(No Model.)

A. R. COOPER & T. E. STUCKY.

BOILER TUBE CLEANER.

No. 452,362. Patented May 19, 1891.

FIG. 1.

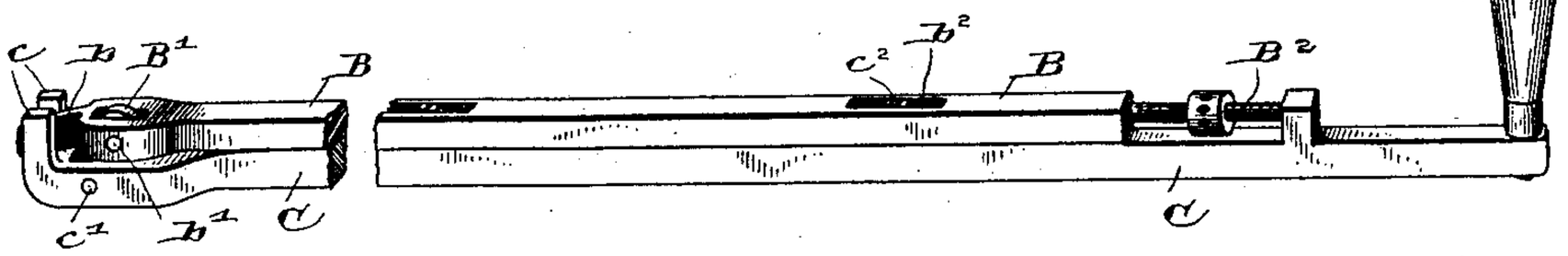


FIG. 2.

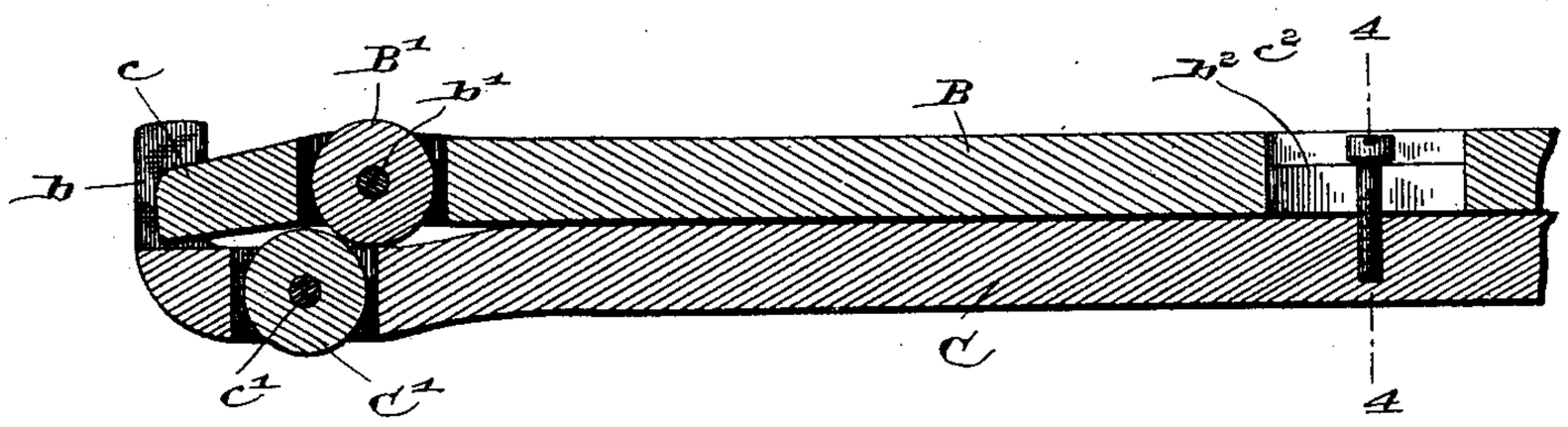


FIG. 3.

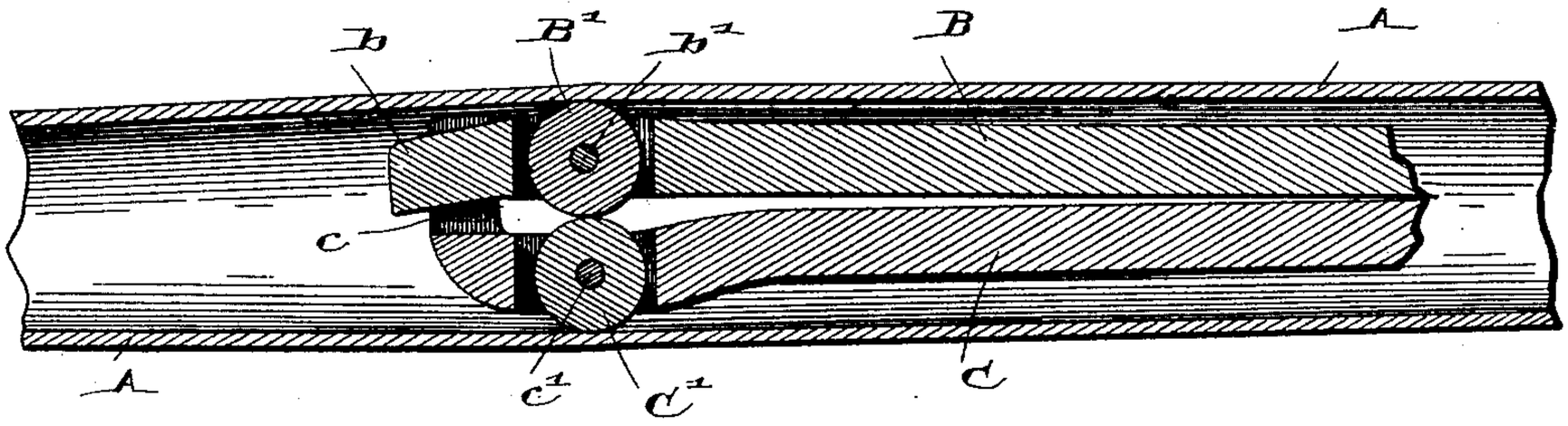


FIG. 4.

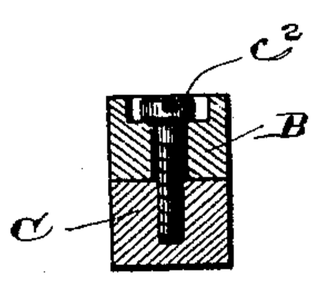
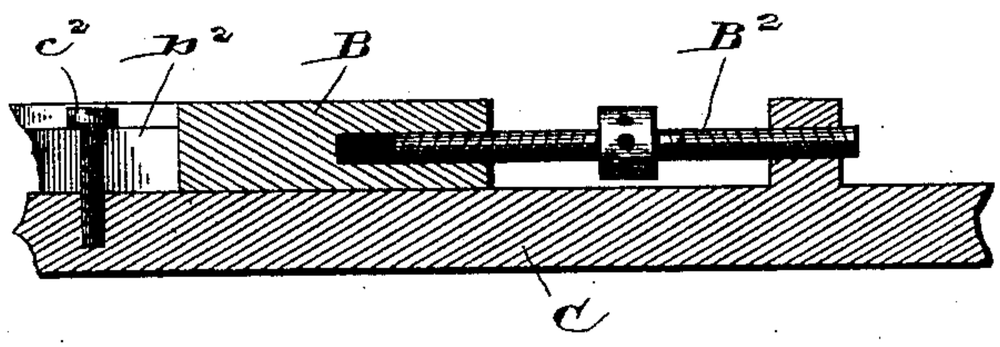


FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

ASHLEY R. COOPER AND THOMAS E. STUCKY, OF MOORESVILLE, INDIANA.

BOILER-TUBE CLEANER.

SPECIFICATION forming part of Letters Patent No. 452,362, dated May 19, 1891.

Application filed October 17, 1890. Serial No. 368,420. (No model.)

To all whom it may concern:

Be it known that we, ASHLEY R. COOPER and THOMAS E. STUCKY, citizens of the United States, residing at Mooresville, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Boiler-Tube Cleaners, of which the following is a specification.

The object of our said invention is to produce a device by which scale can be easily and quickly removed from the flues or tubes of boilers; and it consists in providing two bars with rollers arranged to come in contact with each other on the adjacent portions of their peripheries, and to come against the opposite inner surfaces of the tubes on the distant portions of their peripheries, and thus when properly adjusted expand the tubes where they come against them, thus temporarily changing said tubes from a round to a somewhat oval form in cross-section, and cracking off the scale incrustation thereby, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a boiler-tube cleaner embodying our said invention; Fig. 2, a longitudinal sectional view thereof showing the parts in the positions they occupy before or at the time the cleaner is inserted into a tube; Fig. 3, a similar view with the parts in the positions they are when in operation inside the tube, together with a portion of said tube; Fig. 4, a transverse section on the dotted line 4 4, Fig. 2; and Fig. 5, a longitudinal section illustrating the operating-screw.

In said drawings, the portions marked A represent a portion of a boiler-tube, and B and C the two bars of our improved cleaner.

The cleaner, as above indicated, consists of the two bars B and C, which are slotted or mortised near one end, and carry in said slots the rollers B′ and C′, which are respectively mounted on small shafts b' c'. The end of the bar B is made thinner than its body, leaving shoulders and a narrow projecting point b, as shown most plainly in Fig. 1. The jaw C is turned up at its point and bifurcated, forming a fork c, through which said point b extends, and whereby it is guided and held in place.

Near the rear or handle end of the device the two bars are united by a right-and-left-hand screw B^2, by which their longitudinal relation can be adjusted, so that the wheels may be brought into the relation desired. At intervals throughout their length the bars are connected by clamping-screws c^2, as shown, which extend through a slot in one bar and into an appropriate screw-threaded hole in the other. These slots b^2 are necessarily long enough to permit of the longitudinal adjustment of the bars.

The operation of our said invention is as follows: The end of the cleaner which is armed with the wheels is adjusted to the position shown in Fig. 2 and inserted into the tube to be cleaned. The right-and-left-hand screw B^2 is then turned until the wheels are forced into the position shown in Fig. 3, or to so near that position as to somewhat distend the tube, and the cleaner is then forced back and forth through said tube, which, as before stated, has the effect to crack the scale on the outside of the tube and cause it to fall off. After the cleaner has passed through the tube it is turned and drawn back over different portions of its surface, and, if necessary, this process is repeated until the scale is all cracked off.

It will be understood that the cleaner in practice must be as long as the tube to be cleaned if it is to be pushed through; but if it is to be pulled through by means of a wire or rope it may be much shorter. The cleaner, of course, is to be made of a size corresponding to that of the tubes to be cleaned. The rollers being of equal size and with the inner portions of their peripheries in contact with each other, it requires less power to force the device through the tube than otherwise would be necessary.

The essential feature of our invention is the arranging of the two rollers so that they will operate together, and so that one can be rolled up onto the other sufficiently to produce the desired pressure inside the tube.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a cleaner for boiler-

tubes, of two bars, a roller mounted in each of said bars, and means whereby said bars may be adjusted longitudinally, thus bringing said rollers in contact and varying the distance between the parallel planes bounding their outer peripheries, substantially as and for the purpose set forth.

2. The combination, in a cleaner for boiler-tubes, of two rigid bars having slots or mortises near one end and rollers mounted therein, the extreme end of one of said bars being narrowed and the other bifurcated, and one turned up to engage with the other, whereby said bars are held in line as they approach toward or recede from each other, substantially as set forth.

3. The combination, in a cleaner for boiler-tubes, of two bars carrying rollers and a right-and-left-hand screw extending between portions of said bars or projections thereon, whereby they may be adjusted longitudinally, substantially as set forth.

4. The combination, in a cleaner for boiler-tubes, of two bars, expanding-rollers at one end of said bars, means whereby said bars may be longitudinally adjusted, and intermediate slots and connecting-screws, whereby the bars are held together, substantially as set forth.

In witness whereof we have hereunto set our hands, at Indianapolis, Indiana, this 13th day of October, A. D., 1890.

ASHLEY R. COOPER.
THOMAS E. STUCKY.

Witnesses:
CHESTER BRADFORD,
FRANK W. WOOD.