

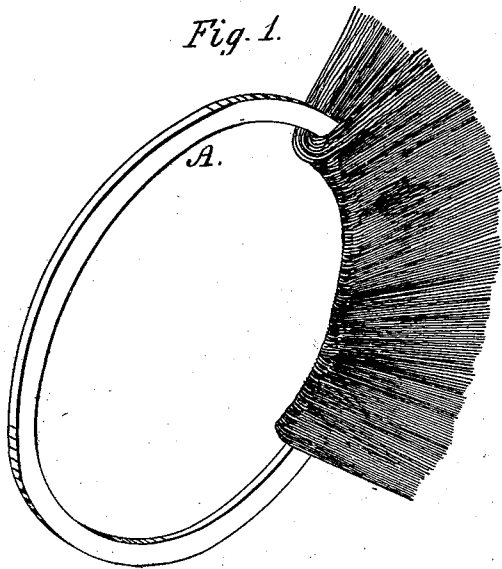
*J. D. Kunkel.*

*Steam Cleaner.*

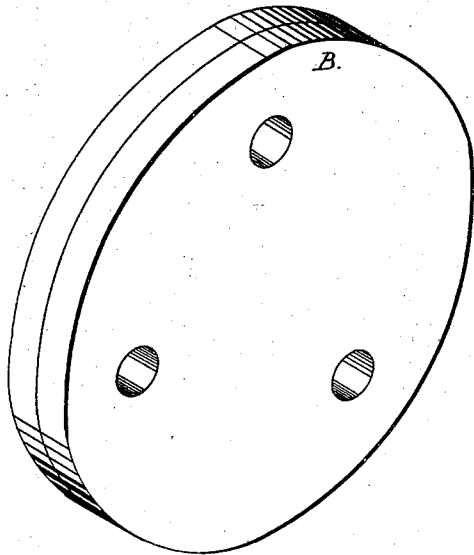
*N<sup>o</sup> 93,723.*

*Patented Aug. 17, 1869.*

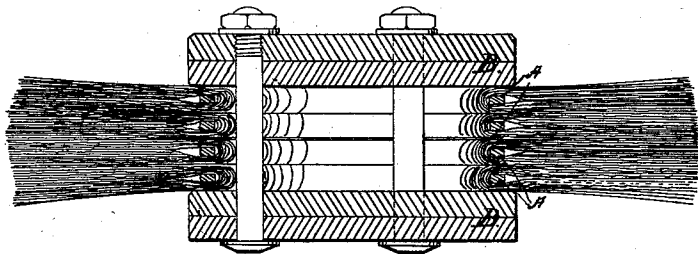
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses,  
E. C. Wood  
Frank P. Dyer*

*Inventor,  
Jno. D. Kunkel*

# United States Patent Office.

JOHN D. KUNKEL, OF CINCINNATI, OHIO, ASSIGNOR TO HIMSELF, FREDERICK STOCKHONNE, AND C. F. HORNBERGER.

Letters Patent No. 93,723, dated August 17, 1869.

## IMPROVEMENT IN FLUE-BRUSHES.

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

### To all whom it may concern:

Be it known that I, JOHN D. KUNKEL, of Cincinnati, county of Hamilton, State of Ohio, have invented a certain new and useful Improvement in the Construction of Brushes for Cleaning Flues: and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof, to enable one skilled in the art to which my invention appertains, to make and use it, reference being had to the accompanying drawings, making part of this specification.

My invention consists of certain devices by which the bristles, or suitable jute material, of the brush are folded and arranged in complete, unbroken, circular layers, and properly secured.

In the accompanying drawing—

Figure 1 is a perspective view, exhibiting the device on which the circular layer of bristles is formed.

Figure 2 is a view of one of the heads or plates used for connecting the layers together.

Figure 3 is an axial section of a brush, composed of four layers of folded bristles, or suitable jute material, properly secured together.

The bristles, or suitable jute material, are folded upon rings A of metal wire, any number of which may be used in the formation of the brush, one ring to each folded layer.

B B' are wooden heads, between which the layers of bristles, or suitable jute material, are secured.

Each head is composed of two pieces secured to-

gether, the grain of one being at right angles to the other, to prevent splitting.

The heads B B' are secured together by means of bolts, C, which are arranged in a circle, to fit closely the interior circle of the folded bristles, or suitable jute material.

It will be seen that when the bristles, or suitable jute material, are folded and arranged on the rings A, each layer is a complete circle of equal thickness.

I am aware that other devices have been used, in which the bristles, or suitable jute material, are arranged in radial tufts, folded through apertures in plates or boards, but it is impossible, with this manner of construction, to make a brush of equal thickness throughout the circle.

This device can be applied to all other kinds of brushes, the rings A being varied in shape to suit any convenient form of brush.

I claim herein as new, and of my invention—

The construction and combination of rings A, heads B B', bolts C, and manilla grass or jute, as shown and described.

In testimony of which invention, I hereunto set my hand.

JNO. D. KUNKEL.

Witnesses:

E. E. WOOD,  
B. S. GOODWIN.