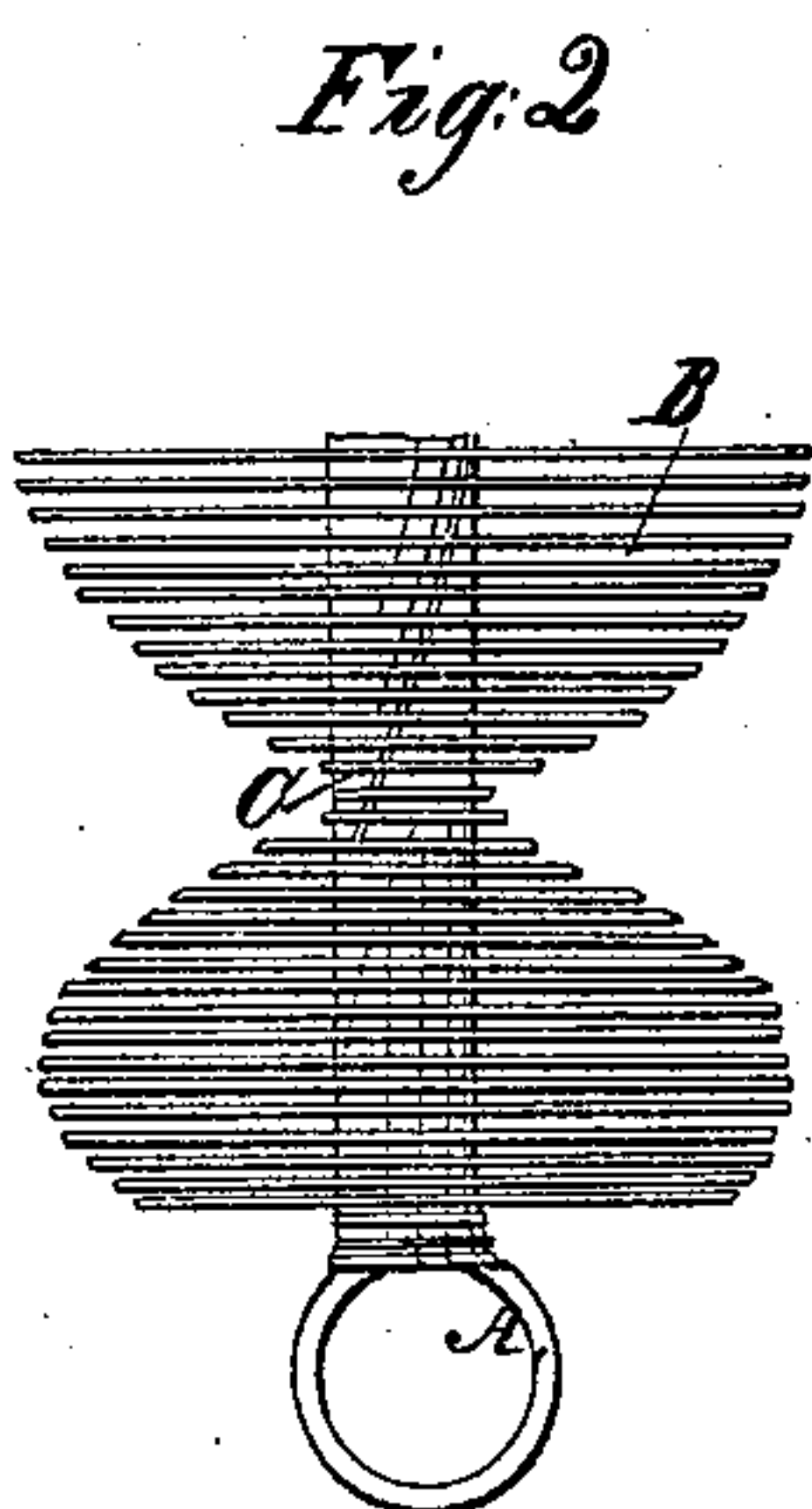
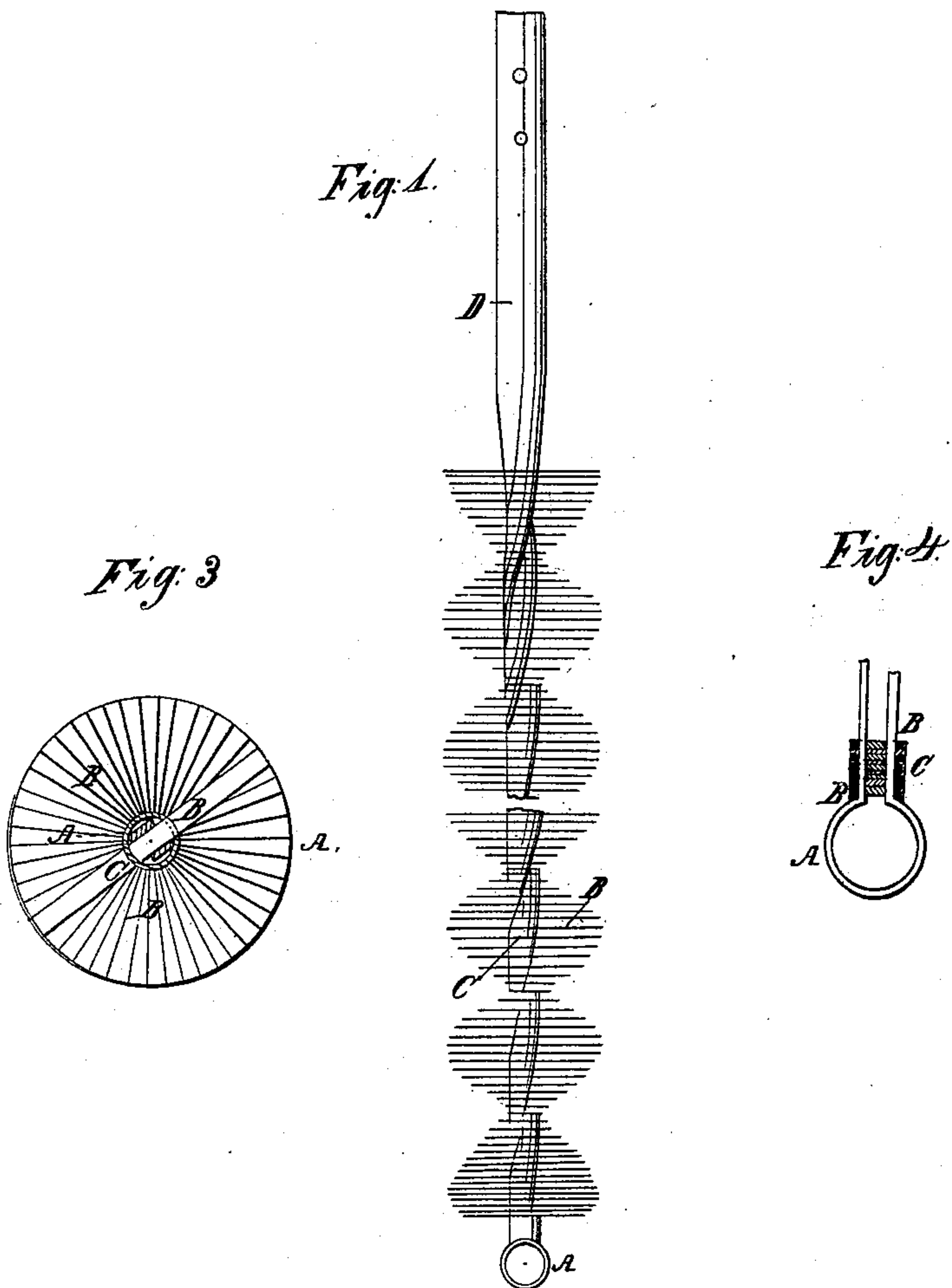


*Leonard & Lauster,*

*Steam-Boiler Cleaner.*

*N<sup>o</sup> 42,092.*

*Patented Mar. 29, 1864.*



*Witnesses:*  
*J. W. Crookes*  
*Geo. W. Reed*

*Inventor:*  
*G. Leonard*  
*W. Lauster*  
*For Munn & Co*  
*Attorneys*

# UNITED STATES PATENT OFFICE.

GEORGE P. LEONARD AND WILLIAM LAUSTER, OF FALL RIVER, MASS.

## IMPROVED BRUSH FOR CLEANING BOILER-FLUES.

Specification forming part of Letters Patent No. 42,092, dated March 29, 1864.

*To all whom it may concern:*

Be it known that we, G. P. LEONARD and W. LAUSTER, both of Fall River, in the county of Bristol and State of Massachusetts, have invented a new and Improved Brush for Cleaning Boiler-Flues, &c.; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side elevation of our invention. Fig. 2 is a similar elevation on a larger scale than the previous figure. Fig. 3 is a transverse section of the same. Fig. 4 is a longitudinal section of a portion of the same.

Similar letters of reference in the several figures indicate corresponding parts.

To enable others skilled in the art to make and use our invention, I will proceed to describe it.

A represents the stem of our brush, which is made of a piece of flat iron wire or other suitable material doubled up with a loop at its end, as clearly shown in Fig. 4. Between the two handles of this stem the bristles B are secured, and these bristles are made of flat wire, either brass or iron, or narrow strips of sheet metal in preference to round wire, because by using flat wire or strips of sheet metal a brush is obtained of superior elasticity and not liable to hurt the boiler-tubes.

The bristles B are successively passed through between the two branches of the

stem A, and each bristle is secured in its place by a round iron or brass wire, C', wound round the stem and through between the adjoining bristles, as clearly shown in Fig. 2 of the drawings. By this wire the bristles are held at certain intervals, and as the work progresses the stem assumes the shape of a hollow tube, to the end of which the handle D can be conveniently secured.

After all the bristles have thus been fastened between the two branches of the stem A, the whole is secured together by soldering or other suitable means, and twisted to give to the brush the shape of a screw, as clearly shown in Figs. 1 and 2.

By these means a brush can be produced which will not injure the boiler-tubes, the bristles being made of flat wire, so that they will readily give, and preserve their elasticity, and the whole brush is fastened together so that it can be used up to the very stem. Each bristle is firmly held between the stem A and binding-wire C, and by soldering the whole together the bristles are prevented from shifting and losing their hold in the stem.

What we claim as new, and desire to secure by Letters Patent, is—

A brush for cleaning boiler-flues, made as herein shown and described, as a new article of manufacture.

GEORGE P. LEONARD.  
WILLIAM LAUSTER.

Witnesses:

FELIX MCKENNEY,  
BENJAMIN F. WINSLOW.