

1,013,597.

Fig. 1

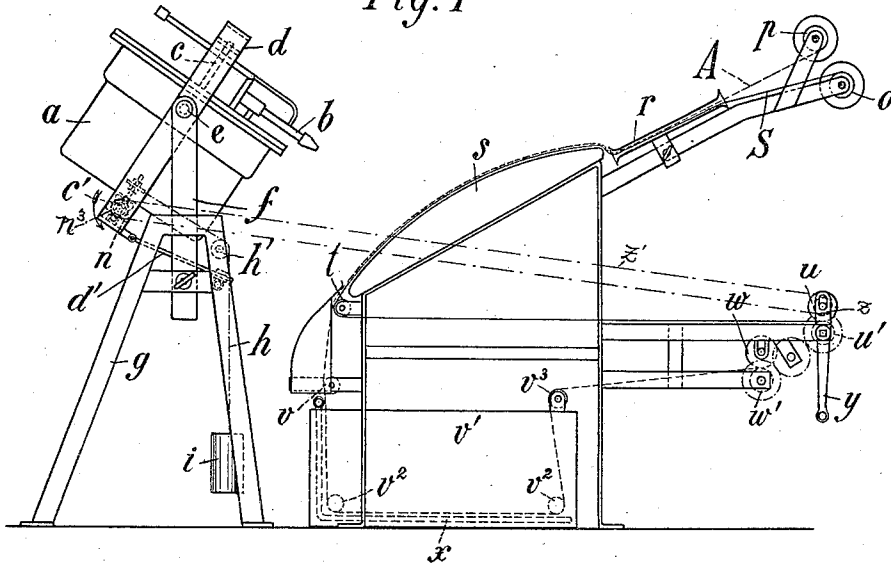


Fig. 2

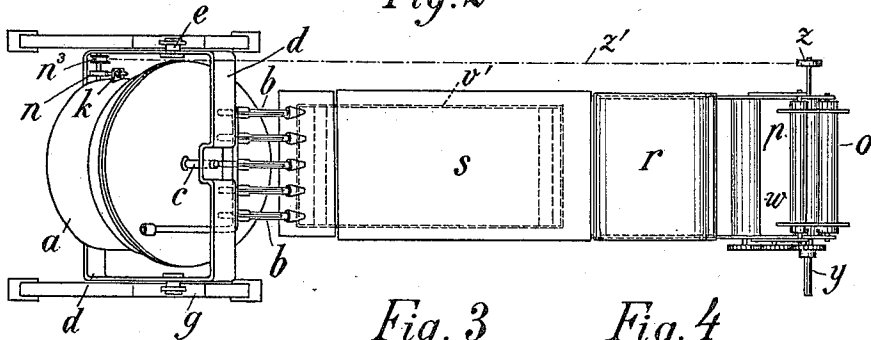
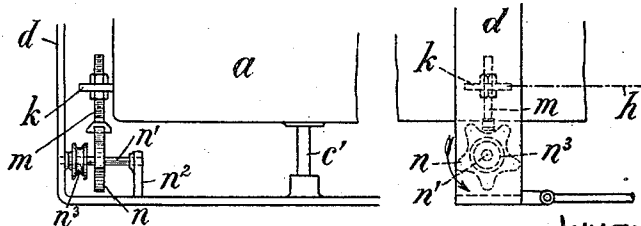


Fig. 3

Fig. 4



W. H. Berrigan.
John W. Hoving.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RUDOLF GOTTLIEB, OF BRÜNN, AUSTRIA-HUNGARY.

STENCILING DEVICE.

1,013,597.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed December 23, 1909. Serial No. 534,699.

To all whom it may concern:

Be it known that I, RUDOLF GOTTLIEB, subject of the Austro-Hungarian Empire, and residing at Brünn, Austria-Hungary, have invented a new and useful Improvement in Stenciling Devices; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to improvements in devices for the ornamentation of textile or like fabrics by means of stencils. In this operation as at present attempted the color adheres to the edges of the stencil after it has been once used and smears the next reproduction of the design making clearness and sharpness of outline impossible, and this invention is designed to overcome this objection.

By this invention the fabric or the like on which the pattern is to be produced is moved mechanically along with the stencil which covers it, past a sprinkler which is mechanically fed with the coloring matter so that the latter as it is projected from the sprinkler produces on the material in stripes or lines a design corresponding to the stencil after which the fabric and the stencil are wound separately on to separate rollers. During their course both the fabric and the stencil are kept tight so that no color can get between the stencil and the cloth and clear designs are obtained.

In carrying out the operation the fabric and the stencil, which are each wound on a roller, are carried through a narrow guide of a width corresponding to that of the fabric and stencil which then pass together over a fixed table or a rotatable drum, which are constructed so as to be within range of sprays or jets of color projected from a sprinkler or spraying device. The latter is constructed in connection with the color reservoir in such a way that the nozzles or jets preferably lie in a straight line which is also preferably horizontal and are so arranged that the central parts of the sprays strike the material vertically or nearly vertically as it is carried past. As soon as the designs are produced on the fabric the latter and the stencil are separated and wound on separate rollers.

As is well known the sprays of color which issue from a sprinkler are of unequal strength and intensity *i. e.*, those sprays which leave the apertures of the sprinkler in a straight line are stronger and reach the

surface which is being printed, at a greater pressure than those sprays which leave the sprinkler openings obliquely. Hence the coloring of the material is not uniform. In order to remedy this drawback the color reservoir in which the sprinkler is fixed, is moved in such a way that every part of the fabric covered with the stencil is, as it is carried past played on by jets of all kinds, viz., horizontal, vertical and oblique.

In order to insure the closest possible adjustment of the stencil to the fabric the former must be made of a suitably pliable material and machine-made lace may be advantageously used for the purpose so that designs can be produced on fabrics which it has hitherto been impossible to obtain in the printing of textiles.

The invention will be fully described with reference to the accompanying drawings in which one form of the invention is illustrated.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a plan of same. Figs. 3 and 4 are details on an enlarged scale.

The apparatus consists of a completely inclosed reservoir *a* in which the coloring material is maintained under pressure. On the reservoir one or more rows of sprinklers *b* are fitted in such a way that their jets or nozzles lie in a straight line. The reservoir *a* is, by means of the spindles *c* and *c'* provided on its cover and bottom, rotatably journaled in a frame *d*, and the latter by means of the spindles *e* is rotatably journaled in arms *f* which latter are fastened to a stand or frame *g* and are adjustable vertically. The frame *d* can, by means of a lever *d'* which is connected with it by a pivot and which can be adjusted in the frame *g*, be secured in any inclined position that may be desired in order to make the jets of color issuing from the jets or nozzles impinge vertically upon the fabric or the like to be ornamented with the pattern.

A band *h* is attached to the reservoir *a* and is carried over a pulley *h'* provided on the frame *g*. At the end this band carries a weight *i* by which the reservoir *a* is moved yieldably in one direction of its rotation in frame *d*. The reservoir *a* has a bracket or projection *k* bolted or otherwise secured thereto in which is mounted an adjustable stop *m*. The stop *m* lies within reach of a toothed wheel, the axle *n'* of which is journaled at one end in the side edge of the

frame d and at the other in a bearing n^2 attached to the frame d . Also on the axle n' is a pulley n^3 actuated by a band z' or other similar appliance and by means of this pulley the toothed wheel n is made to revolve in the direction of the arrow in Fig. 1.

When a tooth of the wheel n strikes against the pin m the reservoir a is turned a little on its pivots $c c'$ and after the tooth of the wheel n has left it, it is restored to its original position by the weight i . Thereby the reservoir a and consequently the sprinklers b are caused to oscillate slightly on the pivots $c c'$ so that the coloring material is shaken up and being ejected through the jets or nozzles b is caused to strike every part of the fabric within reach of the jets equally as it is carried past.

The fabric S is unwound from a roller o and simultaneously the stencil A of the same width is unrolled from the roller p . The fabric and stencil are carried through a passage r of rectangular cross section over a stationary table s or a rotatable drum where the coloring matter issuing from the sprinkling apparatus strikes them and produces on the fabric the pattern of the stencil. The fabric is then carried over the roller t between the rollers $u u'$ and wound upon the latter u' while the stencil is carried over the roller v into a washing and drying arrangement, from which it is carried over a roller v^3 between the rollers $w w'$ on which latter (w') it is wound.

The washing and drying arrangement consist of a reservoir v' with rollers v^2 to guide the stencil, into which a liquid for cleansing the stencil is introduced or a pipe x with small holes may be constructed in same and lie parallel to the path of the stencil, as shown in Fig. 1. Through the holes of these pipes steam or hot air is blown on to the stencil in order to clean it and dry it.

On the axle of the roller u' a crank y or a belt pulley is fixed and this axle is connected by toothed gearing with the axle of the roller w' , so that by actuating the crank y or the belt pulley the cloth and the stencil are both tightened and moved. On the axle (which is also extended at the other end) of the roller u' a belt pulley z or the like is keyed which through the belt z' or the like imparts motion to the roller n^3 and the reservoir.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In an apparatus for ornamenting fabrics, a stencil, rollers from which the stencil and a fabric are respectively unrolled simultaneously and uniformly, a surface over which the stencil and fabric pass in intimate contact with each other, in combina-

tion with a color reservoir provided with a row of jets, said row extending in a direction at an angle to the direction of motion of the stencil and fabric, and means for reciprocating said reservoir to cause said jets to move in said direction.

2. In an apparatus for ornamenting fabrics, a stencil, rollers from which the stencil and a fabric are respectively unrolled simultaneously and uniformly, a stationary table over which the stencil and fabric pass in intimate contact with each other, in combination with a color reservoir adapted to move cross-wise to the direction of motion of the stencil and fabric, and automatic means for causing said movement.

3. In a device for ornamenting fabrics and the like, a color reservoir, a frame in which the reservoir is mounted to be rotatable about its vertical axis, a weight maintaining the reservoir in equilibrium, a pin attached to said reservoir, in combination with a toothed wheel adapted to engage the pin and cause the reservoir to oscillate about its vertical axis.

4. In an apparatus for ornamenting fabrics, a stencil formed of lace, rollers from which the stencil lace and a fabric to be ornamented are respectively unrolled simultaneously and uniformly, a surface over which the stencil and fabric pass in intimate contact with each other, in combination with a color reservoir mounted on vertical and horizontal axes and provided with a row of jets extending in a direction at substantially right angles to the direction of motion of the stencil and fabric, and means for reciprocating said reservoir on the vertical axis.

5. In an apparatus for ornamenting fabrics by means of a sprinkling operation, the combination of a drum-shaped table, a stencil, rollers, from which said stencil and a fabric are simultaneously and uniformly unwound, means for unwinding said stencil and fabric and placing the same together and passing the same over said table, a dye-reservoir adapted to be rotated about its horizontal and vertical axes, a row of nozzles on the reservoir and extending in a direction transverse to the path of movement of the stencil, so that the color sprays strike substantially perpendicularly thereto, and means for rotating said reservoir and nozzles relative to the stencil.

6. In an apparatus for ornamenting fabrics by means of a sprinkling operation, the combination of a drum-shaped table, a stencil, rollers, from which said stencil and a fabric are simultaneously and uniformly unwound, means for unwinding said stencil and fabric and placing the same together and passing the same over said table, a dye-reservoir adapted to be rotated about its horizontal and vertical axes, a row of nozzles on the reservoir and extending in a di-

rection transverse to the path of movement of the stencil, so that the color sprays strike substantially perpendicularly thereto, and means for automatically rotating said reservoir and nozzles relative to the stencil.

7. In an apparatus for ornamenting fabrics by means of a sprinkling operation, the combination of a drum-shaped table, a stencil, rollers, from which said stencil and a fabric are simultaneously and uniformly unwound, means for unwinding said stencil and fabric and placing the same together and passing the same over said table, a dye-reservoir adapted to be rotated about its horizontal and vertical axes, a row of nozzles on the reservoir and extending in a direction transverse to the path of movement of the stencil, so that the color sprays strike substantially perpendicularly thereto, and means for rotating said reservoir and nozzles relative to the stencil, said last named means comprising a star wheel, means for rotating the same, means yieldably moving the reservoir in one direction, and a pin carried by the reservoir and adapted to engage the star wheel whereby the reservoir is moved in the opposite direction.

8. In an apparatus for ornamenting fabrics by means of a sprinkling operation, the combination of a drum-shaped table, a stencil, rollers, from which said stencil and a fabric are simultaneously and uniformly unwound, means for unwinding said stencil and fabric and placing the same together

and passing the same over said table, a dye-reservoir adapted to be rotated about its horizontal and vertical axes, a row of nozzles on the reservoir and extending in a direction transverse to the path of movement of the stencil, so that the color sprays strike substantially perpendicularly thereto, and means for rotating said reservoir on its horizontal axis and holding it in adjusted position.

9. In an apparatus for ornamenting fabrics by means of a sprinkling operation, the combination of a drum-shaped table, a stencil, rollers, from which said stencil and a fabric are simultaneously and uniformly unwound, means for unwinding said stencil and fabric and placing the same together and passing the same over said table, a dye-reservoir adapted to be rotated about its horizontal and vertical axes, a row of nozzles on the reservoir and extending in a direction transverse to the path of movement of the stencil, so that the color sprays strike substantially perpendicularly thereto, and means for rotating said reservoir and nozzles relative to the stencil, said stencil comprising lace of textile goods.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

RUDOLF GOTTLIEB.

Witnesses:

ROBERT W. HEINGARTNER,
AUGUST FUGGER.