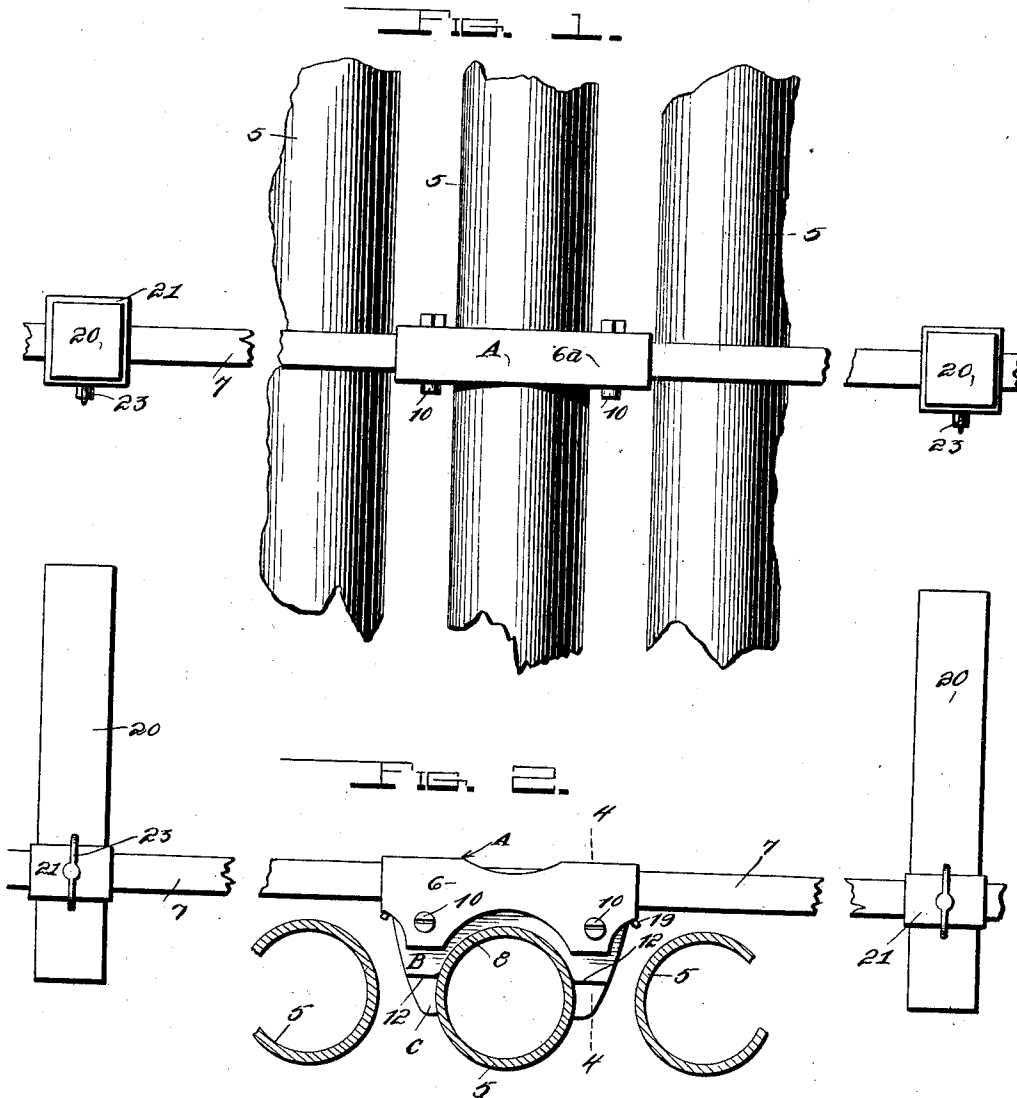


G. F. NYBERG.
BOILER TUBE SCRAPER.
APPLICATION FILED APR. 1, 1912.

1,056,050.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.



Witnesses
Frank S. Ratcliffe
George J. Felt

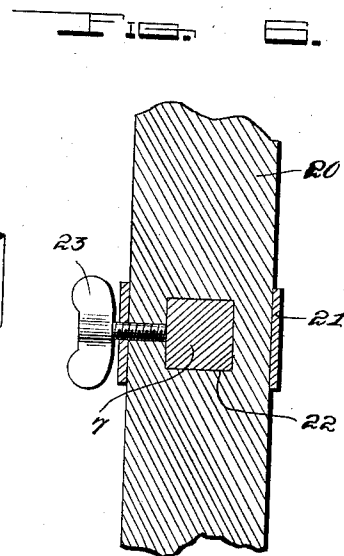
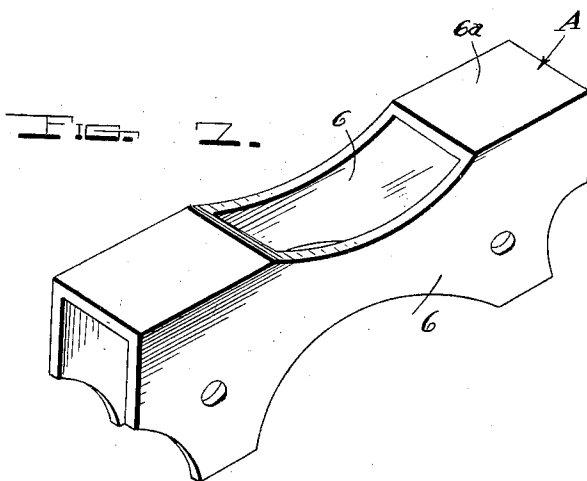
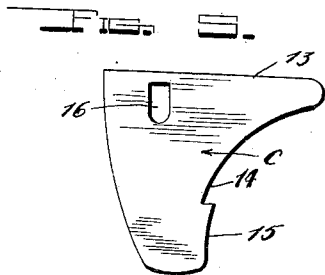
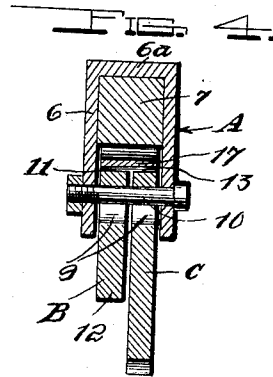
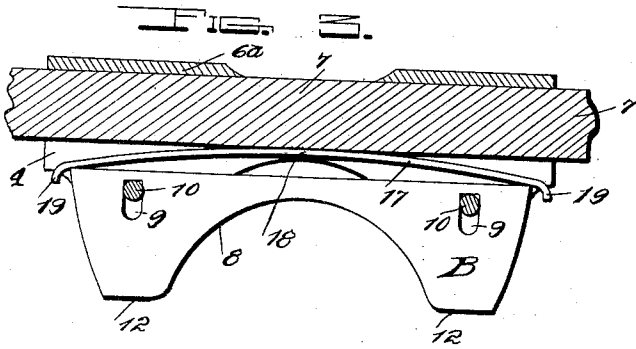
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GUST F. NYBERG, OF SAUSALITO, CALIFORNIA.

BOILER-TUBE SCRAPER.

Specification of Letters Patent.

Patented Mar. 18, 1913.

1,056,050.

Application filed April 1, 1912. Serial No. 687,580.

To all whom it may concern:

Be it known that I, GUST F. NYBERG, a citizen of the United States, residing at Sausalito, in the county of Marin, State of California, have invented certain new and useful Improvements in Boiler-Tube Scrapers; and I do hereby 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.

This invention relates to improvements in boiler tube scrapers.

The principal object of the invention is to provide a boiler tube scraper which is especially adapted for removing the crust from the exterior of boiler tubes of the marine type, although the invention can be used with equal success with other types of boilers.

Another object of the invention is to provide a scraper which will simultaneously scrape the top or bottom of a particular tube and the sides thereof.

A further object of the invention is to provide an operating rod which is adapted to be inserted between any pair of horizontal rows of boiler tubes, and a scraper slidably mounted on the rod for engagement with any particular tube.

A still further object of the invention is to provide a scraper for the character described which is extremely simple in construction, it being composed of a minimum number of parts, is positive in operation, and is cheap to manufacture.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a detail plan view showing a horizontal row of boiler tubes showing the application of a scraper constructed in accordance with my invention, Fig. 2 is a detail sectional view taken through Fig. 1, the scraper being shown in elevation, Fig. 3 is a detail longitudinal sectional view through the scraper, Fig. 4 is a transverse sectional view taken on the line

4—4 of Fig. 2, Fig. 5 is a plan view of one of the supplemental scraper blades, Fig. 6 is a detail sectional view through one of the handles, and Fig. 7 is a perspective view of the sleeve.

Like reference numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, the numeral 5 designates each tube of a horizontal row of boiler tubes of a marine or other style boiler.

My invention comprises a boiler tube scraper which consists of a U-shaped holder or sleeve A formed from sheet metal or the like and including spaced side walls 6—6 and a connecting portion 6^a. This holder is slidably mounted upon a rectangular operating rod 7 which is of a length to extend transversely of and beyond the outermost tubes of the boiler.

Disposed between the wall of the holder A is a main scraper blade B and a pair of supplemental scraper blades C—C. The scraper blade B is centrally formed with a semi-circular scraping edge 8 of a size to freely engage a tube 5. The blade is formed on each side of the edge 8 with a vertical slot 9, and through these slots extend screws 10—10, said screws being carried by the walls 6 of the holder A. This blade is formed with a flat longitudinal upper edge 11 which is normally disposed in spaced relation to the operating rod 7, and flat lower edges 12—12, said lower edges merging with the scraping edge 8. Each supplemental scraper blade C is of substantially triangular formation, and includes a top edge 13, an arcuate inner edge 14, and an inwardly extending offset scraper edge 15. Formed in each plate C is an elongated slot 16 for securing a respective screw 10. When the blades C are positioned upon the screws 10, the scraping edges 15 are disposed below and form a continuation of the scraper edge 8 of the main scraper blade B.

In order to yieldingly hold the main blade B and the supplemental blades C in contact with a particular tube 5, there is provided a flat spring 17 which is disposed within the holder A between the top of said blades and the operating rod 7. The bight 18 of this spring bears centrally against the operating rod 7, and the extreme ends 19—19 thereof project beyond and bear against the outer corners of said blades.

My invention further comprises a pair of handles 20—20. Each handle is formed

from a rectangular piece of wood, and is centrally provided with a metallic band 21, said band and handle being formed with a transverse opening 22 for receiving a respective end of the operating rod 7. A set-screw 23 passes through the band 21 and handle, and engages the operating rod 7 to hold said handle in any adjusted position along said rod.

In practice, when it is desired to scrape the crust from the exterior of any particular tube 5, one of the handles 20 is detached from the operating rod 7 and said rod is then inserted between any pair of horizontal rows of tubes. The scraper is of course positioned to engage a particular tube 5 and the handle 20 is then attached to the rod 7. The rod 7 is then shifted back and forth along the tubes, and as a result, the main scraper blade B will be caused to remove the crust from either the top or bottom of a tube 5 as the case may be, and the supplemental scraper blades C will be caused to remove the crust from the sides of said tube. It will be observed that the spring 17 yieldingly urges the supplemental blades into engagement with the sides of the tube, and at the same time serves to prevent relative movement between the holder A and the operating rod 7. After one tube has been scraped, the tube may be removed from that particular tube and engaged with the next adjacent tube of that particular row until that row of tubes has been scraped. This operation may be continued from one row to another until all the tubes of the boiler have been scraped, as will be readily understood. What is claimed is:

1. A boiler tube scraper comprising in

combination, an operating rod, a sleeve carried by said rod, a main scraping blade having a pin and slot connection with the sleeve and formed for engagement with one-half of a boiler tube, a pair of supplemental scraper blades having pin and slot connections with the sleeve, said supplemental blades being disposed against the main blade and having their lower ends projecting below said main blade for respective engagement with the sides of the tube, and means for yieldably holding the supplemental blades against the sides of the tube.

2. A boiler tube scraper comprising in combination, an angular operating rod, a non-rotatable sleeve slidably mounted on the rod, a main scraping blade having a pin and slot connection with the sleeve and formed for engagement with one-half of a boiler tube, a pair of supplemental scraper blades having pin and slot connections with the sleeve, said supplemental blades being disposed against the main blade and having their lower ends projecting below said main blade for respective engagement with the sides of the tube, and a flat spring disposed within the sleeve and respectively bearing against the rod and blades for simultaneously holding the sleeve against relative movement on the rod and yieldably holding the supplemental blades against the sides of the tube.

In testimony whereof, I affix my signature, in presence of two witnesses.

GUST F. NYBERG.

Witnesses:

B. BELLEW,
LEON A. CLARK.

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