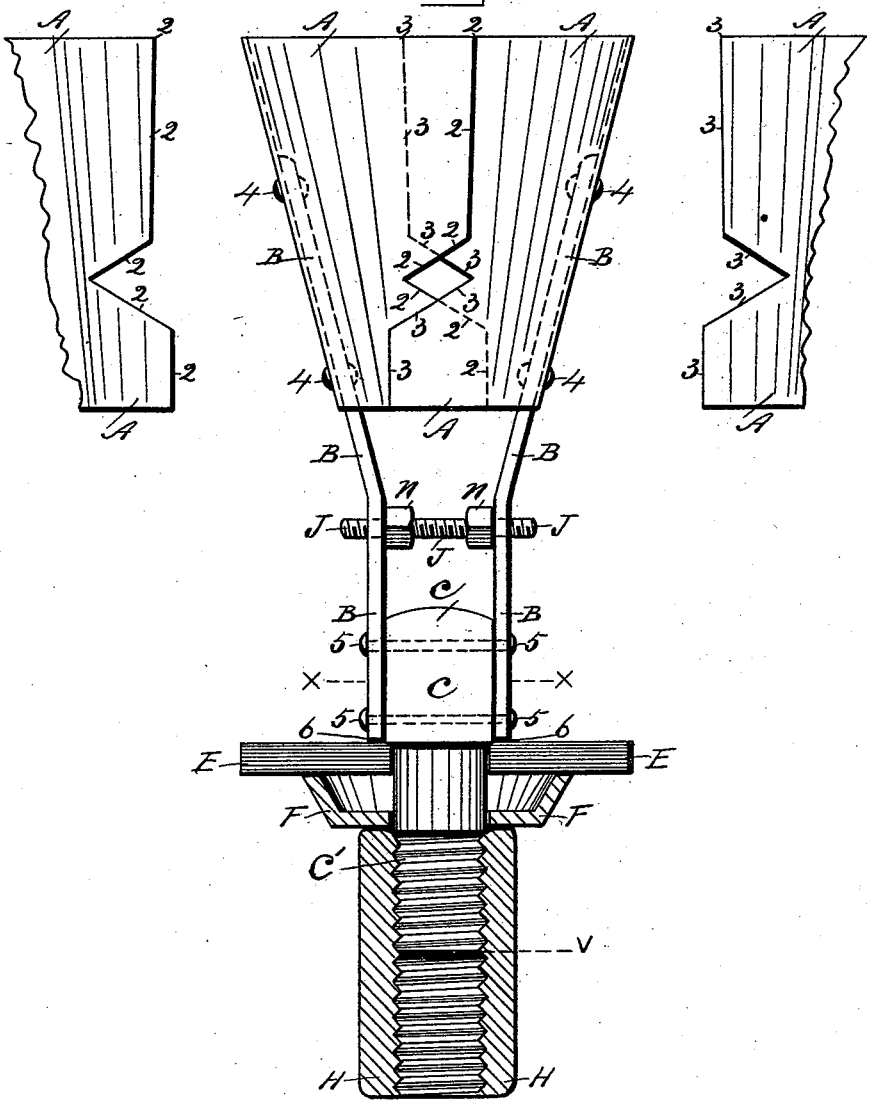
(No Model.)

R. T. BROOKE.

BOILER TUBE CLEANER.

No. 523,703. Patented July 31, 1894.

Fig. I.



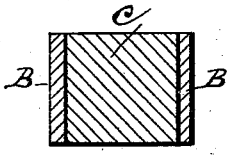


Fig. II.

Witnesses:
G. M. Cameron.
Alfred Young.

Inventor.
Richard Thomas Brooke
By his Attorney
John H. Hinckley.

UNITED STATES PATENT OFFICE.

RICHARD THOMAS BROOKE, OF PARIS, CANADA.

BOILER-TUBE CLEANER.

SPECIFICATION forming part of Letters Patent No. 523,703, dated July 31, 1894.

Application filed November 22, 1893. Serial No. 491,633. (No model.) Patented in Canada September 9, 1893, No. 44,221.

To all whom it may concern:

Be it known that I, RICHARD THOMAS BROOKE, a subject of the Queen of Great Britain, residing at Paris, in the county of Brant and Province of Ontario, Canada, have invented a new and useful Boiler-Tube Cleaner, (for which I have obtained a patent in Canada, No. 44,221, bearing date September 9, 1893,) of which the following is a specification.

My invention relates to improvements in boiler tube cleaners, consisting of two metallic blades formed and bent preferably from steel plate, that when each is secured to its inner side strap, and both straps connected to rod mechanism, said blades shall be cone, or bell shape, that is, larger in diameter at its outer part than at its inner end, and shall be capable of adjustment to a larger diameter when requisite. The objects of my invention being, to provide a tube cleaner, that will scrape, and perfectly clean a tube, and at the same time possess a certain degree of elasticity in the manner of contraction and expansion, in order to overcome any possible unevenness in the tube; and to afford facilities for the proper and complete adjustment of the same to a larger diameter, to suit variations in tubes. This latter feature of enlargement provides for years of wear and tear. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1, is a front elevation of the tube cleaner, the lower or shank end of which is in section. Fig. 2 is a section through the broken line *x. x.* Fig. 1.

Similar letters and characters of reference refer to similar parts throughout the several views.

In the drawings the conical blades are indicated by A, the plan of which is circular, in two sections, each section, under and overlapping the other at their edges. This particular allows the blades to enlarge in diameter, and especially to contract, and at the same time the four edges are free from contact with each other.

To easily comprehend the construction of the device, I will here indicate the edges of the left hand blade, or section by 2, and the right hand blade by 3. The edges of these blades are so shaped and notched out, that when in position they overlap each other, and are capable of being extended out in diameter, without losing their overlap. These blades are secured at 4, to the bent side straps B, the lower ends of which are secured to the square ended rod *c*, by means of rivets 5. The lower part of this rod is round and threaded and forms a shank *c'* extending as far as the broken line V. The flexible washer E, fits onto this shank against the shoulder 6 which is formed at the ends of said straps. This washer E, is held in position, and slightly concaved by means of the concaved metallic washer F, and the combined nut and socket coupling H. The lower end of this socket is prepared to admit the screwed end of a long rod for manipulation purposes.

In order to adjust, or enlarge the bell shaped end of the cleaner, the nuts *n*, on threaded bolt J, engage with the inner sides of straps B, thus forcing the same out, this adjustment being an important element in this cleaner.

The flexible washer E, before mentioned, is also very effective as a cleaner and assistant to the blades, both in the act of pushing and withdrawing the device through the tubes of a boiler.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a boiler tube cleaner the two steel blades A, bent in semi-circular form having edges overlapping each other cut and shaped, and notched out as delineated by the lines 2 and 3, the bent side straps B, secured thereto by rivets 4, and provided with the threaded bolt J, having inner nuts *n*, said side straps secured to square shank end *c*, of threaded rod *c'* by rivets 5, the flexible washer E, against shoulder 6, formed by said side straps and shank, the concave washer F, and coupling H, all formed, arranged and combined substantially as described and set forth.

RICHARD THOMAS BROOKE.

Witnesses:

J. H. FISHER,

THOS. C. MUNN.