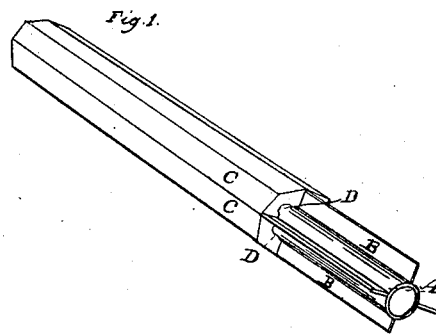


J. W. COCHRAN.
Rocket.

2 Sheets—Sheet 1.

No. 1,581.

Patented April 30, 1840.

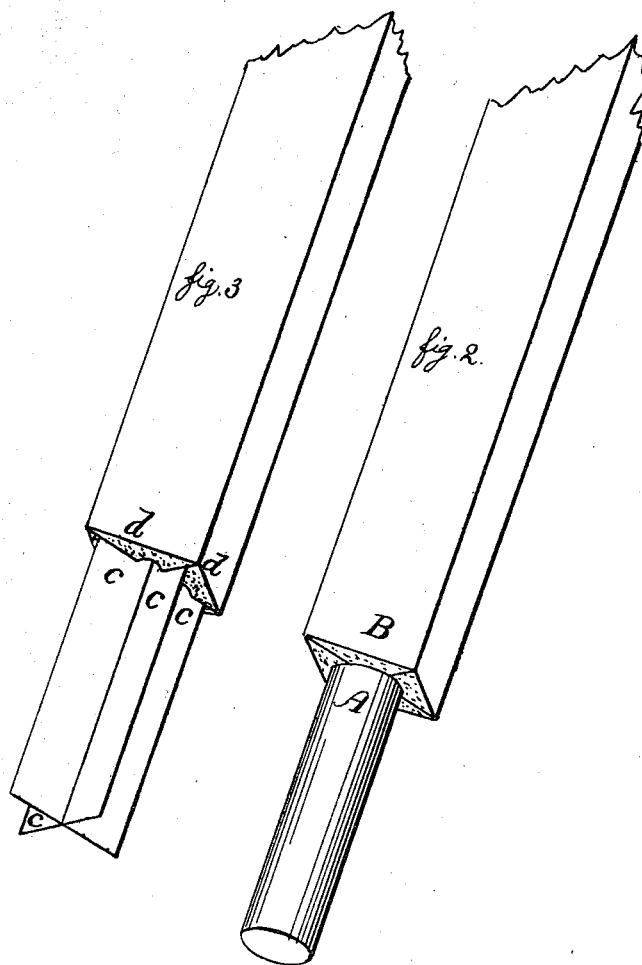


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Patented April 30, 1840.



UNITED STATES PATENT OFFICE.

JOHN W. COCHRAN, OF NEW YORK, N. Y.

IMPROVEMENT IN MODES OF STIFFENING ROCKET-STAFFS.

Specification forming part of Letters Patent No. 1,581, dated April 30, 1840.

To all whom it may concern:

Be it known that I, JOHN W. COCHRAN, of the city, county, and State of New York, have invented a new and useful Improvement in Making Rocket-Staffs, which is described as follows, reference being had to the annexed drawings, making part of this specification.

In the present mode of making the rocket-staff it is liable to bend or spring, and thereby become useless for the purpose for which it is designed—namely, for directing the rocket—for unless the staff be straight the rocket cannot be thrown with precision.

Figure 1 represents a perspective view of the staff and flanged cylinder.

A is the cylinder; B, the flanges on the periphery of the cylinder; C, segment-pieces of wood; D, the grooves in the same.

To remove this evil I make the rocket-staff with a light flanged metallic cylinder in the center extending throughout its whole length, the wood part of the staff being made in segments and placed between the flanges, the side toward the cylinder being grooved in semicircular arches from end to end for the purpose of rendering the staffs lighter, the segments of the staff forming a series of arches, the edges of which rest against the outside of the cylinder or cylindrical tube, or flanges in the center preventing the possibility of its bending in any direction.

Instead of the flanged cylinder, I sometimes use a cylindrical tube without the flanges, as represented in the accompanying drawings,

Fig. 2, A being the cylinder, and B the wood, the wood segments being attached to the outside by means of cement, rivets, or bands, in any of the well known modes.

Either of the above modes may be dispensed with and metallic flanges or wings without the cylindrical tube may be substituted, as represented in the accompanying drawings by Fig. 3, in which *c c c c* are the flanges, and *d d d d* the segment of wood attached to the flanges by means of cement, rivets, or bands, as above explained. In this case, for the purpose of rendering the staff light, the wood segments are grooved out, as in the first example.

The staff might be made in various other ways, as by a tube covering the outside, or convex pieces not meeting in the center; or the staff might be made of some of the above forms without wood, which I should consider the same in effect, though perhaps not so good.

What I claim as my invention, and desire to secure by Letters Patent, is—

The method herein described of stiffening rocket-staffs by means of metallic stiffeners in the form of cylindrical metallic tubes, or with a cylindrical metallic tube having flanges, or with the metallic flanges above, as herein described, or in any other way that shall be substantially the same.

JOHN W. COCHRAN.

Witnesses:

WM. H. RICE,
M. T. RICE.