

UNITED STATES PATENT OFFICE.

ARTHUR ALAIN CONSTANT DE COËTLOGON, OF PARIS, FRANCE.

PROCESS OF PREPARING CELLULOID AND SIMILAR MATERIALS FOR PRINTING.

SPECIFICATION forming part of Letters Patent No. 474,814, dated May 17, 1892.

Application filed February 26, 1892. Serial No. 422,839. (Specimens.) Patented in France March 28, 1891, No. 212,433; in England March 31, 1891, No. 5,586; in Belgium April 2, 1891, No. 94,383, and in Germany April 16, 1891, No. 61,044.

To all whom it may concern:

Be it known that I, ARTHUR ALAIN CONSTANT DE COËTLOGON, a citizen of the Republic of France, residing in Paris, France, have
5 invented certain new and useful Improvements in the Process of Preparing Celluloid and Similar Materials for Printing, of which the following is a specification.

This invention has been patented in France,
10 No. 212,433, dated March 28, 1891; in England, No. 5,586, dated March 31, 1891; in Belgium, No. 94,383, dated April 2, 1891, and in Germany, No. 61,044, dated April 16, 1891.

This invention relates to printing in ink on
15 celluloid, horn, ivory, or other similar materials.

Heretofore it has been found impossible to print cleanly, perfectly, and in a permanent manner with fatty printing-inks on celluloid
20 or other similar materials. The fatty body of the ink has been unable to penetrate these impermeable substances, especially celluloid, the elements composing which tend to prevent the fatty body of the ink from drying.
25 Moreover, in lithographic or typographic printing by the pressure on the inelastic surface of the celluloid the fatty ink covering the stone or the type is bruised and caused to spread in printing, and thus it is most difficult
30 to obtain on these materials proofs as clear or clean as those obtainable by printing on paper. The present invention aims to obviate these difficulties and to provide means whereby printing may be done with fatty ink on
35 celluloid, horn, ivory, and similar substances with the same perfection and rapidity as lithographic or typographic printing is now done on paper. To this end in carrying out the preferred form of my invention I prepare the
40 surface of the celluloid, horn, ivory, or other similar material to be operated upon in such manner that it will receive the impression with some degree of elasticity and will absorb a portion of the ink. Preferably this is accomplished by producing on the surface to receive the impression a very fine grain or a
45 multitude of minute pores, then washing this grained or porous surface to free it from any foreign substance or any substance obstructing the pores, then treating it with a varnish

adapted to penetrate the pores, then with an impalpable powder, and subsequently subjecting the surface so treated to a calendering or other operation in order to give it a polished or satin finish, whereupon the surface
55 is adapted to receive an impression according to any ordinary method of printing.

The name I have adopted for my improved process is "cellulochrome."

I will now describe in detail one method of
60 carrying out my improved process, which is the method which I prefer to employ. On the plain, smooth, and polished surface of the celluloid, horn, ivory, or other similar material I produce in any suitable manner, either
65 by hand or by mechanical means, or, as I prefer, by employing a jet of sand, an excessively fine and very tight grain or a multitude of minute pores. If desired, certain portions of the surface may be kept free from this grained
70 or porous condition by protecting them from this treatment. After producing the grained or porous condition I prefer to wash the surface of the sheet with water or with alcohol or other suitable liquid in order to clear the
75 pores or grains formed on the surface from all foreign matter or matter which may fill or obstruct them. I then cover the surface of the grained sheet with a suitable varnish, preferably using a varnish made of two parts
80 of fat varnish, one part of white copal varnish, and one part of rectified essence of turpentine, lavender, aspic, or other equivalent agent. By wiping or otherwise manipulating this varnish as it covers the sheet it is caused
85 to penetrate into the pores or grains produced on the surface thereof, thereby clearing the surface. The sheet thus prepared is then covered with an impalpable powder made, preferably, of equal quantities of sulphate of
90 magnesia and sulphate of baryta, which is left on the sheet for a few hours, after which it is thoroughly wiped off, whereupon the surface of the sheet is calendered or given a satin finish in any known manner. I thus
95 obtain on the surface of the sheet, in the infinity of small almost invisible pores thereof, a very thin coating of nearly diaphanous matter inclosed and secured in said pores, and having a great affinity for the fatty body
100

of the ink, which it will absorb and retain with the same adhesion and with the same elasticity as would a sheet of paper. On this surface the finest and most delicate lines and tints may be printed without causing any bruising of the ink or any spreading. The impression printed on this surface will be permanent and durable, since the fatty substances in the ink will have been absorbed by the coating and cannot be rubbed off, while the unprinted portions of the surface will have its ordinary appearance.

If desired, a coloring-matter or a metallic powder may be incorporated into the before-described impalpable powder before the latter is applied to the surface, in which case indelible tints will be imparted to the latter, which cannot be destroyed by friction.

It will be understood that my invention is not limited to the precise details, operations, substances, or proportions hereinbefore specified, as these may be variously modified without departing from the essential features of my invention.

What I claim is, in processes for preparing celluloid, horn, ivory, and other similar materials for printing, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. The improved process of preparing celluloid or similar substances for printing, which consists in first producing on the surface to be printed upon a multitude of minute grains or pores, and then applying to such surface a coating adapted to receive the printed impression.

2. The improved process of preparing celluloid or similar substances for printing, which consists in first producing on the surface to be printed upon a multitude of minute grains or pores, then washing said surface to clean said grains or pores, then varnishing said sur-

face, then applying an impalpable powder thereto, and then producing a satin finish on said surface.

3. The improved process of preparing celluloid or similar substances for printing, which consists in first producing on the surface to be printed upon a multitude of minute grains or pores, then washing said surface, then covering the same with a varnish consisting of fat-varnish, white copal varnish, rectified essence of turpentine or other equivalent in substantially the proportions named, subsequently covering said surface with an impalpable powder consisting of sulphate of magnesia and sulphate of baryta, and then producing on said surface a calender finish.

4. As an article of manufacture, a piece of celluloid or similar substance adapted to be printed upon, having a printing-surface provided with a multitude of minute grains or pores and a coating adapted to absorb the ink when printed upon.

5. As an article of manufacture, a piece of celluloid or similar substance adapted to be printed upon, having a printing-surface provided with a coating adapted to absorb the ink when printed upon, consisting of varnish and an impalpable powder.

6. As an article of manufacture, a piece of celluloid or similar substance adapted to be printed upon, having a printing-surface provided with a coating adapted to absorb the ink when printed upon, consisting of varnish and an impalpable powder composed of sulphate of magnesia and sulphate of baryta.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ARTHUR ALAIN CONSTANT DE CÉTILOGON.

Witnesses:

ROBT. M. HOOPER,

MICHEL COQUART.