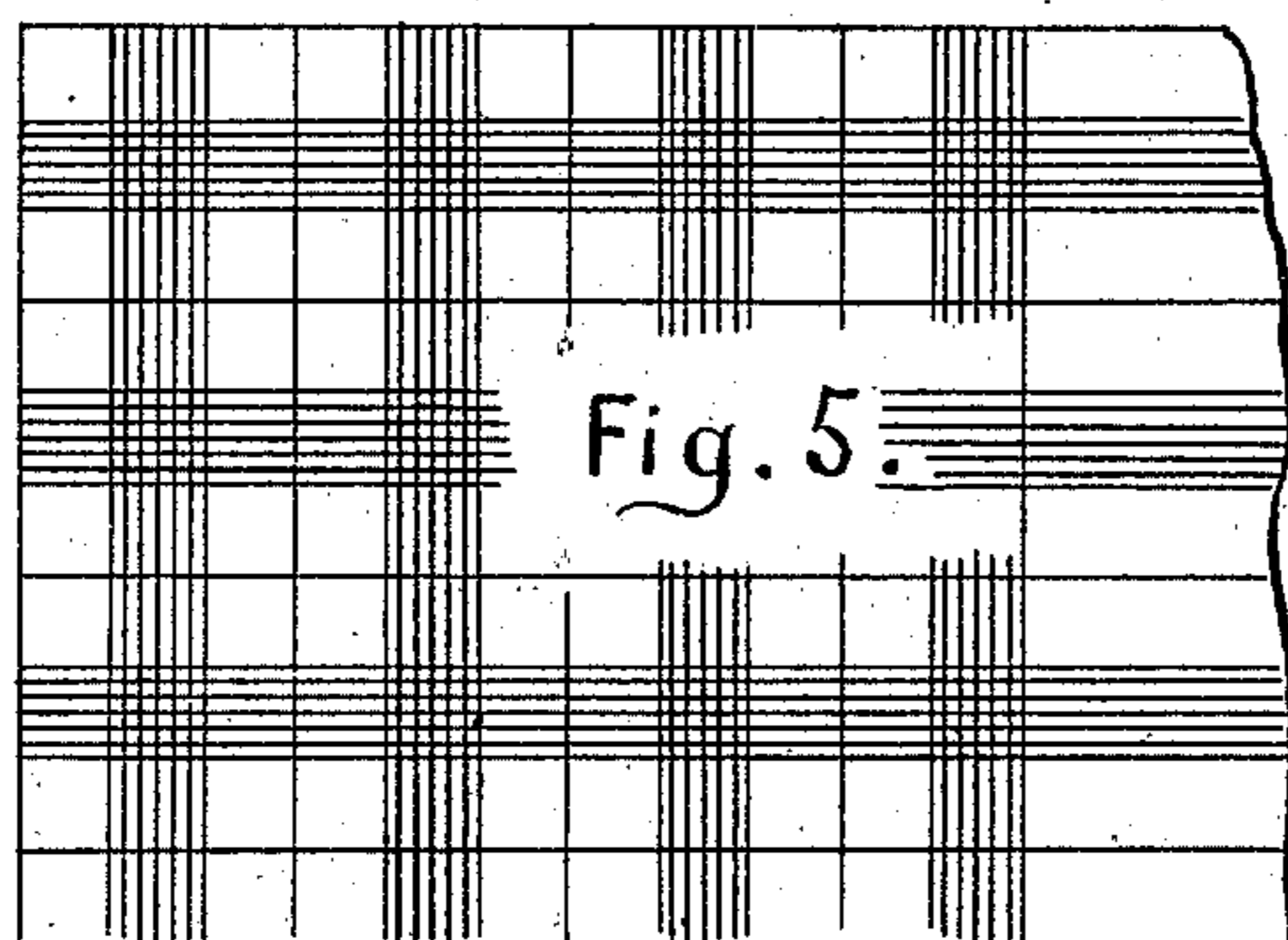
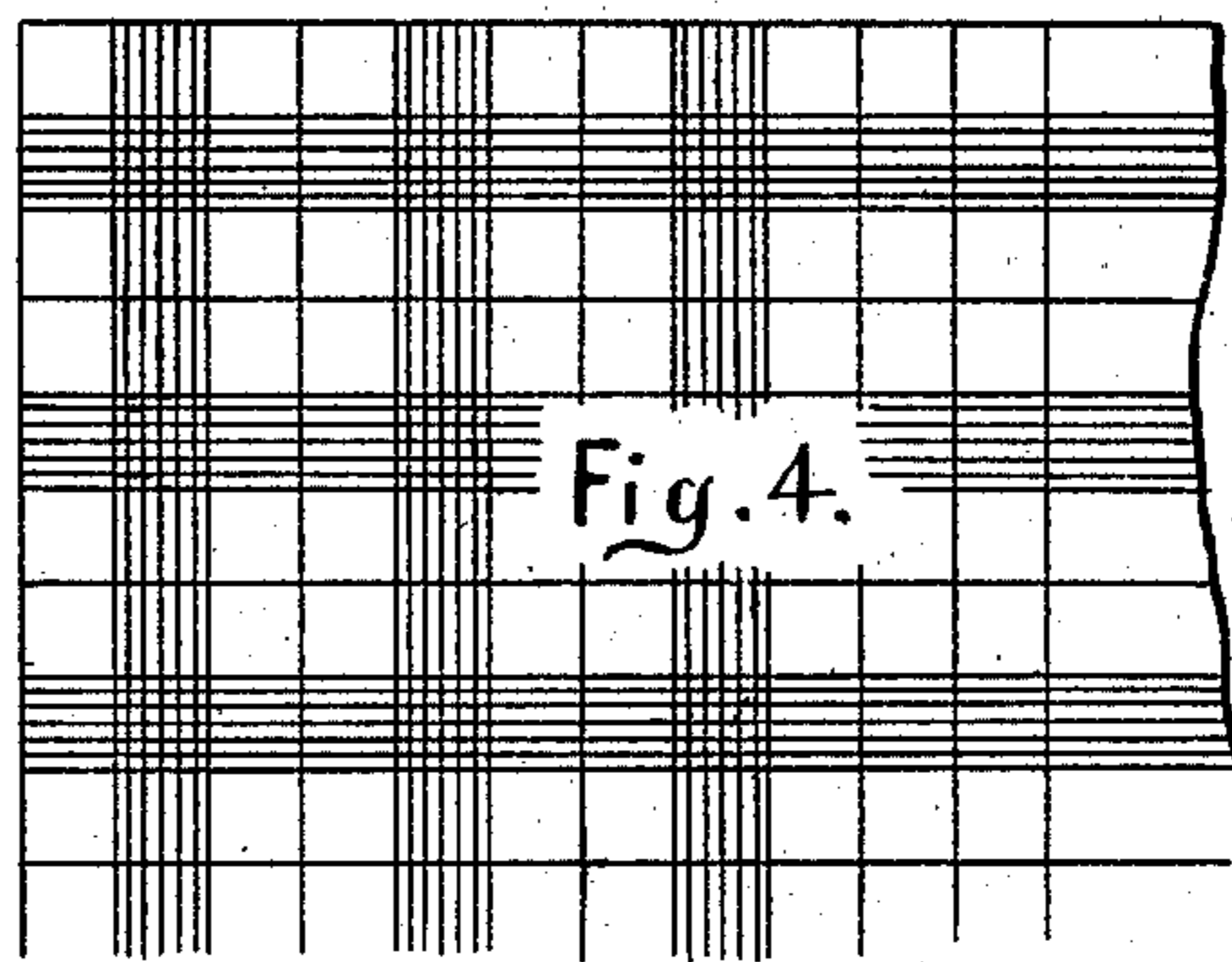
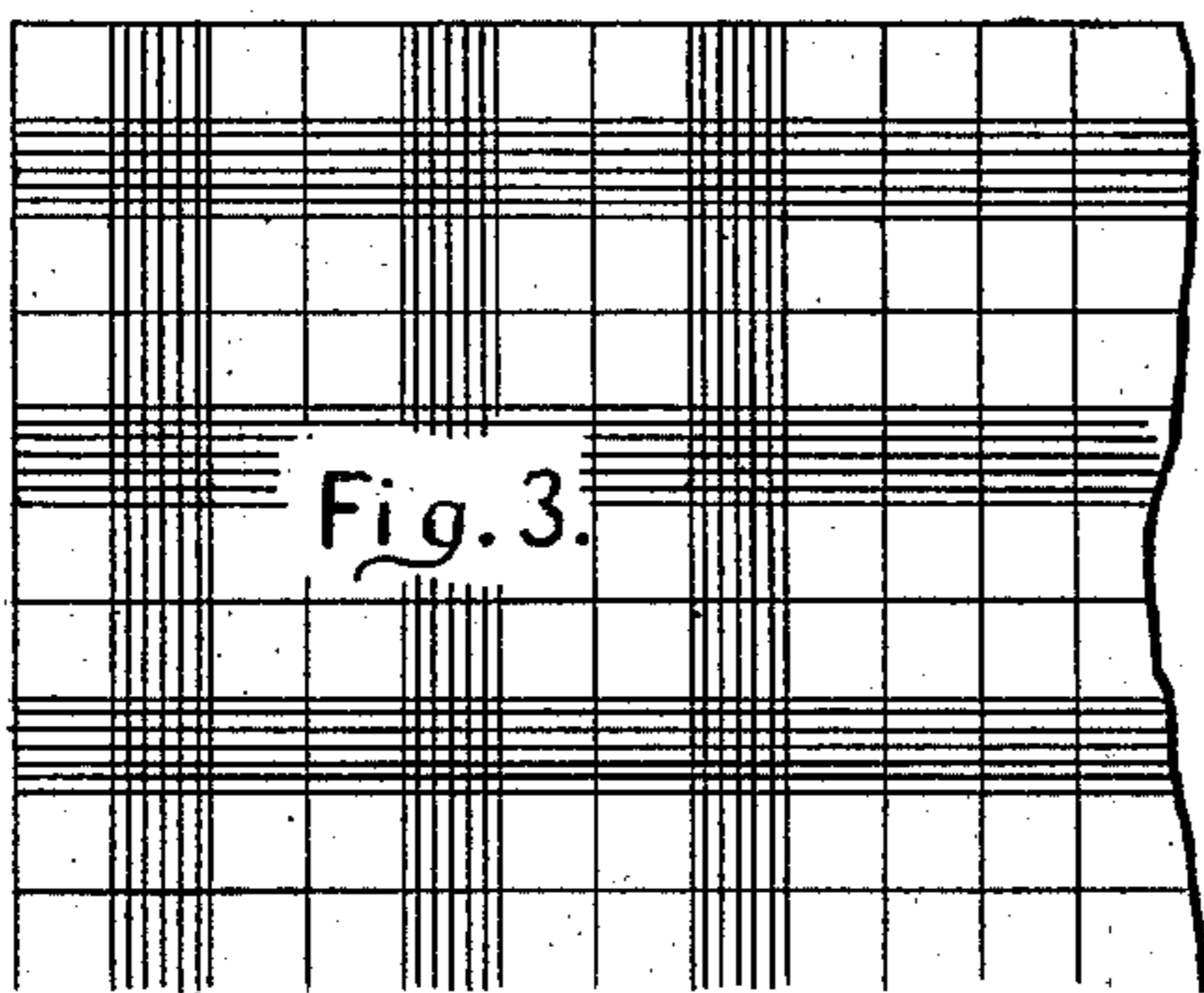
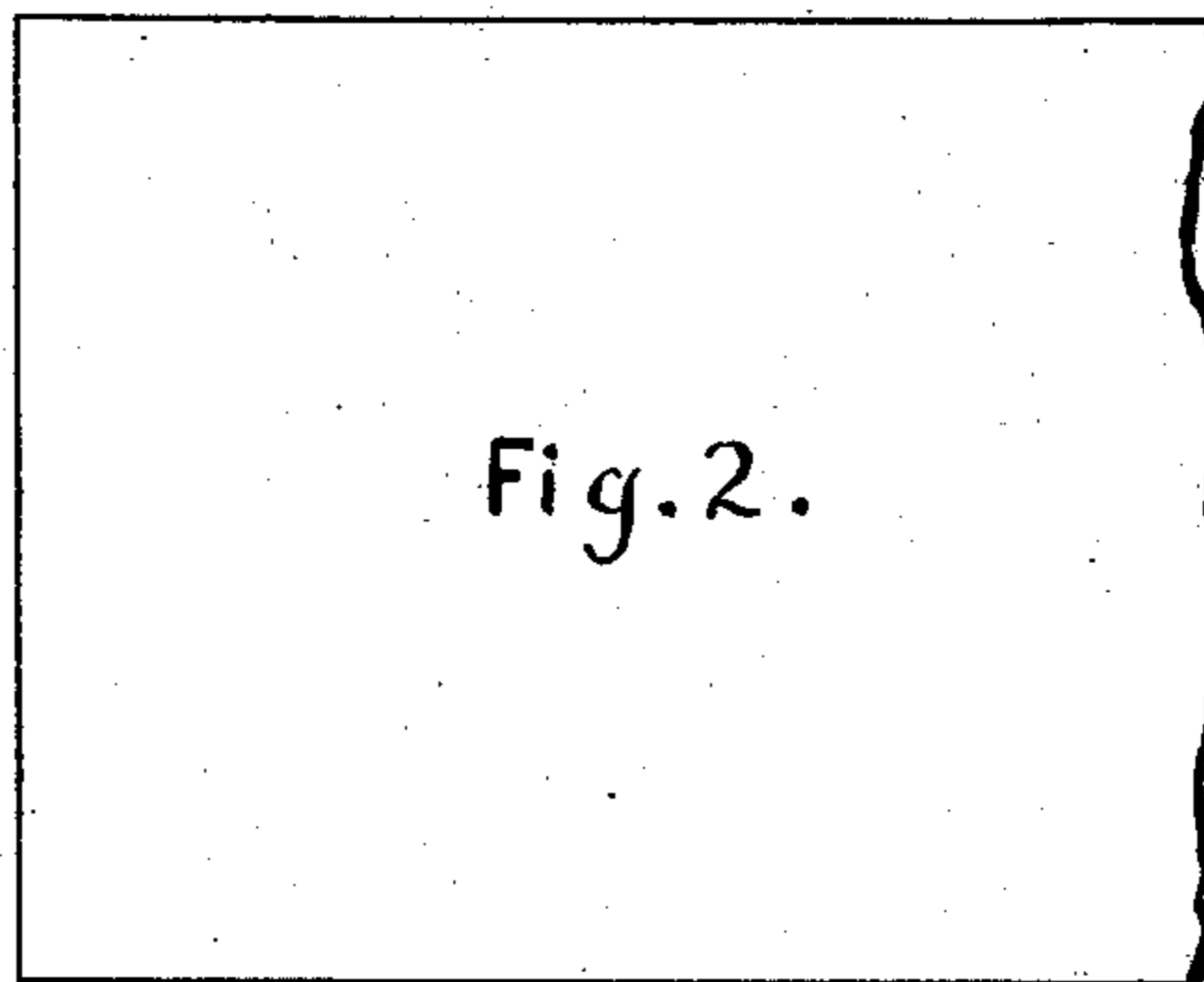
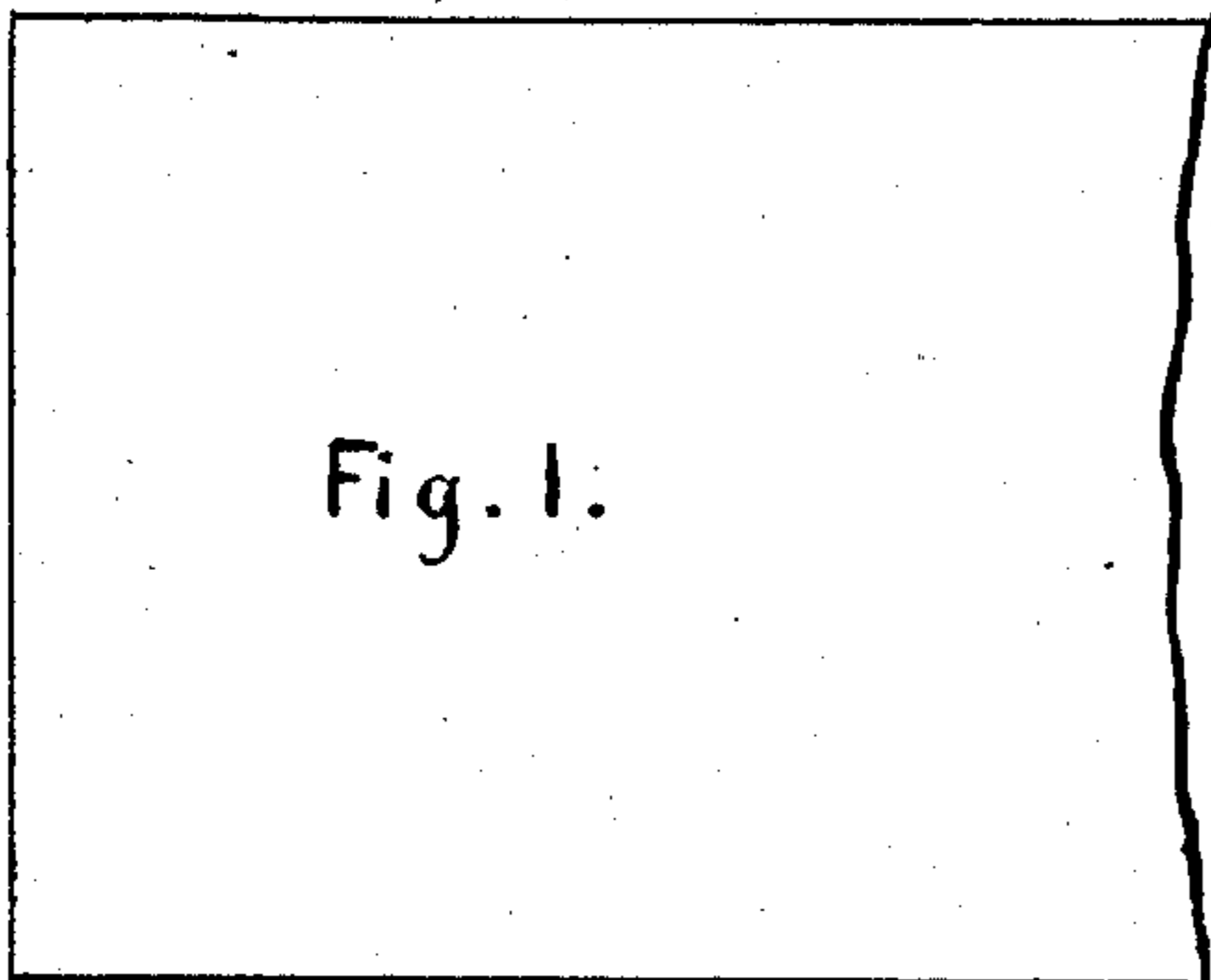


J. F. MARSH.
Manufacture of Ornamental Paper.

No. 203,474.

Patented May 7, 1878.



Witnesses :

Pennington Halsted
John Reynolds

Inventor :

John F. Marsh.
by *John J. Halsted.*
His Attorney.

UNITED STATES PATENT OFFICE.

JOHN F. MARSH, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO
SPRINGFIELD GLAZED PAPER COMPANY, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF ORNAMENTAL PAPER.

Specification forming part of Letters Patent No. **203,474**, dated May 7, 1878; application filed
June 20, 1877.

To all whom it may concern:

Be it known that I, JOHN F. MARSH, of the city of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Ornamental Paper; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to the production of a highly polished ornamental ruled or printed paper, adapted for covering fine boxes, and for various other or kindred purposes; and it consists in first coating the surface; next pressing, calendering, or smoothing such coated surface; then either ruling or printing, or both ruling and printing, the same; and, finally, polishing by frictional action, all as more particularly hereinafter described.

The coating, which may be of any color desired, white or tinted, is not of itself new, but may be any preparation such as is ordinarily used in making what is usually styled "glazed," or "plated," or "enameled" paper. I mean by "glazed paper" such as having been first coated is then polished by means of a flint or by a friction-roll, say, of chilled iron. By "plated paper" I mean such as having been first coated is next pressed between metal plates, zinc, steel, or copper, but usually zinc, these plates and their interposed paper being then passed between iron rollers; or, instead of these plates, it may be passed between two rollers, the upper one being of chilled iron, and the lower one made of paper or cotton, having a smooth hard surface; and by "enameled paper" I mean such as being first coated is next polished by brushing, and then calendered or finished by pressure between plates to harden and smooth the paper.

My present invention is an improvement on the method of ornamenting paper described in my Patent No. 176,232, dated April 18, 1876. In that patent the paper was first coated, next ruled or printed, with the desired pattern

of line, and then given a polish by pressure or friction; but while by this method comparatively good results were attained, I have found by experience that far more satisfactory results and a finer and more merchantable article is produced by my present improved method, the leading feature of which is to press, smooth, or calender the coated surface prior to ruling or printing.

The coating operation leaves the surface of the paper comparatively rough, and the ruling is done, as heretofore, directly upon this rough-coated surface before giving to such surface any treatment whereby its inequalities are smoothed down or leveled. The ruled lines are necessarily broken and imperfect, thus impairing the whole effect of the ornamentation imparted by the lines; and this defect is likely to be increased and intensified by each subsequent step of the process and by every handling prior to the final finish. Indeed, the coated surface cannot be ruled successfully in the best manner until it has been smoothed.

There are various ways by which this smoothing may be done—as, for instance, by passing it between rollers, either hot or cold, or by putting the paper in the form of sheets between metal plates, and then passing these plates and their interposed sheets between pressing-rollers; and I prefer this last-named mode of smoothing.

When the coated surface has been thus smoothed, leveled, or reduced by the above or other equivalent means, it is in condition to be successfully ruled or printed; and this may, as stated in my above-named patent, be done either by hand or by means of ruling-machines, such as are employed by blank-book manufacturers; and the lines may be drawn diagonally, straight, or irregularly across the paper, and may cross or recross, and be in any design, pattern, color, or colors. The ruling or printing being thus done upon the artificially-smoothed coating, not only are the lines more true and unbroken, and therefore more clearly defined, but they take a closer hold upon the coating-surface, and are consequently proportionately more durable and less likely to be defaced either by handling or by the after process of friction-polishing.

To give a final polish I do not apply any varnish or other adhesive material to the paper, but on the contrary give it a high luster by mere pressure, or by frictional action, or by both, if desired. This may be done by means of what is technically known as a "flint" or "stone," the paper passing between the flint and a surface or bed of wood, the flint imparting a rubbing action to the paper; or the frictional polish may be imparted by rotary or other brushes, or by means of rolls, between which the paper is passed, the roll next that face of the paper which is to be polished running much faster than that on the opposite side or on the side not to be polished.

It will be understood that the coating has two objects in view—namely: first, to get a tinted or colored ground, thus introducing upon the surface of the paper the principal tint or color, where the object to be attained is a number and variety of colors in the finished article; and, second, to get a surface susceptible of receiving a high polish or luster by

means of friction or pressure. If desired, there may be a second smoothing—that is to say, next after the ruling, as well as preceding it.

In the accompanying drawings, Figure 1 represents a paper having thereon the preparation or coated surface; Fig. 2, the same after it has had its surface smoothed; Fig. 3, a piece coated, smoothed, and ruled; Fig. 4, a piece coated, smoothed, ruled, and polished by friction; Fig. 5, a piece coated, smoothed, ruled, and again smoothed.

I claim—

The method herein described of manufacturing ornamental paper, the same consisting in first coating the surface, next pressing or smoothing such coated surface, then either ruling or printing, or both ruling and printing, the same, and, finally, polishing by frictional action.

JOHN F. MARSH.

Witnesses:

GEO. K. FOLTS,
J. F. REYNOLDS.