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W. HAENDEL

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MACHINE FOR IMPRESSING PATTERNS ON MATERIALS

Filed June 12, 1929

Fig. 2.

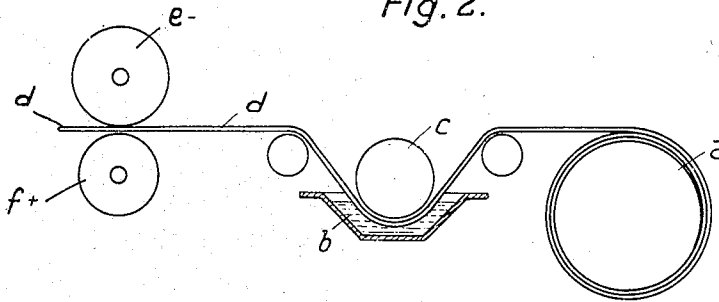


Fig. 1.

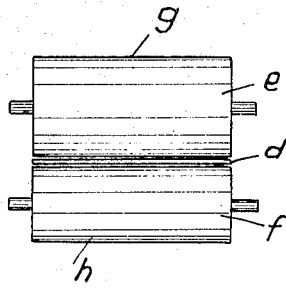


Fig. 3.

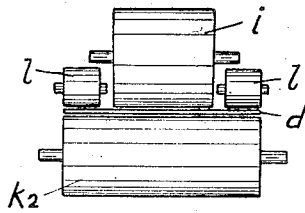
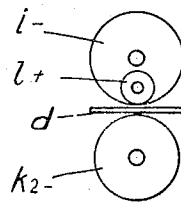


Fig. 4.



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MACHINE FOR IMPRESSING PATTERNS ON MATERIALS

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The present invention relates to a machine for impressing patterns on fabrics, knitted materials, woven materials, leather and other materials composed of vegetable and animal fibres by electrolytic decomposition of a solution contained in the material.

According to the invention the material to be improved is treated with a solution composed of an electrolyte containing oxygen and a leuco compound thereupon subjected to electrolysis.

According to the invention the machine comprises rollers of non-conductive material, a stencil of conductive material is arranged on said rollers and current leads are connected to said stencil.

The accompanying drawing shows by way of example a machine according to the invention.

Figure 1 is a front view,

Figure 2 a side view,

Figure 3 shows a front view of a modified form of construction, and

Figure 4 is a side view thereof.

The machine consists essentially of a supply roller *a*, on which is the material to be treated. A receptacle *b* contains the solution which is capable of forming a dyestuff upon electrolytic dissociation. A roller *c* is mounted above the receptacle *b*; the web of material is passed through under this roller *c*.

The machine also comprises two rollers *e* and *f*, which can be made for instance of wood or other non-conductive material, but have a surface *g* or *h* of conductive material. Should the rollers be used for evenly dyeing the web of material, they have a smooth and complete jacket *g*, *h* of metal. The web of material *d* is led between these rollers. One roller is connected with the positive pole of a source of current and the other roller with the negative pole of a source of current.

The dyeing of the material is carried out with this machine as follows:—

The web of material coming from the supply roller *a* is saturated with the solution in the receptacle *b* and passes in the moist state between the rollers *e* and *f*. Between these rollers the solution is electrolytically disso-

ciated, a dyestuff being formed, whereby the surface of the material is evenly dyed.

As the dyestuff only forms on one electrode, for instance the cathode, the rollers can be suitably arranged as shown in Figure 3. In this case the rollers *i* and *k* are connected with the negative pole of a source of current, while separate narrow rollers *l* are connected with the positive pole of the source of current. In this constructional form of the machine the dyestuff is produced on both sides of the web of material.

The impressing of patterns on materials can be effected with the same machine in the following way:—

The rollers *e*, *f* with smooth metal jacket *g*, *h* are replaced by rollers, which are provided with the pattern in the form of a relief or electrically conducting surfaces, which are arranged adjacent non-conductive surfaces. These rollers can be simply and inexpensively made by arranging a stencil of conductive material on a cylinder of non-conductive material. The stencil which can be made of metal foil, can be easily cut out with scissors.

The reverse procedure may also be adopted, and a stencil of non-conductive material for instance celluloid be arranged on a roller with conducting surface.

If the web of material saturated with the solution is led between rollers of this kind, the material will only be dyed at the points where an electrically conductive surface contacts the web of material, while the other surfaces remain undyed. The non-dissociated solution is subsequently washed out of the web of material.

Instead of the rollers use can be made of suitably constructed hand pressure moulds.

For patterning purposes use may also be made of cylinders *e*, *f* with a smooth uninterrupted surface of metal. In this case however the web of material *d* is not saturated uniformly with the solution, but the solution must only be applied at the points where it is desired that the material shall be dyed. This application of the solution can be done by means of the usual hand pressing devices or can be effected mechanically by means of applying rollers.

What I claim is:—

1. In a machine for impressing patterns on fabrics, knitted materials, woven materials, leather and other materials composed of vegetable and animal fibres by electrolytic decomposition of a solution contained in the material, rollers of non-conductive material, a layer of thin conductive material cut out and forming a stencil arranged on said rollers, and current leads connected to said stencil, as set forth.
2. In a machine for impressing patterns on fabrics, knitted materials, woven materials leather and other materials composed of vegetable and animal fibres by electrolytic decomposition of a solution contained in the material, rollers of conductive material, a

layer of non-conductive material cut out and forming a stencil arranged on said rollers, and current leads connected to said rollers, as set forth.

3. In a machine for impressing patterns on fabrics, knitted materials, woven materials, leather and other materials composed of vegetable and animal fibres by electrolytic decomposition of a solution contained in the material, two coating rollers connected to the same pole of the source of current and narrow lateral contact rollers connected to the other pole, as set forth.

In testimony whereof I have signed my name to this specification.

WALTER HAENDEL.

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