

C. H. KELSEY.
Boiler-Tube Cleaner.

No. 217,384.

Patented July 8, 1879.

Fig. 1.

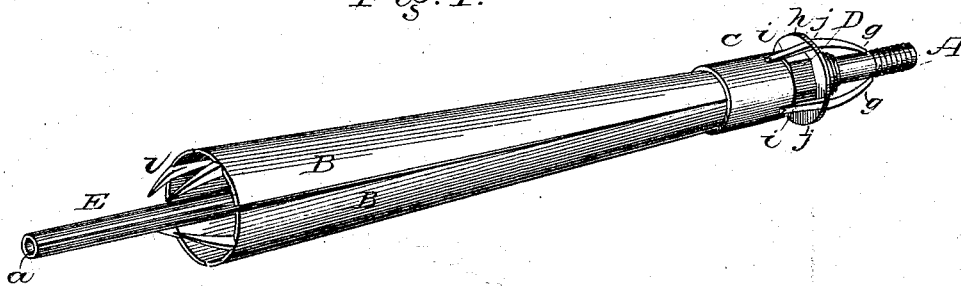


Fig. 2.

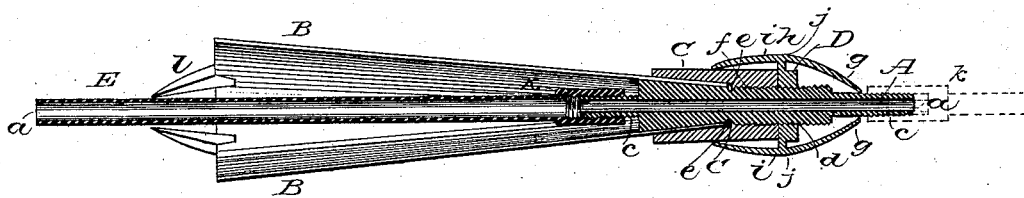


Fig. 3.

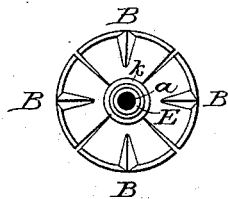
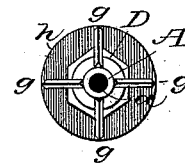


Fig. 4.



Witnesses:

Stephen J. Kimball
George B. Brown

Inventor.

Charles H. Kelsey.

UNITED STATES PATENT OFFICE

CHARLES H. KELSEY, OF NEWPORT, NEW HAMPSHIRE.

IMPROVEMENT IN BOILER-TUBE CLEANERS.

Specification forming part of Letters Patent No. **217,384**, dated July 8, 1879; application filed December 19, 1878.

To all whom it may concern:

Be it known that I, CHARLES H. KELSEY, of Newport, in the county of Sullivan and State of New Hampshire, have invented a new and useful Improvement in Boiler-Tube Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my boiler-tube cleaner complete and ready for use. Fig. 2 is a view of the spindle. Fig. 3 is a view of one of the sections which form the tube, which is the principal and most important part of said cleaner. Fig. 4 is a view of the conical or expanding nut or sleeve when made without a screw, by the aid of which the lower ends of the sections are firmly fastened to the spindle.

The same letters indicate identical parts in the respective drawings.

My invention consists of four distinct and separate sections, bent in the form of a quarter-circle, thus all together forming a complete circular tapering tube arranged around a central spindle, and confined firmly to said spindle at their lower ends, leaving the upper ends to expand and contract more or less, but sufficiently to adapt the cleaner to the inequalities of the tube to be cleaned, the upper ends of said sections forming a complete circular cutting or scraping edge.

I also increase the cutting or scraping power of my said cleaner by the use of a guide-collar formed with angular edges on its periphery, which serves not only for cleaning purposes, but, in connection with the upper circumference of the sections of the cleaner, to keep said cleaner, so far as may be, in line with the tube to be cleaned.

I also construct the spindle and handle with a hollow passage running through both of them for the admission of steam to be utilized in cleaning out cinders, &c., from the boiler-tubes; and by the aid of a coupler I attach the handle to either end of the spindle, thus enabling the operator to use the cleaner by pushing or drawing the same through the tube to be cleaned.

Having set forth my improvement and its

purpose, I now proceed to describe its construction.

A is the spindle, which I construct of wrought-iron, with a circular hollow space, *a*, running through its center for the admission of steam, and a circular groove, *e*, in which the lower ends of the sections are inserted. *c c*, at the top and lower ends of the spindle, are male screws, made of such size as to fit into the female screw in the coupler of the handle. *d* is a male screw fitting into the female screw in the guide-collar, and also into the female screw in the tapering or conical nut. From the groove *e*, I make the diameter of the spindle to expand gradually and sufficiently to cause the sections to flare slightly at their cutting or scraping edge.

B B are four sections, each curved in the form of a quarter-circle, and when confined together upon the spindle forming a complete circle. I make them in a form regularly tapering from the upper or cutting edge of the same to the lower ends thereof, and of cast-steel properly tempered, which gives them the best and most durable cutting or scraping edges and the necessary elasticity. The edges I make a little beveled to secure better work. I curve the lower ends of said sections slightly inward, as seen at *e*, sufficiently to adapt them to the groove *e* in the spindle, by means of which, with the aid of the conical or expanding nut or sleeve, the said sections are firmly fastened to the spindle. On the upper ends or edges of each of said sections I fix a triangular or V-shaped guide, *l*, the outside angle of each guide being placed flush with or a very little inside of the periphery of the circle formed by said sections, as seen in Figs. 1 and 3, for the purpose of enabling the implement to pass more easily through the tube to be cleaned, and to overcome the elasticity of said sections.

C is a conical nut or sleeve, which I make in the form as seen in the drawings, Fig. 2, with a female screw, *f*, fitting to the male screw *d* on the spindle, the sleeve part being made with its diameter gradually expanding, to adapt itself to the expanding diameter of the spindle, commencing at the groove *e*. In manufacturing the implement the sleeve may be made independent of the nut part of the

device shown in Fig. 2, with or without a washer between them. The office of the sleeve and nut is to tighten the sections B B, &c., and hold them firmly in their places upon the spindle.

D is the guide-collar nut, with four guides, *g g*, below its flange *h*, and four guides, *i i*, above the said flange. It may be constructed without the guides *i i*, as may be found to be most useful in practice. I construct the flange *h* with angular edges *j j*, for the purpose of increasing the scraping power of the implement. The guide-collar D, with its guides and flange thus constructed, serves to keep the cleaner parallel with the boiler-tube, and to aid in cleaning it of scales, cinders, and soot, if any shall be left by the cleaner. The guides *g g* and *i i* are inserted a little inside of the flange *h*, so as not to interfere with its scraping power when the implement is in use. I construct the guide-collar D from one-eighth to three-sixteenths of an inch smaller in diameter than the largest diameter of the tube of the cleaner for which it is designed, for the purpose of insuring the easy operation of said cleaner within the boiler-tube.

E is the handle by which the cleaner is op-

erated, and may be attached by the coupler *k* to either end of the spindle. The said coupler also aids in more firmly fastening and keeping in place the guide-collar D.

I do not, of course, mean to be confined to the particular construction of my cleaner, as above described. I may vary the sections by lessening or increasing the number of them, always curving them so as when put together they shall describe a complete circle.

Having above described my said invention, its purpose, and its construction, what I claim, and desire to secure by Letters Patent, is—

1. A boiler-tube cleaner composed of the spindle A, the sections B B, with their triangular or V-shaped guides *l l*, the conical nut C, and the guide-collar D, with its guides *i i* and its guides *g g*, substantially as described.
2. In a boiler-tube cleaner constructed substantially as above described, the hollow spindle A, as and for the purposes described.

In witness whereof I have hereunto set my hand this 16th day of December, A. D. 1878.

CHARLES H. KELSEY.

Witnesses:

STEPHEN S. KIMBALL,
GEORGE R. BROWN.