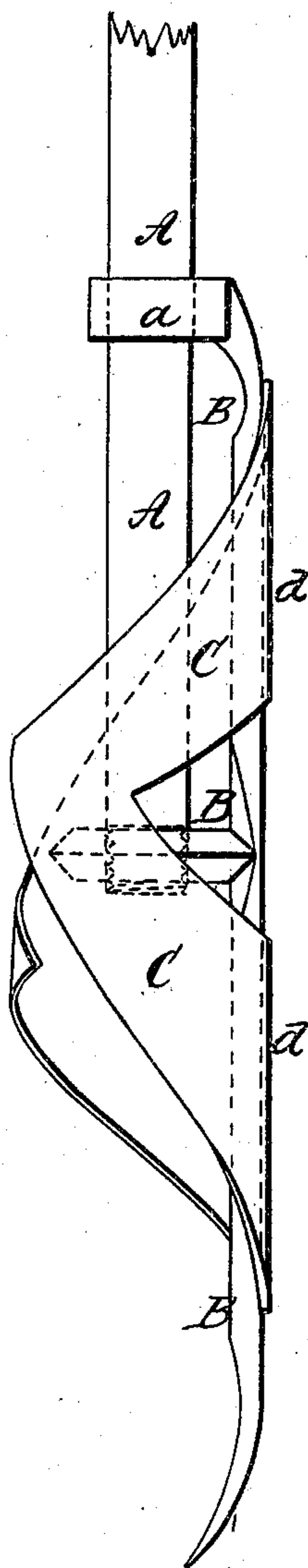
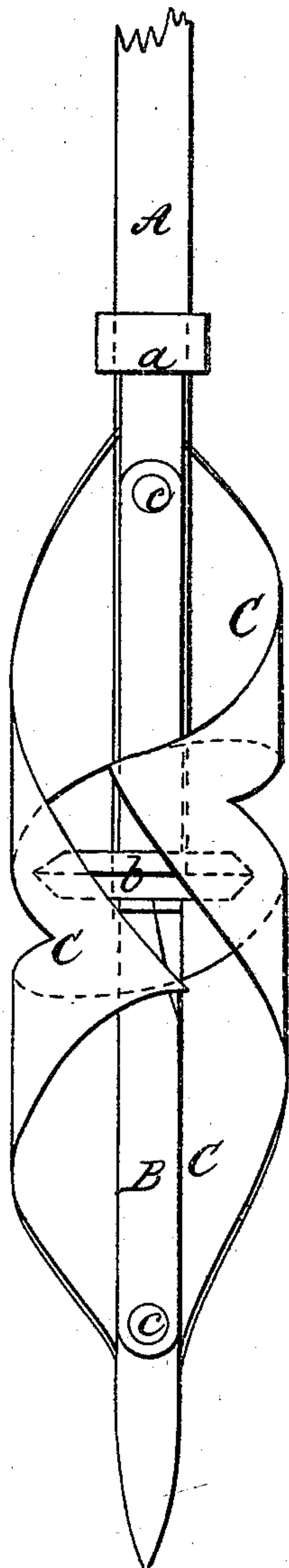


M. & C. H. Morse,

Boiler Scraper.

No. 88405.

Patented Mar 30. 1869.



*Witnesses,
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United States Patent Office.

MONROE MORSE AND CHARLES H. MORSE, OF FRANKLIN, MASSACHUSETTS.

Letters Patent No. 88,405, dated March 30, 1869.

IMPROVEMENT IN BOILER-FLUE CLEANERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, MONROE MORSE and CHARLES H. MORSE, of Franklin, in the county of Norfolk, and State of Massachusetts, have invented a new and improved Boiler-Scraper; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a front view of our improved boiler-scraper.

Figure 2 is a side view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new self-adjusting boiler-scraper, which is composed of a bent plate having straight sides, so that all its edges will form cutting-edges within the tube to be cleaned; thereby quicker operation is obtained with simpler apparatus than with the devices heretofore used.

A, in the drawing, represents the handle of our improved scraper.

The same is provided with shoulders *a* and *b*, to which a bar, B, is fastened, said bar supporting the scraping-plate C, which is fastened to it by means of rivets *c c*, or their equivalents.

The scraper-plate C is represented as a quadrangular plate, bent spirally, so that two points are in line with the bar B, while the other two are opposite the same, as shown. All the edges of the plate C, which are cutting-edges of the scraper, are thus brought into an oblique direction, so as to be most effective during operation. The plate may even be perforated, as shown,

so as to produce additional cutting-edges, which serve to hasten the cleaning-process. The plate being only fastened in the middle, and having its ends free to yield, will always adjust itself throughout its whole length to any size of tube.

The elastic scrapers heretofore used were so arranged that their middle portions could be expanded or contracted while their ends were entirely inoperative.

By our invention, the whole length of the instrument is utilized, whatever may be the size of tube in which it is to be used. By bending a narrow steel plate into a coil, which has straight sides, so as to be like a cylinder with spiral slots, the same result will be obtained. The cutting-edges may be made to project from the outer face of the plate, so as to reduce the friction, by having those parts which do not actually clean the tube, out of contact with the same. The plate C may be made of several pieces, if desired.

Having thus described our invention,

We claim as new, and desire to secure by Letters Patent—

1. The elastic perforated boiler-scraper plate C, which is bent into a cylindrical form, so that its edges are spiral, as set forth, to form cutting-edges of the scraper, substantially as specified.

2. The construction of the cylindrical or spiral boiler-scraper C, with the perforation *d*, whereby to obtain additional cutting-edges, as set forth.

MONROE MORSE.
CHARLES H. MORSE.

Witnesses:

HENRY E. POND,
THADDEUS M. TURNER.