

No. 703,286.

Patented June 24, 1902.

H. MACKINTOSH.

PROCESS OF MAKING WEAVERS' DESIGNS.

(Application filed Jan. 2, 1901.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

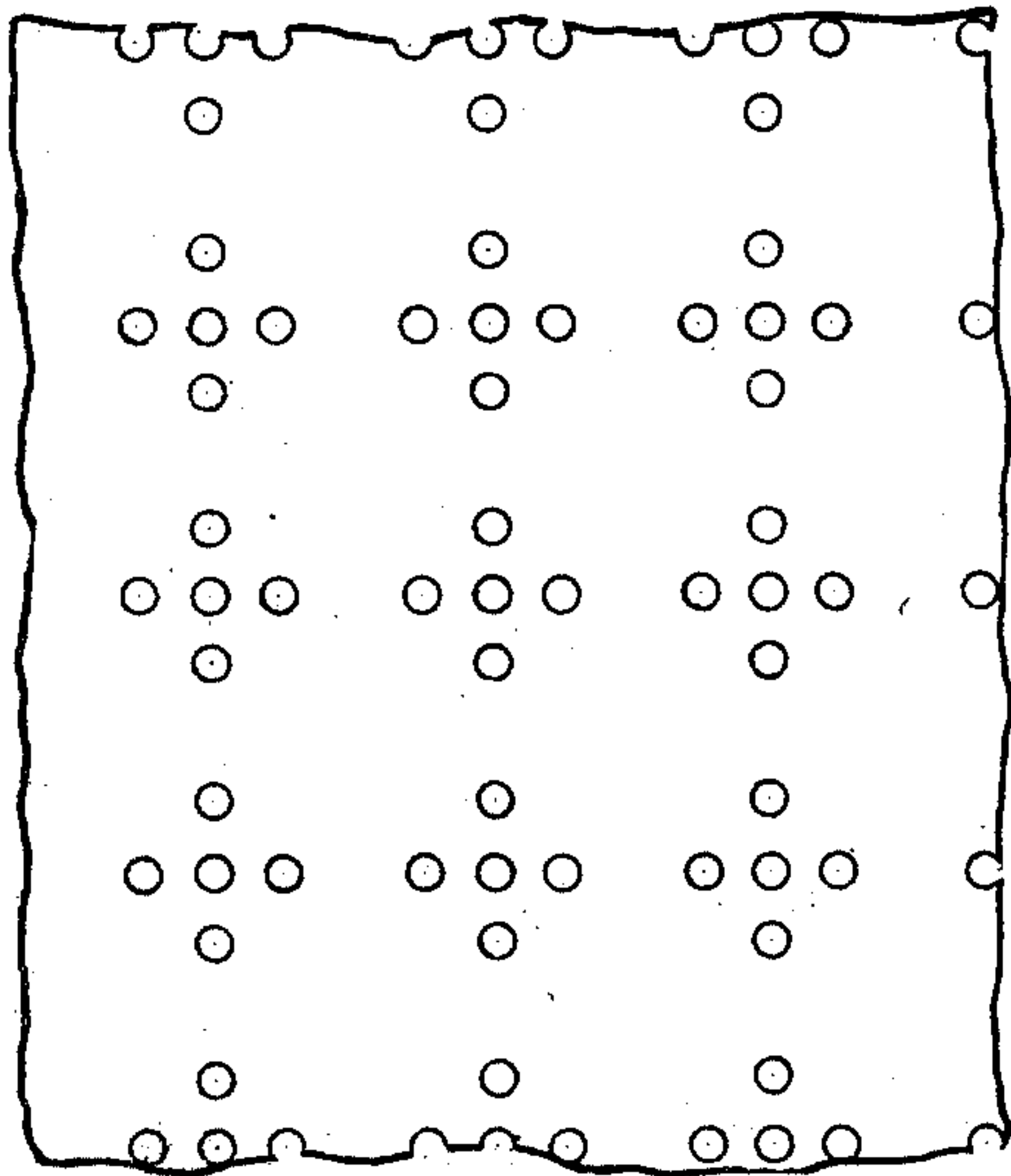


FIG. 2.

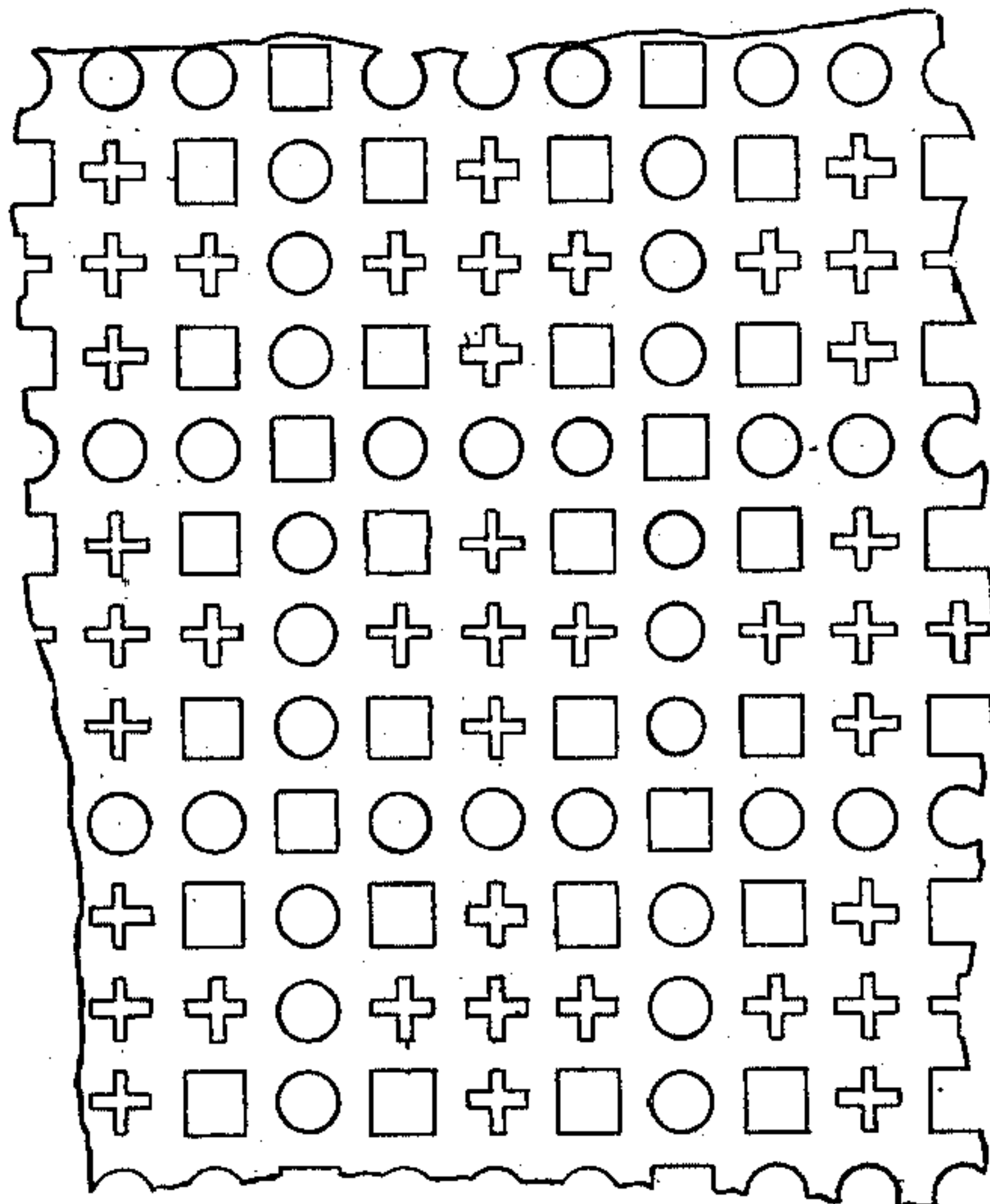


FIG. 3.

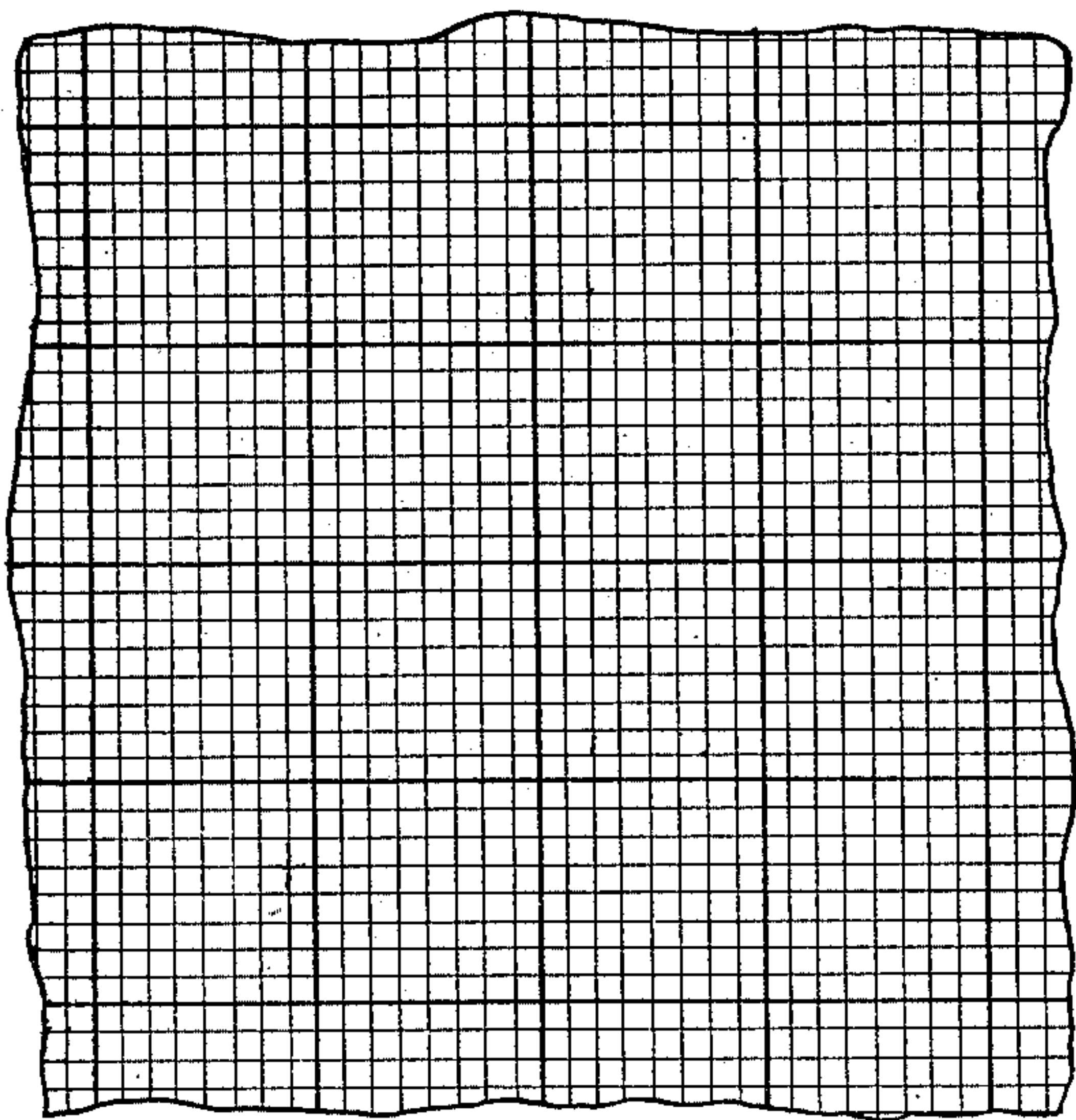
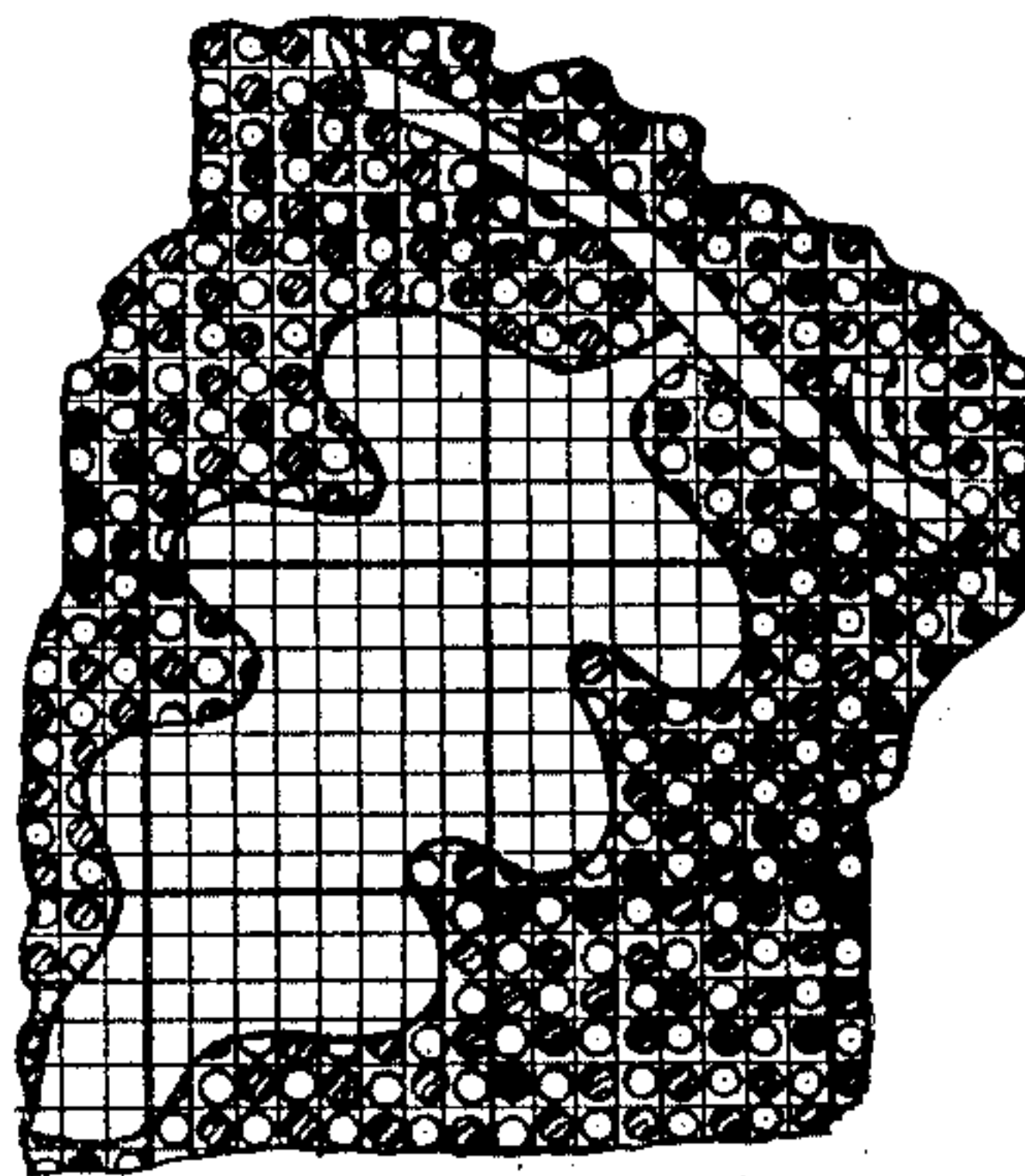


FIG. 4.



Witnesses  
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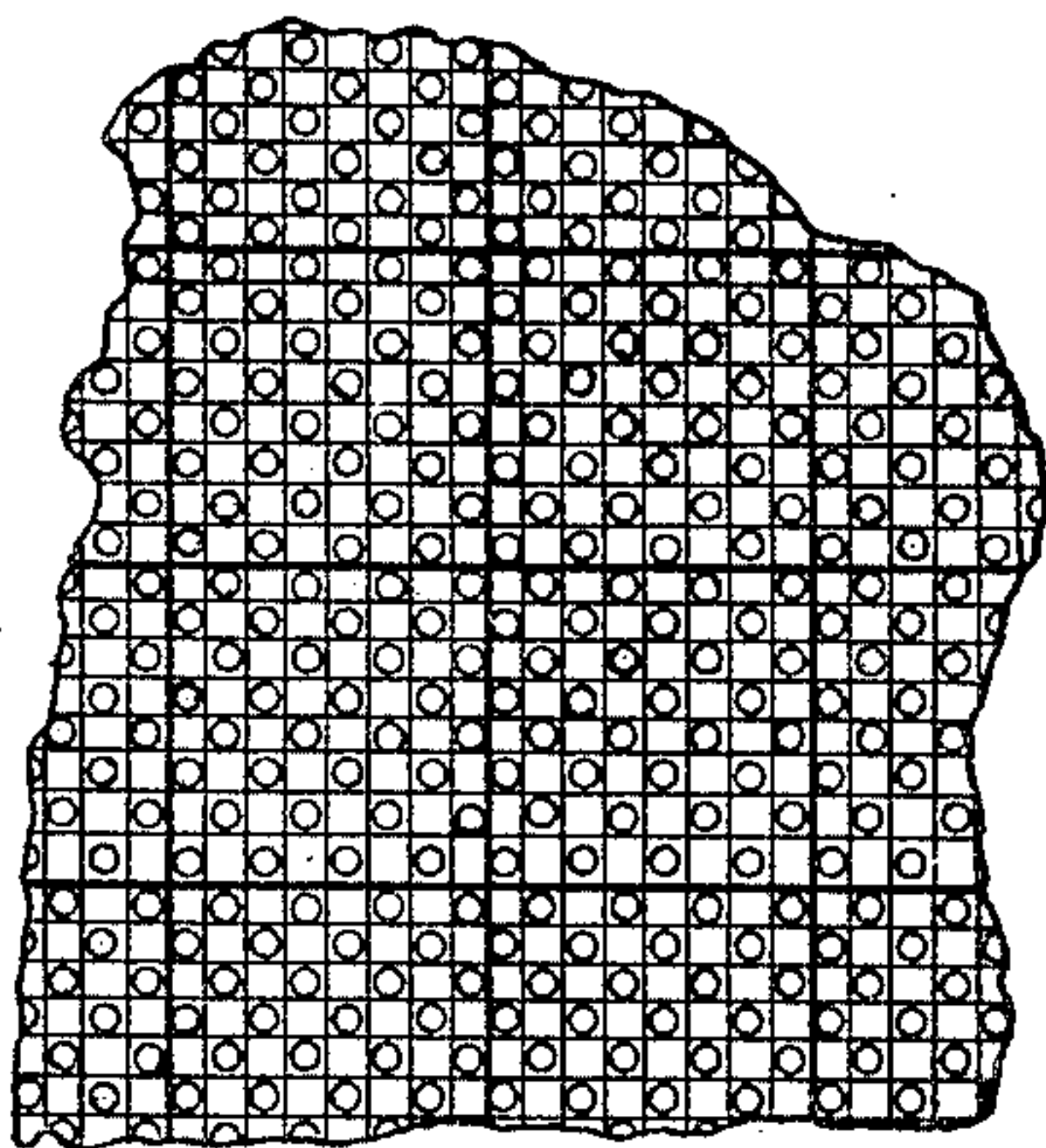
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2 Sheets—Sheet 2.

**FIG. 5.**



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# UNITED STATES PATENT OFFICE.

HARRY MACKINTOSH, OF SHIPLEY, ENGLAND.

## PROCESS OF MAKING WEAVERS' DESIGNS.

SPECIFICATION forming part of Letters Patent No. 703,286, dated June 24, 1902.

Application filed January 2, 1901. Serial No. 41,850. (No specimens.)

*To all whom it may concern:*

Be it known that I, HARRY MACKINTOSH, agent, a subject of the Queen of Great Britain, residing in Shipley, in the county of York, England, (whose post-office address is Moorehead House, Shipley, aforesaid,) have invented certain new and useful Improvements in Processes of Making Weavers' Designs, of which the following is a specification, provisional protection having been obtained in England under No. 4,796, dated March 13, 1900, and No. 14,785, dated August 17, 1900.

This invention has for its object a method of forming diagrams.

Hitherto a sheet ruled with a series of cross-lines an equal distance apart both ways, commonly called "point-paper," has been used, and the entire pattern and ground has been carefully painted into this by hand. To facilitate this, I form a transparent stencil of any waterproof sheet—such as oiled paper, preferably long-fibered Japanese rice-straw paper soaked in varnish and rolled under heavy pressure. This I pass into a machine like a type-writer, geared so that the feed in both directions shall be absolutely the same as the distance between the lines of the point-paper subsequently used or a multiple of such distance, so that supposing the type were a simple dot these dots would be spaced exactly evenly apart in longitudinal and transverse lines. Instead of, however, having type I have punches; but the motion of the machine can be precisely the same as that of the type-writer, the gearing being arranged so that all the punch-holes in a fully-punched sheet shall be equidistant from those nearest them in the transverse and longitudinal lines. It is obvious, however, that other forms of punching-machines can be used, providing the table forming the paper-carrier or the punching-device carrier is provided with an equal longitudinal and transverse feed exactly corresponding to the squares on the point-paper. I may have one or more round punches; but in some instances I may use punches of different shape, one, say, square, another round, a third a star or triangle, by which, if desired, I can form a variegated ground, represented in monochrome by different symbols, one symbol for each color. In practice, however, as a rule I prefer to have but a

single variety of punch making a round or square hole and use several stencils with different colors, one for each weave of the ground employed. I then throw the representation of any pattern I require by means of a specially-arranged optical lantern adapted to project the design onto a sheet of point-paper—that is to say, paper ruled with lines equidistant apart and at right angles to each other and exactly the same distance apart as the feed of the type-writer—and the outline of the image thus projected is drawn in by hand. I then place the stencil over the ruled paper, with the punched centers exactly registering with the centers of the small squares of the paper, and with a brush rub in the color through the holes on the ground. In this way a number of different weaves in different colors can be applied successively to the same design, so that the different grounds in the whole design are correctly indicated.

In order that my invention may be better understood, I append the accompanying drawings, in which—

Figure 1 shows a portion of a templet with one form of punch-hole. Fig. 2 shows a portion of templet with three forms of punch-hole. Fig. 3 shows a portion of a ruled sheet. Fig. 4 shows a portion of a completed pattern. Fig. 5 shows a portion of the templet or stencil used for producing the ground shown in Fig. 4.

In the drawings, Fig. 3 shows a portion of a sheet of ruled paper. This ruled paper has the lines ruled exactly a unit distance apart, the same distance unit as that of the feed of the punching-machine already described. Every tenth or eighth line, as the case may be, is made rather thicker than the others for the more easy counting. This sheet is placed on a suitable frame and the reflection of the pattern thrown thereon by means of a mirror. The size and position of the pattern on the sheet having been adjusted, the pattern is now drawn or painted off by hand. The ground is now stenciled in with its respective colors by means of one or a series of stencil-plates, as before described.

I declare that what I claim is—

1. The process of making weavers' designs, consisting in projecting a design by a camera on a paper ruled in squares, then outlining

said design on the ruled paper and stenciling in the ground by means of a stencil having holes whose centers are distant the length of the sides of the squares from each other or a multiple of that length, substantially as described.

2. The process of making weavers' designs, consisting in projecting a design by a camera upon a surface ruled in squares, then outlining said design on the ruled surface and stenciling in the ground in a series of different colors by the means of a series of separate

stencils, having differently - arranged holes therein, which holes are arranged in the centers of the squares on the ruled surface, substantially as described. 15

In witness whereof I have hereunto signed my name, this 20th day of December, 1900, in the presence of two subscribing witnesses.

HARRY MACKINTOSH.

Witnesses:

CECIL A. S. BAXTER,  
DAVID NOWELL.