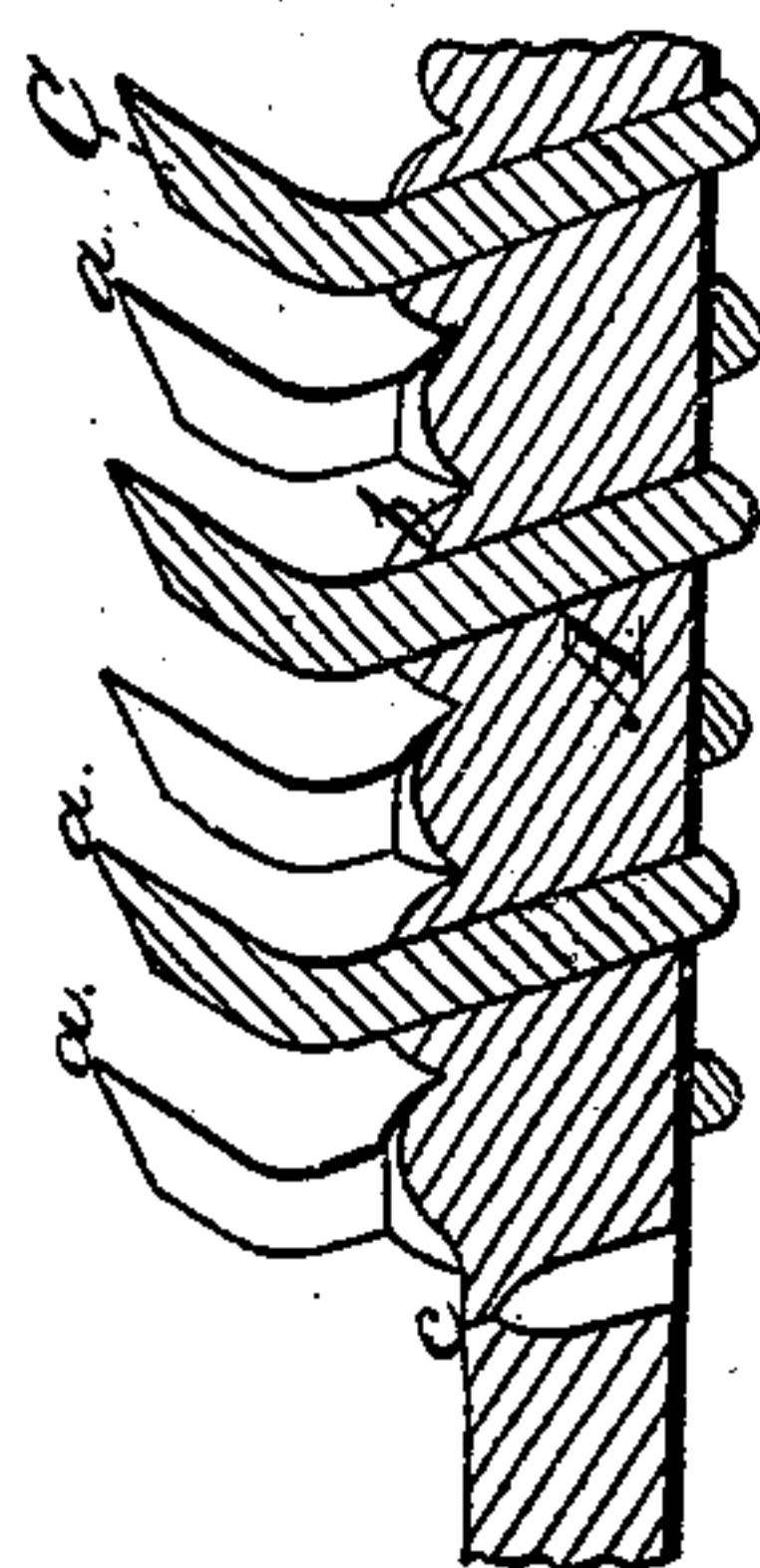
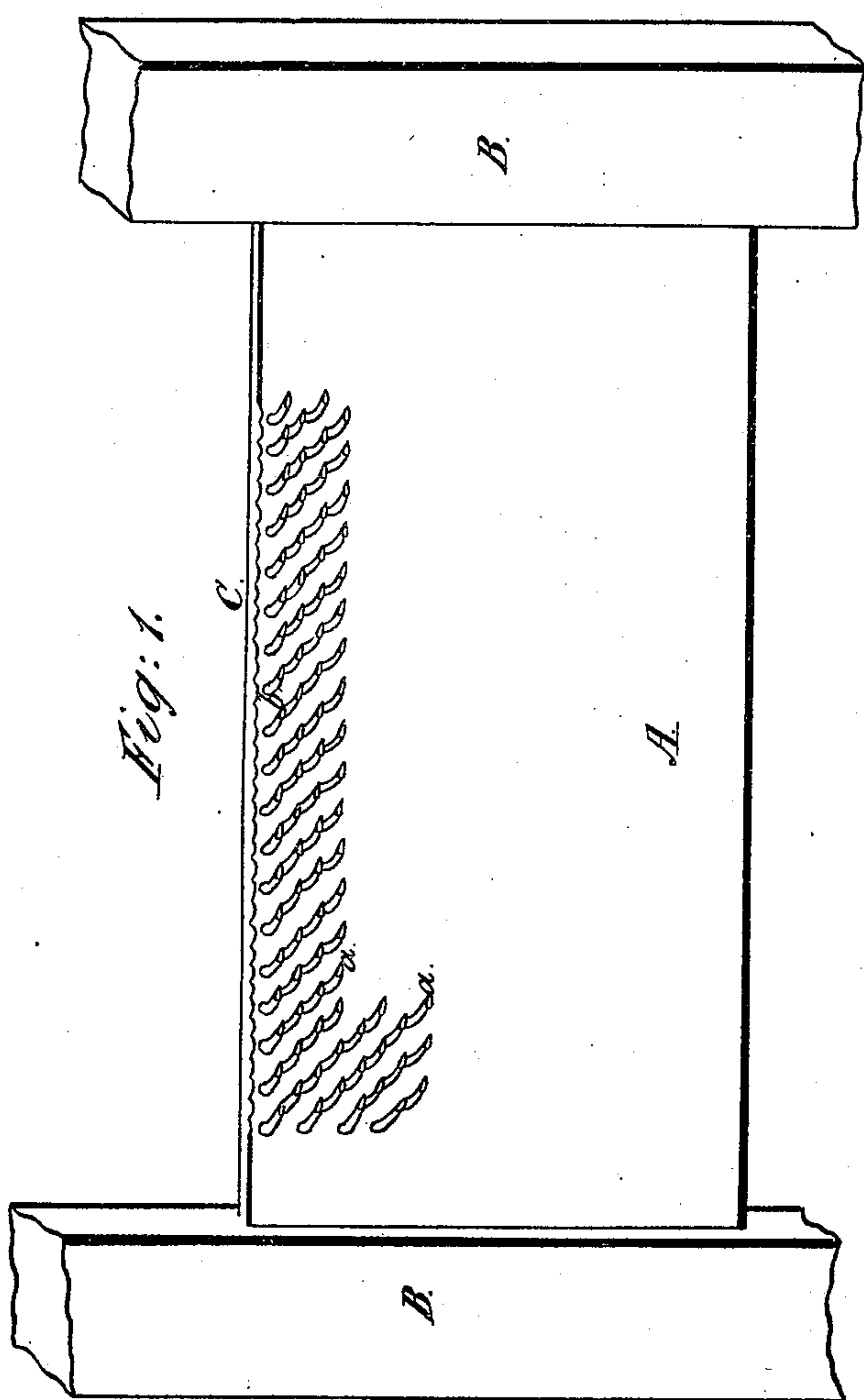


E. S. Lawrence.

Card Clothing.

N^o 83,179.

Patented Oct. 20, 1868.



Witnesses.

Thos. H. Dodge.
Geo. H. Miller

Inventor.
Edwin S. Lawrence.

United States Patent Office.

EDWIN S. LAWRENCE, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 83,179, dated October 20, 1868.

IMPROVEMENT IN MANUFACTURE OF CARD-CLOTHING.

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

Know all men by these presents:

That I, EDWIN S. LAWRENCE, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Card-Clothing; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a perspective view of so much of a piece of card-clothing and holding-plates as is necessary to illustrate my present improvements, and

Figure 2 represents, upon an enlarged scale, a section of a piece of card-clothing, showing the relative positions of the back and teeth when the latter are set in thick-paper backs, as will be hereafter explained.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists—

First, in setting the card-teeth in paper backs, while the latter are saturated or in a moistened state, as hereafter explained;

Second, in setting the teeth in moistened-paper backs, in which the holes are not punched entirely through the backs by the puncturing-instrument, previous to the entering of the points of the teeth, as hereafter explained; and

Third, in subjecting the sides of the strips of card-clothing to pressure during the process of drying, for the purposes hereafter stated.

In the drawings, fig. 1 represents a piece of a paper back; A, which is composed of a series of layers or thicknesses of paper pressed closely together, and which is usually made in long pieces rolled up.

These pieces I cut up into the desired lengths, which depends upon the particular use to which they are to be applied.

After cutting up the pieces, they are placed in water for some six hours, after which they are removed and covered up with a cloth or other proper covering, and allowed to remain from eight to twelve hours, to "even up," that is, to allow time for the moisture to penetrate through the entire back.

The pieces are now taken and the teeth set while the paper backs are in a moistened state, when the strips are taken and placed between guide or supporting-pieces, B B, which are to be forced against the sides of the strips A, for the purpose of preventing the strips from contracting or drawing out of line or shape as they dry, or the moisture is evaporated therefrom.

The guide-pieces are to be forced up against the sides of the strips as they dry, which operation may be performed by mechanism arranged to operate automatically, if preferred.

In the operation of setting the card-teeth, the paper back is not pierced entirely through, prior to the entering of the pointed ends *a a* of the teeth, consequently

when the teeth are forced through the back, in completing the puncture, a portion, *b*, of the moistened fibre is elevated or forced out with the teeth, as shown in the drawings, especially in fig. 2, which is made upon an enlarged scale, to illustrate more fully this feature.

As the backs dry, the extended or elevated parts *b* of the fibre dry and contract about the base of the teeth, and thus form supporting-gums, as it were, which add very much to the firmness of the teeth, as will be apparent to those skilled in the art, or to those not skilled in the art, by reference to fig. 2 of the drawings.

The thick-paper back, when dry, is far superior to leather or wood for holding the teeth.

It is not affected by heat, as leather is, when the clothing is used for tenting cloth in drying-machines.

Its superiority is also shown when the clothing is used in the construction of cards or machines for working flax, wool, woollen rags, and other fibrous material. The teeth do not work loose, nor are they so liable to spring or twist out of place.

A paper back can be made for light work, in which the teeth can be set when the back is dry, but it is impossible to set the teeth in thick-paper backs, without first wetting or moistening the material, as before explained.

In some cases, where wooden backs are used, the latter are necessarily made in curved form, to fit the cylinder upon which they are to be fastened, whereas, when thick-paper backs are used, they can be bent with ease to fit any-sized or shaped cylinder or working-surface.

In fig. 2, one of the holes, as made in the paper-back before the teeth are set, is shown at *c*, upon an enlarged scale.

Having described my improved clothing for carding and other machines,

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

1. Card-clothing, made or composed of a series of teeth set in paper backs, A, in a moistened state, and then dried, substantially as and for the purposes set forth.

2. Card-clothing, made or composed of a series of teeth set in wet or moistened-paper backs, and then the sides of the backs subjected to pressure while the drying-operation is completed, substantially as and for the purposes set forth.

3. Card-clothing, made or composed of a series of teeth, C, set in moistened or wet-paper backs, in the manner above described, whereby the teeth are supported by elevations or gums, *b*, substantially as shown in the drawings.

EDWIN S. LAWRENCE.

Witnesses:

THOS. H. DODGE,
GEO. H. MILLER.