

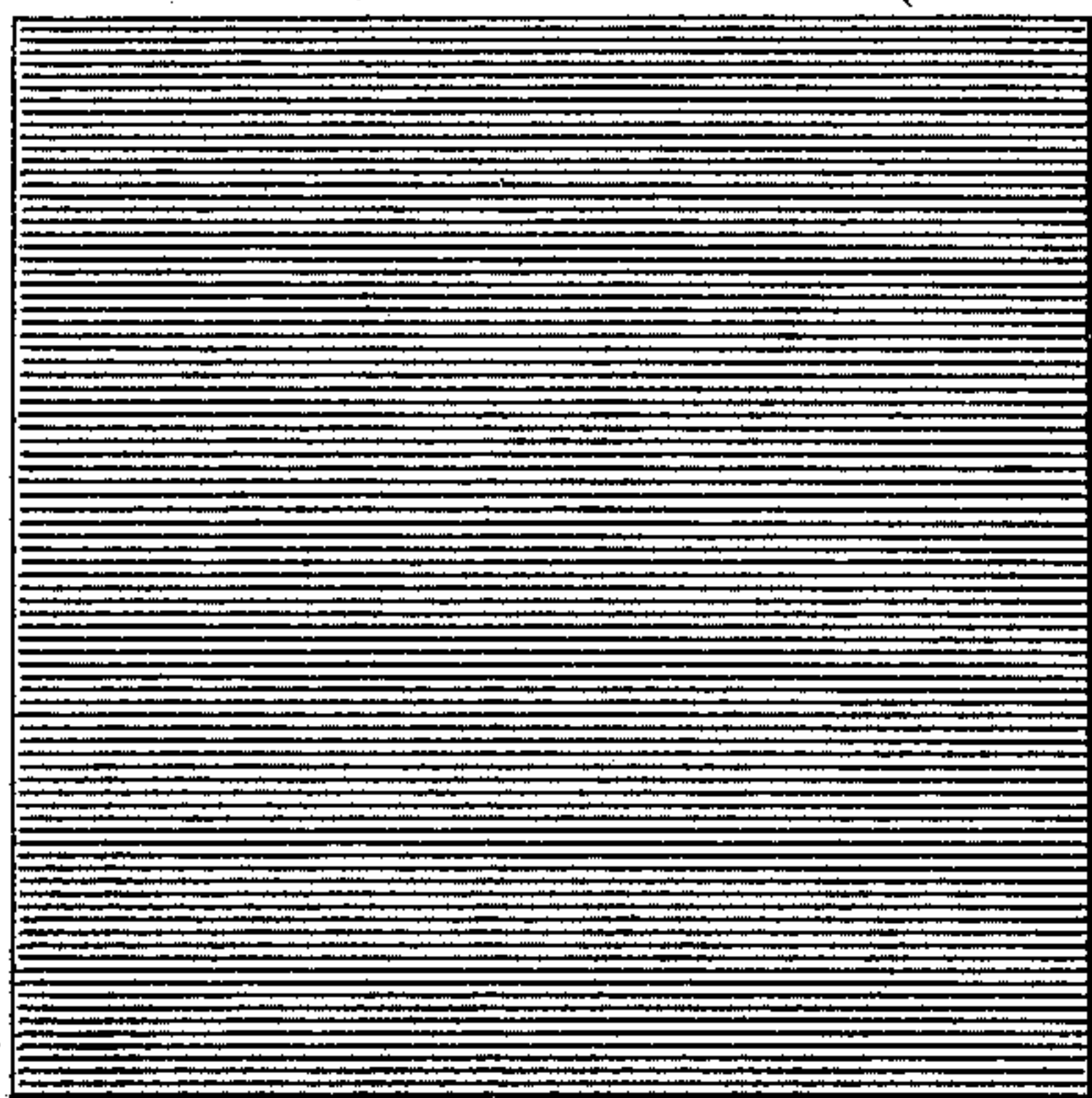
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Z. CRANE, Jr.  
PROCESS OF FINISHING PAPER.

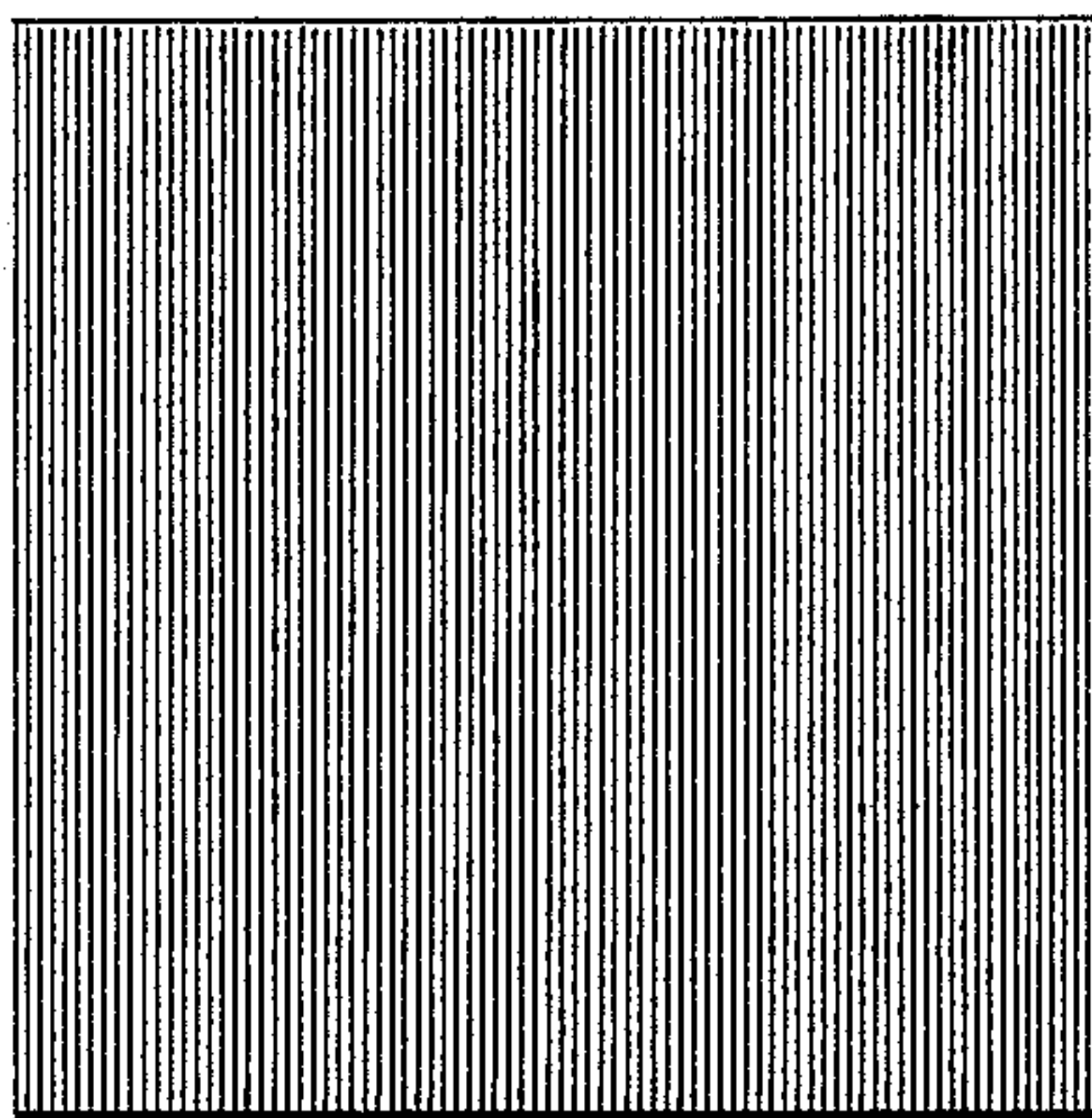
No. 406,505.

Patented July 9, 1889.

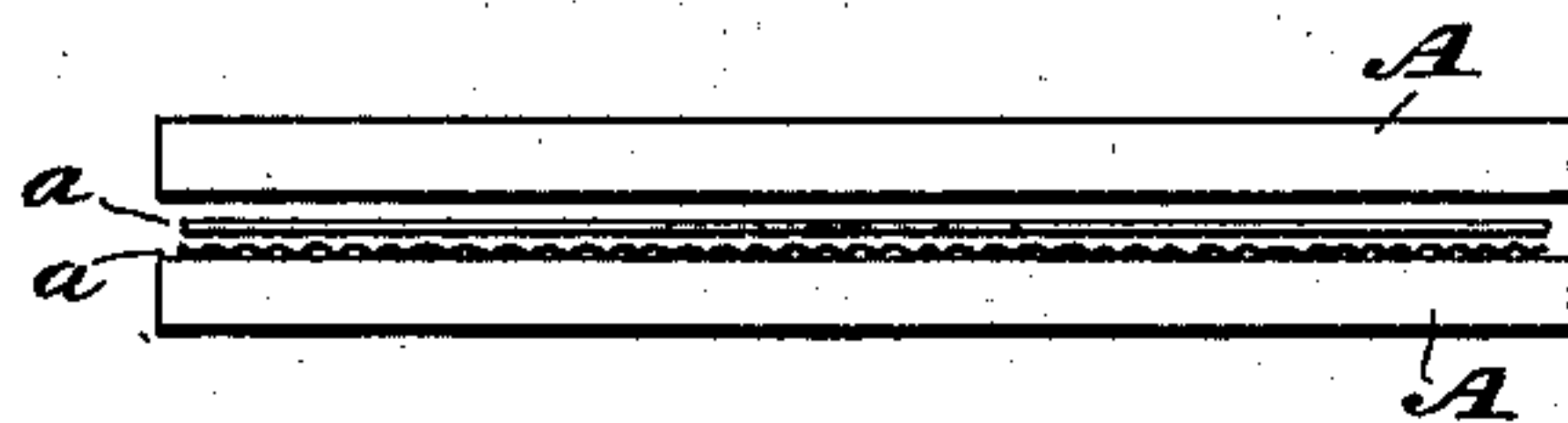
*Fig. 1,*



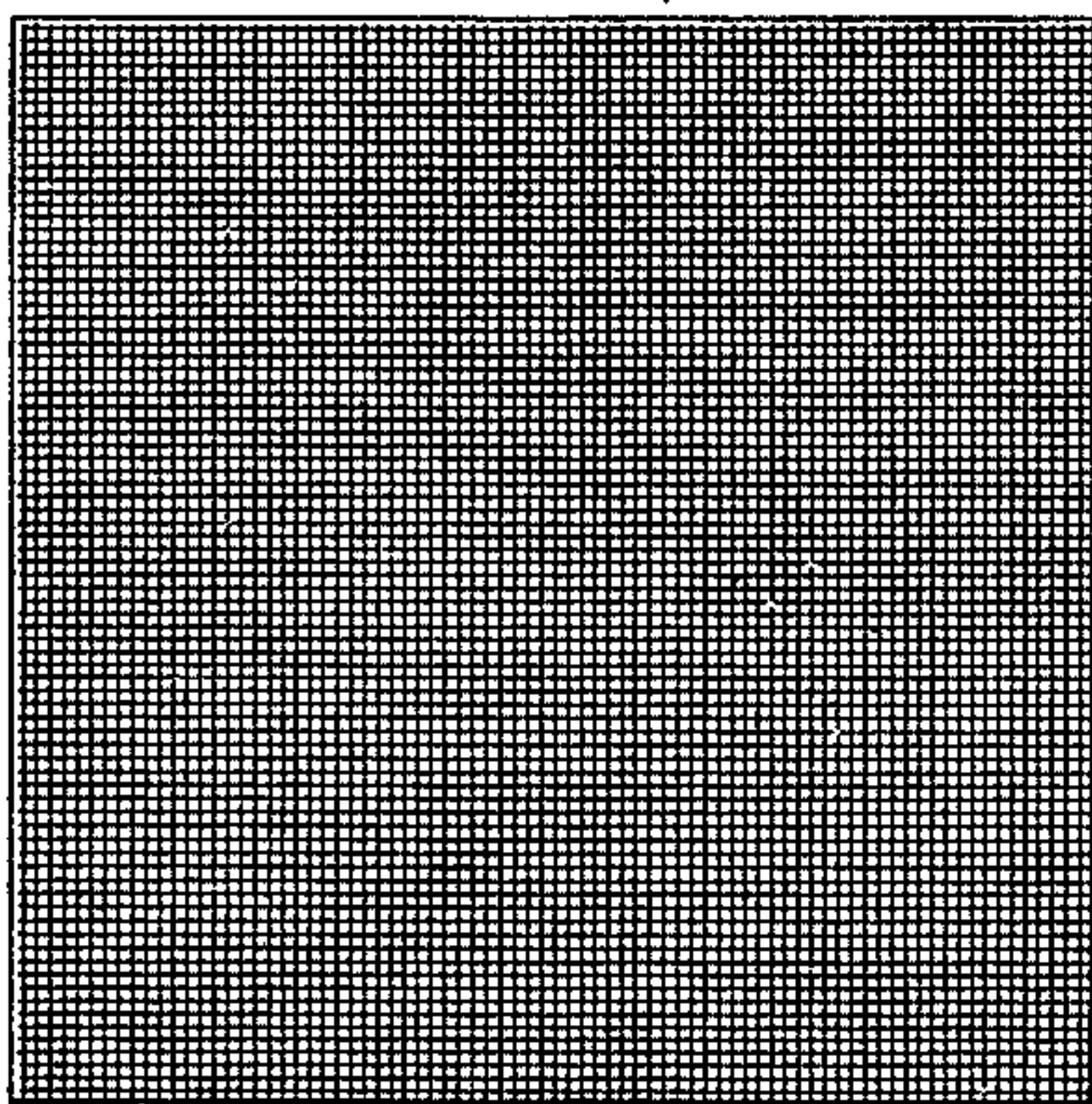
*Fig. 2,*



*Fig. 3,*



*Fig. 4,*



Witnesses  
Geo. W. Breck.  
Edward Thorpe.

Inventor  
Z. Crane Jr.  
By his Attorneys  
Pope, Edgcomb & Terry

# UNITED STATES PATENT OFFICE.

ZENAS CRANE, JR., OF DALTON, MASSACHUSETTS.

## PROCESS OF FINISHING PAPER.

SPECIFICATION forming part of Letters Patent No. 406,505, dated July 9, 1889.

Application filed March 19, 1888. Serial No. 267,651. (No specimens.)

*To all whom it may concern:*

Be it known that I, ZENAS CRANE JR., a citizen of the United States, residing at Dalton, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in the Process of Finishing Paper, of which the following is a specification.

My invention consists in a novel process of finishing that class of paper technically known as "laid paper." The finish to this class of paper is produced by passing the sheet or "web" from which it is formed under the well-known "dandy-rolls" of the paper-machine. Some of the parallel strands which compose the wire netting of which the dandy-rolls are formed are made to project outward from the others, and these projecting wires indent the moistened web as it passes through the rolls and produce the parallel ridges or lines common to laid paper.

In the accompanying drawings, Figures 1 and 2 show each a sheet of paper with parallel lines as produced by the machine. Fig. 3 illustrates the manner of treating the paper, and Fig. 4 shows a finished sheet.

In carrying out the invention I cut the web, after it has passed through the machine and received the impression from the dandy-rolls, into sheets. After these sheets have become dry I pile them together, with the parallel lines of one sheet crossing those of the other, the sheets being similarly alternated throughout the pile. The sheets are then collectively submitted to pressure and afterward separated, when the ridges between the parallel indentations of each sheet will appear to have indented the sheets with which it has been pressed into contact, the indented lines thus formed extending at right angles to those formed upon each originally by the dandy-

rolls, thus producing an improved and highly-ornamental appearance to the paper.

Referring to the figures, after the desired number of the sheets, as shown in Figs. 1 and 2, are cut from the finished web as it passes from the machine they are dried and piled together, so that the lines of each alternate sheet extend in the same direction and cross the lines of the intervening sheets. The pile is now placed between plates, as in Fig. 3, in which A A are the plates, and *a a* two of the sheets contained in the pile. The plates are then pressed toward each other by any suitable means, and after the sheets have remained under pressure a sufficient length of time they may be separated, when they will each be found to have received additional lines extending in an opposite direction to and across those originally formed by the dandy-rolls, as hereinbefore described, and as shown in Fig. 4.

It is shown that by forming the pile with alternating sheets having lines or figures of a different width or character from that of the intervening sheets the appearance of the pressed paper may be modified.

The paper is not calendered.

I claim as my invention—

The hereinbefore-described process of finishing laid paper, which consists in piling two or more sheets of the paper as it is made by the machine in alternate positions with respect to the lines of said paper and submitting the pile to pressure.

In testimony whereof I have hereunto subscribed my name this 12th day of March, A. D. 1888.

ZENAS CRANE, JR.

Witnesses:

NATHANIEL MORRIS,  
FRANK B. ROBINSON.