

J. H. Hawes.

Paper Making Process.

N<sup>o</sup> 89,220. Patented Apr. 20, 1869.

Fig. 1.

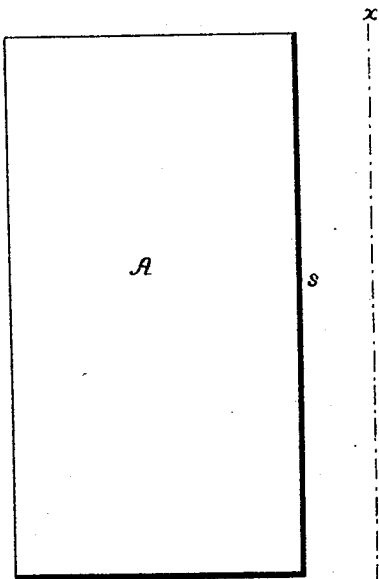
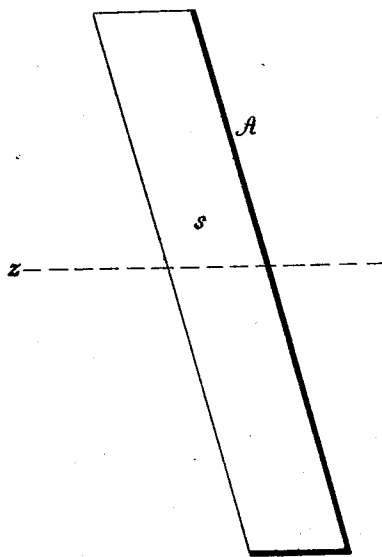


Fig. 2.



Witnesses.

J. W. Coombs  
Fred. Haynes

Inventor.

J. H. Hawes  
per Brown Combs

# UNITED STATES PATENT OFFICE.

JACOB H. HAWES, OF STOCKBRIDGE, MASSACHUSETTS, ASSIGNOR TO THE  
HAWES PATENT WOOD PULP COMPANY, OF SAME PLACE.

## IMPROVED PROCESS FOR PREPARING PAPER-STOCK FROM WOOD.

Specification forming part of Letters Patent No. **89,220**, dated April 20, 1869.

*To all whom it may concern:*

Be it known that I, JACOB H. HAWES, of Stockbridge, in the county of Berkshire and State of Massachusetts, have invented a new and useful Process for Preparing Paper-Stock, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which—

Figures 1 and 2 represent side and front views of a block of wood as it is preferred to cut or shape it for reduction into paper-stock according to my improved process, and showing by red and blue lines the presentation or relative position of the same to the reducing-surface.

This my invention consists in preparing paper-stock by a grating process, as contradistinguished from grinding, rasping, or shaving; and it furthermore consists in so preparing paper-stock from wood as that the reduction of the latter is effected under a compound obliquity as regards the direction of its fiber to the grating-surface—that is, as for instance, where the grater is made to reciprocate in a straight line, oblique to the plane of the grating-surface, and oblique to the line of motion or direction in travel of the grater.

To illustrate by reference to the accompanying drawing, I take, for instance, a block of wood, A, squared or cut in reference to its fiber as represented in said drawing, *s* being the side or surface which is designed to be presented to the action of the grater, the line *x* indicating the plane of the grating-surface, and the line *z* the line or direction of its reciprocating travel. Said block, being suitably guided or held to secure such presentation to the grater, is continuously forced up against the latter, giving at the same time, if desired, a slight or slow cross-reciprocating movement to said block, to prevent the grater during its travel grooving the wood.

By the compound obliquity which the block A, as regards its fiber, presents to the surface and travel of the grater, I find that a more

perfect reduction of the wood without injury to its fiber is secured; but the reduction may be effected by a straight presentation of the fiber to the grater, that may either be of a reciprocating or rotary character.

By grating wood to form paper-stock, the same, by reason of the sharp and peculiar character of the grating-surface, is reduced much more perfectly than is attainable either by grinding or rasping, while the reduced particles are passed off through the interstices in or open protuberances of the grater as fast as they are grated from the wood, thus keeping both the wood and grating-surface clear.

It is not necessary here to describe any particular mechanism for thus reducing wood to make paper-stock, as such may be varied, but the following will answer: Thus, I take two flat graters and arrange them parallel to each other on a reciprocating frame or slide, the graters lying back to back, but separated by escape-passages for the reduced wood. Against the faces of these graters the blocks of wood are made to press, and are continuously forced up by means of followers, operated by weights or springs, said blocks being preferably arranged in compartments made in frames, that have a slight or slow reciprocating movement given them in a crosswise direction to the travel of the graters.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The process of preparing paper-stock from wood by grating it, substantially as specified.

2. In preparing paper-stock from wood by grating it, so presenting the block of wood to the grater as that its fibers are made to lie oblique to the plane of the grating-surface, and also to the travel of the grater, essentially as shown and described.

JACOB H. HAWES.

Witnesses:

FELLOWS GALE,  
VALLAS TRUESDELL.