

# UNITED STATES PATENT OFFICE.

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## METHOD OF TREATING PAPER.

1,060,366.

Specification of Letters Patent.

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No Drawing.

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*To all whom it may concern:*

Be it known that I, SAMUEL S. SADTLER, a citizen of the United States, residing in Flourtown, Montgomery county, State of Pennsylvania, have invented a certain new and useful Method of Treating Paper, of which the following is a specification.

In the manufacture of paper for use in the making of books, magazines and other publications, its surface is usually coated and when calendered is given a glazed and lustrous finish. Coatings formerly consisted exclusively or substantially so of glue or resin sizing but they now consist largely of compounds comprising casein or a similar albuminous substance as an ingredient. The luster or glaze of the paper so coated and finished is objectionable to the reader as it causes a glare which is not only unpleasant but is injurious to the eyes.

The object of my invention is to provide a method of treating what are known as casein coated papers or paper coated with a compound comprising a similar albuminous substance having a high finish and luster so as to remove such luster or glaze.

One of the difficulties has been to find a method and means of accomplishing the desired result as set forth without injuring the paper. I have not only accomplished this result but I have found that the method employed by me for this purpose does in fact improve the quality of the paper in certain respects.

In most cases it is preferable that the printing of books, magazines and other publications shall be in the first place upon such coated papers as have a high finish produced by the calendering process or by finishing machines which give a high finish to the papers.

The method employed by me for removing the luster from papers having a coating comprising casein or a similar albuminous compound and having a high finish causes a slight thickening of the paper sheet and increases its opacity whereby I am enabled to use a slightly thinner sheet than could be used if the paper were not to be subjected to my method of treatment after being printed upon. By reason of this result the practising of the method constituting my invention permits or allows the use of paper of less weight per ream whereby there

is considerable economy in the production of books, magazines and other publications to say nothing of the relief to the reader due to the absence of the glare caused by the luster or glaze present in highly finished coated papers.

My method of removing luster from paper coated with a coating compound comprising among its ingredients casein or a similar albuminous substance and producing in the same a non-lustrous or non-glazed finish, consists in the treating of such paper with a solution of a chemical salt or base or mixture of them which will act upon the casein or similar albuminous substance of the coating compound or sizing of the finished paper and form new compounds on the surface of the paper which produce a surface having the desired non-lustrous or non-glazed appearance. Treatment of paper coated with such compounds also increases the thickness or bulk and opacity of the sheet.

Instead of a solution of such chemical salt, base or mixture, I may employ water having the active agents in suspension therein.

Although my invention is not limited to any one base, salt or mixture thereof, I have found that salts of lime in solution and also lime water accomplish most satisfactorily the result desired as above set forth. I have also found that magnesium salts in solution also milk of magnesium may be used and that such solutions satisfactorily accomplish the desired result as does also cream of alumina, alum and various other salts of alumina and other metals such as barium in solution.

After the paper is treated with any one of the solutions referred to above any excess of material used and also any soluble substance that is formed by its action on the albuminous coating or sizing employed in the manufacture of the paper may be washed off with water, though with care the paper may be so treated as not to leave an excess of said substance and also so that it will not be necessary to remove the soluble substance or substances which may be formed.

It will be understood that washing will not remove the insoluble substance or substances and that such substance or substances will remain upon the paper after it

is washed and that it is the formation of these new substances which destroys the lustrous or glazed finish.

In the carrying out of my process or method, the solution employed may be contained in a receptacle and the paper dipped therein by hand or otherwise to be acted upon by the solution; and the paper, if necessary, may be subjected thereafter to a washing action as stated.

Any other suitable means or apparatus for applying the solution to the paper and for thereafter washing the same may be employed as desired by the workman or operator.

I have found that printed papers may be treated according to my method and by any of the solutions of salts or bases above indicated without injury to the printing. On the contrary, treatment according to my method and with the solutions indicated seems to bring out more sharply and more definitely not only the printed matter but also the illustrations which may accompany the same.

Having thus described my invention, I claim:—

1. The method of producing a nonlustrous finish upon the surface of paper coated with a coating containing albuminous matter as

a constituent part which consists in treating such paper with a solution of a chemical compound containing a basic radical.

2. The method of producing a non-lustrous finish upon the surface of finished coated paper by applying thereto a solution of a chemical compound including a basic radical as a constituent part and thereby forming soluble and insoluble substances on said paper and thereafter washing the paper with water to remove any excess of the solution which may adhere thereto and also to remove any soluble substance which may be formed on the paper by the action of said solution.

3. The method of treating paper coated with a coating including casein or other albuminous substance, which consists in the preparation of a solution of a compound containing chemically combined calcium and thereafter subjecting the paper to the action of the same.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 7th day of May, A. D. 1909.

SAMUEL S. SADTLER.

In the presence of—

CYRUS N. ANDERSON,  
CARRIE E. KLEINFELDER.