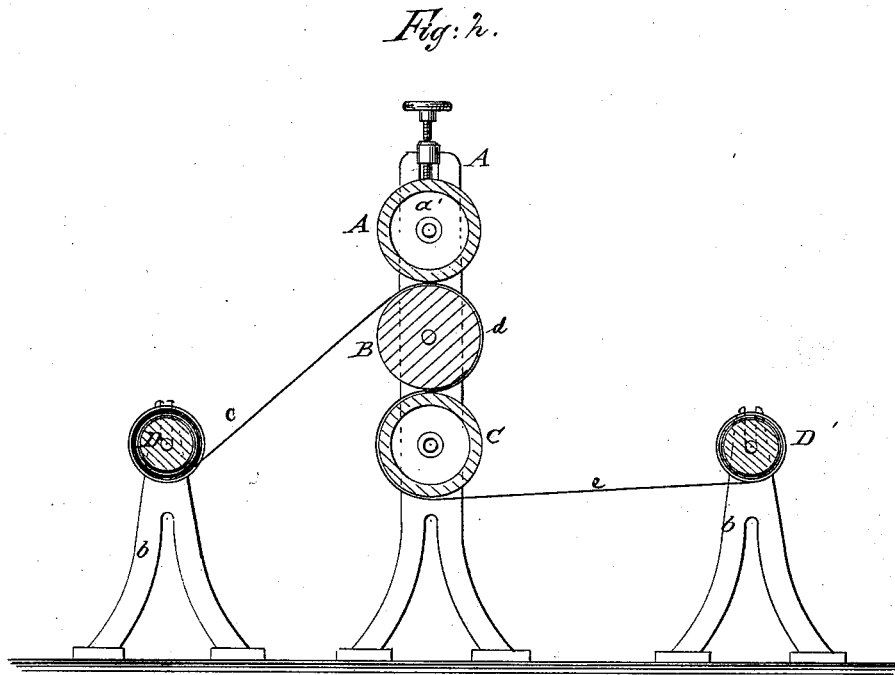
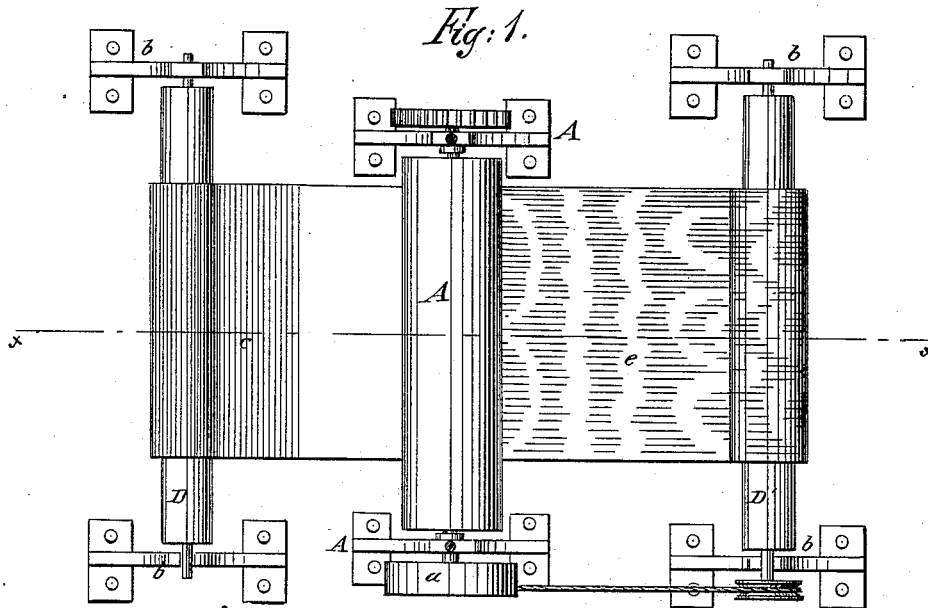


B. BIRNBAUM.
 Manufacture of Window-Shade Cloth.

No. 221,277.

Patented Nov. 4, 1879.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BONHEIM BIRNBAUM, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF WINDOW-SHADE CLOTH.

Specification forming part of Letters Patent No. **221,277**, dated November 4, 1879; application filed December 4, 1878.

To all whom it may concern:

Be it known that I, BONHEIM BIRNBAUM, of the city, county, and State of New York, have invented a new and useful Improvement in Window-Shade Cloth, of which the following is a specification.

This invention relates to a new process of manufacturing decorated window-shade cloth; and it has for its object to produce a cloth with a surface ornamented in imitation of moire antique, figured damask, watering, or any other design made by raising engraved lines on a lustrous surface.

My invention consists, essentially, in subjecting one surface of the sized and painted material to the action of a hot calendering-roll, to dry out the benzine or turpentine and oil in the paint and give it a polish; and, secondly, subjecting it to the action of an engraved roll to raise lines on the polished surface to form the figures of the design.

At present window-shade cloth is made by first sizing the cloth with glue, then painting the surface, and then ornamenting it by laying on the gilt, colors, &c. When thus finished the surface is dull, lusterless, and rough, the texture of the cloth is visible, the cloth is inflexible, and the paint is liable to crack, break, and fall off.

By means of the process which is the subject of this invention I propose to furnish a flexible decorated window-shade cloth, with a smooth highly-polished surface, ornamented in any design by engraved lines raised on the smooth polished surface.

The following is the process: The cloth, muslin, or other fabric is prepared in the usual manner by sizing it with a mixture of glue and water to give it compactness and a hard surface to receive the paint. When this is done it is painted with oil-paint, mixed in a particular manner, as follows: The color is ground in oil and benzine or spirits turpentine; then thinned with a large proportionate quantity of the benzine or spirits turpentine, say from two-thirds ($\frac{2}{3}$) to ten (10) times as much as there is oil used, according to the nature of the color. The object of mixing the paint in this manner is to enable it to withstand the heat of the hot calender-roll without mashing down and becoming destroyed.

After the two surfaces have been coated with the paint they are allowed to dry, when the cloth presents the same appearance on both sides, like that now in use.

The painted cloth is now run between a hot calender-roll and a cold roll, of any suitable material, preferably slightly elastic. The object of this step in the process is to dry out the benzine and oil, to drive the paint into the texture of the cloth through the sizing, so as to soften it and give it flexibility, and to polish the surface exposed to the hot calender, without which polished or lustrous surface it cannot be ornamented with the raised lines.

The rough-surfaced, inflexible, and lusterless cloth, after undergoing this, comes forth with one surface (that next the hot calender) perfectly smooth, having a high luster, and very flexible and soft to the touch.

The next step in the process is to pass the cloth between a plain and an engraved roll, the smooth lustrous surface being exposed to the engraved roll, which raises lines upon it in any design, the depressed lines of the roll transferring its designs in raised lines to the surface of the cloth, which display their design in relief on the smooth polished surface.

This process produces a very superior cloth for the purpose, in which the ornamentation by engraved lines may take any design that may be desired.

The machinery employed in carrying out the process may be arranged in many ways, the only essentials being a hot calender-roll and an engraved roll.

One form of machine is shown in the accompanying drawings, wherein Figure 1 is a plan, and Fig. 2 is a longitudinal section on line *xx* of Fig. 1.

In these figures, A represents the hot calender-roll. C is the engraved roll, and B is an intermediate roll, preferably of an elastic material, such as wood or paper.

The cloth is represented as going through these rolls. At *c* it is shown in its rough state after painting; at *d* after it has passed between the hot calender and roll B, and at *e* after it has passed between the engraved roll and roll B, the polished and engraved surfaces being exposed in these last two positions, and the short lines representing the raised engraved

lines of the ornamented cloth. This machine, however, forms no part of my invention.

I am aware that figured or watered window-shade cloth has been made by passing sized and painted cloth, after it has been smoothed and polished by rubbing it with pumice-stone, between a pair of rollers, one of which is engraved negatively or in sunken lines with the design intended to be imitated, so that the said design shall appear positively or in raised lines upon the surface of the cloth; but

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

The process herein described of manufac-

turing a decorated window-shade cloth—that is to say, subjecting one side or surface of the sized and painted cloth to the action of a hot calender-roll to give it smoothness and luster, and to drive the paint into the cloth to give it flexibility, and then subjecting the smooth and polished surface to the action of an engraved roll to transfer the engraved design thereon to the cloth in raised lines on its polished surface.

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Witnesses:

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