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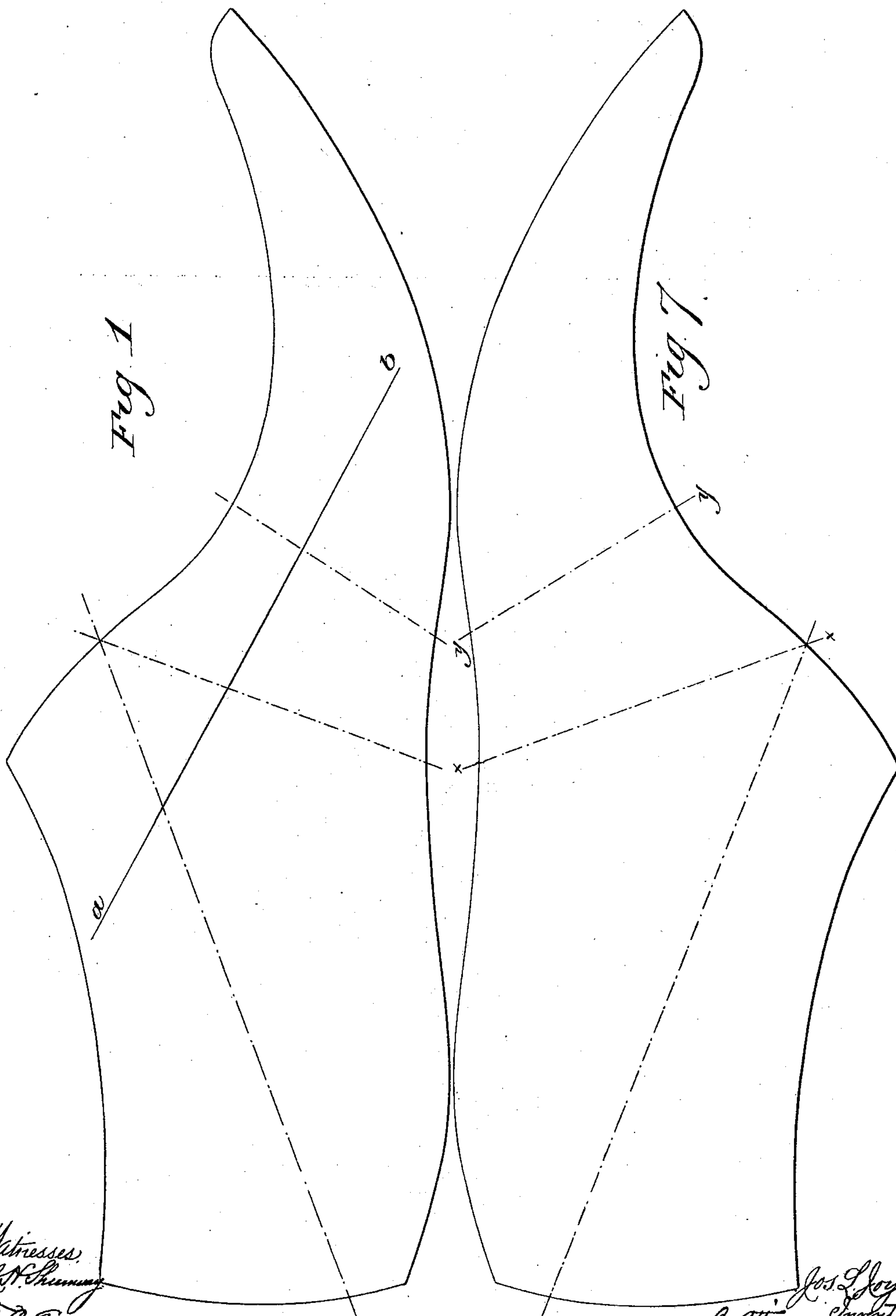
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J. L. JOYCE.

LAST.

No. 387,593.

Patented Aug. 7, 1888.



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4 Sheets—Sheet 2.

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No. 387,593.

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Fig. 2

Fig. 8

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4 Sheets—Sheet 3.

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Fig. 3

Fig. 9

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4 Sheets—Sheet 4.

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Patented Aug. 7, 1888.

Fig. 4

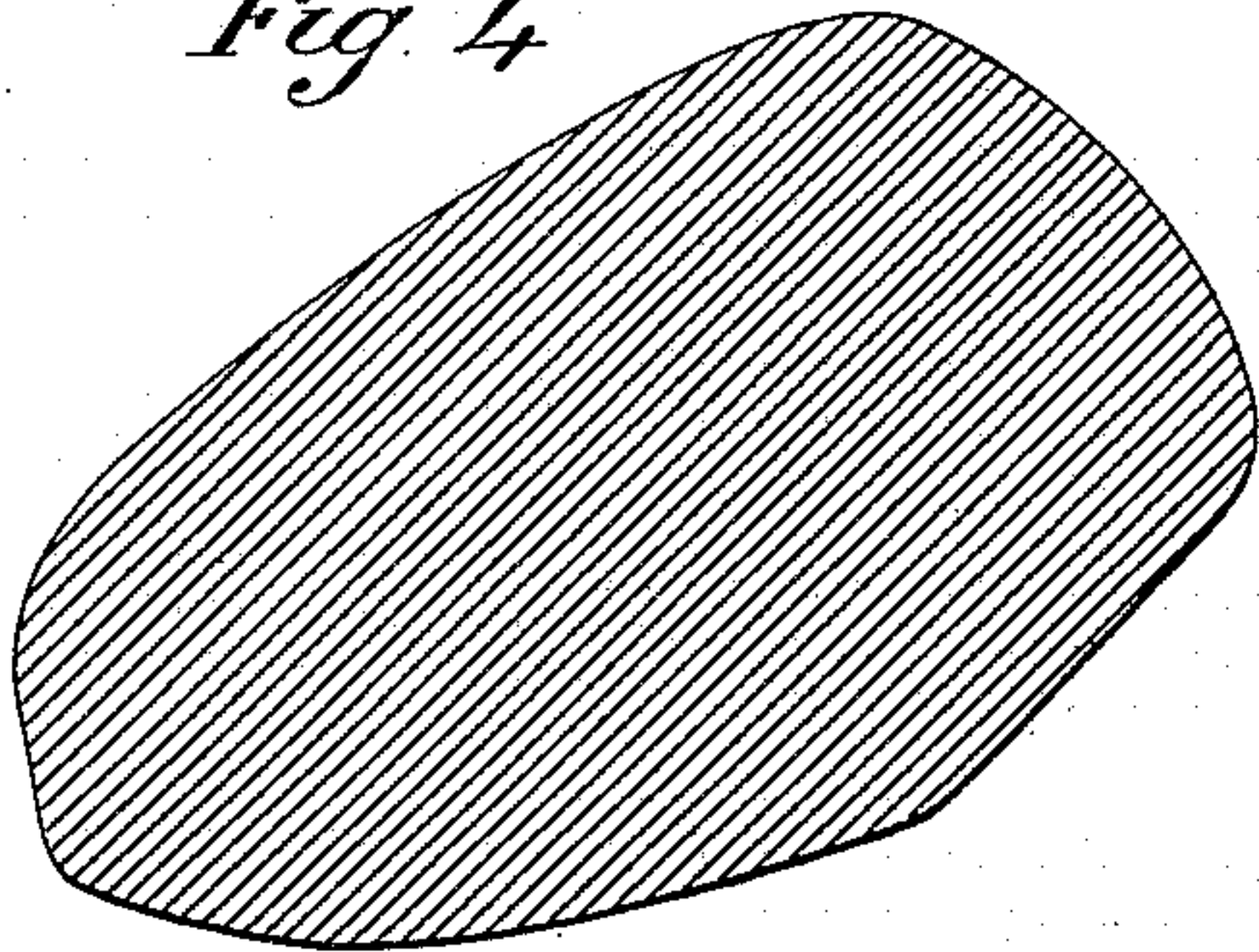


Fig. 10

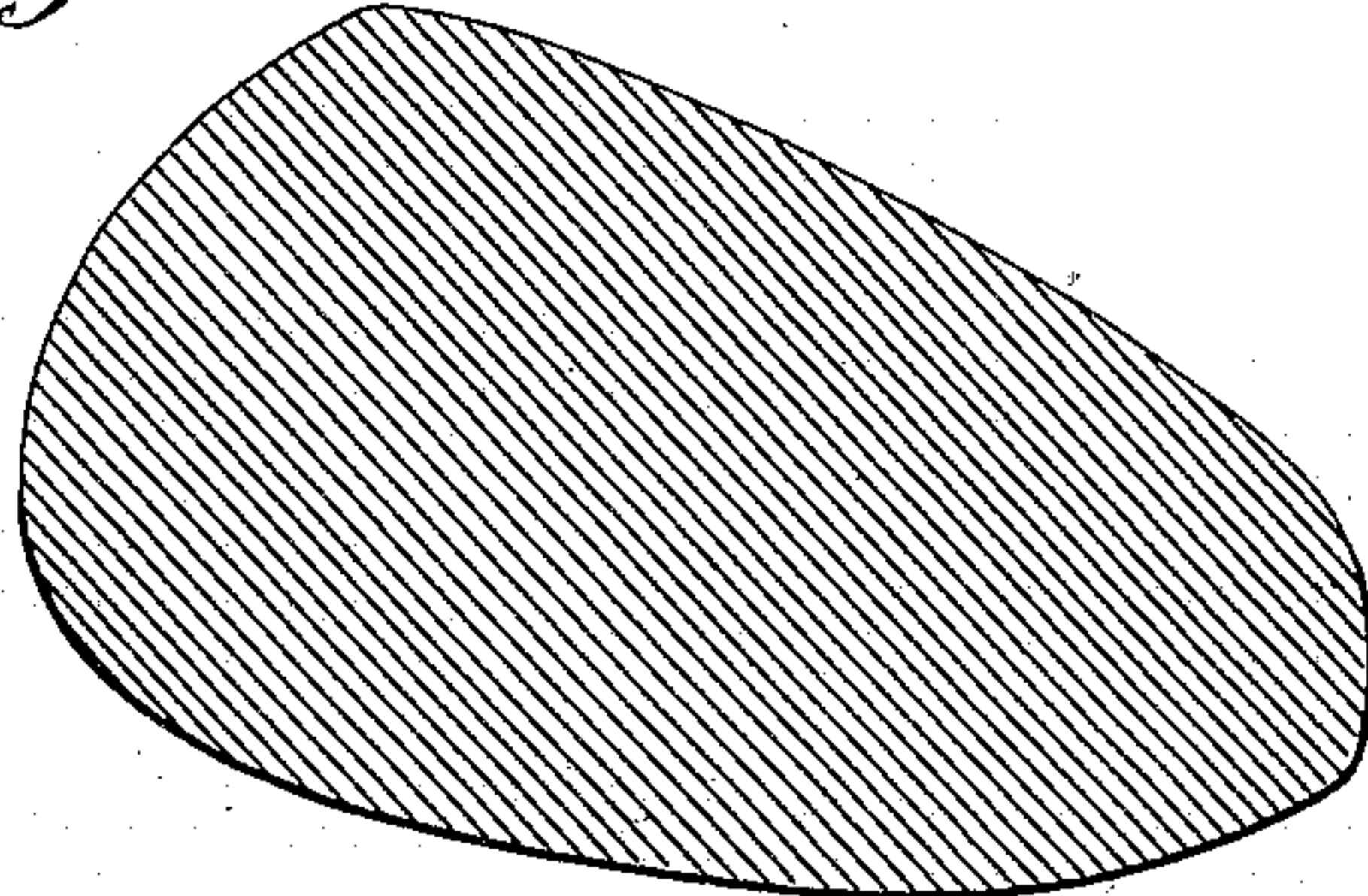


Fig. 5

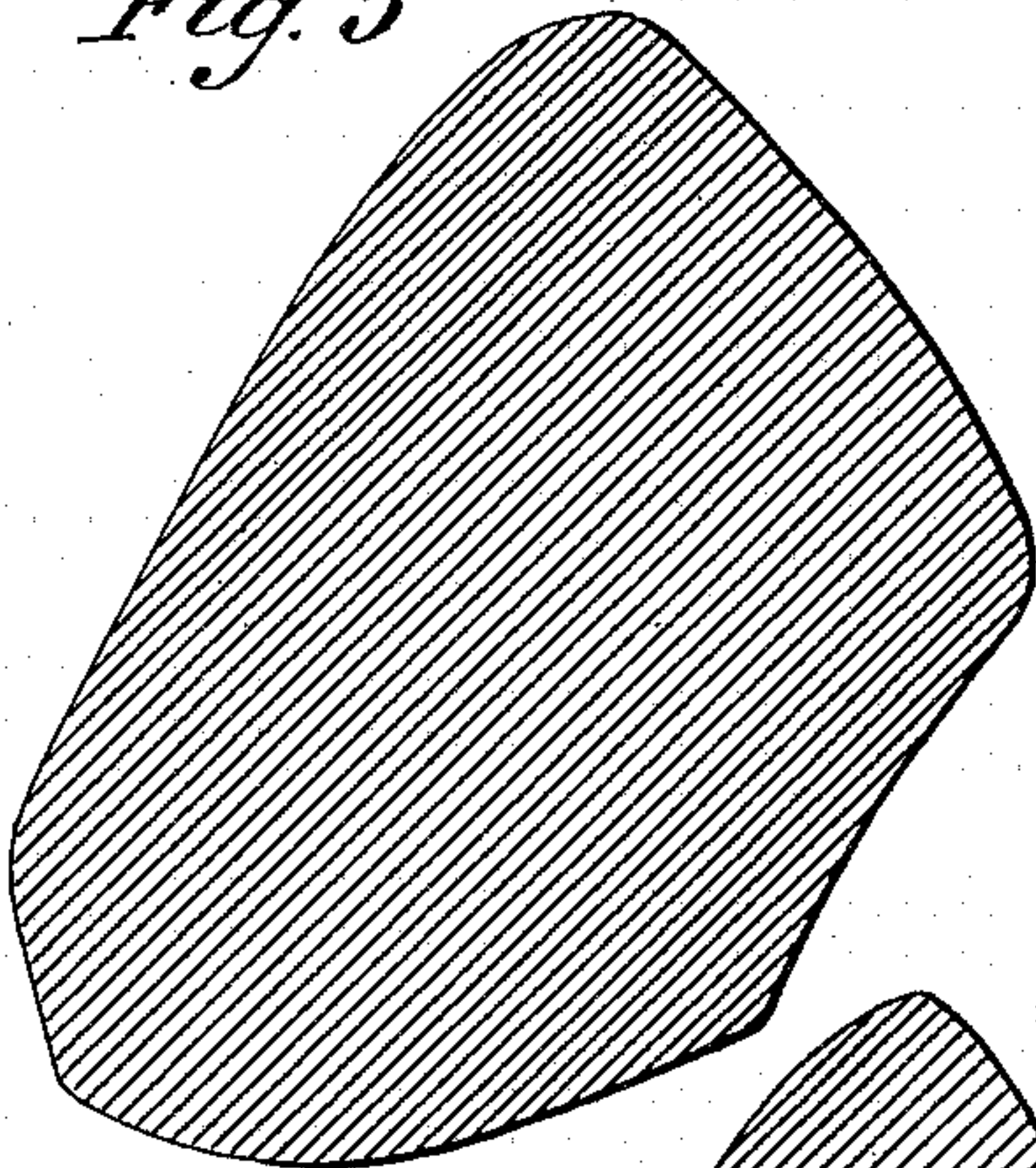


Fig. 11

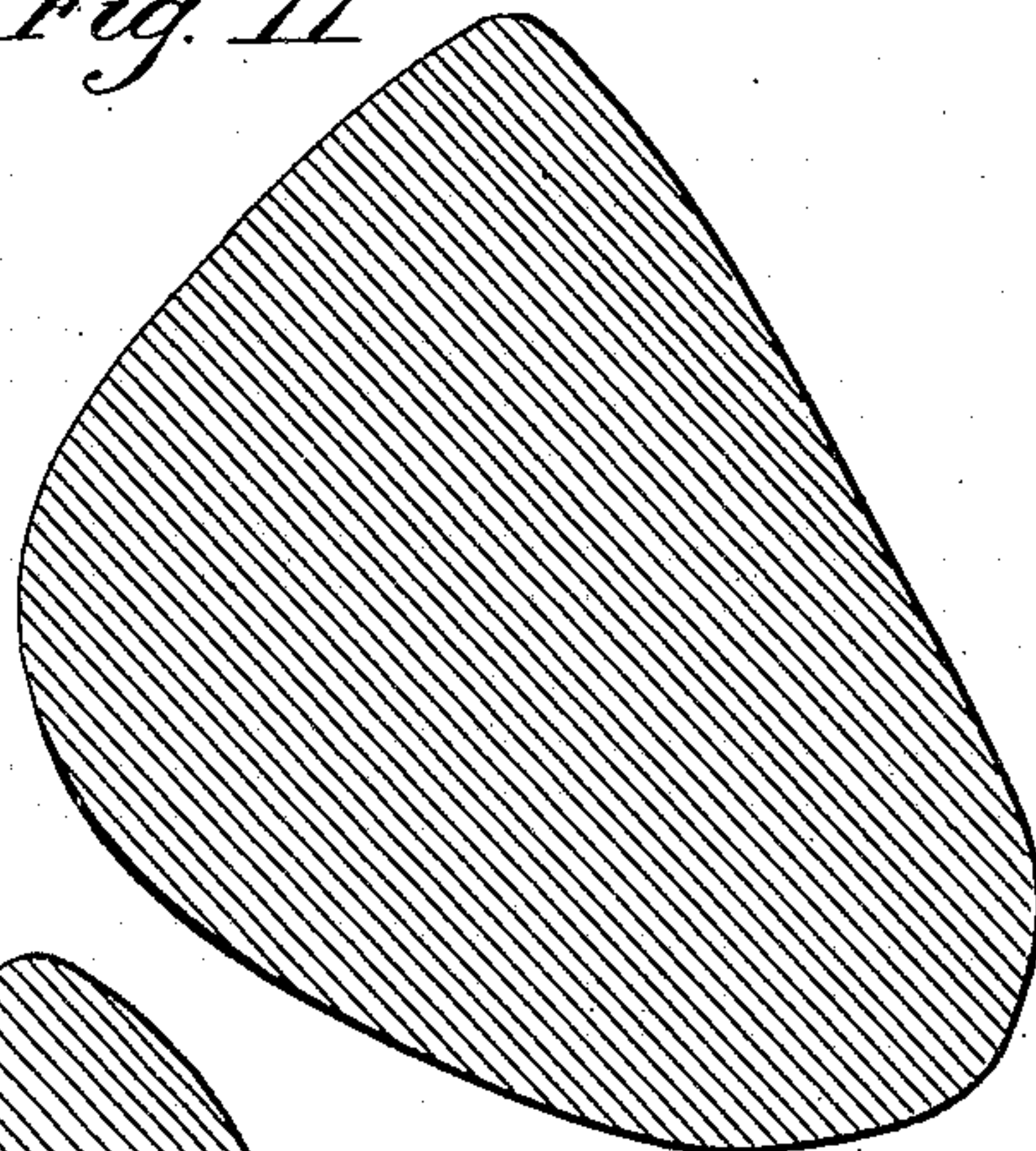


Fig. 6

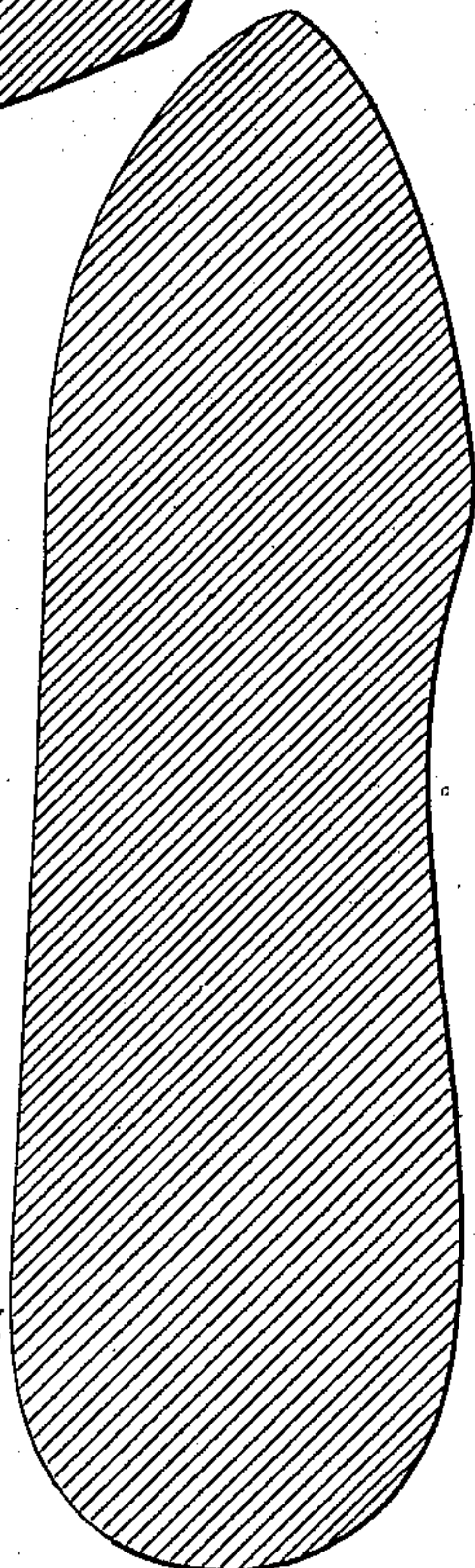
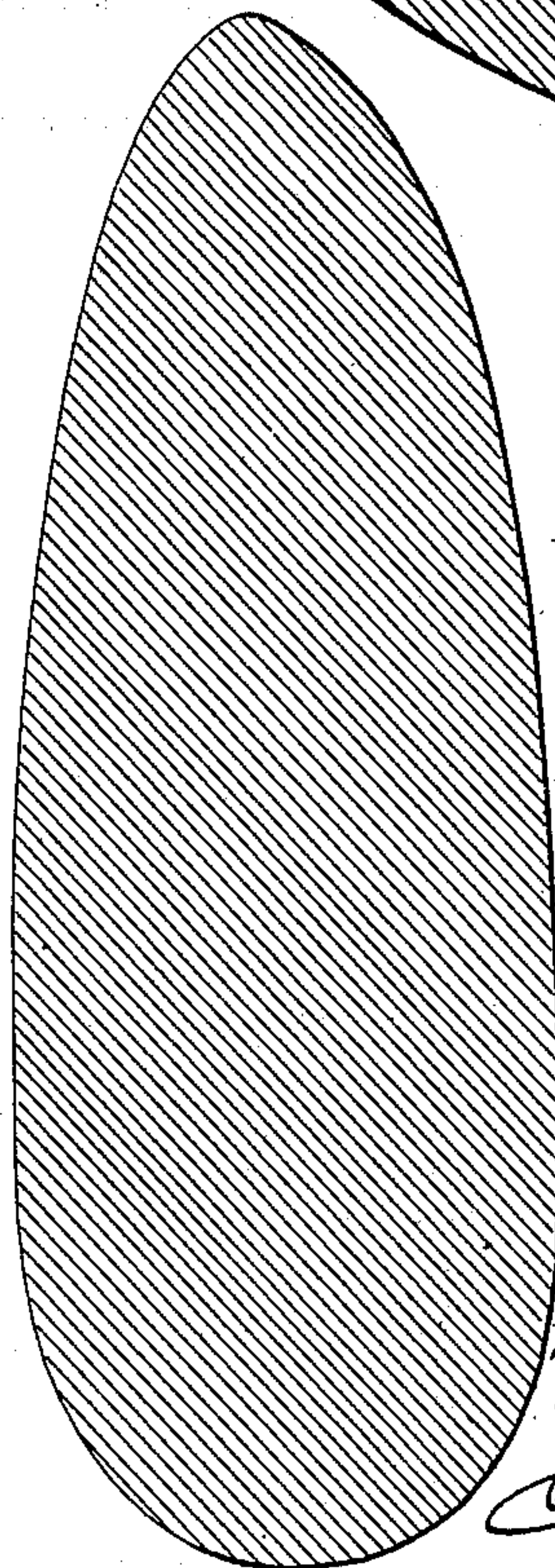


Fig. 12



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UNITED STATES PATENT OFFICE.

JOSEPH L. JOYCE, OF NEW HAVEN, CONNECTICUT.

LAST.

SPECIFICATION forming part of Letters Patent No. 387,593, dated August 7, 1888.

Application filed March 19, 1888. Serial No. 267,736. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. JOYCE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lasts; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of my improved last; Fig. 2, a top view of the same; Fig. 3, a bottom view of the same; Fig. 4, a transverse section through the waist; Fig. 5, a transverse section through the instep; Fig. 6, a transverse section on a line cutting from the instep to the heel at the bottom, the said lines of the section being indicated in broken lines, Fig. 1; Fig. 7, a side view of a last of the usual construction; Fig. 8, a top view of the same; Fig. 9, a bottom view of the same; Fig. 10, a transverse section through the waist; Fig. 11, a transverse section through the instep; Fig. 12, a transverse section on a line cutting from the instep to the heel at the bottom, the said lines of the section being indicated in broken lines, Fig. 7.

This invention relates to an improvement in the construction or shape of lasts for the manufacture of boots and shoes.

It is a well-known fact that under the usual construction of lasts there is unavoidably more or less slack of the upper along the shank or waist portion of the boot or shoe upward and rearward to the ankle-line, and this is due to the fact that the lasts through the waist portion are rounded from the sides to the bottom, as indicated in transverse sections, Figs. 10, 11, and 12, which represent, respectively, transverse sections through a last of usual construction through the instep and through the waist—that is, on lines $x x$ and $y y$ of Fig. 7, and the instep and heel section represented in Fig. 12. This shape gives a fullness to the last below a line drawn from the ball on the inside to the ankle, which is not found in the foot, and upon the outside the usual rounded shape of the last, as represented in Figs. 10, 11, and 12, also gives an unnecessary fullness, so that the leather of a shoe of usual construc-

tion necessarily wrinkles more or less under the waist and toward the ankle.

The object of my invention is to construct a last which will more nearly conform to the shape of the foot, and whereby the wrinkling of the waist and ankle will be substantially avoided; and it consists in the construction of the last, as hereinafter described, as shown in the accompanying illustration, and particularly recited in the claim.

For convenience of illustration, I show corresponding views of companion lasts side by side. The figures at the left, 1, 2, 3, 4, 5, and 6, represent the last as improved by my invention, while the figures at the right, 7, 8, 9, 10, 11, and 12, represent corresponding views of a last of usual construction—that is to say, the two lasts shown represent a pair of lasts, the one of ordinary construction, and the other showing the companion last with the alterations made therein to embody my invention, and otherwise than such alterations, the two lasts constitute a pair, or companion lasts.

On the inside of the last downward from a line, a , at the ankle to b at the ball, the last is cut away to the bottom and terminates at the bottom in a line corresponding substantially to the shape of the bottom of the foot. This cutting away dies out on the side of the last above the heel to the ankle. This shape of the last is clearly seen in transverse sections, Fig. 4, across the instep, Fig. 5, across the waist, and in Fig. 6 through the heel to the instep, the respective lines being indicated in Fig. 1 in broken lines. The line from the ankle to the ball, from which this reduction of the last is made, corresponds to the bone upon the inside of the foot, and it removes from the last that portion which produces the surplus leather in the shoe and causes the wrinkling through the waist to the ankle on the inside of the shoe.

On the outside the last is cut away at the waist substantially as I have described for the inside of the last, but to a considerably less extent. This difference is due to the fact that the lasts shown are rights and lefts. In case of straight lasts it will be understood that both sides will be alike, as either side is inside.

The comparison of the several figures 1, 2, 3, 4, 5, and 6 with the corresponding figures

7, 8, 9, 10, 11, and 12 will clearly illustrate the change made in the last from that of the usual construction. It will be seen that the line upon the inside of the foot from the instep to the ball, and also along the line on the bottom of the last, form clearly defined lines and make abrupt turns in the configuration of the last in the respective transverse sections, Figs. 4 and 5, and a like abrupt turn in the configuration in the transverse section as made on the line from the ball rearward on the outside of the last.

I prefer to shape the last upon both the inner and outer side as I have described; but a very great advantage is attained by omitting the changed outside shape and retaining the inside shape as I have described, because it is upon the inside, from the waist to the ankle,

where the greatest surplus of leather and non-conformity of the shape of the shoe to the foot occurs.

I claim—

The herein-described last, having its side cut away from a line, *a b*, running from the ankle to the ball, the concavity formed by such cut-away extending downward from said line to the bottom of the last at the shank and rearward dying out at the heel, the said concavity being formed with abrupt turns in transverse section at said line *a b* and at the bottom of the last, substantially as described.

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