No. 815,763. PATENTED MAR. 20, 1906.

C. TITTEL.

APPARATUS FOR SUPPLYING COLORING MATERIAL IN PAPER MAKING MACHINES FOR THE MANUFACTURE OF ONE SIDE COLORED, CLOUDED COLORED, AND MARBLED PAPERS.

APPLICATION FILED OCT. 25, 1905.

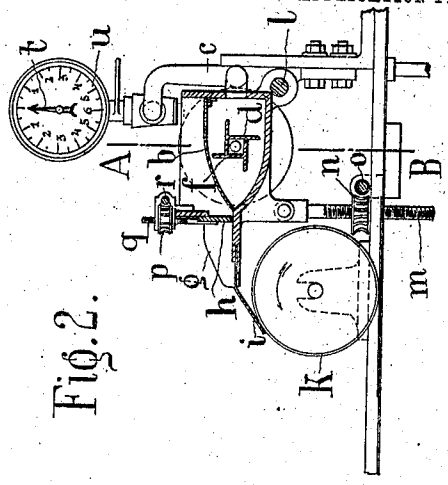


Fig. 2.

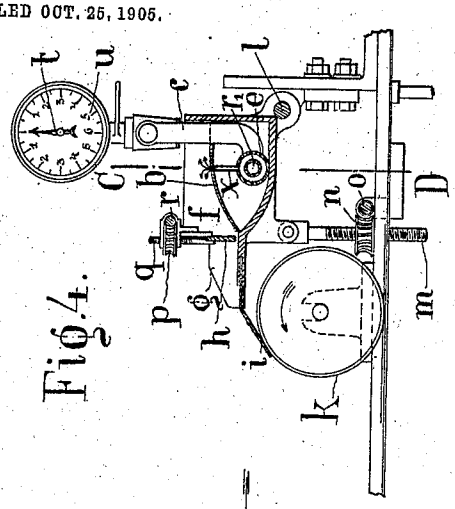


Fig. 4.

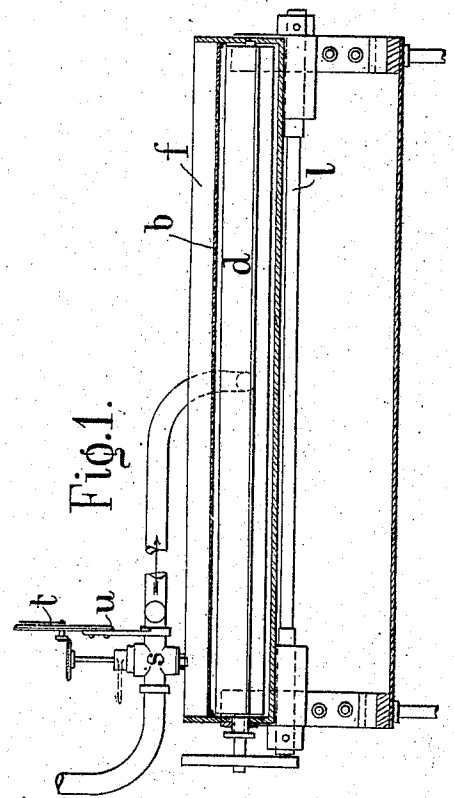


Fig. 1.

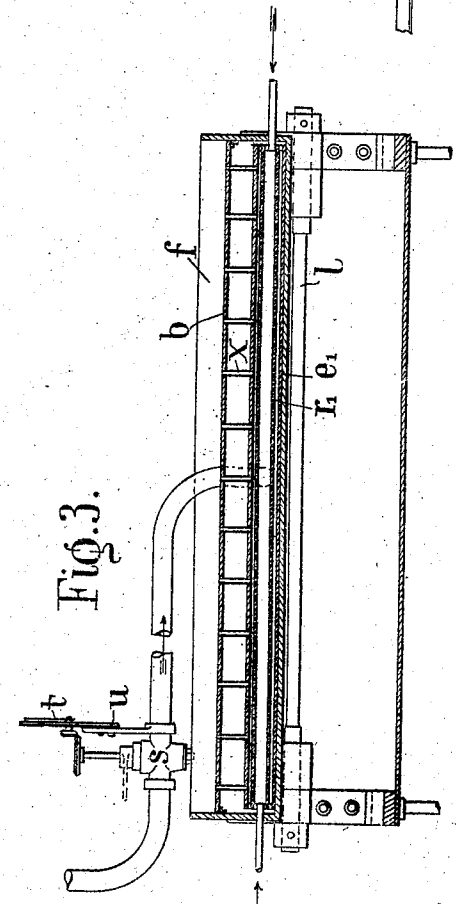


Fig. 3.

Witnesses:

Chas. D. Kester

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UNITED STATES PATENT OFFICE.

CLEMENS TITTEL, OF JOSEFSTHAL, NEAR LAIBACH, AUSTRIA-HUNGARY.

APPARATUS FOR SUPPLYING COLORING MATERIAL IN PAPER-MAKING MACHINES FOR THE MANUFACTURE OF ONE-SIDE-COLORED, CLOUDED-COLORED, AND MARBLED PAPERS.

No. 815,763. Specification of Letters Patent. Patented March 20, 1906.

Application filed October 25, 1905. Serial No. 284,371.

To all whom it may concern:

Be it known that I, CLEMENS TITTEL, a subject of the German Emperor, residing at Josefsthal, near Laibach, Austria-Hungary, have invented certain new and useful improvements in apparatus for supplying coloring material in paper-making machines for the manufacture of one-side-colored, clouded-colored, and marbled papers, of which the following is a specification.

This invention relates to apparatus for applying to a paper web a one-sided coating of material of different color or description in machines for the manufacture of one-side-coated papers according to the process described in the specification to my patent application in the United States, Serial No. 213,396, filed June 20, 1904, and by the aid of the arrangements therein described.

According to the present invention the arrangement described in the said specification is rendered suitable for effecting the application of coloring substances or chemicals in such manner that the uniform nature of the color tint is insured and that one-side-colored papers or papers with clouded coloration or with marbled appearance can be produced.

The said improved apparatus is shown on the accompanying drawings, Figures 1 and 2 showing the arrangement suitable for producing one-side-colored and mixture-colored papers, Fig. 1 being a section on line A B of the cross-section at Fig. 2. Figs. 3 and 4 show, respectively, a section on line C D, Fig. 4, and a cross-section of a modification suitable for the manufacture of clouded-colored and marbled papers.

The coloring material intended to serve as coating is supplied in the usual manner from a vat with stirring apparatus through the shut-off cock *s* (the regulation of which is indicated by the pointer *t* on the dial *u*) to the adjustable tipping trough *f*, provided with the sluice *g*, adjustable by means of the worm-wheel *p*, screw *q*, and spindle *r*, from which trough the solution passes through the spout *h* and felt apron *i* onto the squeezing-roller *k*, which applies it to the still wet paper web formed on the wire-cloth of the paper-machine. The adjustment of the tipping trough is effected by means of the screw-spindle *m*, worm-wheel *n*, and spindle *o* in the known manner.

For the manufacture of one-side-colored and "duplex" papers there is provided in the trough *f*, according to the present invention, a roller *d* revolving at a high speed (about three hundred revolutions per minute) and provided with vanes, as shown at Figs. 1 and 2, which roller maintains the color solution in continued circulation, and thus insures the uniformity of the color-tint upon the paper. This roller also serves the purpose of throwing the color solution through a row of holes in a sheet-metal cover *b*, covering the trough *f*. This cover is so formed as to lead the color solution to the sluice *g* and through this to the spout *h*, whence it is uniformly distributed by the felt apron *i* over the squeezing-roller *k*, which delivers it onto the paper web.

For the production of clouded-colored and marbled papers there is arranged in the trough *f* in place of the revolving roller *d* a small steam-pipe *r'*, perforated over its periphery and situated within a second pipe *e'*, which is provided with a row of nozzles *x*. Into the pipe *e'* is led the color solution from the vat in regulated quantities. The nozzles *x* open above the cover *b* of the trough *f*. If steam be admitted to each end of pipe *r'*, the solution in *e'* will be forced thereby through the nozzles *x* onto the cover *b*, from which it runs in wave-like form over the squeezing-roller and onto the paper web.

What I claim is—

1. In an apparatus of the class described, an adjustable trough having a spout, means for supplying color solution to said trough, a flexible distributing member connected to said spout, a squeezing-roller mounted directly under the said trough and adapted to contact with said distributing member, an agitating means for throwing the solution in a uniform manner, and a perforated cover mounted in the trough through which the color solution discharges.

2. In an apparatus of the class described, a tipping trough having a spout and sluice, a rotatable roller having vanes forming an agitator and distributer, a cover mounted in said trough and having a plurality of perforations for evenly distributing the substance contained in the trough, means for supplying the substance to the trough, and a squeezing-roller arranged directly under the said spout.

3. In an apparatus of the class described, a tipping trough having a spout and sluice,

means for supplying color solution to said trough, a flexible distributing-apron connected to the outer end of said spout, a squeezing-roller in contact with the said apron, means for tipping the said trough, a rotatable member having vanes for uniformly distributing the solution contained in the trough, and a perforated cover for the trough.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CLEMENS TITTEL.

Witnesses:
JOSEF RUBRASCH,
ALVESTO S. HOGUE.