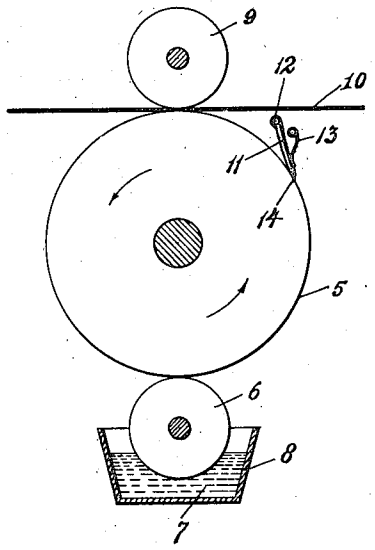
F. J. GUBELMAN.

PRINTING MECHANISM.

APPLICATION FILED APR. 27, 1914.

1,252,431. Patented Jan. 8, 1918.



WITNESSES:

George Du Bois

John A. Hollenbeck

INVENTOR

Frederick J. Gubelman

BY

Brosseau & Krauth

ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK J. GUBELMAN, OF ENGLEWOOD, NEW JERSEY.

PRINTING MECHANISM.

1,252,431. Specification of Letters Patent. Patented Jan. 8, 1918.

Application filed April 27, 1914. Serial No. 834,651.

To all whom it may concern:

Be it known that I, FREDERICK J. GUBELMAN, a citizen of the United States, and resident of Englewood, county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Printing Mechanisms, of which the following is a specification.

My invention relates to printing mechanisms in which the impression is taken from an intaglio printing surface, preferably curved and rotatable, and has for its object to provide a simple and efficient device for removing surplus ink from the printing surface and for preventing scratching thereof or other injury thereto by dust particles or other foreign matter. To this end my improvement consists in providing a doctor or cutter set substantially, but not quite, tangential at its cutting edge to the printing surface and constructed of very thin flexible material, such as a razor type of blade, having a sharp cutting edge against which the printing surface is rotated and by means of which the surplus ink and any foreign matter is cut, not scraped, therefrom in a clean and effective manner.

I am aware that attempts have heretofore been made to scrape surplus ink and foreign matter from printing surfaces, but so far as I am aware such surplus ink and foreign matter have never before been cut from said printing surfaces.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claim.

Reference is to be had to the accompanying drawing which diagrammatically illustrates my idea in side elevation partly in section.

In the drawing 5 represents the cylinder upon which the design or the like to be reproduced is directly etched or engraved in intaglio or upon which a plate having such design or the like etched or engraved thereon is supported. An inking roller 6 rotates in contact with said cylinder 5 and receives ink upon its surface from the ink 7 contained in a reservoir or trough 8 and transfers said ink to the surface of the cylinder 5 or to the plate thereon as the case may be. A pressure roller 9 is arranged to maintain the sheets or web of material 10 on which the reproductions are to be made in contact with the cylinder 5 as clearly shown in Fig. 1 of the drawings. The cylinder 5, inking roller 6, and pressure roller 9 may be journaled in suitable bearings located on suitable stationary portions of the machine and may be driven in any well known way while the reservoir 8 may also be supported in any convenient manner to secure the desired results.

In operation the cylinder 5 and rollers 6 and 9 are rotated so that the cylinder or plate will be properly inked and the sheets or web of material 10 will be fed between the roller 9 and the cylinder 5, reproductions consequently being produced on successive sheets of material or successive reproductions being produced upon the web of material as the case may be. In order that clean and accurate reproductions may be produced it is necessary to remove all surplus ink from the surface of the cylinder 5 or from the plate carried thereby so that ink remains only in the etchings forming the design or the like and it is further necessary, in order to secure the best results, to remove from the cylinder or the plate before an impression is made therefrom all foreign matter such as floating particles of dust which are bound to be picked up by said cylinder or plate or by the inking roller 6 and transferred thereby to said cylinder or plate.

To accomplish this I provide a doctor or cutter 11 preferably pivotally mounted at 12 upon a suitable portion of the machine and maintained in contact with the surface of the cylinder 5 in any desired way as by means of a spring 13. As a substitute the doctor might be rigidly, instead of pivotally, mounted and its own resiliency relied on to maintain it in contact with the printing surface. In either case the doctor or cutter 11 is constructed in the nature of a razor blade of very thin material such as steel or the like so as to be very flexible and is provided with a sharp cutting or knife edge 14, located and maintained in contact with the cylinder 5 for instance as above described. This doctor 11 extends toward the cylinder 5 in a direction opposite to that in which the cylinder is rotated, the surface of which consequently always moves toward the cutting or knife edge 14 as indicated by the arrow in Fig. 1, said doctor 11 being further preferably arranged so as to extend substantially, but not quite tangential to the surface of the cylinder 5 at its cutting edge. The said doctor 11 is further located pref-

erably at a point just in advance of the point at which the material for receiving the reproductions is fed between the roller 9 and cylinder 5. As the said doctor or cutter is very flexible it will accommodate itself to any inequalities or irregularities in the cylinder or plate surface so that all parts of said surface except those portions which are etched or engraved below the same which remain filled with ink, will be subjected to the cutting action of said doctor or cutter. With this arrangement all surplus ink, as well as any dust or other foreign matter will be cut not scraped from the surface of the cylinder or plate carried thereby and the same will reach the printing point absolutely clean, except where the ink is left below the surface of the printing surface, where the same is etched or engraved and the reproductions will in consequence be perfect and entirely free from any blemish. Owing to the fact that the surface of the cylinder moves toward the cutting edge 14 and because said cutting edge is very sharp and set so as to exert a cutting action, coupled with the fact that said doctor is very flexible and thus contacts with all parts of the cylinder or plate surface, it is impossible for any ink or any particles of dust or other foreign matter to pass beneath the same and mar the impression. It is of course to be understood that the arrangement shown is only an illustration of my idea which might for instance be utilized in connection with flat intaglio printing surfaces, and further that various changes may be made in the form shown and described within the scope of the claim without departing from the spirit of my invention.

I claim:—

The combination of a printing surface carrying a design in intaglio, means for inking said design, a relatively thin flexible cutting member having a razor like edge bearing upon said surface, one of said elements extending substantially tangentially to the other at said razor like edge and one of said elements being movable relatively to the other in a direction to cause said edge to exert a cutting action, the latter being sufficiently flexible to adjust itself to contact throughout its length with all parts of said surface and means for maintaining said cutting member in contact with said surface whereby surplus ink and foreign matter is cut from said surface and the cleaning thereof is completed.

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

FREDERICK J. GUBELMAN.

Witnesses:

JOHN A. KEHLENBECK,

FRED A. KLEIN.