(No Model.)

L. F. LIOTARD.

REED FOR LOOMS.

No. 491,575. Patented Feb. 14, 1893.

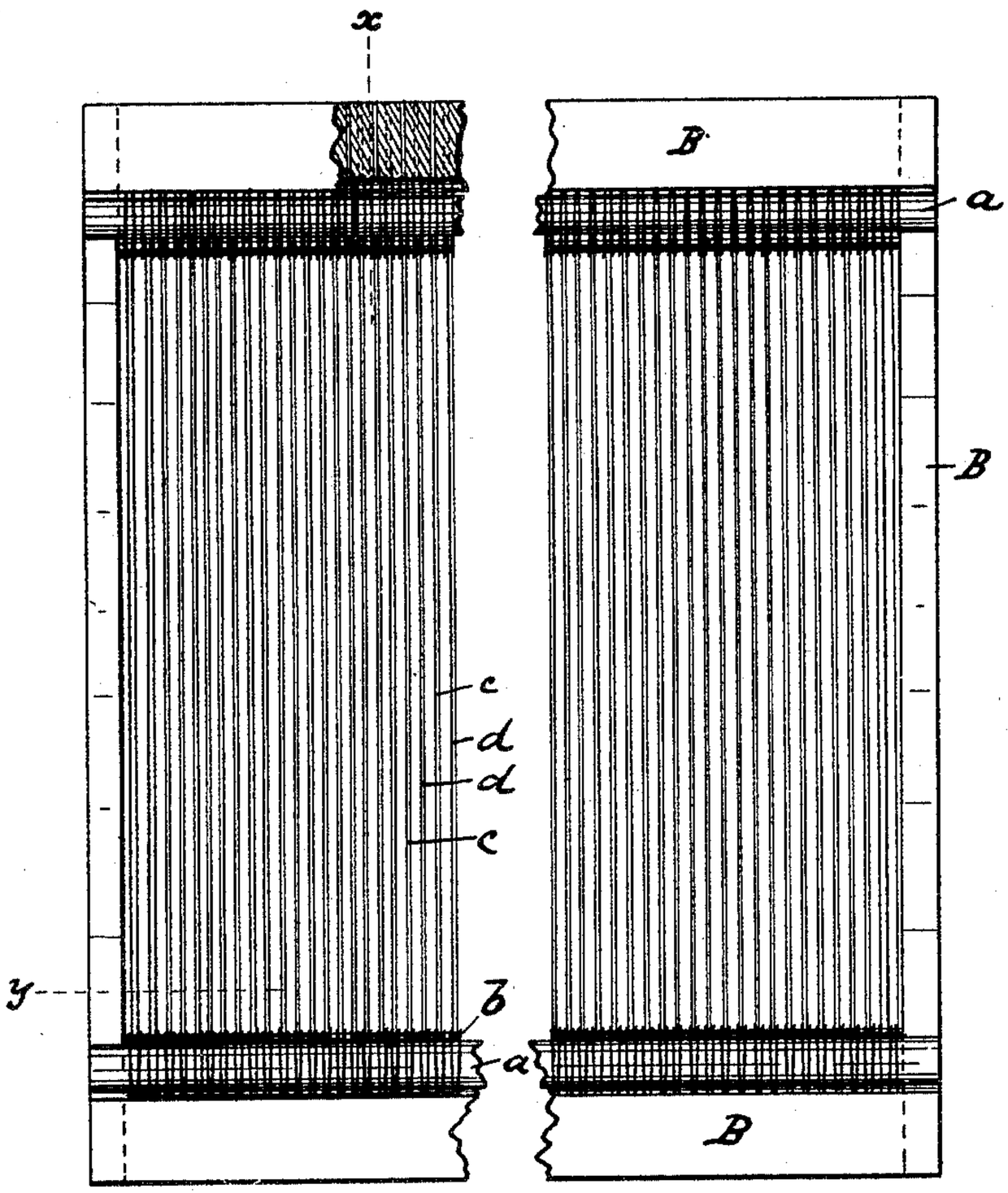

Fig. 1.

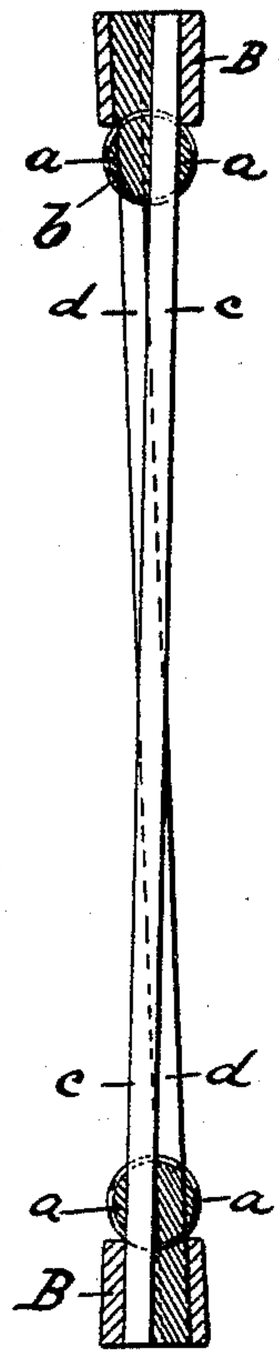

Fig. 2.

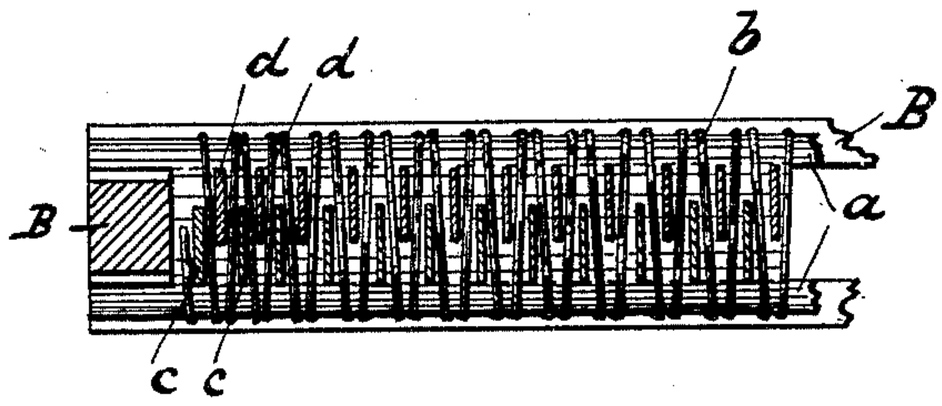

Fig. 3.

WITNESSES:

Wm. D. Bell.

D. Robertson.

INVENTOR:

Louis F. Liotard

BY Gaitner & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

LOUIS F. LIOTARD, OF PATERSON, NEW JERSEY.

REED FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 491,575, dated February 14, 1893.

Application filed September 22, 1892. Serial No. 446,534. (No model.)

To all whom it may concern:

Be it known that I, LOUIS F. LIOTARD, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Reeds for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide a reed, simple and durable in construction and great in efficiency.

The invention consists in the improved arrangement of the teeth of a reed, the method of attaching them to the reed frame and the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures: Figure 1. is a front elevation of my improved reed; Fig. 2. is a sectional view on line *x* Fig. 1, and Fig. 3. is an enlarged sectional view on line *y* Fig. 1.

In said drawings B, B, represent the frame of the reed, to which are secured semi-cylindrical cross bars *a*, *a*, around which is wound a wire *b*, forming a continuous spiral coil, as clearly shown in Fig. 3. of the drawings.

Between the bars *a*, *a*, and resting between the coils formed by the wire are arranged two sets of teeth *c*, *d*, in such a manner, that, one set runs from the front of the upper frame to the rear of the lower one, the other set, from the rear of the upper frame to the front of the lower one. By this arrangement the teeth will alternate in their direction and thereby cross each other at or near the center of the reed, as clearly shown in Fig. 2. It will be understood that the semi-cylindrical cross-bars *a a* are fixed in their relative positions by the coil *b*, that is, they are held so that they face each other and yet are separated sufficiently to permit the teeth to be inserted directly in the frame. The space between the wire coils, the crossbars and the upper and lower portion of the frame is filled up with solder as in ordinary reeds.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is

The combination in a reed in which the teeth are arranged in series which alternately cross each other, of the upper and lower frame pieces, B, in which the ends of the teeth are firmly secured, with two sets of cross-bars, *a*, *a*, semi-cylindrical in cross-section, each set of bars being arranged adjacent to the frame pieces respectively above the lower and below the upper frame piece, and placed with their flat surfaces on either side of the teeth, and with a wire, *b*, coiled in a double spiral, uniting the sets of cross-bars the coils of said wire forming a guide or space for the teeth of the reed, all arranged so that the teeth pass through the coils of the wire, *b*, between the cross-bars, *a*, *a*, and enter the frame pieces B, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of June, 1892.

LOUIS F. LIOTARD.

Witnesses:
ALFRED GARTNER,
WM. D. BELL.