

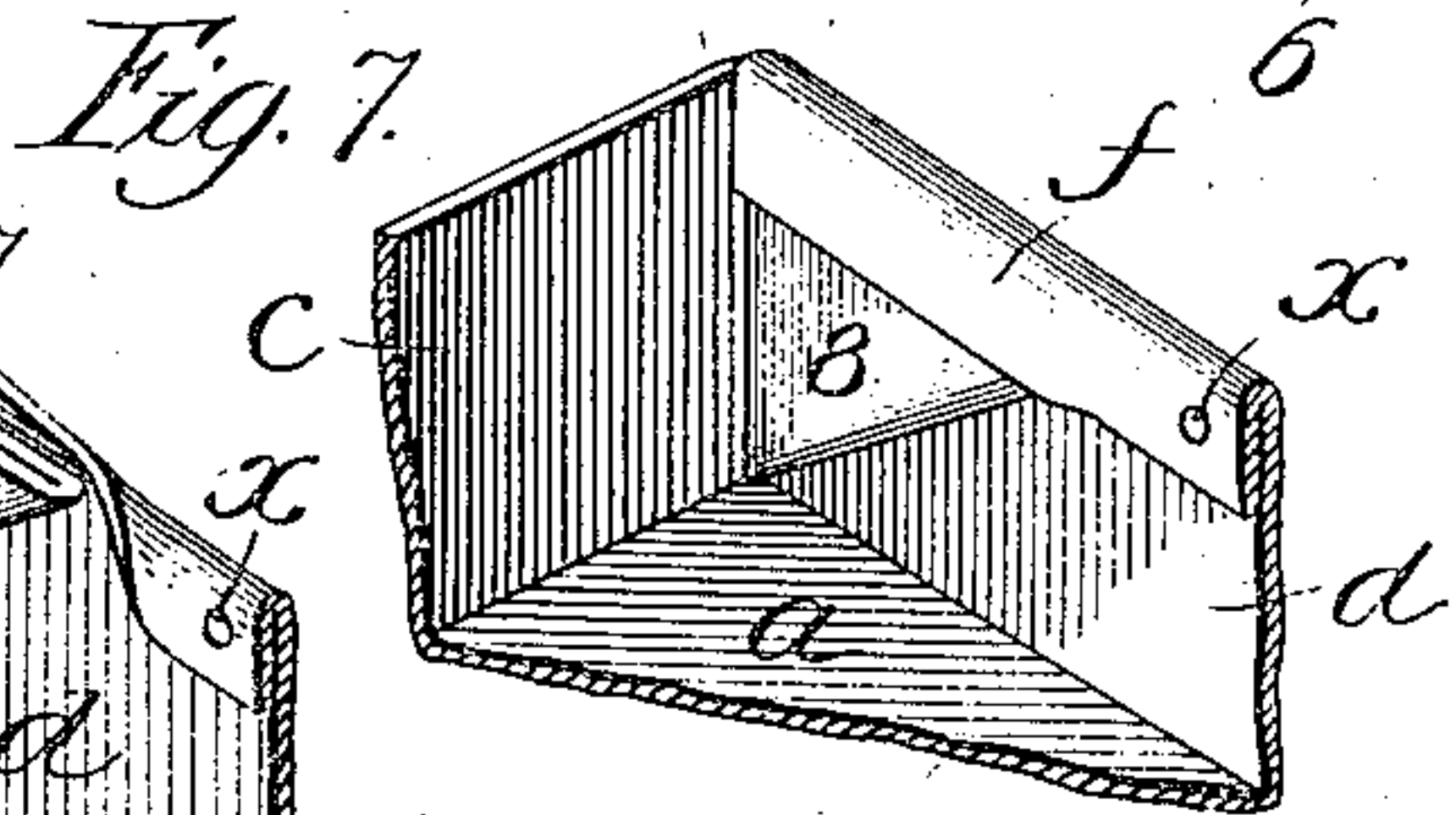
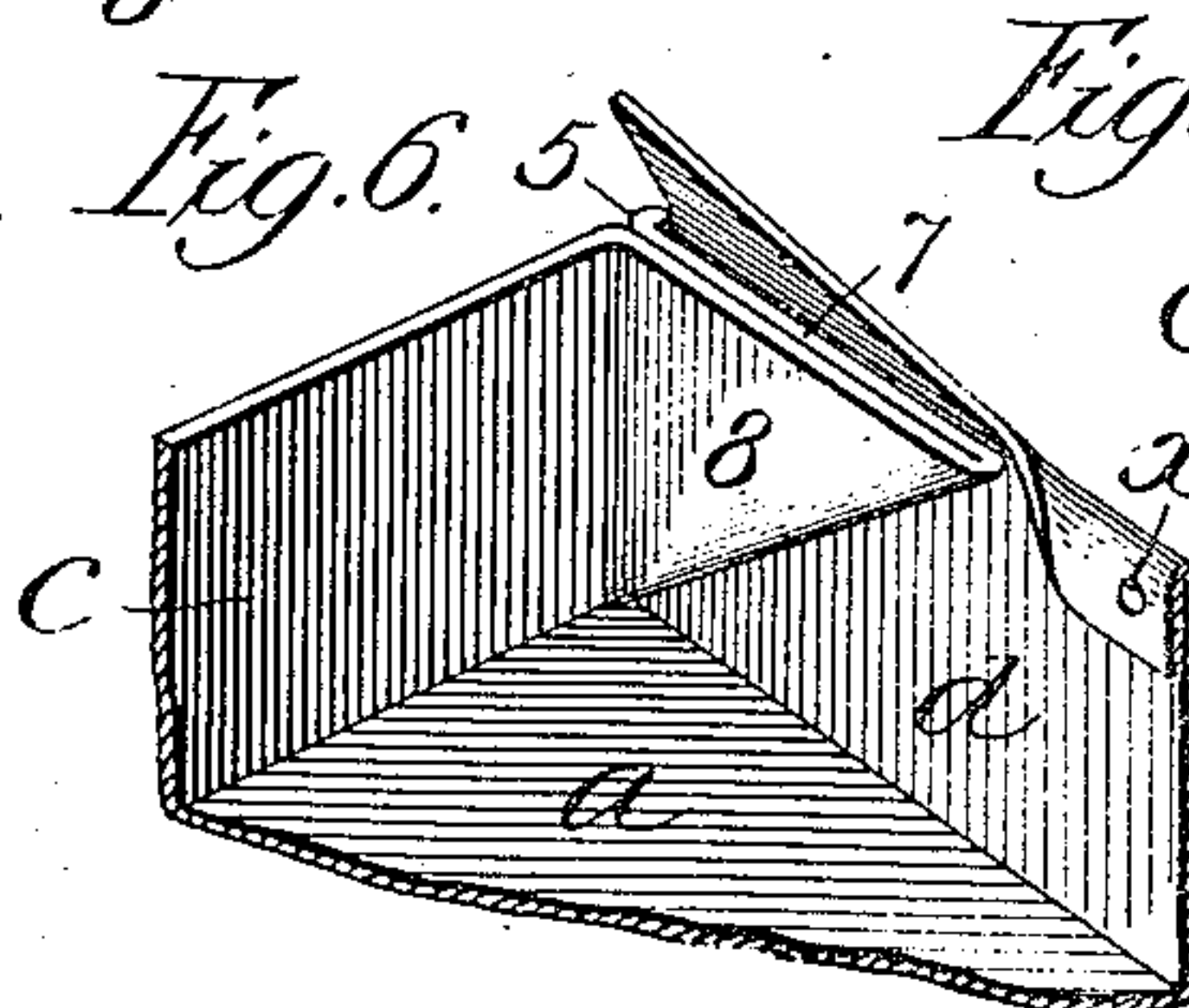
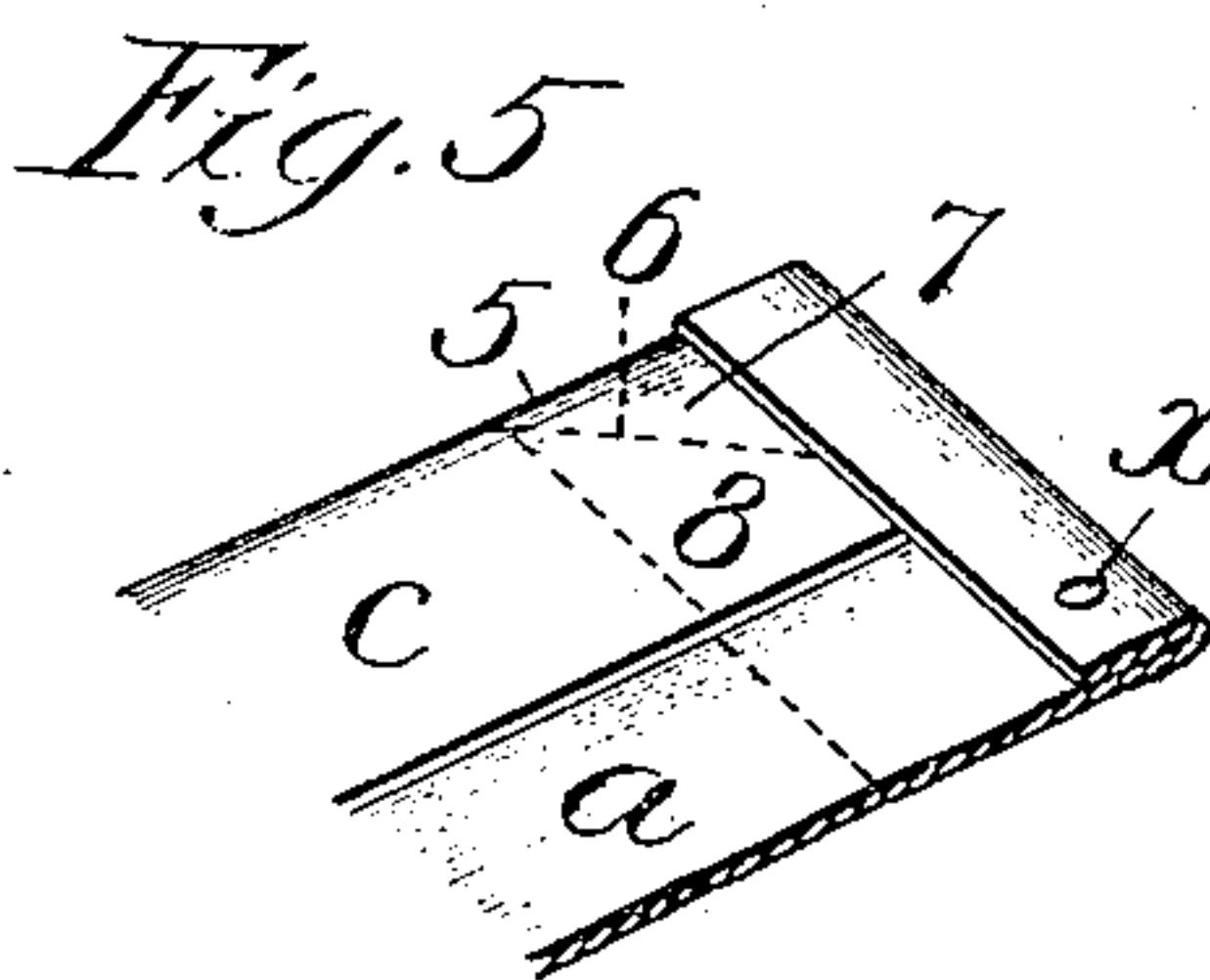
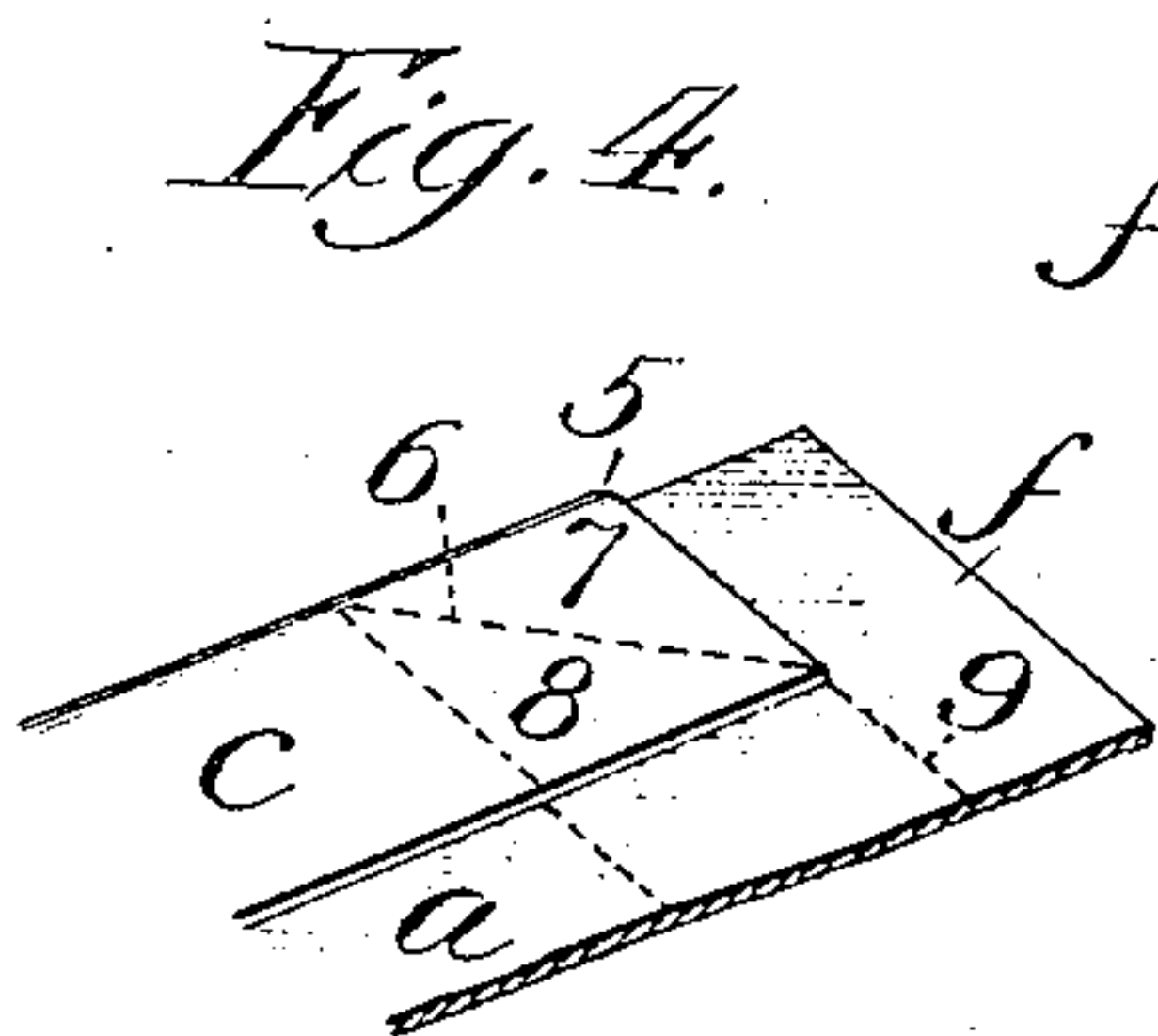
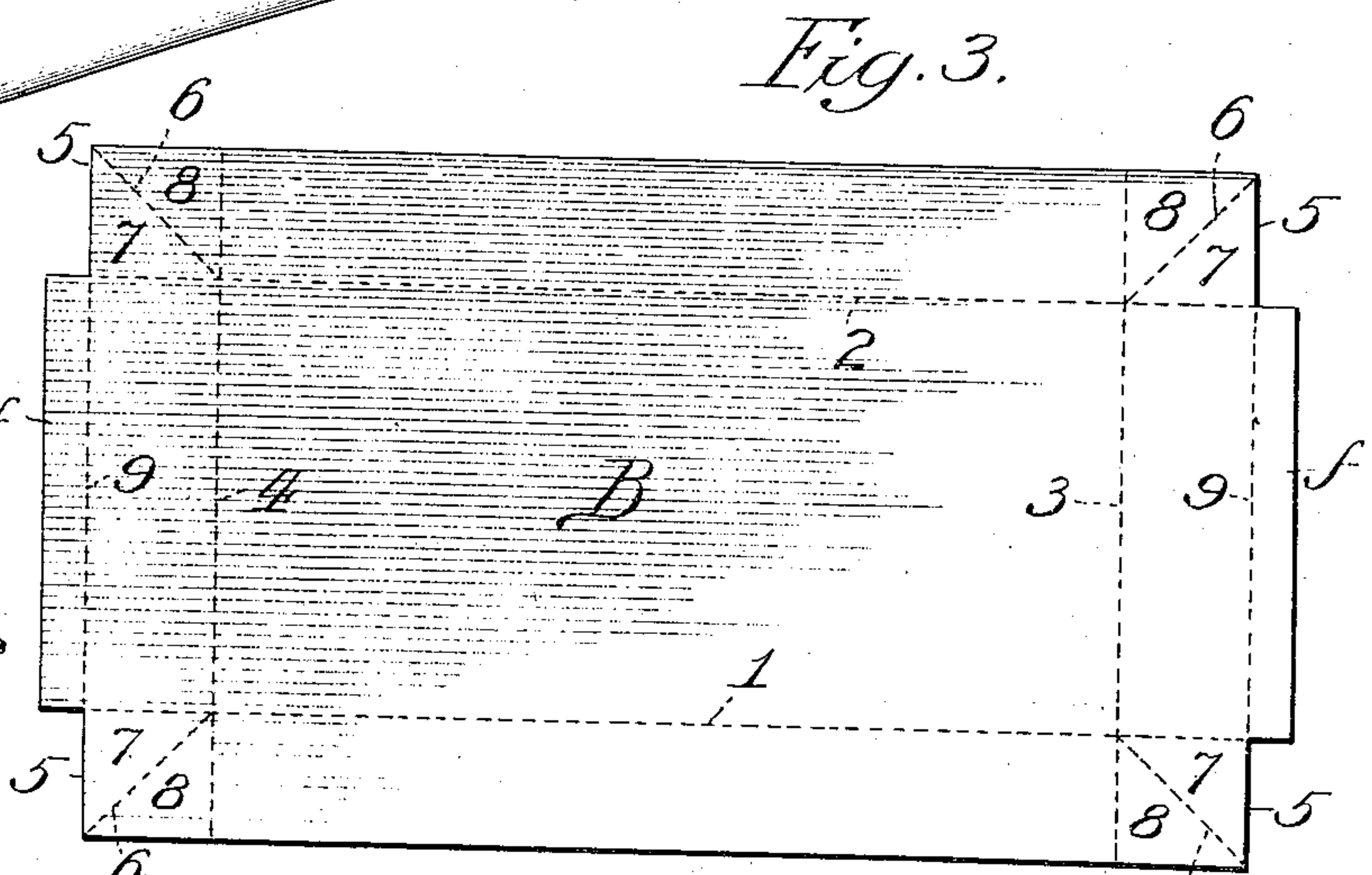
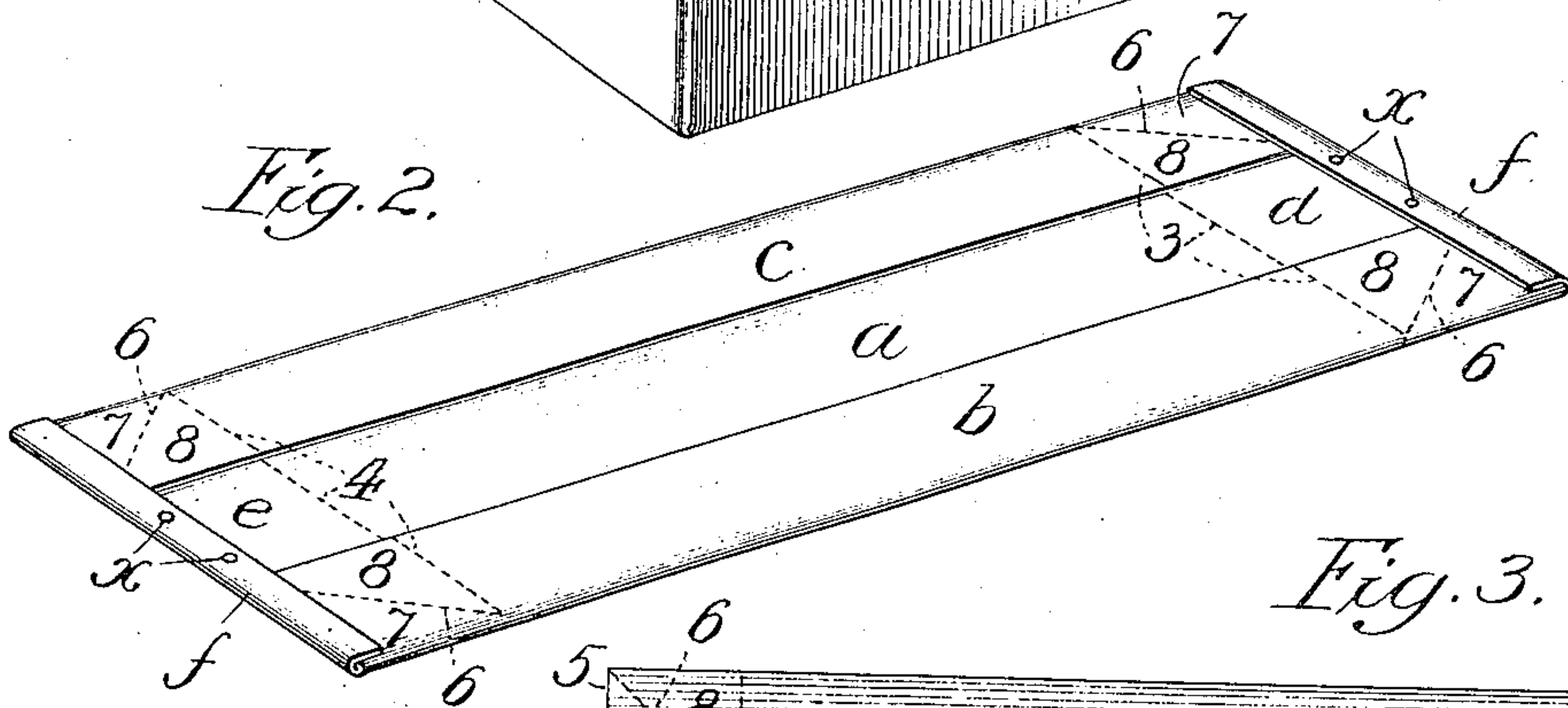
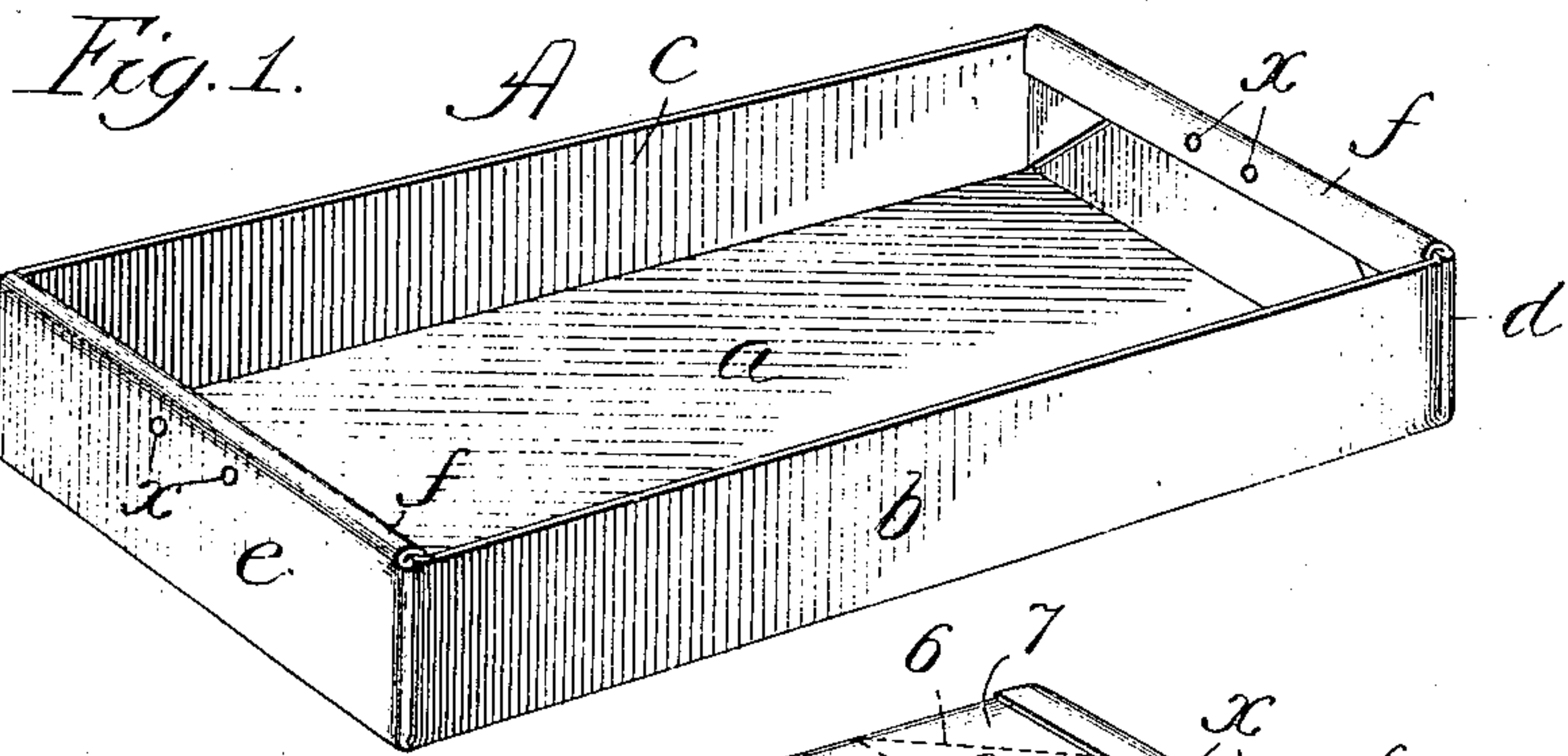
No. 855,746.

PATENTED JUNE 4, 1907.

S. BACHMANN.
BOX.

APPLICATION FILED SEPT. 29, 1905.

2 SHEETS—SHEET 1.



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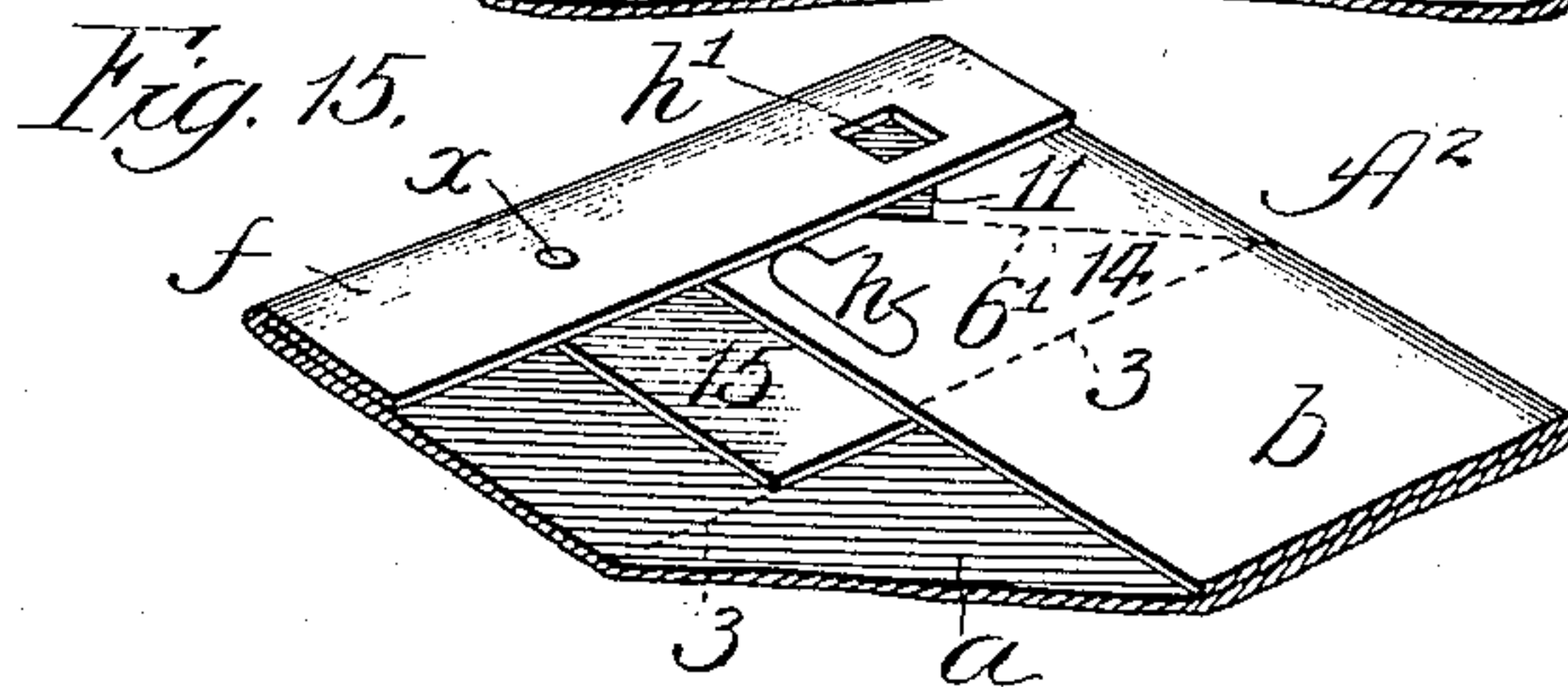
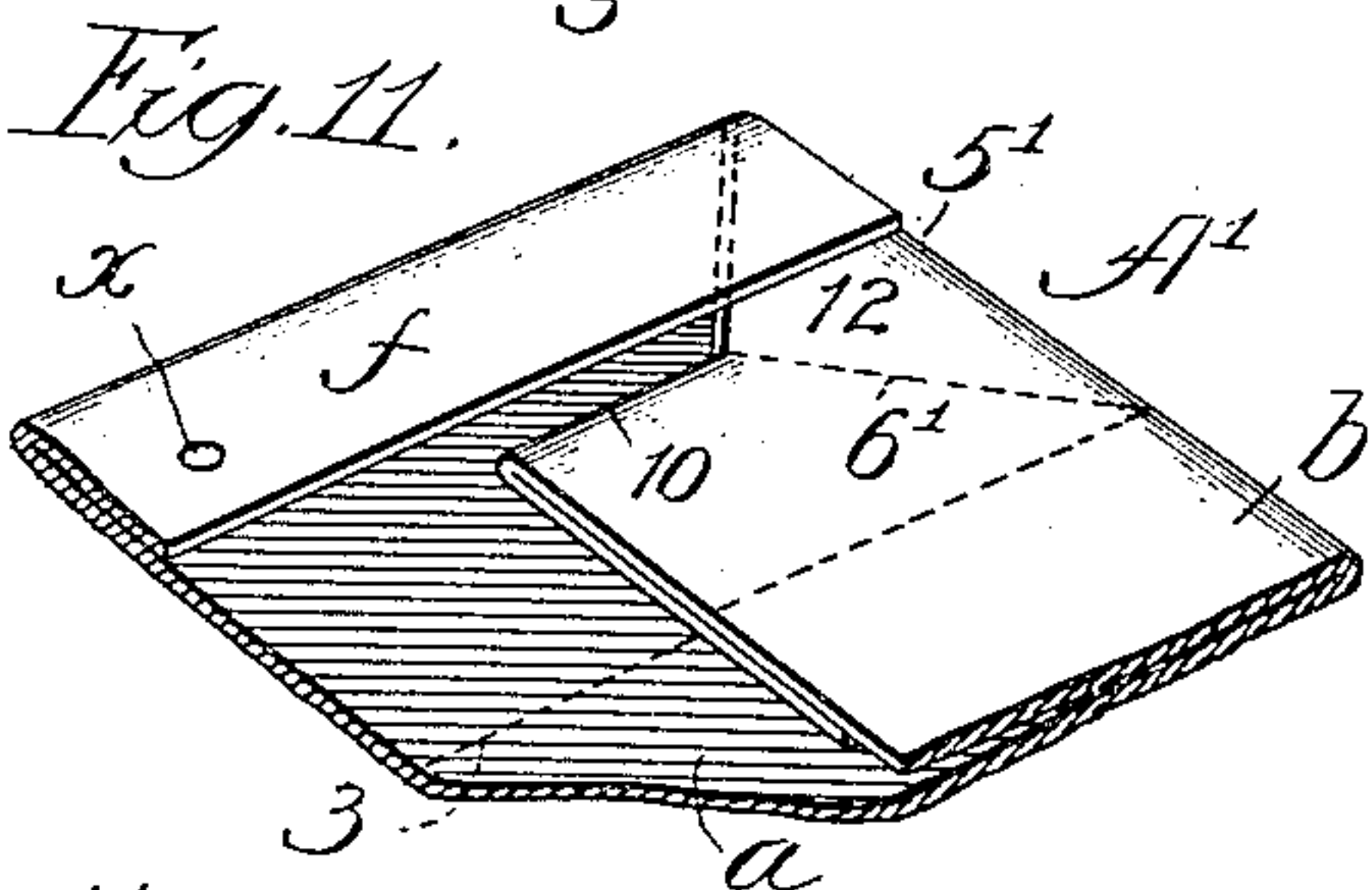
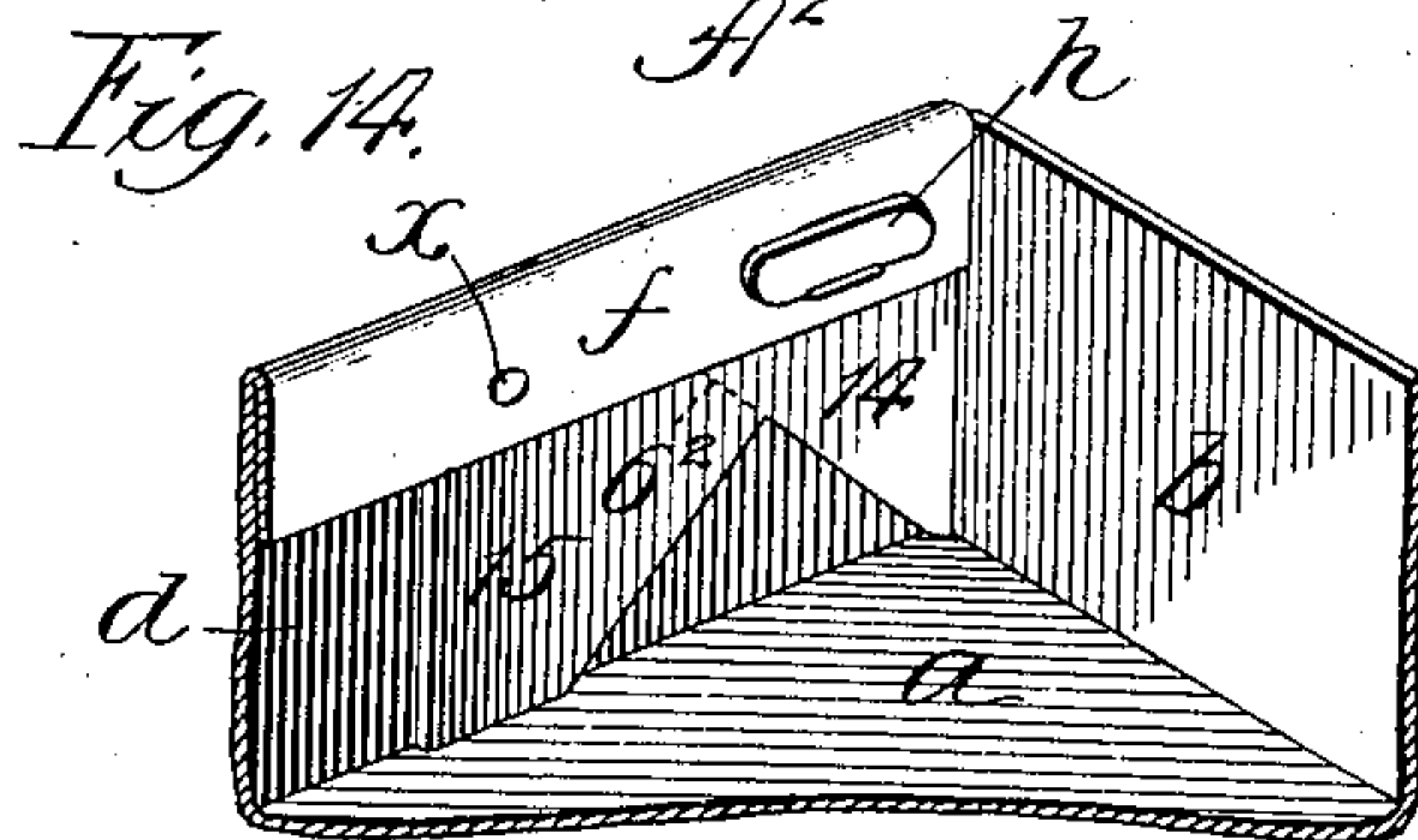
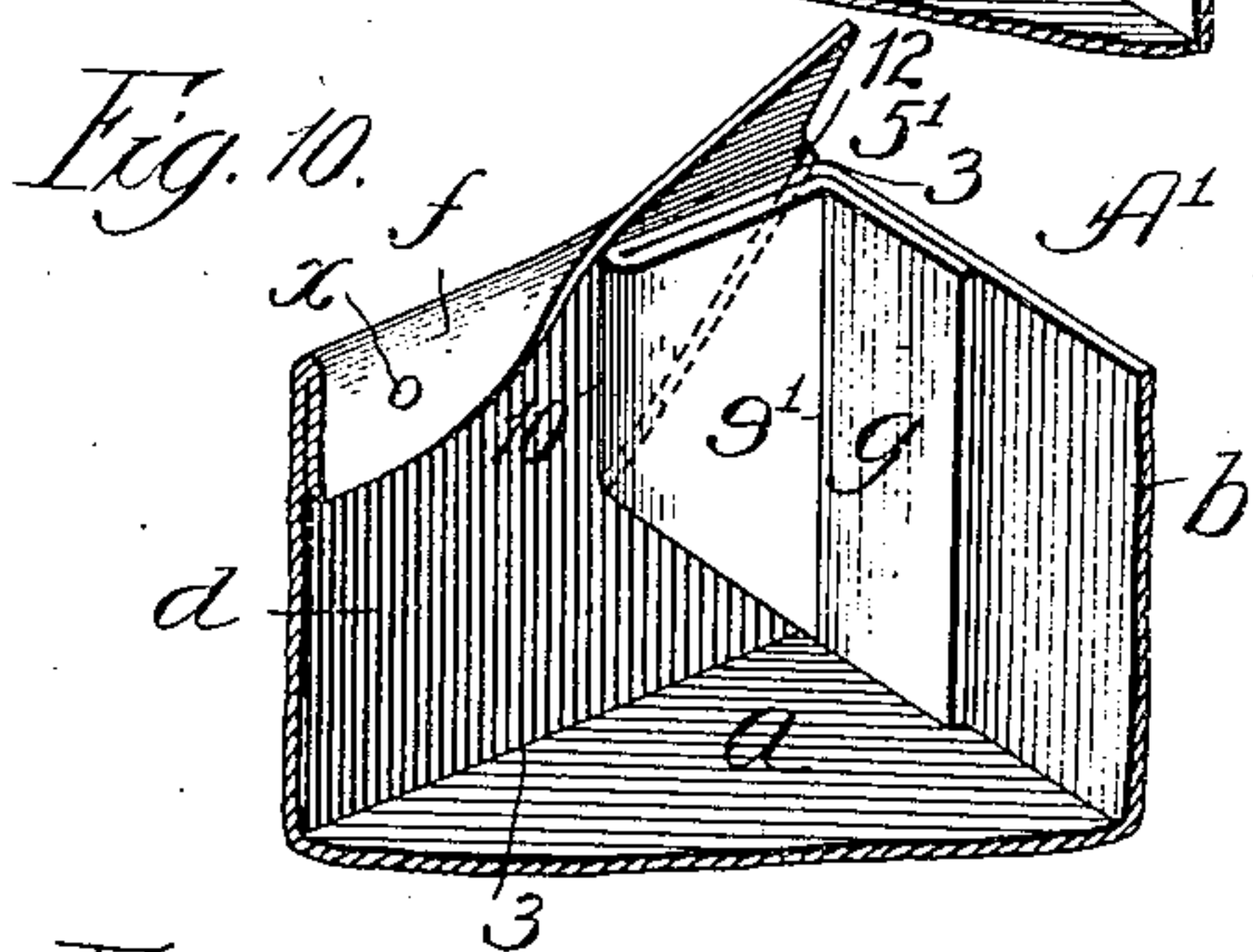
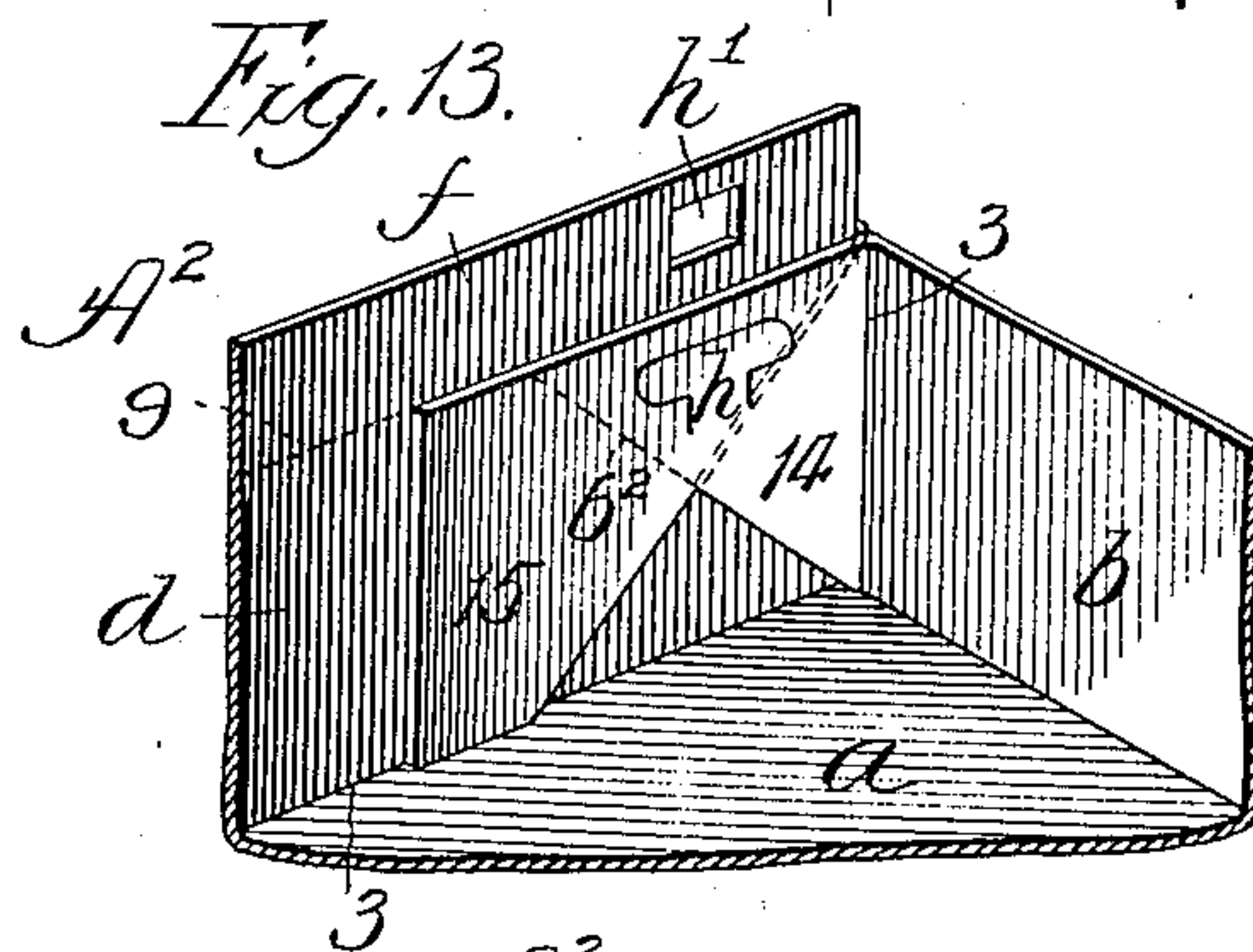
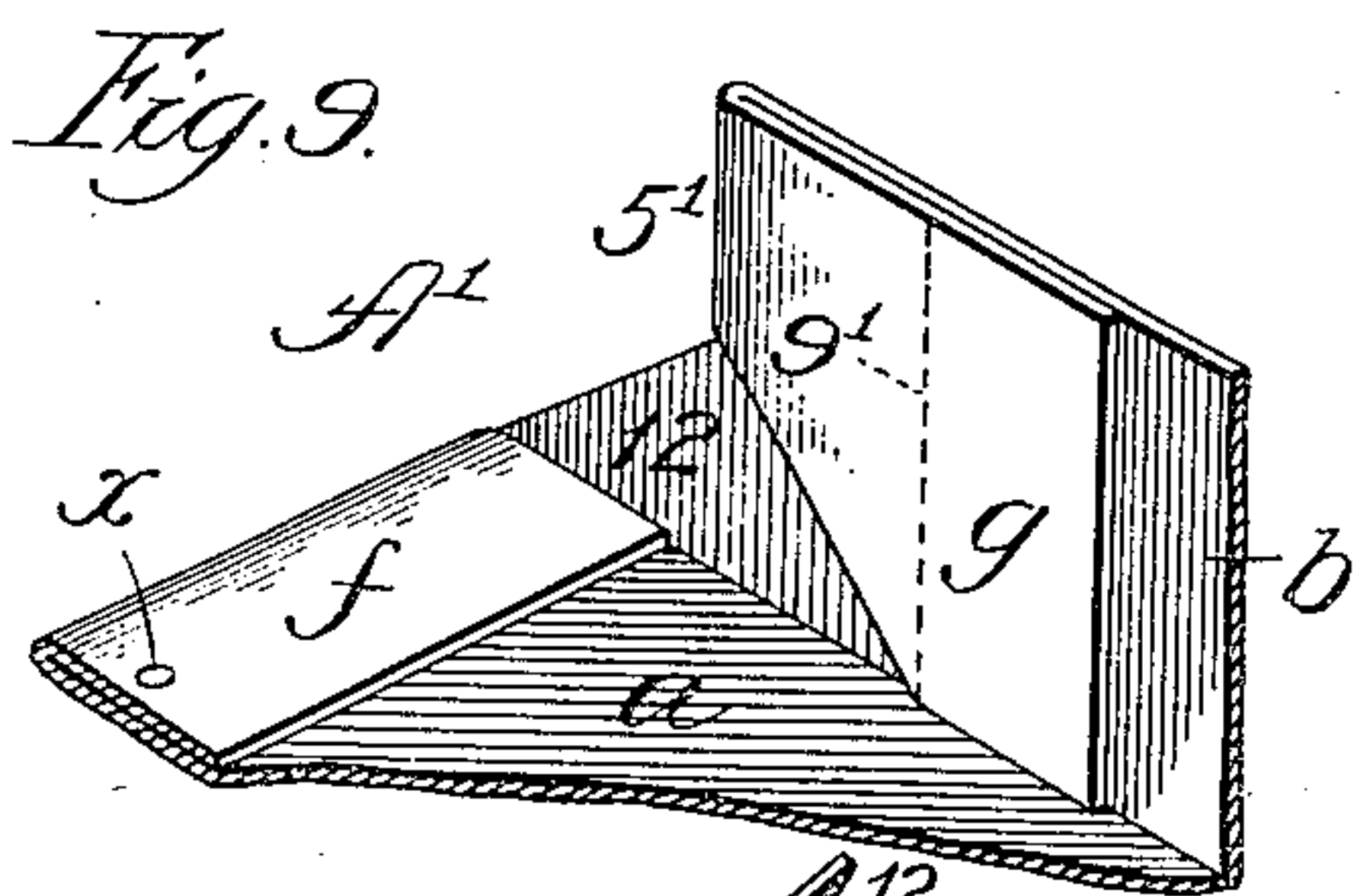
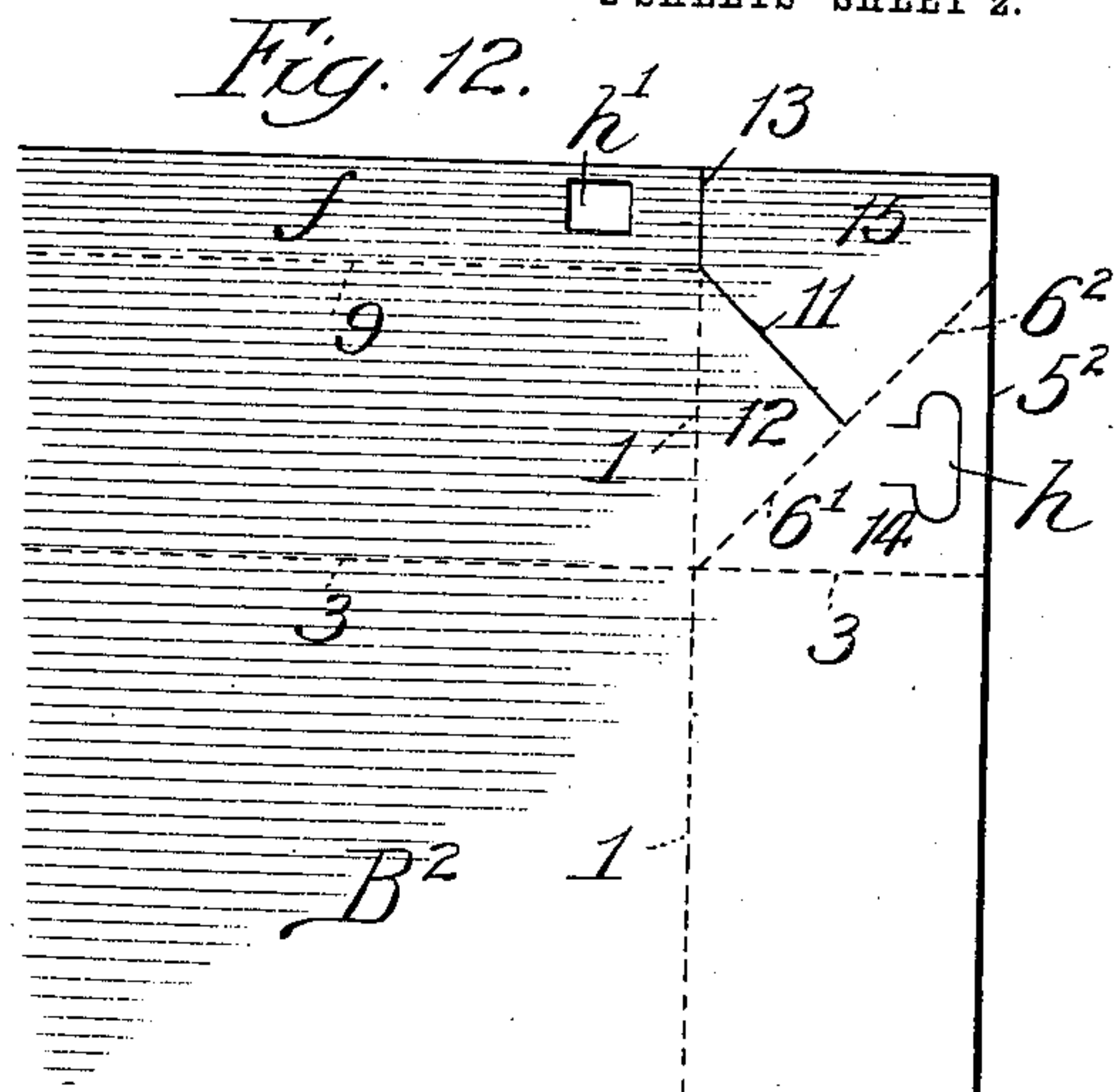
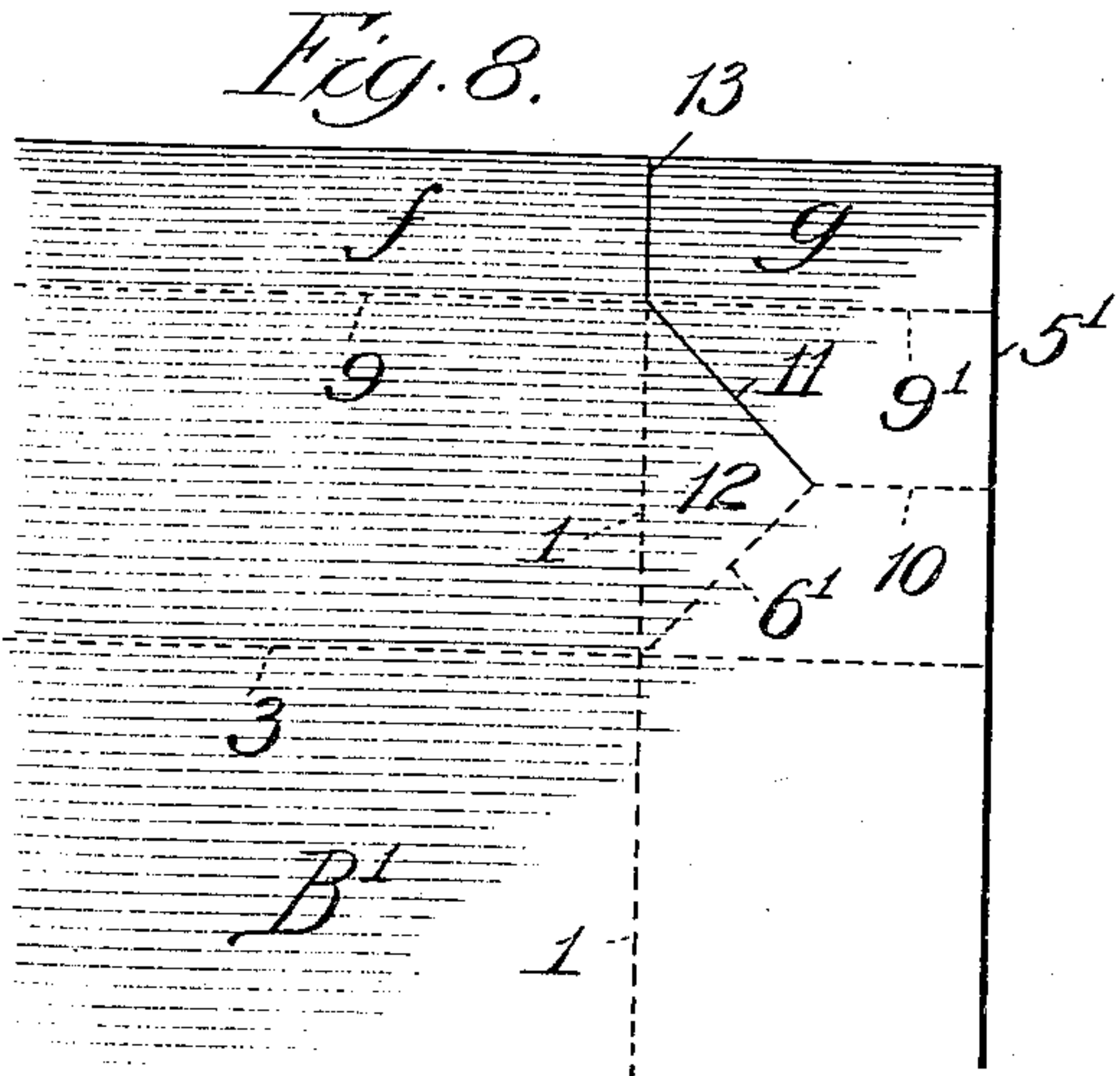
No. 855,746.

PATENTED JUNE 4, 1907.

S. BACHMANN.
BOX.

APPLICATION FILED SEPT. 29, 1905.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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BOX.

No. 855,746.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed September 29, 1905. Serial No. 280,601.

To all whom it may concern:

Be it known that I, SIEGMUND BACHMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Boxes, of which the following is a specification.

My invention relates to an improvement in the class of boxes, more commonly made of paper board, and adapted to be supplied to the consumer in collapsed or knock-down condition from which they are readily convertible to box-form, by a construction involving a hinged connection, afforded by bending or creasing, of the walls with the base, with end-extensions of two opposite walls for folding inwardly against the inner surfaces of the walls at right-angles to said opposite walls, to reinforce the structure.

The primary object of my invention is to provide new and improved means for securing the aforesaid reinforcing medium in place, said means consisting, essentially, of a flap-extension of the wall so reinforced, adapted to be folded over and lie against the inner surface of the reinforcing medium and provided with means for fastening the flap between its ends to said wall.

My improvement may be employed in a box-cover as well as in the box proper, and it is therefore my intention to be understood as including within my invention the application thereof to each or either of said parts of a box.

In the accompanying drawings—Figure 1 is a perspective view of a paper-board box illustrating a construction thereof embodying one form of my invention; Fig. 2, a similar view of the same showing the box in its collapsed condition. Fig. 3 is a plan view of the blank from which the box of the construction illustrated in the preceding figures, is formed. Fig. 4 is a broken perspective view, diagrammatic in its nature, showing a corner-portion of the box in the condition of its representation in Fig. 2, but with the retaining-flap unfolded; Fig. 5, a similar view of the same, showing the retaining-flap in its operative condition; Fig. 6, a similar view showing the parts in their non-collapsed condition, with the retaining flap raised sufficiently to admit under it the folded corner-portion, and Fig. 7, a view like that presented by Fig. 6, but showing the flap in its retaining position. Fig. 8 is a broken plan view representing one of the four similarly

constructed corners of the blank for another form of embodiment of my invention; Fig. 9, a broken perspective view, showing the retaining flap fastened in operative condition, with the corner-portion partly folded for insertion under the flap; Fig. 10, a similar view of the same, but showing the corner-portion completely folded and inserted under the flap, shown raised to admit it, this view corresponding with Fig. 6; and Fig. 11, a similar view of the same, showing the parts in their collapsed condition. Fig. 12 is a view, like that presented by Fig. 8, of the blank for still another form of embodiment of my invention; Fig. 13, a broken perspective view of a corner-portion of the box formed from the blank of Fig. 12, but with the retaining-flap unfolded and unfastened; Fig. 14, a similar view of the same showing the flap in its operative condition wherein it is releasably fastened to the folded corner-portion, and Fig. 15, a similar view showing the parts forming a box-corner in their collapsed condition.

Each of the three constructions of box selected for illustrating a different embodiment of my invention, involves, generally stated, a rectangular base having four walls, or two sets of opposite walls, extending from it and flexibly connected with the base, with reinforcing corner-portions formed of inwardly and triangularly folding sections, one set of the walls being provided with inwardly folding extensions, forming the flaps, adapted to overlap the folded reinforcing corner-portions, or parts thereof, and to be fastened in a manner to hold them by leaving the ends of the flaps free.

Referring particularly to Figs. 1 to 7, inclusive: A is the box formed from the blank B. The blank shown consists of a rectangular oblong sheet of pasteboard adapted to be folded along the parallel dotted lines 1 and 2 to form the box-sides *b* and *c* hingedly connected with a base *a*, and along the dotted lines 3 and 4 to form the box-ends *c* and *d*, the dotted lines being, by preference, creases to facilitate folding the parts. Each line 1 and 2 intersects the lines 3 and 4 to form the four rectangular corner-sections 5 of the blank, entirely unsevered therefrom and each of which is adapted to be folded inwardly on a diagonal line 6, (also preferably a crease) to form the triangular sections 7 and 8. On each end of the blank is an extension *f* reaching preferably from the plane of the

folding-line 1 to that of the folding line 2, each extension being adapted to be folded at a dotted line 9 and form the retaining-flap, hereinafter described.

5 To form the box A from the blank B the sections outside the lines 1 and 2 and those outside the lines 3 and 4 are turned to produce, respectively, the side-walls *b* and *c* and the end-walls *d* and *e*, extending at right-
10 angles to the base *a*; and in thus forming the walls the corner-sections 5 are turned inwardly along the diagonal lines 6 to fold one upon the other, into the condition represented in Fig. 6, against the inner surfaces
15 of the respective box-ends, with the result of affording to the latter at each corner-portion of the box a triple-thickness of material and consequent reinforcement of the structure. Each flap *f* is folded over on a line 9 to lie
20 against the inner surface of the respective reinforced box-end, and is fastened thereto in that position, between the ends of the flap, at one or more points *x*, as through the medium of eyelets, buttons, cords or other suitable
25 form of permanent or separable fastener. Thus fastening the flaps leaves each free toward its ends, so that by raising it as indicated in Fig. 6, the respective folded corner-portion 8, 9, may be inserted or
30 tucked underneath it, whereupon, by releasing the flaps they will assume the position represented of the one shown in Fig. 7, of covering the two-ply folds of the corner-portions and thus retain with adequate firmness, the walls of the box, reinforced by the
35 folded corner-portions, in upright condition.

To collapse the box, as for shipment in "knock-down" condition, into the condition in which it is represented in Fig. 2, it is only
40 necessary to pull the ends *d* and *e* outward, thus turning them on their folding-lines 3, 4 to extend in the plane of the base *a*, whereby the corner-portions are withdrawn from underneath the free portions of the flaps *f*,
45 which yield under the strain and return to their normal condition when the strain is released by the corner-portions clearing them; and with the ends drawn outward to their full extent the corner-portions assume
50 with the box-sides the flat position against the base represented in Figs. 2 and 5.

To restore the box from its collapsed condition to that represented in Fig. 1, the ends *d*, *e* are turned toward each other, the operator
55 lifting the free end-portions of the flaps to admit under them the corner-portions, which fold inwardly by thus turning the ends, and thereupon releasing the flaps to permit them to assume their retaining position.

60 Referring, particularly, to Figs. 8 to 11, inclusive: The construction of box A¹ therein illustrated differs from that presented by the preceding figures only in the formation of the corner-portions. Thus each corner-
65 section 5¹ of the blank B¹ is also produced

by the lines 1 and 2 intersecting the lines 3, 4, but the diagonal folding-line of crease 6¹ extends from the respective intersection only to the center of the corner-section 5¹, while a folding-line or crease 10 extends from
70 said center to the outer edge of said corner-section, and the latter is severed along a line 11 extending diagonally from said center to the respective end of the adjacent
75 line 9, thereby forming a triangular piece 12; and the corner-section has an extension *g* reaching to the outer edge of the flap *f* but severed from the flap along the line 13 and having a folding-line or crease 9¹ coinciding
80 with the respective line 9. By this construction, with each flap *f* fastened, as at *x*, a side-forming part of the blank is turned on its folding-line to extend at a right-angle to the base *a*, carrying with it the two corner-
85 sections 5¹ on that side. Each of the two corner-portions of the box is then formed by folding on a line 10 and thus bringing the parts to the relative positions represented in Fig. 9, whereupon the end-section of the blank is turned on its folding-line, as 3,
90 to a right-angle with the base, and with the adjacent free end-portion of the flap *f* raised, as represented in Fig. 10, the part 12, of the corner-section and the part thereof below the folding-line 10 in Fig. 8 and the
95 part between the folding-line 10 and 9 in the last-named figure are folded one upon the other and tucked under the flap *f*, thereby bringing the extension *g* against the inner surface of the side, all as represented in Fig. 10. Each corner for the opposite side of the box is similarly formed; and the construction provides a quadruple thickness of material of each box-end near the corner and a double thickness of the
105 side near the same, with the consequent reinforcing advantage. As will be seen, this last described construction, which involves the feature of the retaining-flap fastened between its ends, which are free,
110 may be collapsed into the "knock-down" condition represented in Fig. 11 by turning outward the ends, and restored by turning them toward each other, the same as described of the construction represented in
115 Figs. 1 to 7, inclusive.

Referring, particularly, to Figs. 12 to 14, inclusive: The blank B² differs from the blank of Fig. 8 in omitting the folding-lines 9¹ and 10 from each corner-section 5², and
120 extending the diagonal folding-lines 6¹, as at 6², to the outer edge of the corner-section. A tongue *h* is cut out of the corner-section below the line 6² to engage with an opening *h*¹ in the adjacent end of the flap *f* in converting the blank into a box in collapsed or
125 erect condition.

To form the box A² from a blank B² each blank-section in turn, forming a wall *b* or *c*, is turned to a right-angle with the base *a* 130

and a blank-section forming an end-wall, as *d*, is similarly and simultaneously turned on its folding-line 9. This brings the triangular piece 12 against the inner face of the end-wall, the section 14 containing the tongue *h* folds inwardly on the line 6¹, 6² against said piece 12 and the inner face of the end-wall, and the piece 15, which is formed by the folding-line 6² and the severing lines 11 and 13 is also thereby brought flatwise against the inner face of the end-wall, and extends perpendicularly from the folding-line 9 to the base of the box, all as represented in Fig. 13. The tongue *h* is thus brought coincident with the adjacent flap-opening *h*¹ and the respective flap *f* is then folded on the line 9 to overlap the folded corner 5², and the tongue *h* is tucked through the opening *h*¹ either from underneath the flap, as represented in Fig. 14, or the tongue may extend over the inner face of the folded flap to be tucked into its receiving-opening in the latter in an outward direction. The flap is fastened, as in the other described instances, at *x*, but the fastening medium penetrates the corner-piece 15, near its upper end.

To collapse the box of Fig. 14, the tongues *h* are disengaged from their receiving openings *h*¹ and the end-walls of the structure are drawn asunder with the effect of reducing the structure to the condition, represented in Fig. 15, of extending the end-walls in the plane of the base *a* and folding the side-walls toward each other flat upon the base, while each corner-piece 15, being held by the fastening at *x*, and also the corner-piece 12 moves outward with the respective end-wall, remaining flatwise against its inner surface, but the part 14 is turned on the folding-line 6¹, 6², with the side-wall; thus turning it withdrawing it from underneath the confining end of the flap *f*.

To restore to its erect condition the box of the last described construction from its collapsed condition represented in Fig. 15, the end and side-walls are turned on their folding-lines to extend at right-angles to the base *a* and the corner-pieces are tucked under the respective free flap-ends and releasably fastened by the tongues *h* in the manner described. This construction affords to each end-wall, where the corner-piece 15 covers it, a double thickness, and where the corner-pieces 14 and 12 cover it a triple thickness.

It will be observed that in none of the three illustrated constructions is there any severance of the blank along either folding-line 1 or 2 between the flap-folding lines 9, 9, so that the corner-portions (5, 5¹, 5²) remain unsevered from the blank throughout the

said lines 1 and 2, to insure in each instance the triangular inward fold of each box-corner and an unsevered bridging of the reinforcing material across the junction between each end and side-wall. This feature, in connection with the free-ended retaining flap, forms an important part of my invention in either of the illustrated embodiments thereof, though it is not indispensable to my invention, since the retaining flap, rendered free at its ends by the fastening medium, as *x*, between them, and which is the feature of primary importance in my invention, may be employed to advantage where the reinforcing medium is folded, otherwise than described, against the inner surfaces of the end-walls and whether the corner-portions be severed from the blank along the lines 1 and 2, or not.

What I claim as new and desire to secure by Letters Patent, is—

1. A collapsed box, comprising a base, a pair of side walls and a pair of end walls hingedly connected to the base along folding lines, one set of walls lying flat on the base with infolded portions at the ends thereof, flaps hingedly secured to the outer sides of the other set of walls, and means securing each flap between its ends to the wall upon which it is folded with the ends of the flaps overlying the infolded portions.

2. A collapsed box, comprising a base, a pair of side walls and a pair of end walls hingedly connected to the base along folding lines, one set of walls lying flat on the base with infolded portions at the ends thereof, said infolded portions being also connected to the ends of the other set of walls, flaps hingedly secured to the outer sides of the other set of walls and means securing each flap between its ends to the wall upon which it is folded with the ends of the flaps overlying the infolded portions.

3. A collapsed box, comprising a base, a pair of side walls and a pair of end walls hingedly connected to the base along folding lines, one set of walls lying flat on the base with infolded portions at the ends thereof, said infolded portions being also connected to the ends of the other set of walls, said infolded portions being provided with a diagonal fold line upon which it folds in the erection of the box, flaps hingedly secured to the outer sides of the other set of walls and means securing each flap between its ends to the wall upon which it is folded with the ends of the flaps overlying the infolded portions.

SIEGMUND BACHMANN.

In presence of—

A. U. THORIEN,
J. H. LANDES.