

# UNITED STATES PATENT OFFICE.

JOHN M. HOLLINGSWORTH AND LYMAN HOLLINGSWORTH, OF BOSTON,  
MASSACHUSETTS.

## IMPROVEMENT IN MAKING PAPER.

Specification forming part of Letters Patent No. 3,362, dated December 4, 1843.

*To all whom it may concern:*

Be it known that we, JOHN M. HOLLINGSWORTH and LYMAN HOLLINGSWORTH, both of Boston, in the county of Suffolk and State of Massachusetts, copartners under the firm of J. M. & L. HOLLINGSWORTH, have invented a new and useful Manufacture of Paper; and we do hereby declare that the following is a full and exact description.

The nature of our invention consists in making an exceedingly firm, smooth, and strong paper from the substance generally known as "Manila grass," being the fibrous portion of the bark of the wild banana, (*Musa textilis*). We make use, mostly, of the old junk of what is termed in navigation "grass rope," cutting and picking it, as is usual with other kinds of paper-stock. We then buck or boil it with water in a large kettle, adding lime in the proportion of one barrel to thirty-five hundred-weight of stock. We continue the boiling for about twenty-four hours, or until the cohesion of the fibers is destroyed. We then put the stock thus prepared into the engine, and after washing it from one to four hours, according to circumstances, beat it about four hours. The pulp thus prepared we manufacture into paper in any of the usual modes. Instead of lime, we sometimes use potash, soda-ash, or other alkaline substances of like properties.

We claim to be the first discoverers of the fact that the gummy, resinous, or other matters which bind together the fibers of the substances known as "Manila grass" may be so dissolved by the process of boiling in an alkaline lye that the fibers will become separated and a material produced capable of being manufactured into paper of the best description.

We do not claim the process herein described as applied to any other materials; neither do we claim the employment, in conjunction with other stock, of a portion of Manila grass reduced to a state of minute division by mechanical means alone.

We consequently claim as our invention and desire to secure by Letters Patent—

The application of the chemical process of boiling in caustic alkaline lye, substantially in the manner herein set forth, to the vegetable substance known as "Manila grass," for the purpose of preparing the same to be converted into paper.

JOHN M. HOLLINGSWORTH.  
LYMAN HOLLINGSWORTH.

Witnesses:

R. B. CARTER,  
CHARLES CRANE.