W. E. SYMS.

Ornamental Paper.

No. 202,483. Patented April 16. 1878.

Fig: 1.

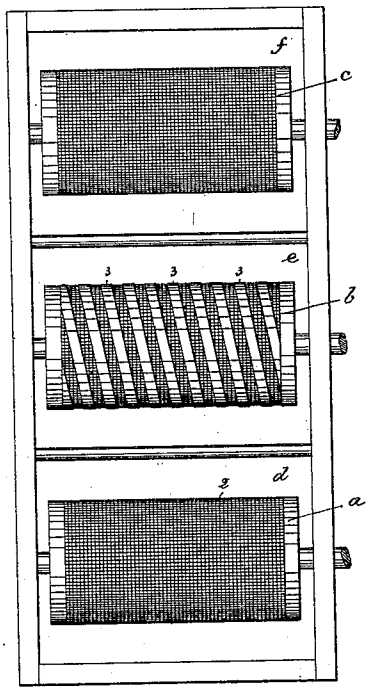


Fig: 2.

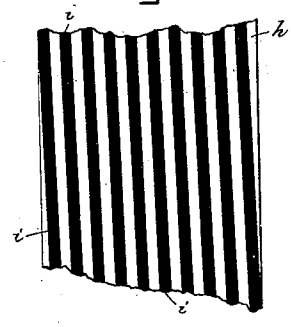
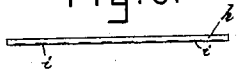


Fig: 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM E. SYMS, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO CROCKER MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN ORNAMENTAL PAPER.

Specification forming part of Letters Patent No. **202,483**, dated April 16, 1878; application filed February 12, 1878.

To all whom it may concern:

Be it known that I, WILLIAM E. SYMS, of Holyoke, in the county of Hampden and State of Massachusetts, have invented an Improvement in Paper and in its Manufacture, of which the following is a specification:

This invention has reference to an ornamented paper as a new article of manufacture, and the process of manufacturing the same.

In the manufacture of paper it is customary to apply to one or both sides of a pulp-web being formed other pulp-webs of different colors or of different stock.

In this my invention I apply to one or both sides of a pulp-web several pattern-webs of pulp of different color or different stock, or both, such pulp pattern-webs being of less surface area than the body-web, whereby the numerous pulp pattern-webs laid upon and incorporated with the body-web are made, by their contrast with the body-web, to impart to the completed web an ornamental face or faces.

In the embodiment of my invention herein shown, the pattern-webs are made as narrow plain stripes, and the paper produced is striped.

Figure 1 of the accompanying drawing shows a sufficient portion of a paper-making machine to illustrate my new process. Fig. 2 represents a striped paper, such as would be produced by the pattern-cylinder shown; and Fig. 3, a cross-section of an ornamented or striped web, the striped surface being down rather than up, as in Fig. 2.

The pulp-webs, whether broad or narrow, will be formed on any usual cylinder-machine, or on a Fourdrinier machine, or both combined.

In Fig. 1 I have shown three cylinders, *a b c*, each being set in its own pulp-vat, *d e f*. The cylinder *a* will take up pulp across the whole of its reticulated surface, and such pulp will be taken therefrom, in the usual way, by the usual belt, too well known to be herein described. The cylinder *b* (shown as the pattern-cylinder) has portions of its reticulated surface covered at intervals, as at 3, with a thin cloth or rubber covering, so that the pulp will be deposited upon cylinder *b* only where the reticulated surface is exposed.

In the particular pattern-cylinder herein shown, the pulp will be deposited in narrow strips, and the usual felt or blanket will take from such pattern-cylinder several narrow webs of pulp corresponding with the width of the exposed reticulated surface.

Instead of closing the openings of the reticulated cylinder by application of a covering to its outer side, such covering may be applied within the cylinder, or a portion of the open mesh of the cylinder-surface may be stopped with some substance which will thicken and harden.

The covering material or substance applied to the pattern-cylinder may be of any desired shape or outline, to leave exposed only such portion of the reticulated surface thereof as would correspond with the pattern which it is designed to have the face of the completed paper exhibit.

If the pulp in vat *d* is white and the pulp in vat *e* black, then the cylinder *a* will form a broad white web, *h*, and the pattern-cylinder a number of—say ten—narrow black webs, *i*. The black or pattern webs will be laid upon the body-web, and the several webs, after leaving their felts, will be united in their pulp state, as commonly practiced with broad pulp-webs, thereby forming a web of one color on one side, and made at its other side in design by the addition, at certain portions thereof, of pattern pulp-webs of different color.

The pattern-pulp may differ from the plain or body web in stock as well as color, which presents a more striking contrast.

If I desired to have both surfaces of the completed paper ornamented, as described, then the cylinders in the vats *d f* would be made the pattern-cylinders, and a plain cylinder, located in the vat *e*, would form the body of the compound web.

The vats and the method of agitating the pulp therein will all be as in ordinary paper-making machines.

I might stripe a paper longitudinally in two or more colors by employing two or more pattern-cylinders having their annular reticulated

exposed surfaces alternating, so that the strips or narrow pattern pulp-webs taken by the felt from one would be placed on the ground-web between pulp-webs taken from the other, or parallel therewith. With these cylinders will be employed the usual couching and press rollers.

I claim—

1. As an improved article of manufacture, paper composed of a ground-web of one color, and ornamented in design by the addition to the ground-web of numerous independent pulp-webs, substantially as described.

2. The herein-described process of forming paper with its face ornamented in design, consisting in placing upon a broad pulp-web formed on one cylinder or belt other smaller pattern pulp-webs of different colors or stock, or both, produced on a second cylinder or belt, and pressing and forming such webs into one web, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM E. SYMS.

Witnesses:

DANIEL P. CROCKER,

GEO. E. DUDLEY.