

(No Model.)

C. M. SCHMIDT.

PROCESS OF MAKING WATER LINES ON PAPER.

No. 373,803.

Patented Nov. 22, 1887.

fig. 1.

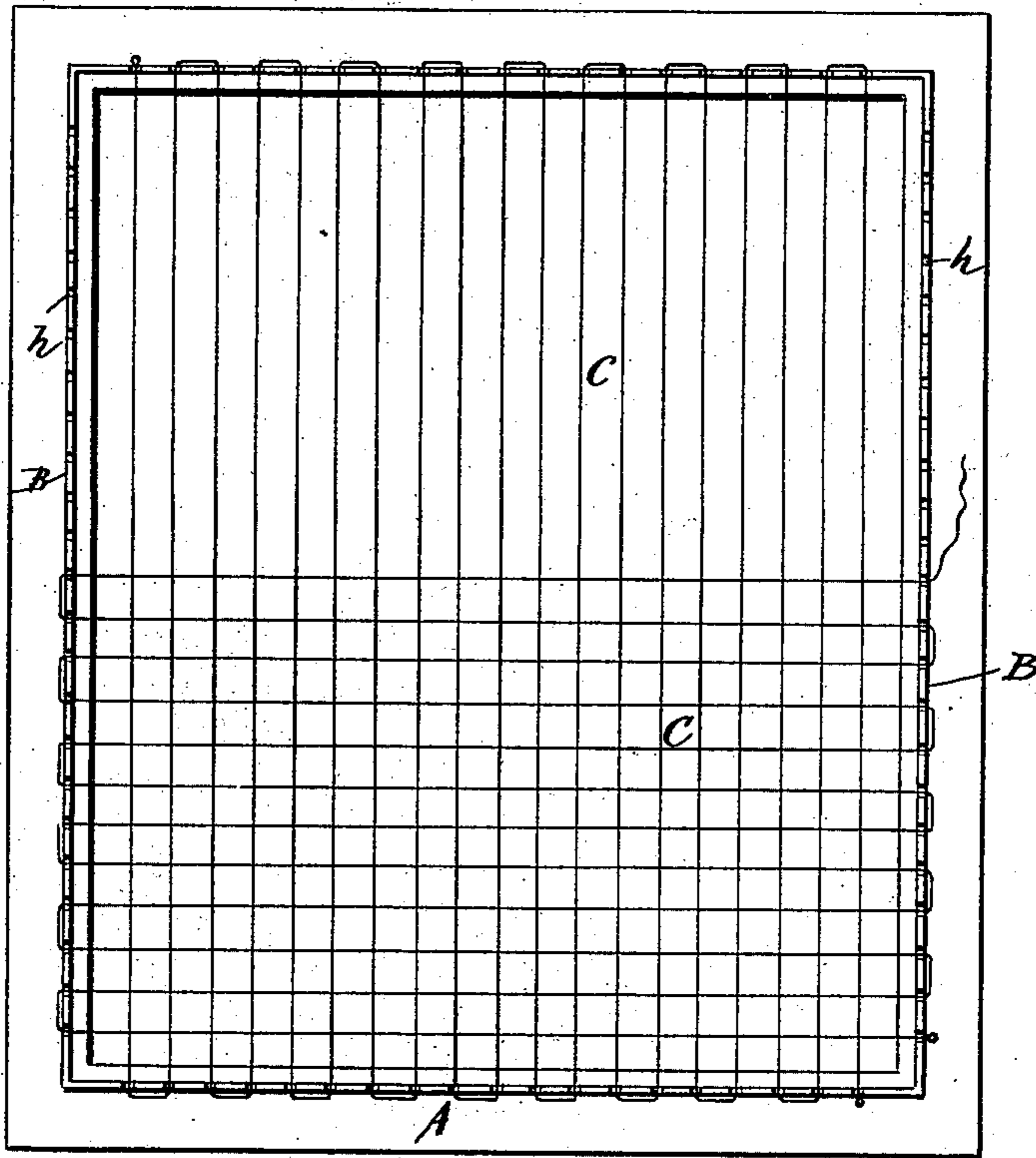
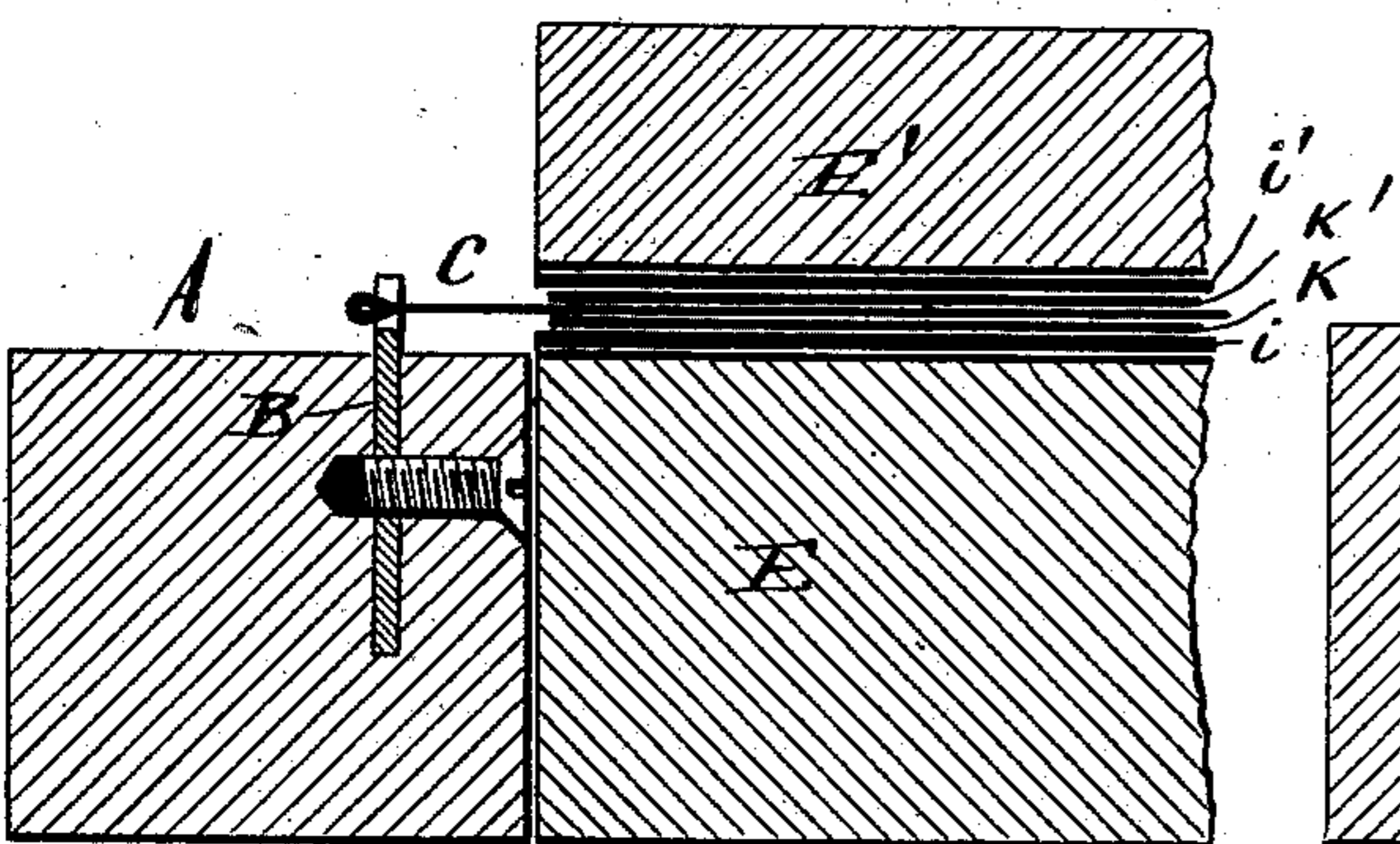


fig. 2.



WITNESSES:

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fig. 3.

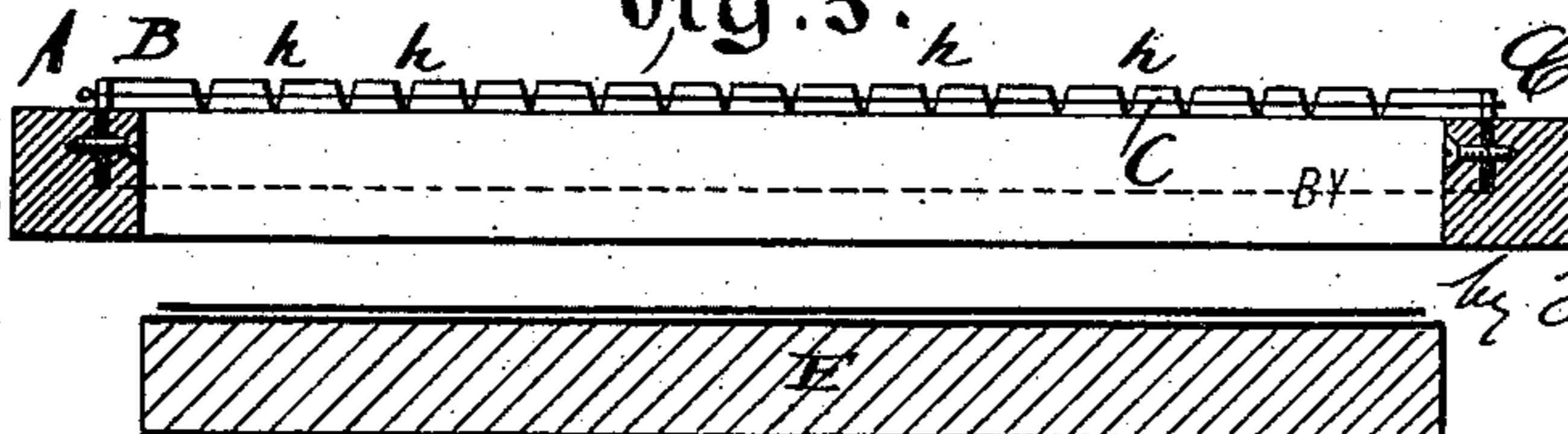
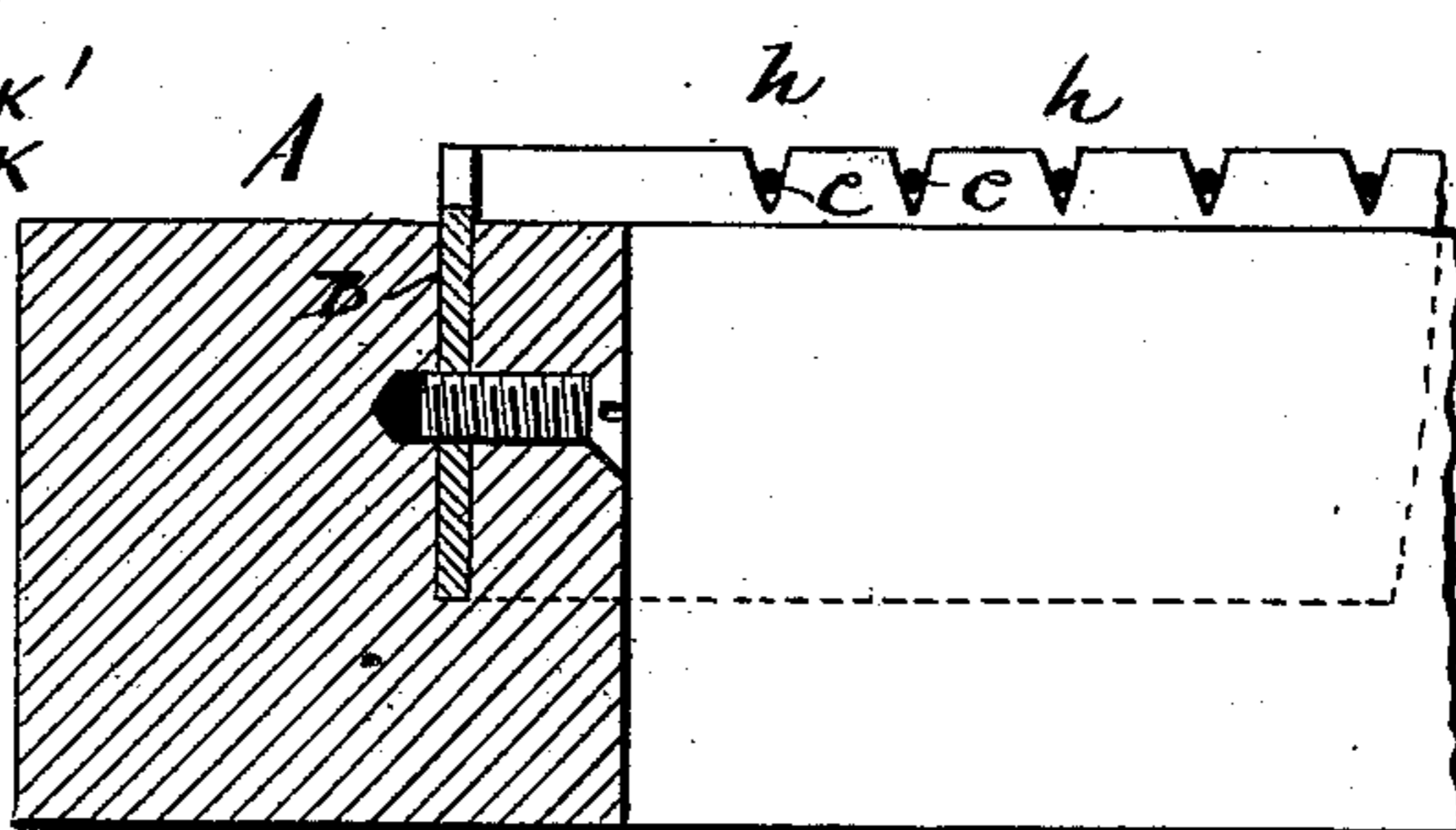


fig. 4.



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PROCESS OF MAKING WATER-LINES ON PAPER.

SPECIFICATION forming part of Letters Patent No. 373,803, dated November 22, 1887.

Application filed December 16, 1886. Serial No. 221,749. (No model.)

To all whom it may concern:

Be it known that I, CARL MORITZ SCHMIDT, a subject of the King of Saxony and Emperor of Germany, residing at the city of Berlin, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Processes of Making Water-Lines on Paper, of which the following is a specification.

10 This invention relates to certain new and useful improvements in the art of producing water-lines on paper after the same has been calendered, thereby reducing the cost of producing such water-lines.

15 The object of my invention is to provide a water line or ruling on paper in one or two directions.

The invention consists in making the lines by means of a die composed of parallel or cross threads held firmly between two sheets of paper, all as will be fully described and set forth hereinafter, and finally pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a plan view of the apparatus for making the die. Fig. 2 is an enlarged detail cross-sectional elevation of part of the same. Fig. 3 is a cross-sectional view of Fig. 1, and Fig. 4 is an enlarged cross-sectional view of the frame.

Similar letters of reference indicate corresponding parts.

35 A represents a rectangular frame, from the top of which the strips B project, which are held edgewise in said frame and are fastened by suitable screws. The strips B are provided in the parts projecting from the top of the frame with notches *h*. Threads C are passed through the notches and extend across the opening of the frame alternately in opposite direction, as shown in Fig. 1. In case the paper is to be ruled in one direction only, the cords or threads are passed over the openings of the frame in one direction only; but in case the paper is to be cross-ruled the lines are drawn over the frame at right angles to each other. Upon a block or slab, E, fitting in the frame A, a layer, *i*, of blotting-paper, felt, or like soft material is placed, and upon the layer

i, I place a layer, K, of paper, the upper surface of which is covered with adhesive material. This block E and layer *i* of felt or blotting-paper and the sheet covered with adhesive material I place in the position shown in Fig. 2, so that the side of the paper K covered with adhesive material comes in contact with the under sides of the threads C. Upon the threads I place another sheet, K', having the surface that comes in contact with the threads also covered with adhesive material. Upon the sheet K', I place a sheet, *i'*, of blotting-paper or felt, and upon the same a slab or block, E'. By means of any suitable device great pressure is exerted on the block E', whereby the paper sheets K K' are pressed firmly against the cords or threads and are united firmly with each other between the cords or threads. Thus a paper die is formed having raised parts on both surfaces at those parts where the cords or threads are located. The die is then detached from the frame.

To produce the water-lines on the paper said paper is placed upon a die prepared as set forth and with the same passed through a calendering-machine, whereby the paper is compressed at those parts where the raised parts of the die act on it and the same effect produced as by water-lining according to the old method.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The method herein described of water-lining on paper after the same has been calendered, consisting in pressing a die composed of threads held between two united sheets of paper upon the paper to be lined, substantially as shown and described.

2. A die for water-lining paper after the same has been calendered, consisting of threads held between two united sheets of paper, substantially as shown and described.

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

CARL MORITZ SCHMIDT.

Witnesses:

B. ROY,

M. W. MOORE.