To all whom it may concern:

Be it known that we, CHARLES JOHN WRIGHT and BRITTON BELL, subjects of the King of Great Britain, residing at Kelowna, 5 in the Province of British Columbia and Dominion of Canada, have invented new and useful Improvements in Boiler-Tube Scrapers, of which the following is a specification.

This invention relates to boiler tube clean- ers and more particularly to that type of scrapers which embody a central stem and springs actuated to control the opening and closing of the series of bell crank levers which carry cleaning or scraping members.

One of the principal objects of the invention is to avoid the difficulties heretofore encountered in devices of this character, which consists in placing the spring for the cut- ters or scrapers at a point in the handle where it will not be affected by the heat.

Another object of the invention is to provide means connected to the stem and position adjacent the handle for controlling the position of the cutters so that they may be readily inserted or withdrawn from the tube when desired.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawing, which forms a part of this application, and in which:

Figure 1 is a side elevation. Fig. 2 is a longitudinal section therethrough.

Referring more particularly to the drawing, 1 represents a tubular head which is provided at one end with a plurality of short slots 2 arranged at quartering intervals around its circumference and at its opposite end with relatively long slots 3 arranged in alinement with the slots 2. Secured in the head, adjacent the outer end thereof, is a bearing block 4 and a similar bearing block 5 is slidably mounted in the head. These bearing blocks pivotally receive the ends of toggle levers or arms 6 which carry suitable scraping cutters 7, as shown. Each part of the toggle levers has a cutter 7 secured adjacent its joint and each cutter comprises a body 8 with laterally extending curved arms 9 having a cutting edge 10 formed thereon. The cutting edges of the arms are arranged at such an angle that when the toggle levers are clamped against the side of the head the ends of the arms will enter between each other so as to pre- vent interference and to permit compact folding of said arms. The angle of the cut- ting edges of opposite cutters on each arm is parallel and such that in drawing the cleaner through the tube or pushing the same therethrough a shaking action against the scale will take place, thus making the device easier to operate.

Connected to the head, by means of a re- ducing coupling 11, is a tubular shank 12 whose opposite end is connected, by means of a reducing coupling 13 to a tubular handle member 14. The handle member is sub- stantially the same size as the head member 1 and is connected to the handle bail 15 across which the handle 16 is secured. The bail 15 is apertured to correspond with the aperture through the tubular handle member 14 and passing therethrough is a threaded stem 17 which has its end thread- ed into the bearing block 5 and has a collar 18 thereon between which and the bail is interposed an actuating spring 19. This spring normally forces the stem outwardly toward the head 1 and thus expands the cut- ters 7. In order to contract the same the stem is provided with a head having a handle 20 extending therethrough which is in position to be engaged by the fore and mid- dle fingers of the operator, so as to contract the stem against the tension of the spring and contract or collapse the toggle members, thereby permitting the device to be inserted in or withdrawn from the boiler tube with- out the cutters acting on the interior surface thereof.

Having thus described the invention, what we claim as new is:

1. A device of the class described com- prising a tubular head, a bearing member slidably mounted therein, toggle levers piv- oted to the bearing member and to the head and radiating therefrom, scraper members carried by said levers, a shank connected to the head, a handle connected to the shank, means slidably and rotatably mounted in the shank and engaging the bearing member for adjusting the separation of the head and bearing member and means including an op- erating member arranged adjacent the handle, and means normally acting on said ad- justing means to force the bearing member toward the head and expand the toggle le- vers.
2. A device of the class described comprising a tubular head, a bearing member slidably mounted therein, toggle levers pivotally connected to the bearing members and to the head, scraper members mounted on the toggle levers, a tubular shank connected to the head, a handle bail connected to the shank, a threaded rod passing through the shank and adjustably engaged with the bearing member, a spring mounted in the shank and operating upon the rod to normally hold the scraper members in expanded position, and an operating handle connected to the threaded rod and located in the handle bail, said handle adapted to rotate the rod in the bearing member and to slide the bearing member in the tubular head.

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

CHARLES JOHN WRIGHT.
BRITTON BELL.

Witnesses:
D. LLOYD JONES,
R. B. KERR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."