

(No Model.)

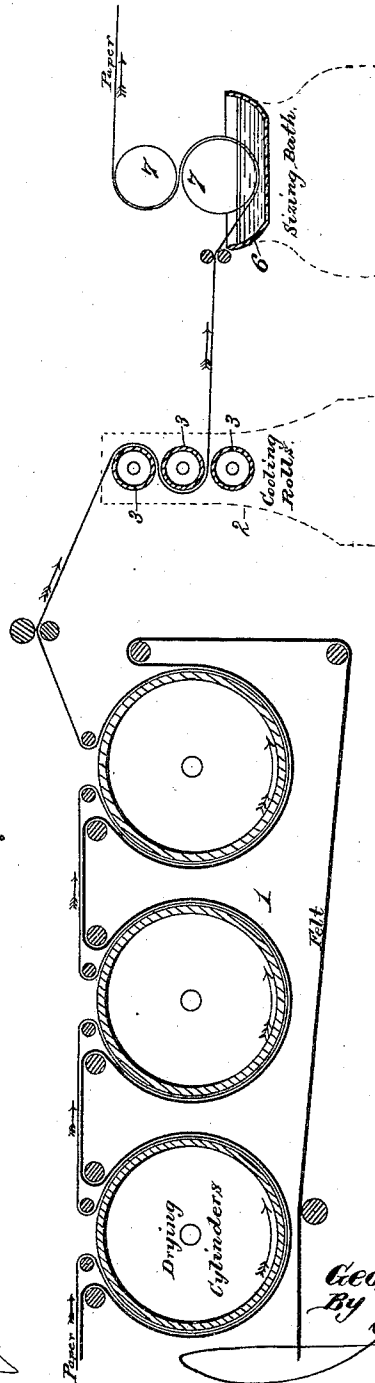
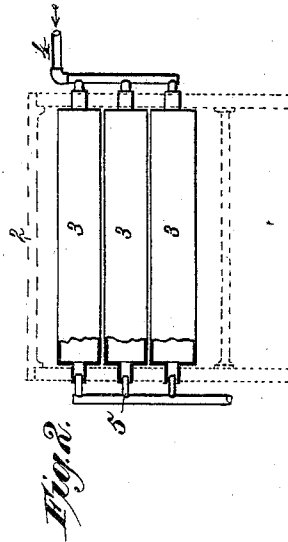
G. F. BARDEN.

ART OF MANUFACTURING WRITING PAPER.

No. 427,453.

Patented May 6, 1890.

Fig. 1.



Witnesses,
Robert Emmett,

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Inventor.

George F. Barden.

By *Darius L. Norris*
Atty.

UNITED STATES PATENT OFFICE.

GEORGE F. BARDEN, OF ADAMS, MASSACHUSETTS, ASSIGNOR TO THE L. L. BROWN PAPER COMPANY, OF SAME PLACE.

ART OF MANUFACTURING WRITING-PAPER.

SPECIFICATION forming part of Letters Patent No. 427,453, dated May 6, 1890.

Application filed January 4, 1890. Serial No. 335,849. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. BARDEN, a citizen of the United States, residing at Adams, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in the Art of Manufacturing Writing-Paper, of which the following is a specification.

My invention relates to certain improvements in the manufacture of writing-paper, and the purpose thereof is to provide a novel process of applying animal size thereto, whereby a more thoroughly and uniformly sized sheet is obtained, which is much better adapted to the uses to which such paper is ordinarily put.

The invention consists in the novel mode of procedure hereinafter fully described, and then definitely pointed out in the claim following this specification.

My invention referred to relates to that class of paper which is treated during the process of manufacture with animal size to impart thereto the required body and surface.

As the web is delivered from the paper-making machine I apply thereto any suitable refrigerating or cooling influences or media, whereby the heat which it has derived from the hot drying-cylinders shall be dispelled. The cooling process may be effected in any one of a variety of methods and by any suitable means. For example, the web may be caused to travel over a space sufficient in extent to enable it to radiate or part with its acquired heat, or currents of cool air may be caused to pass over or between cylinders supplied interiorly with cold water. I do not, however, limit my invention to any specific method of cooling the web, as this may be effected by any means preferred.

When the heat imparted by the drying-cylinders has been expelled from the paper it is passed in its cooled condition through the bath of animal size, its treatment in this respect being substantially the same as that heretofore applied to the heated web.

By cooling the paper before it is immersed

in the animal size I am able to obtain a more thoroughly and uniformly sized sheet than has heretofore been possible in passing the heated web through the sizing-bath.

My invention consists, therefore, in that improvement in the art of manufacturing writing-paper which consists in removing the heat from the web after it comes from the drying-cylinders, and then, while in a cool condition, subjecting it to a bath of animal size.

By the term "writing-paper," as employed in this specification, I refer to that entire class of paper used for account and record books, legal papers, checks, letter-paper, and all analogous uses.

To enable others skilled in the art to practice my said invention, I will describe the same in connection with one form of apparatus suitable to the practical operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a diagram of a mechanism suitable for such purpose. Fig. 2 is a front elevation, partly in section, of the cooling mechanism.

In the said drawings, the reference-numeral 1 denotes part of the hot drying-cylinders on the ordinary Fourdrinier paper-machine. Located in suitable proximity to the last of these cylinders is a frame 2, in which are journaled a series of rolls 3, each composed of a cylindrical shell, which is supplied with a cooling medium—such as cold water—entering by way of a pipe 4, passing through the journals and issuing through a similar pipe 5 at the other end of the roll. There may be any suitable number of such rolls; but I have shown three only, this number being ordinarily sufficient. After passing between and over the cooling-cylinders the web enters the bath 6, of animal size, which is of any usual or preferred form of construction, and after passing over the two sizing-rolls 7 the web is carried to the cutter and is cut into sheets of any required dimensions.

It will be readily understood that the process is equally applicable to any other type

of paper-making machinery, and that I may employ any different means for cooling as well as those shown, as already set forth.

What I claim as new, and desire to secure
5 by Letters Patent, is—

1. That improvement in the art of manufacturing paper which consists in drying the formed web by passing it over hot drying-cylinders, then carrying the dried and heated
10 web over one or more cooling-rolls, and finally applying an animal size, substantially as described.

2. The process herein set forth which consists in cooling the formed and dried web of paper, and while in a cooled condition passing it through a bath of animal sizing, substantially as described. 15

In testimony whereof I have affixed my signature in presence of two witnesses.

GEO. F. BARDEN.

Witnesses:

ARTHUR B. DANIELS,
HERBERT E. HARRINGTON.