

(Model.)

I. KINNEY.
METALLIC FENCING.

No. 312,864.

Patented Feb. 24, 1885.

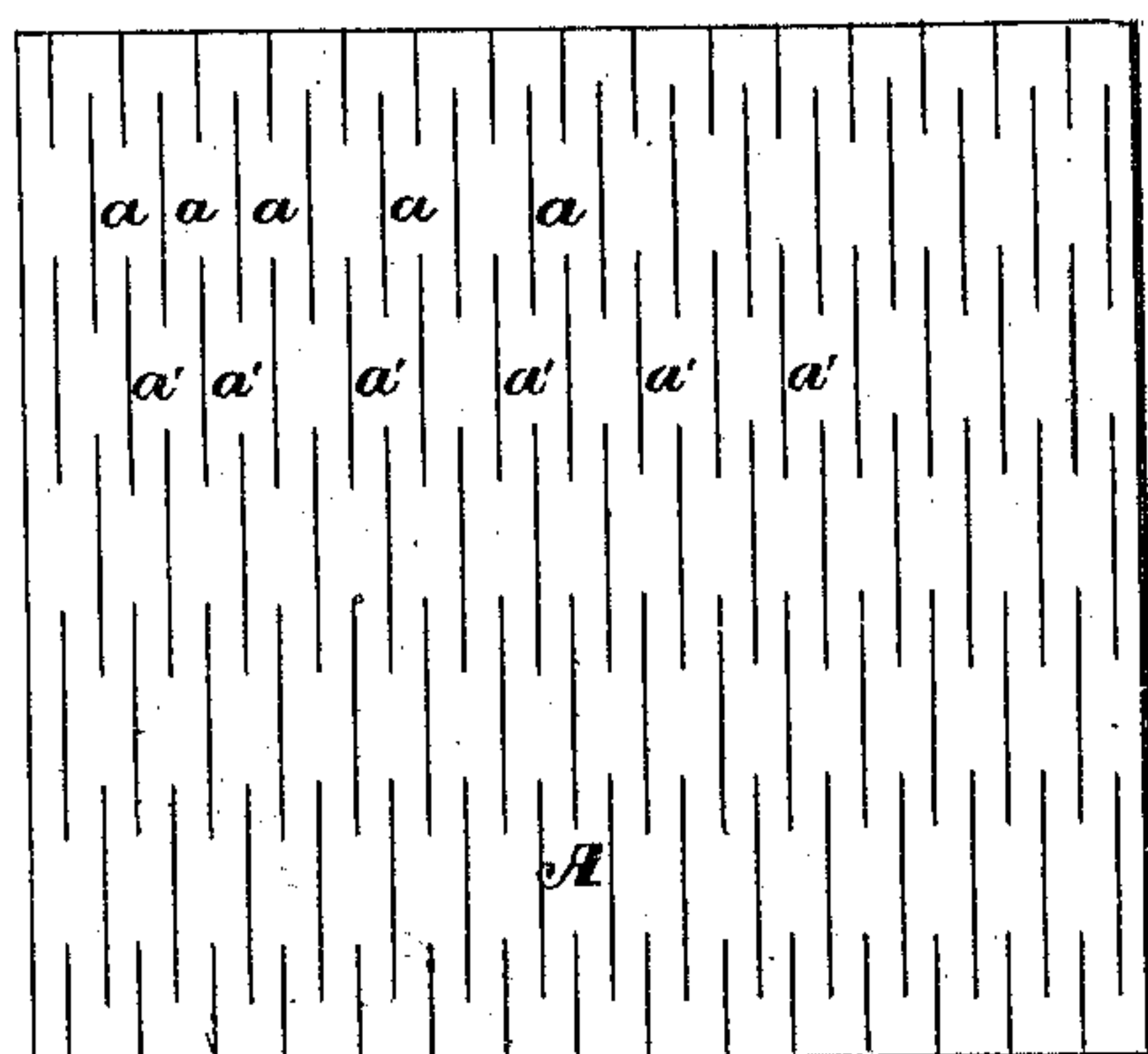


Fig. 1.

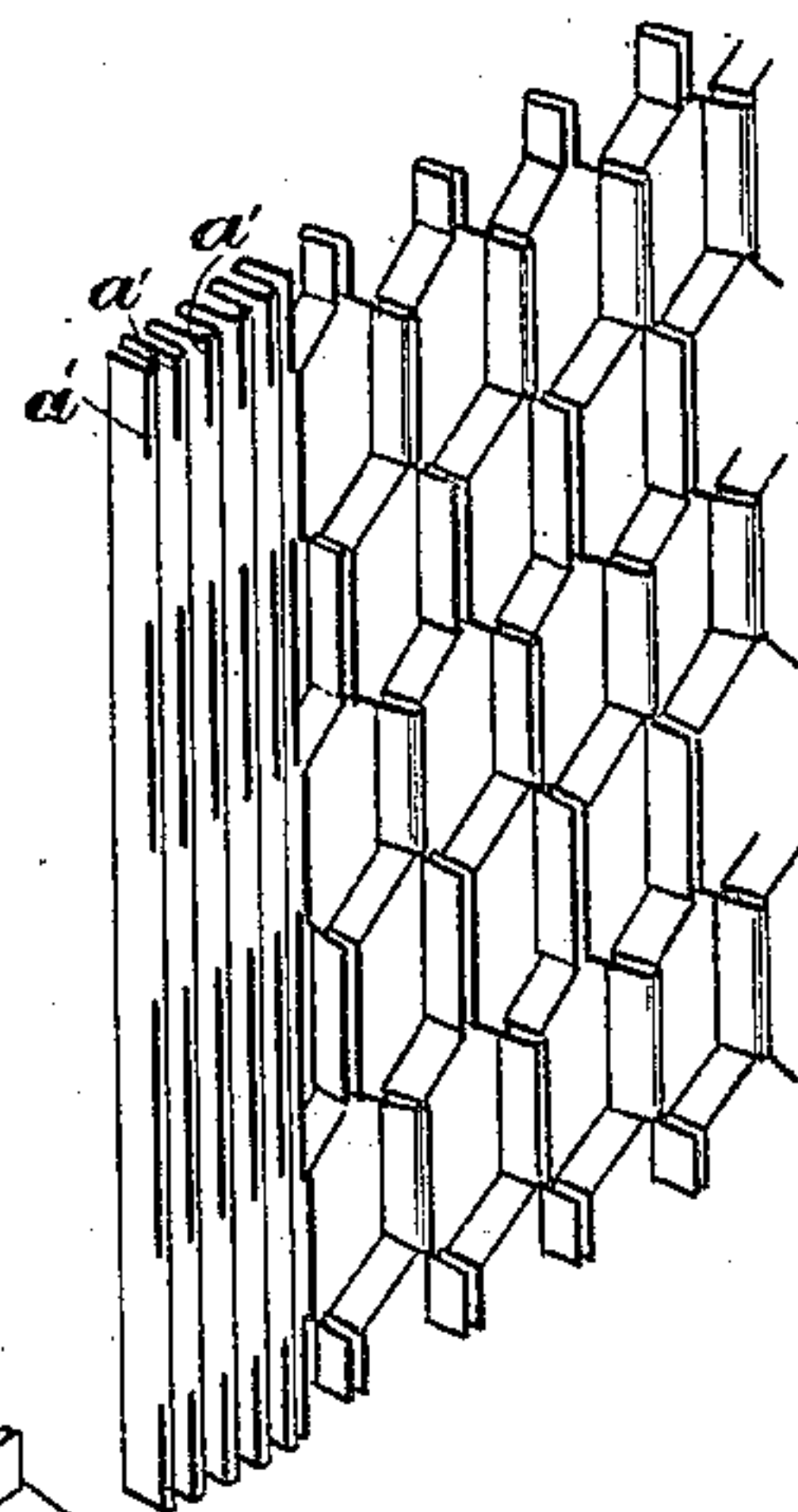


Fig. 2.

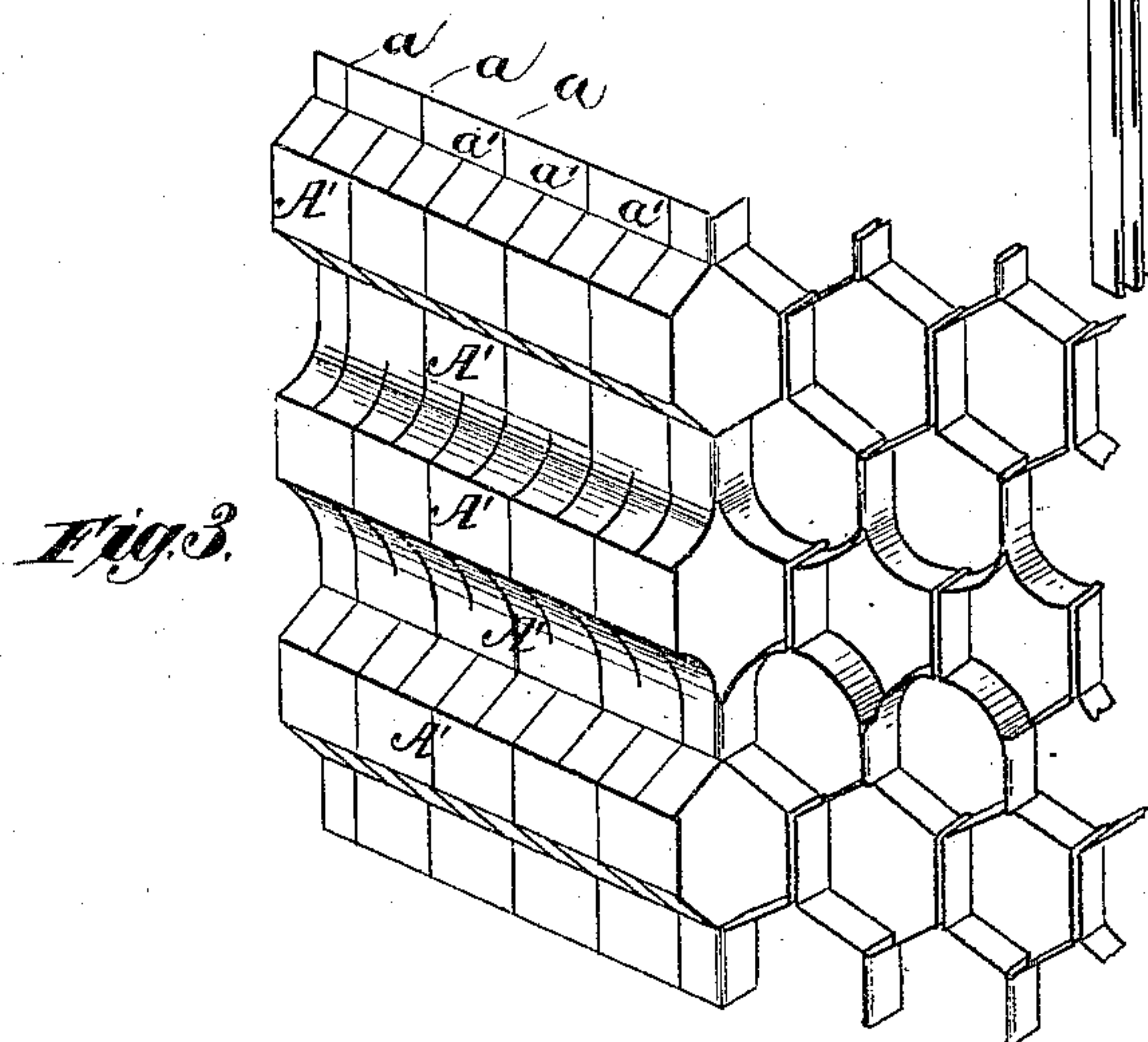


Fig. 3.

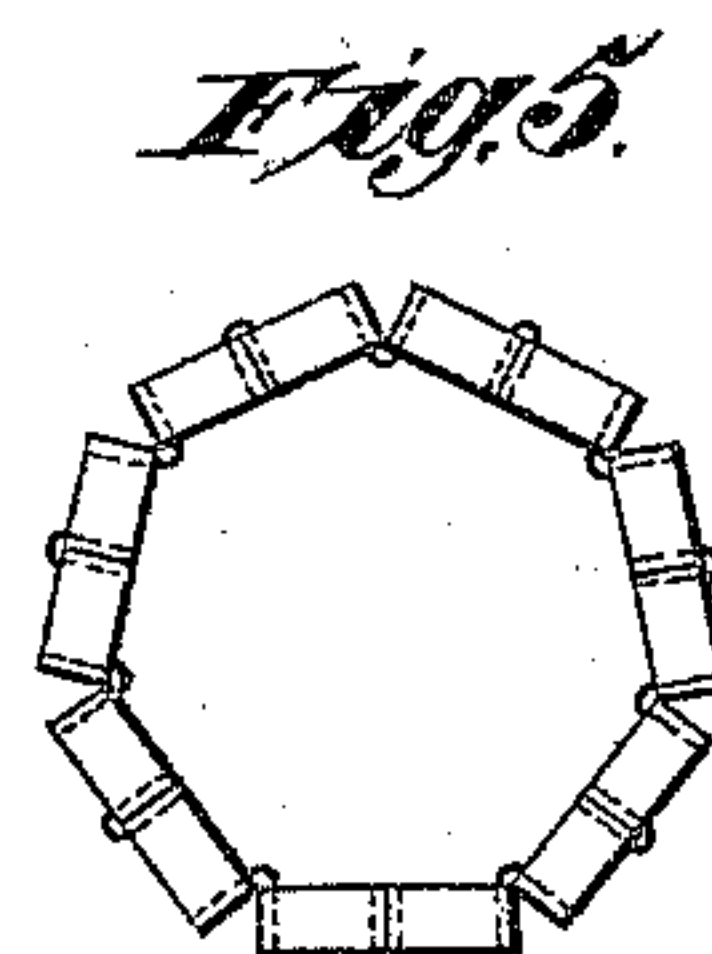


Fig. 5.

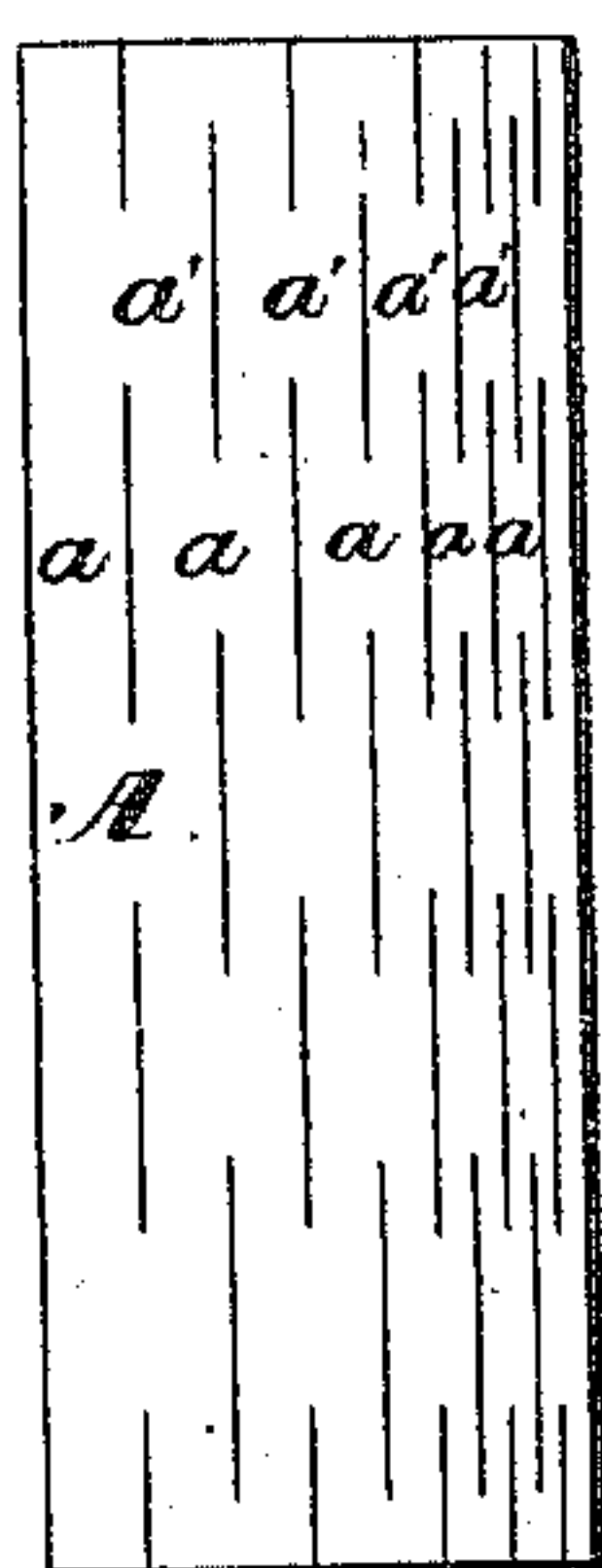


Fig. 4.

Witnesses.
Robert Everett.
Jo. L. Coombs

Inventor.
Israel Kinney.
By *James L. Norris.*
Atty.

UNITED STATES PATENT OFFICE.

ISRAEL KINNEY, OF WINDSOR, ONTARIO, CANADA.

METALLIC FENCING.

SPECIFICATION forming part of Letters Patent No. 312,864, dated February 24, 1885.

Application filed January 23, 1885. (Model.) Patented in Canada October 9, 1884, No. 20,339, and in England December 5, 1884, No. 16,003.

To all whom it may concern:

Be it known that I, ISRAEL KINNEY, a subject of the Queen of Great Britain, residing at Windsor, Province of Ontario, Dominion of Canada, have invented new and useful Improvements in Sheet-Metal Fences, of which the following is a specification.

My invention consists, essentially, in a panel or open metallic frame-work constructed from a single sheet of metal, said sheet being provided with several series of slits, the slits of each series being formed in the same straight line and breaking joints with the slits of the contiguous series, for which a patent has been granted in Canada October 9, 1884, No. 20,339. The sheet thus prepared is then corrugated or bent in a direction substantially at right angles with the lines or series of slits *a a*, &c., as shown in Figure 3. An edge view of the plate thus slitted and corrugated would give an outline similar to one-half of the complete sections of open-work. It will be seen that the width, shape, and arrangement are such that certain longitudinal portions of the plate are left in the same vertical plane, and these portions extend from end to end of the plate, substantially between the ends of two rows of slits, *a* or *a'*. If, now, beginning at one end of the plate, the metal is folded over upon itself in the line of the first series of slits, *a*, there will be formed a series of vertically-arranged openings similar in form to those shown at the right hand of Fig. 3; and by again folding it in the opposite direction in the line of the next succeeding series of slits, *a'*, a new and alternating series of openings will be added. The corrugated and slitted sheet is thus folded alternately in opposite directions, the successive folds being in the lines of the successive series of slits, as also shown in the right-hand portion of said Fig. 3, thereby forming an open lattice or frame work, the shape of each opening being governed by the peculiar form given to the corrugations above described. The flat sheet may be folded in opposite directions alternately along the lines of the said slits, and the metal then opened out, so that an open metallic frame-work is made all of a single sheet of metal, without

jointing, the metal itself presenting its edges perpendicularly, or nearly so, to the general surface of the sheet, thereby producing a very stiff structure and of greater or less strength, dependent on the spaces between the successive series of slits being greater or less.

In carrying out my invention, Fig. 1 represents a sheet of metal provided with a number of series of slits, as the sheet would appear in its original flat condition. Fig. 2 shows the same when the sheet has been creased alternately in opposite directions along the slitted lines and a part of the sheet opened out so as to form the panel or open metallic frame-work which illustrates my invention. Fig. 3 shows the plate illustrated in Fig. 1 provided with longitudinal flutings or corrugations formed substantially at right angles to the series of slits *a a*, &c., and having a portion of the sheet folded alternately in opposite directions along the lines of slits, whereby it is caused to open out into its completed form. Fig. 4 illustrates a variation, the distance between the series of slits growing less and less from one end of the sheet to the other, thereby producing a finished panel or frame-work which shall be stiffer and heavier at one edge than at the other. Fig. 5 illustrates a modified construction.

In carrying out my invention, A represents a flat piece of sheet metal, in which *a a a*, *a' a'*, &c., represent alternate series of slits made through the sheet A, the slits *a* breaking joints with the slits *a'*, as shown in Fig. 1. The sheet is subsequently bent or folded alternately in opposite directions along each series of slits, as shown in Fig. 2. This permits of the metal being then bent and opened out so as to form the completed fabric as similar in appearance to that shown in Fig. 2. In practice I prefer to provide the sheet with corrugations *A'*, as shown in Fig. 3, after the same has been slitted. It needs only then to be folded in opposite directions alternately along the slitted lines, in order to give to it at once its finished condition, as also shown in Fig. 3.

In the finished panel or sheet there is presented an open frame-work of metal, without seam or joint, and the metal is presented edge-

wise toward the general surfaces of the panel or sheet, thereby giving to the frame-work great stiffness and strength. The stiffness and strength can be made greater or less according
5 as the distance between the successive series a and a' of slits is made greater or less, for the thickness from face to face of the panel or sheet will be equal to the said distance.

It is apparent that the shapes of the openings in the finished panel may be varied greatly by simply giving different shapes to the corrugations shown in Fig. 3, two forms being there shown.

This invention admits of several obvious variations: Thus a post may be made by simply folding closer every alternate fold, thus causing the sheet to curl into a cylinder or cone, as shown in Fig. 5. So, also, as shown in Fig. 4, the distance between alternate series of slits a
20 and a' may be made less and less, so as to produce a panel or sheet which shall be stiffer and stronger at one edge than at the other, and well adapted for gates, &c.; or the slits may be given an angular direction across the sheet
25 from top to bottom, and also a variety of work may be produced, in all of which the same structure, substantially, is made, presenting the same feature of the metal presenting its edges toward the surfaces of the sheet, and so
30 making an open frame-work of great strength and stiffness without break or joint. This is designed more especially for fences of various kinds, but is equally applicable for many other purposes—as, for instance, platforms, gratings, screens, &c.

35 It is apparent that in folding the metal it

may be bent completely back upon itself or only partially so. In both the edges would be presented toward the faces of the finished panel—in the former case at right angles, in
40 the latter at a less angle.

The cut edges may be protected and the sheet strengthened by galvanizing, if desired, after the same is completed.

I have stated above that the sheet is slitted
45 and then corrugated; but in some instances I first form the corrugations and then cut the slits. Either method may be followed as circumstances may require.

What I claim is—

1. A sheet-metal fabric formed of a single
50 integral plate of metal, said fabric having openings which are substantially polygonal, and the metal being bent or doubled upon itself in opposite directions alternately in lines
55 coinciding with successive series of slits, to present the edges of the metal toward the faces of the fabric, substantially as described.

2. A sheet-metal fabric formed from a single integral metallic plate having a number
60 of series of transverse slits, the slits of one series breaking joints with those of the adjacent series, said plate having longitudinal corrugations and being bent or folded upon itself
65 alternately in opposite directions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ISRAEL KINNEY.

Witnesses:

JAS. A. RUTHERFORD,
JOS. L. COOMBS.