

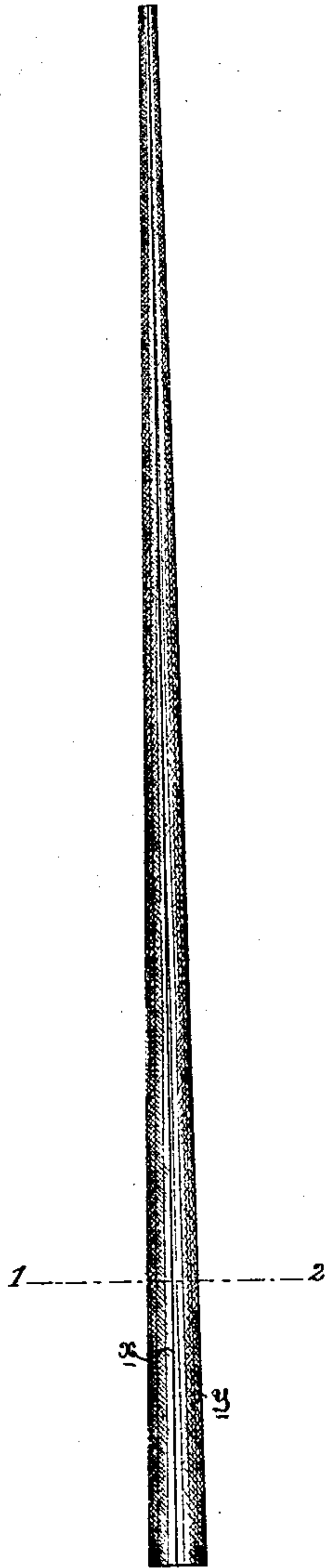
L. HULL.

Whip.

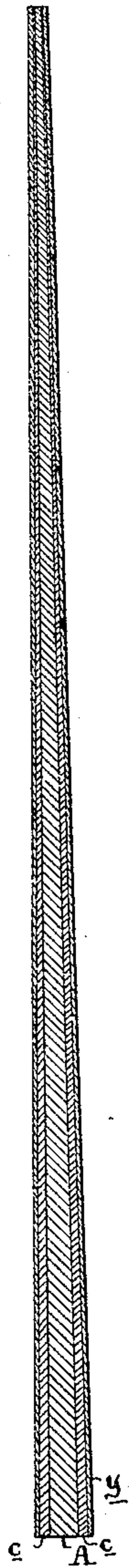
No. 103,467.

Patented May 24, 1870.

*Fig. 1.*



*Fig. 2.*



*Fig. 4.*



*Fig. 3.*

Section at 1.2.



Witnesses.

*John de Love*  
*Albert H. Morris*

*L. Hull*  
Inventor.

*By his atty's*  
*Howson & Son.*

# United States Patent Office.

LIVERUS HULL, OF CHARLESTOWN, ASSIGNOR TO THE AMERICAN WHIP COMPANY,  
OF WESTFIELD, MASSACHUSETTS.

Letters Patent No. 103,467, dated May 24, 1870.

## IMPROVEMENT IN WHIPS.

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, LIVERUS HULL, of Charlestown, Middlesex county, Massachusetts, have invented an Improvement in Whips, of which the following is a specification.

### Nature and Object of the Invention.

My invention relates to that class of whips in which strips of rattan inclose and are glued to a central core of whalebone or other elastic material, as shown in Letters Patent granted to me on the 8th day of January, 1867; and

My improvement consists in the combination, with a stock made in this manner, of a covering of water-proof cloth, which is applied as described hereafter, and effectually prevents the access of moisture to the stock and the separation of the parts.

### Description of the Accompanying Drawing.

Figure 1 is an exterior view of sufficient of my improved whip to illustrate the invention;

Figure 2, a longitudinal section;

Figure 3, a transverse section on the line 1 2, fig. 1, drawn to an enlarged scale; and

Figure 4, a modification.

### General Description.

A is the inner core of the whip, which is of whalebone or other suitable material, and

c c c c are strips of rattan, which taper toward their outer ends, and inclose the core to which they are glued, as described in my aforesaid patent.

The rattan strips and the projecting end of the core are inclosed by a covering of cloth impregnated or combined with rubber or other substance, which will render the cloth water-proof without becoming hard and impairing the flexibility of the cloth or whip, or cracking and affording crevices for the passage of moisture.

The cloth is applied in the form of a strip, y, of the length of the stock, the edges overlapping and being cemented together, as shown in figs. 1 and 3, so as to form a longitudinal seam, z, which does not interfere with the uniform taper of the whip, and presents no protuberances, which would not only be unsightly, but would also cause the outer covering to wear quickly away at the projecting points.

When cloth impregnated with rubber is used,

the rubber, owing to its adhesiveness, will effectually cement together the overlapping edges of the cloth, and will also insure the adhesion of the cloth to the stock, the use of the ordinary cements, which are apt to become hard and crack, being thus avoided.

It is desirable to employ glue in securing together the different parts of the whip-stock, as it will bind the parts firmly together without becoming so hard as to crack or impair the flexibility of the whip, but, as the glue will soften or dissolve when exposed to moisture, such whips as ordinarily made are not durable. Coverings or wrappers of thin rubber have been employed for preventing the access of moisture to the stock, but are very apt to wear away and add nothing to the strength of the whip. Cement of such a character as not to be affected by moisture has also been employed, as in my application of September 20, 1858; but, being stiff and hard, impairs the flexibility of the whip, and will crack and crumble away, so that the parts of the stock become detached from each other. A fabric impregnated with a flexible water-proof material is liable to none of these objections. It will effectually exclude the moisture, so that parts of the stock can be glued together; does not become stiff or hard, so that the whip retains its flexibility, is not easily worn or impaired by abrasion, and, moreover, binds the parts of the stock firmly together, greatly strengthening the whip.

Although the wrapper may be applied spirally, as shown in fig. 3, it is preferable to secure so as to form a straight seam, z, which imparts a more finished appearance to the whip, and renders the same more durable, as above described.

### Claims.

1. The stock, consisting of a core, A, and strips a a, glued to the core, in combination with a covering, y, of cloth, impregnated with flexible water-proof material, all as described.

2. The said covering y applied so as to form a straight seam, z, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LIVERUS HULL.

Witnesses:

CHARLES E. FOSTER,  
CHARLES WALTER.