L. Hull,

Whip.

No. 102,007. Patented Apr. 19. 1870.

Fig. 1.

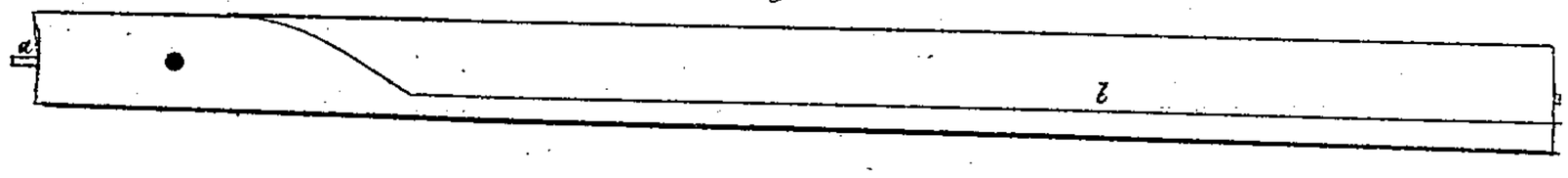

Fig. 2.

Fig. 3.

Witnesses.

L. N. Piper.

J. Rebrow.

Inventor.

Livernus Hull.

by his attorney.

R. H. Eddy

United States Patent Office.

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

Letters Patent No. 102,007, *dated April* 19, 1870.

IMPROVEMENT IN WHIPS.

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

To all persons to whom these presents may come:

Be it known that I, LIVERUS HULL, of Charlestown, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in the Manufacture of Whips; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a side view;

Figure 2, a longitudinal section; and

Figure 3, a transverse section of a whip-body or stock, as made in accordance with my invention.

The heart piece *a* of the said stock is to be, from the smaller to or near to the larger end of the stock or in any part of the stock, a metallic wire, which, in order to have it of a desirable strength and elasticity, may be of steel.

There is wrapped around this heart piece, to compose the rest or part *b* of the stock, cloth covered with India rubber or a suitable cement, the said cloth being coiled around the heart piece and on itself to the necessary extent to form or complete the tapering body of the whip-stock, the India rubber or the cement causing each layer of the cloth to adhere to that on which it may be wound.

The cloth may be covered with an India-rubber or gutta-percha composition capable of being vulcanized, and, after the whip-stock may have been so formed of the wire, the cloth, and the vulcanizable composition, the latter may be subjected to heat so as to vulcanize it, as is well known.

Instead of the cloth, paper or a felted fabric may be substituted; but it is far preferable to employ India-rubber cloth, as, when completed, the whip-stock has all the necessary elasticity, with a degree of softness which is not well attainable when any other material than caoutchouc is employed with the cloth.

I make no claim to the invention of a whip as described in the United States Patent No. 92,372; nor do I claim the mode of making a whip as described in the British Patent No. 2,371, for 1866, granted to John Keyston, the process of the said Keyston consisting in part in winding layers of "ebonite" about a metallic wire.

I make no use of "ebonite," which, when subjected to heat, as described in such patent, becomes hard like ebony, and will not make a soft and yielding whip such as the common India-rubber or gutta-percha-covered cloth will when vulcanized. Besides, I use cloth or paper covered with the India-rubber adhesive composition capable of being vulcanized.

I therefore claim, as a new manufacture, a whip-stock, formed of cloth or paper and vulcanized India-rubber or gutta-percha composition and a heart piece of metallic wire, arranged together as set forth.

Witnesses: LIVERUS HULL.

R. H. EDDY,

J. R. SNOW.