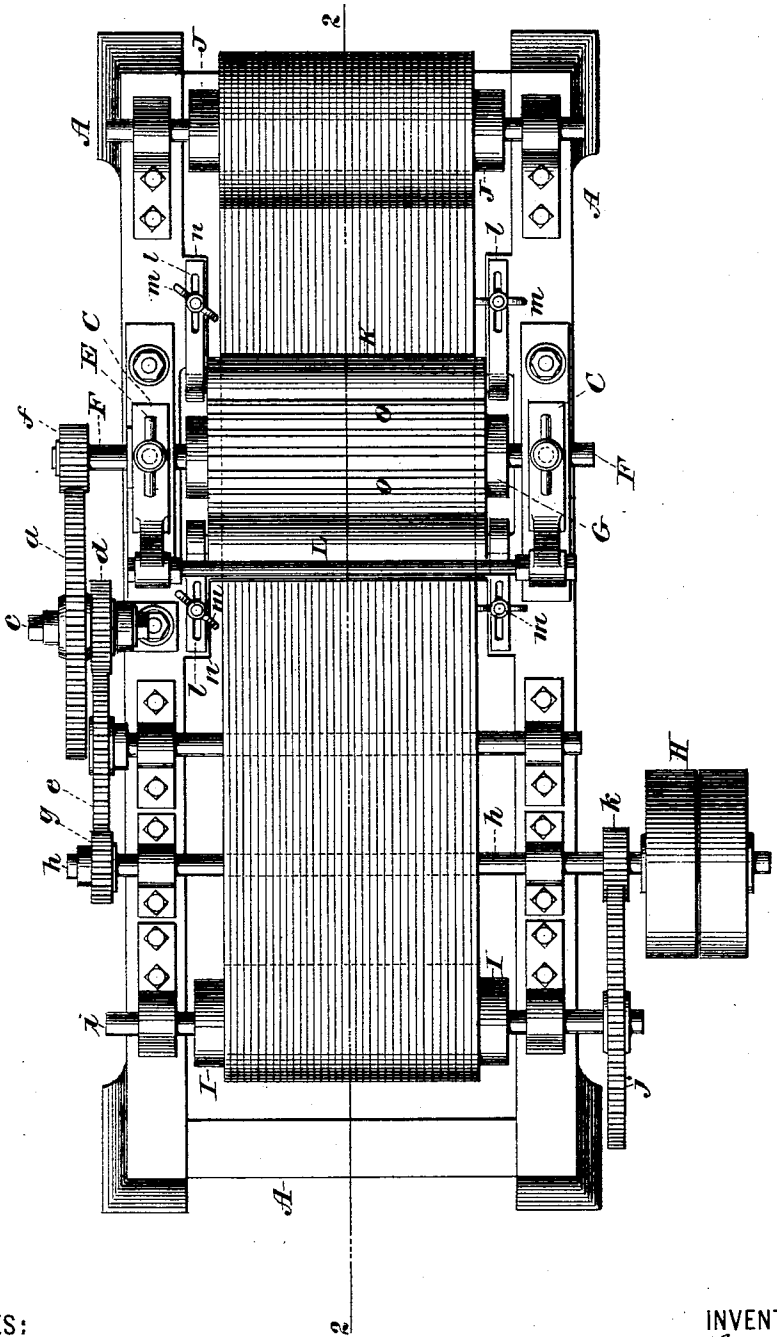
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J. LANCASTER & C. WITTECK.

METHOD OF ORNAMENTING OR DECORATING FABRICS.

No. 590,457. Patented Sept. 21, 1897.

Fig. 1.



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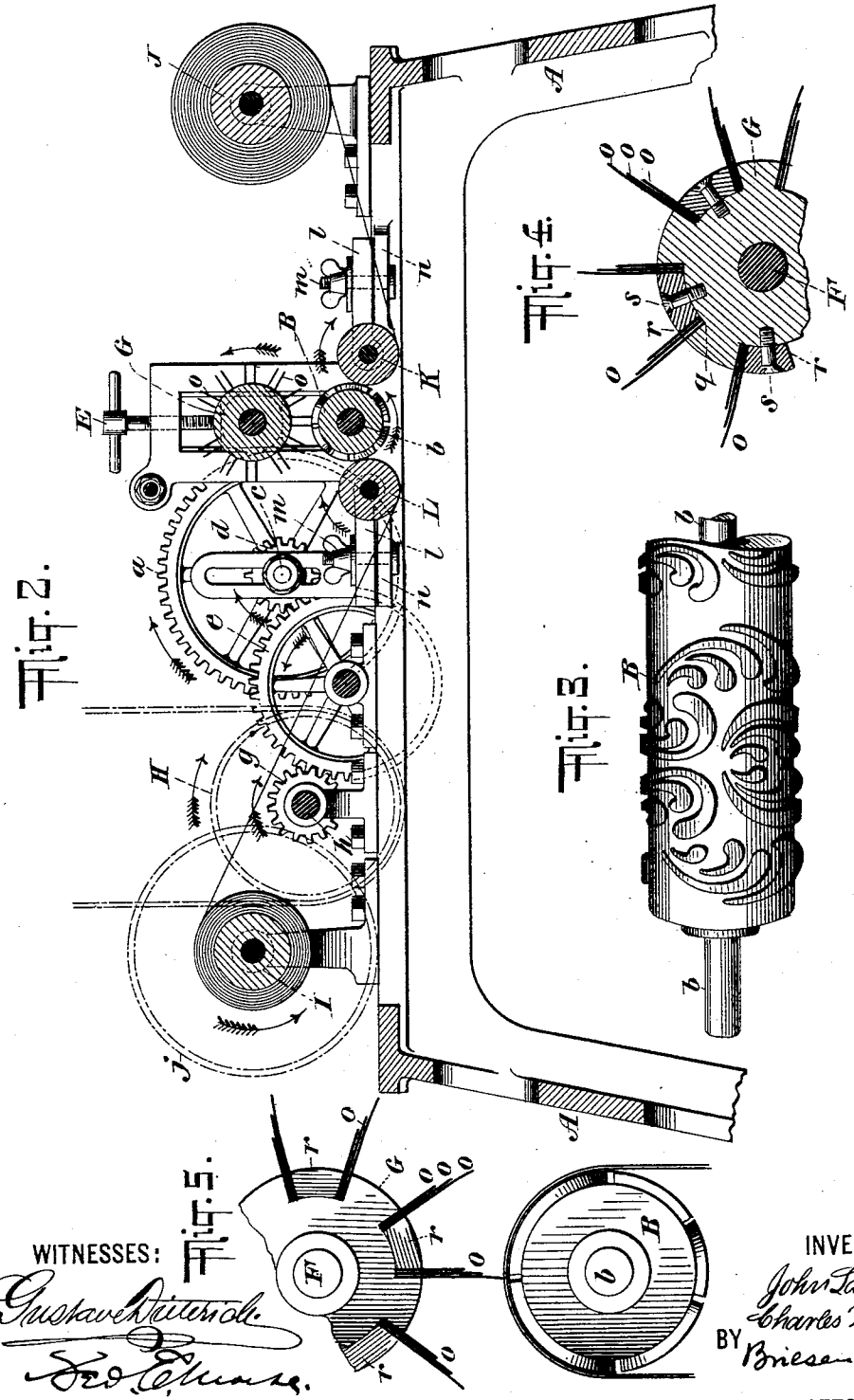
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Fig. 6.

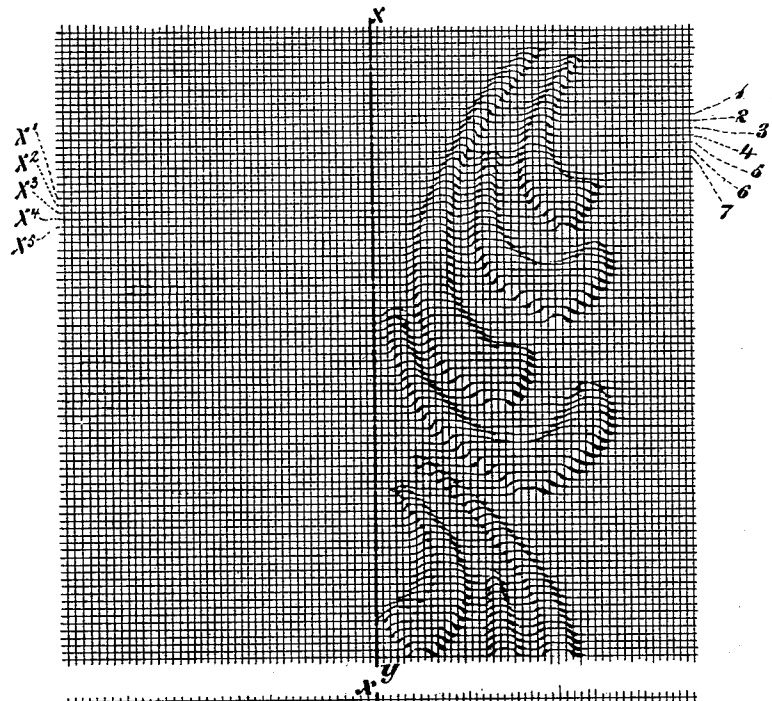


Fig. 7.

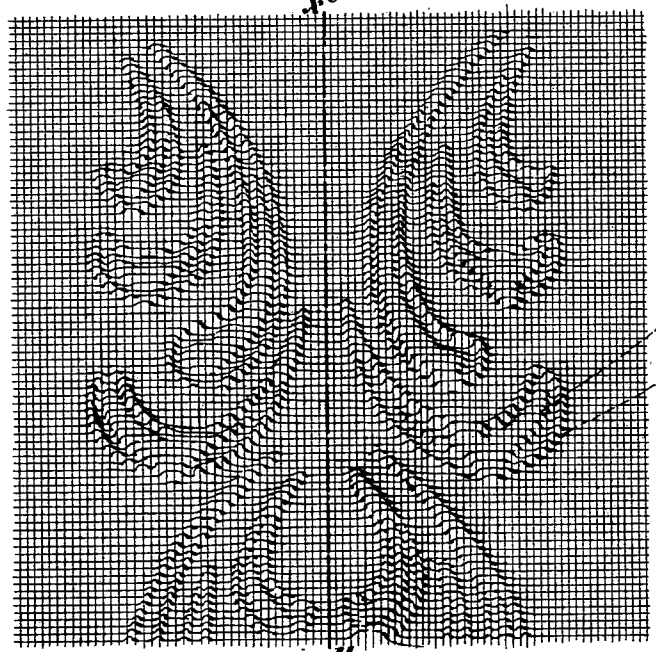


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN LANCASTER AND CHARLES WITTECK, OF NEW YORK, N. Y.

METHOD OF ORNAMENTING OR DECORATING FABRICS.

SPECIFICATION forming part of Letters Patent No. 590,457, dated September 21, 1897.

Application filed August 25, 1897. Serial No. 649,473. (No specimens.)

To all whom it may concern:

Be it known that we, JOHN LANCASTER and CHARLES WITTECK, residents of the city, county, and State of New York, have invented certain new and useful Improvements in Methods of Ornamenting or Decorating Fabrics, of which the following is a specification.

Our invention relates to methods of ornamenting fabrics, and has for its object to produce a method of making figures or markings upon fabrics after they have been woven.

The invention has special reference to ornamenting gros-grain fabrics in order to convert the said gros-grain fabrics into moire fabrics.

In the accompanying drawings we have illustrated a machine suitable for carrying out our invention.

In the drawings, Figure 1 is a plan view of a machine for operating on the fabric. Fig. 2 is a section thereof on line 2 2 of Fig. 1. Fig. 3 is a broken-away enlarged detail view of a pattern of the machine. Fig. 4 is a broken-away sectional detail view, on an enlarged scale, of the thread displacing or distorting roller. Fig. 5 is a broken-away sectional view of the distorting or displacing roller and the pattern-roller in operative relation. Fig. 6 is a diagrammatic face view of the fabric as it comes from the machine, and Fig. 7 is a diagrammatic face view of the fabric after it has been pressed. Fig. 8 is a detail view, on an enlarged scale, showing the crossing of the threads, as hereinafter described.

In the drawings, A indicates the bed or body of the fabric-manipulating machine, which said body is provided with a pattern, such as the roller B, which may be carried upon the shaft *b*, mounted in bearings in the body A. Adjacent to the shaft *b* is a frame or bracket C, in which slide movable bearings D, which may be raised or lowered by adjusting-screws E. These bearings carry a shaft F, upon which is mounted a weft-thread-displacing roller G. This roller G is adapted to coöperate with the pattern-roller to displace the weft-threads of a fabric in the plane of the said fabric. The shaft F of the displacing-roller is provided with a gear *f*, which meshes with a large gear *a*, carried upon a shaft *c*, which shaft also carries a gear *d*, which meshes with a gear *e*, which in turn meshes with a gear *g*, carried upon the shaft *h*, which shaft carries a pulley H, which is driven from a suitable source, power and motion being transmitted through the train of gearing to the thread-displacing roller G. The machine-body is also provided with a take-up beam I, whose shaft *i* is provided with a gear-wheel *j*, which meshes with a gear-wheel *k* on the driven shaft *h*, so that motion may be transmitted to the said take-up beam from the driven shaft.

At the end of the machine, opposite to the take-up beam I, we provide a cloth-beam J, which is shown as having a bolt of two thicknesses of cloth wound upon it, which cloth passes from the cloth-beam J to the cloth-beam I under a roller K, which is free to be propelled by the cloth over the pattern-roller B, which is also propelled by the cloth, and under another roller L, mounted in the frame and rotated by the cloth, and thence to the take-up beam I. The rollers K and L are shown as provided with devices for adjusting them toward and from the pattern-roller B, the said adjusting devices being in the present case slotted plates *l* and adjusting-screw and wing-nut devices *m*, which screws pass through a lug *n* on the body.

The pattern-roller is shown in detail in Fig. 3 and is exhibited as provided with a raised rubber pattern *p* on the periphery thereof. Its coöperating thread-displacing roller is shown as provided with thin suitably-set springy blades *o*, which may be slightly curved, as shown, and which are exhibited in Fig. 4 as seated in grooves *q* in the periphery of the roller G and held in place therein by tongues *r*, seated in the said grooves and secured by screws *s*. These blades may be suitably arranged with respect to the axis of the roller-shaft.

The process is preferably practiced as follows: The adjusting-screws E are adjusted to bring the blades *o* into contact with cloth passing over the pattern-roller B, as shown in Fig. 5. The fabric, which comes in a continuous roll or bolt, is folded along its median line *x y* and the edges brought together and preferably secured by tacks. In this condition the cloth is wound upon the cloth-beam J, and

the cloth-beam mounted in place. The doubled fabric is then led, as shown, under the roller K, over the pattern-roller B, (see Fig. 5,) under the roller L, and thence passes to the take-up beam I, power being applied to the shaft *h*, so that the take-up beam I will proceed to wind the cloth upon itself, drawing it over the course indicated, from the cloth-beam J. The take-up beam, as it will be seen, constitutes a cloth-propelling means. As the cloth passes over the pattern-roller it propels the said roller, and the weft-thread-displacing roller being driven at a much greater speed than the speed of the cloth has the effect of irregularly displacing the weft-threads 1 2 3 4 5 6 7, &c., of the thickness of the cloth which lies uppermost on the roller, the weft-threads of the lower thickness of cloth being undisturbed. These weft-threads are not displaced throughout their entire length, but only at the portions thereof which are over the design of the pattern, so that one-half of the cloth receives by means of such displacement a distinct trace of the pattern. This is clearly shown in Fig. 6, wherein in the left side of the cloth the weft-threads run in an undisturbed course, whereas in the right-hand side of the cloth in this figure the weft-threads are shown as displaced or undulated sidewise out of their true alinement, thereby giving the appearance of a figure.

When the cloth has all been wound upon the take-up beam I, it is reeled from said beam to and through a pressing or calendering machine, and thereby the design on one thickness of the cloth is transferred also to the other thickness of the cloth, the displaced threads of the patterned side crossing the straight threads of the unpatterned side and serving as a die to impress the image of the pattern upon the unpatterned side, so that one side of the fabric is a counterpart of the other, but with this difference that while the displaced weft-threads on the patterned side of the fabric remain displaced the weft-threads on the opposite side of the fabric remain in their original straight condition, and whenever a displaced weft-thread of one portion of the doubled fabric crosses a straight thread of the other portion of the doubled fabric the straight thread is thereby indented, so that the resulting figures will present a solid portion, as *u*, surrounded by a line *w*. This effect is such as is shown in Fig. 7, wherein the fabric lying to the right of the median line is the portion of the fabric having the displaced weft-threads and the portion of the fabric lying to the left of the median line *x y* in Fig 7 has its weft-threads straight. This operation is clearly indicated in Fig. 8, wherein the threads 1, 2, 3, 4, and 5 are the displaced weft-threads of the right-hand side of the pattern in Fig. 6 and the threads x', x^2, x^3, x^4, and x^5 are the straight threads on the left-hand side of the pattern. This figure shows the threads as much exaggerated, but it will be obvious that when the threads in the fabric are thus displaced the bent or displaced threads will impress their form upon the left side of the fabric when pressed, so as to produce the effect shown in Fig. 7.

It will be obvious that the pattern-roller and weft-thread-displacing roller may be varied in form and construction and that they may be rotated in opposite directions.

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

The herein-described method of decorating completed fabrics which consists in displacing the weft-threads laterally in the plane of a completed fabric, and thereupon bringing the displaced portion of fabric against a plain portion of fabric so that the threads of the plain and displaced portions cross each other and then calendering the two layers of fabric, whereby the displaced portion will produce upon the plain portion a figure corresponding to the configuration of the displaced portion.

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