful Improvements in Scrapers for Cleaning Steam-Boilers; and we 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 letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view, partly in section. Fig. 2 is a perspective view of the scrapers, and Figs. 3 and 4 are modifications of scrapers in perspective.

This invention relates to certain improvements in cleaners for boilers; and it consists in the construction and combination of parts, as will appear from the following description and accompanying drawings.

In the drawings, A refers to a frame or rim, to the inner sides of which are secured or bolted the outer ends of horizontal bars *a a*, the inner ends of which are bolted or secured to a central vertical bar *b*, the upper ends of said frame A being joined together by a continuous horizontal bar *a'*, answering the purpose of two bars *a*. The parallel cross-bars *c* are steel springs to permit them to readily yield to any inequalities or bends in the tubes, thus preventing liability of the scrapers, presently described, to bind upon the latter.

The frame or rim A is adapted to fit in the boiler, so that it will just clear the heads of the rivet-bolts and lap of the boiler-plates, and yet remove scales or other accumulations therefrom.

Secured upon and crosswise of the bars *a a*, directly in alignment with the boiler-tubes, are parallel cross-bars *c*, to the under sides of which are secured semicircular scrapers B, adapted to engage the said tubes, for cleaning the same.

C is a rod or handle firmly fastened to the center of the vertical bar *b*, spanning the frame A and bolted or otherwise secured thereto at the top and bottom, said handle passing out through an opening in the front boiler-head, bushed with a steam-tight packing, and serving for the convenient manipulation of the scraper.

Connected at its ends to the lower side of the rim or frame A is a drag-chain C', lying loosely on and adapted to drag the bottom of the boiler as the scraper is operated to remove any scale formations thereon, which are afterward blown out of the boiler through the ordinary mud-valve.

In Fig. 3 a modification of the scraper is shown, wherein the semicircular scraping devices B are secured directly to the under side of the transverse bars *a* instead of to the longitudinal bars, which are not included in this modification.

In Fig. 4 a modification is shown wherein the semicircular scrapers B are formed by bending or curving the transverse bars *a*.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

1. The boiler-cleaner consisting of the outer rim, the center bar, the transverse bars secured at one end to the rim and at the other to the center bar, and the semicircular scraping devices carried by the transverse bar, substantially as described.

2. The boiler-cleaner comprising the outer rim, the vertical center bar having the handle secured thereto, the transverse bars secured to the rim and to the center bar, and the longitudinal bars carried by the transverse bars and having at each end the semicircular scraping devices adapted to engage the boiler-tubes, substantially as described.

3. The boiler-cleaner consisting of a rim or frame having a series of bars secured at their inner ends to a central bar of said frame, the transverse bars, and carrying semicircular scrapers, and the drag-chain carried by said rim or frame, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

TAYLOR GLOVER.
WM. ARMSTRONG.

Witnesses:
CHARLES E. JONES,
THEODORE C. JONES.