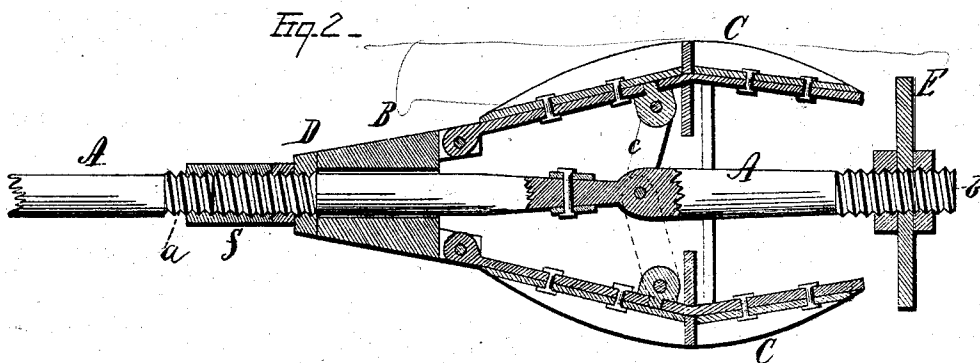
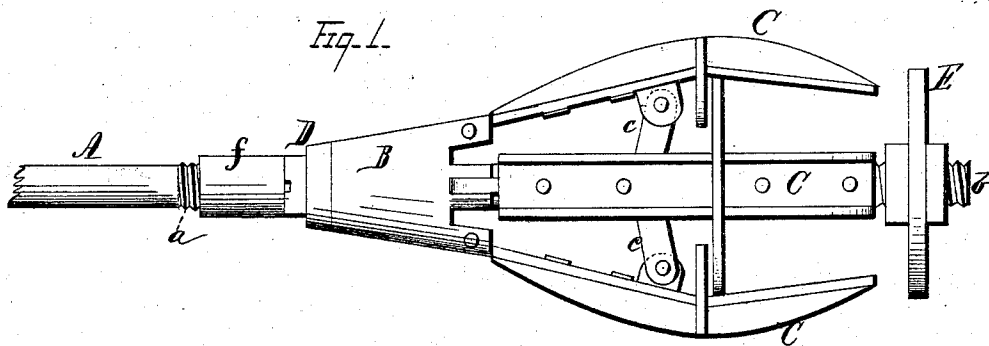


J. ARMBRUSTER.
Flue-Cleaners for Boilers.

No. 144,046

Patented Oct. 28, 1873.



WITNESSES.

W. S. Newman,
Wm. H. Brewster,

INVENTOR

Jacob Armbruster

By *Leggett & Leggett*

Attorneys.

UNITED STATES PATENT OFFICE.

JACOB ARMBRUSTER, OF PETROLEUM CENTRE, PENNSYLVANIA.

IMPROVEMENT IN FLUE-CLEANERS FOR BOILERS.

Specification forming part of Letters Patent No. **144,046**, dated October 28, 1873; application filed September 11, 1873.

To all whom it may concern:

Be it known that I, JACOB ARMBRUSTER, of Petroleum Centre, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Flue-Cleaners for Boilers; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in flue-cleaners.

In the drawings, Figure 1 represents a side or plan view of my improved flue-cleaner; Fig. 2, a longitudinal section of same.

A represents the shaft, provided at *a b* with screw-threaded portions. B is a cap, sliding loosely on the shaft A. To this cap B is hinged the scrapers C. D is a jam-nut on the screw-thread *a*, impinging against the end of the cap B. E is the usual end-wiper; F, a screw-band, joining the two sections of the shaft A together. About the center of each of the scrapers C is a link or knuckle joint, *c*, which hinges the scrapers to the shaft.

My invention relates particularly to this knuckle-joint *c*, in connection with the scrapers C hinged at one end to the sliding cap B.

The object and advantages of hinging the

scrapers of flue-cleaners in this manner are as follows: In pushing the scraper forward through the flue, the friction on the scrapers and the action of the knuckle-joints—the cap B sliding back against the jam-nut D—cause the scrapers to expand, in the position shown, against all sides of the flue, and thus thoroughly clean it from end to end. Now, in drawing the cleaner out, the scrapers, by the action of the knuckles and guide-cap, are caused to collapse, thus allowing the scraper to be easily withdrawn from the flue. The amount of play or limit of the expansion of the scrapers C is regulated by the jam-nut D against the cap B. By this means it can be used either in small or large flues.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the scrapers C hinged at one end to the sliding cap B, and the knuckle-joint *c* hinged to the shaft A and the scrapers C, substantially as and for the purposes set forth and described.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of September, 1873.

JACOB ARMBRUSTER.

Witnesses:

ERNEST H. KOESTER,
G. F. KOESTER.