

No. 753,524.

PATENTED MAR. 1, 1904.

H. B. SMITH.
BOX COVERING MACHINE.
APPLICATION FILED JAN. 3, 1903.

NO MODEL.

Fig. 1.

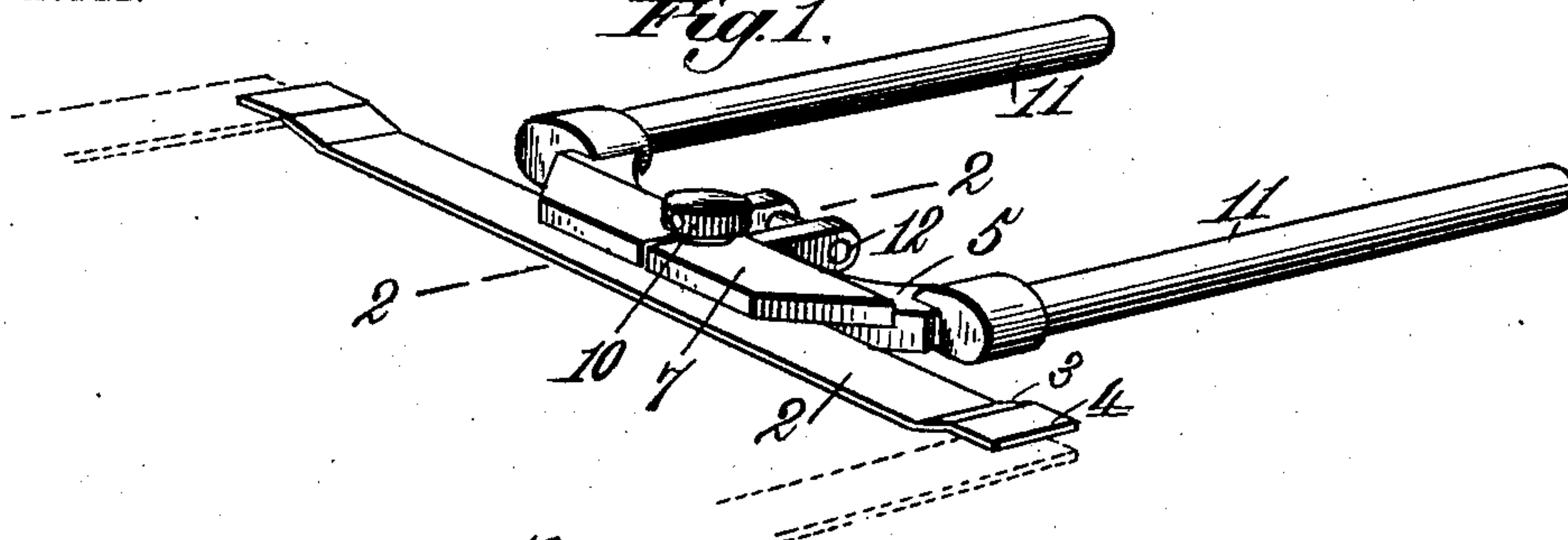


Fig. 2.

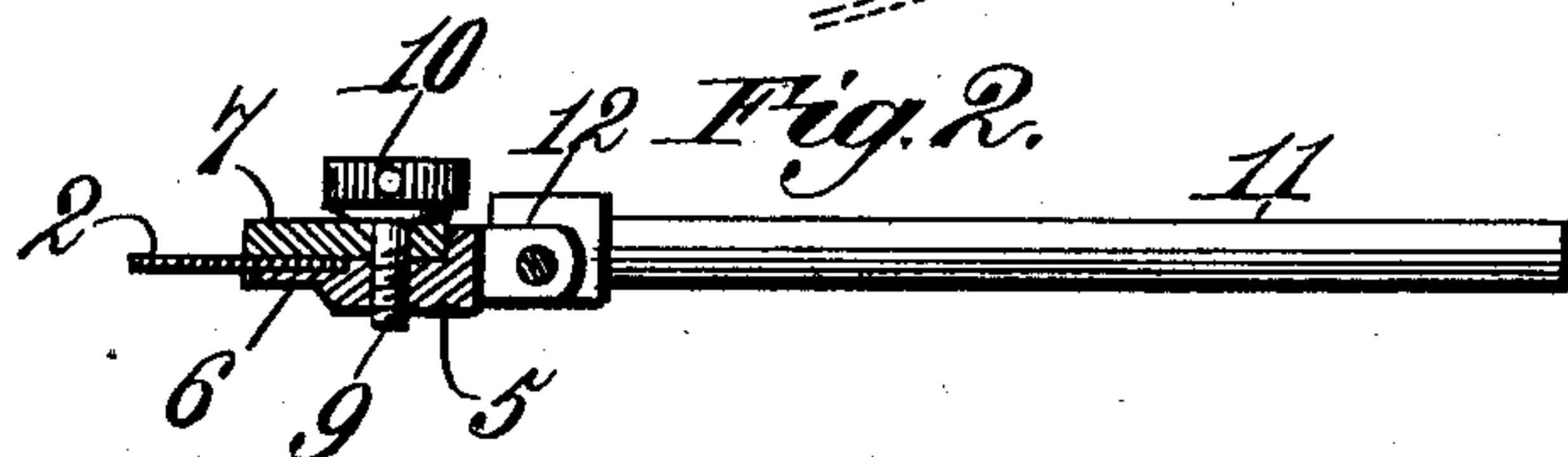


Fig. 3.

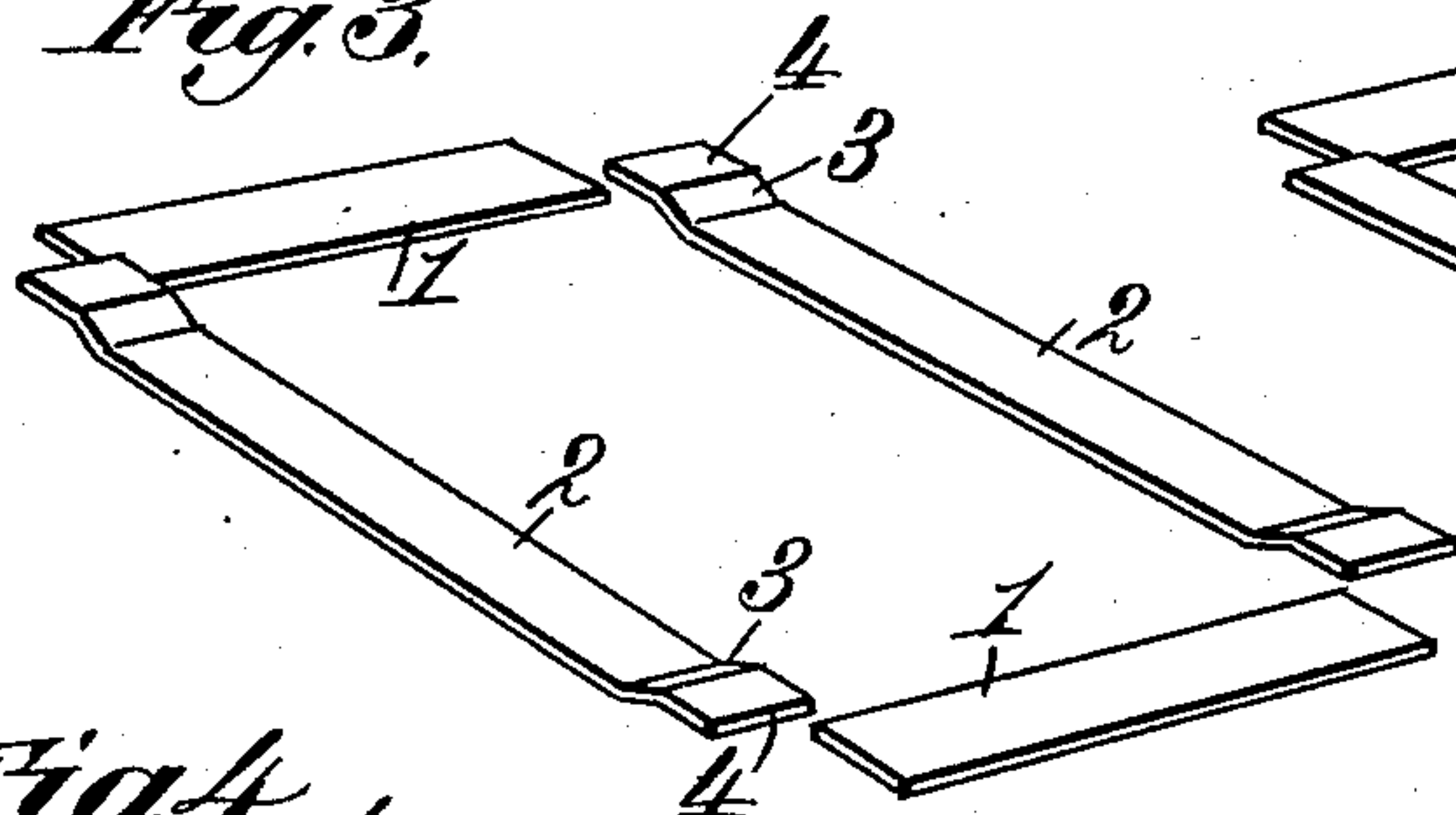


Fig. 5.

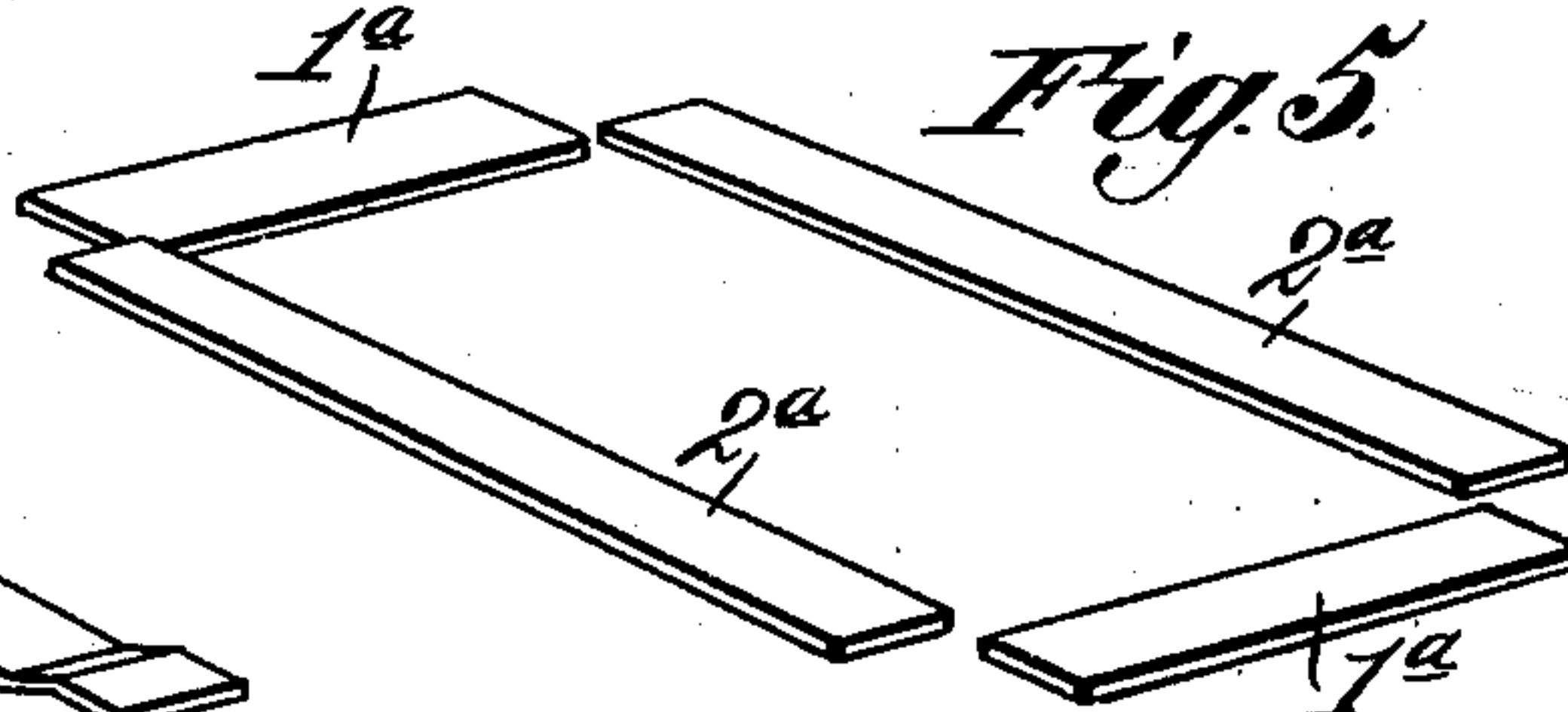


Fig. 4.



Fig. 6.



Fig. 7.

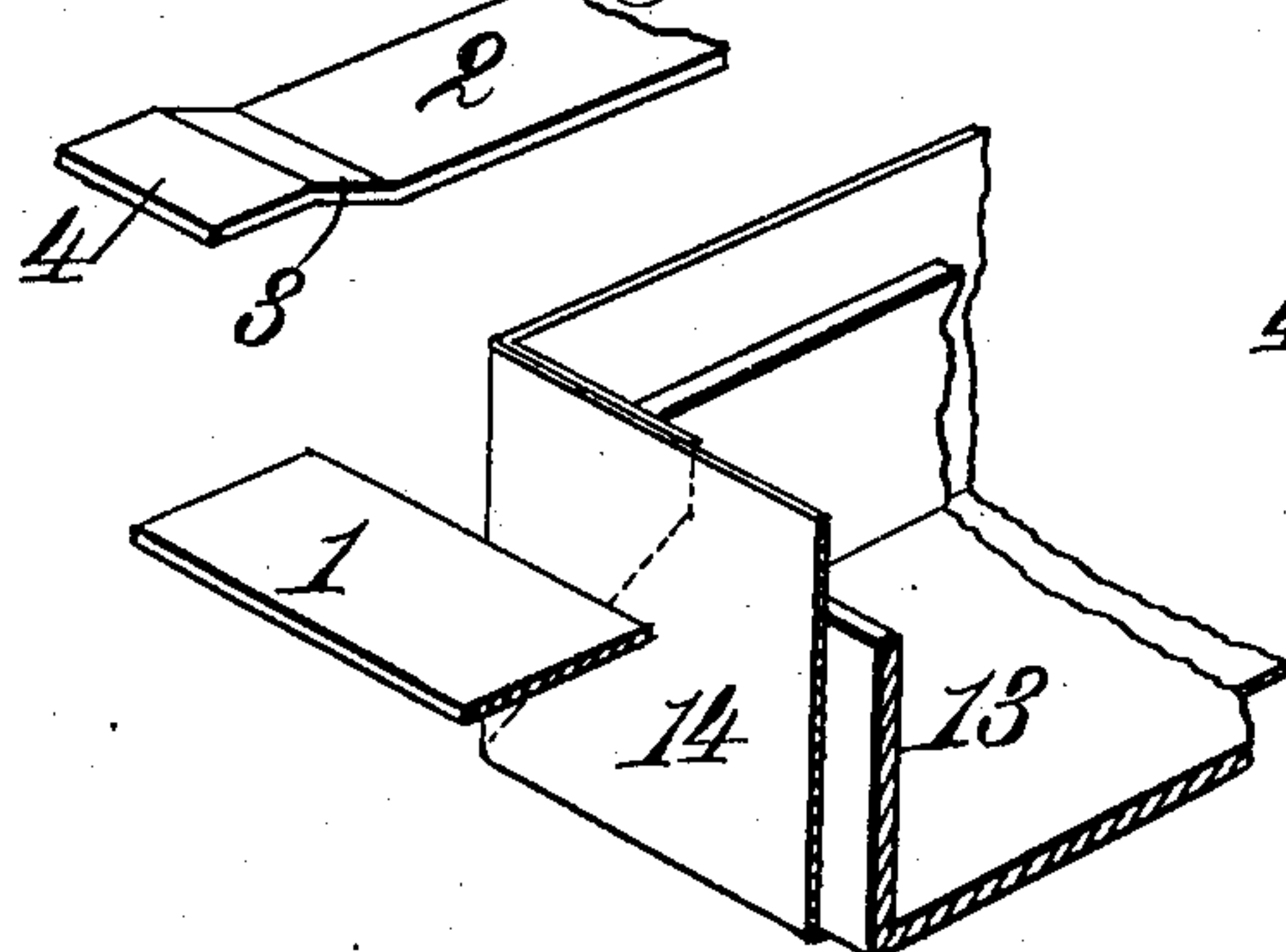


Fig. 8.

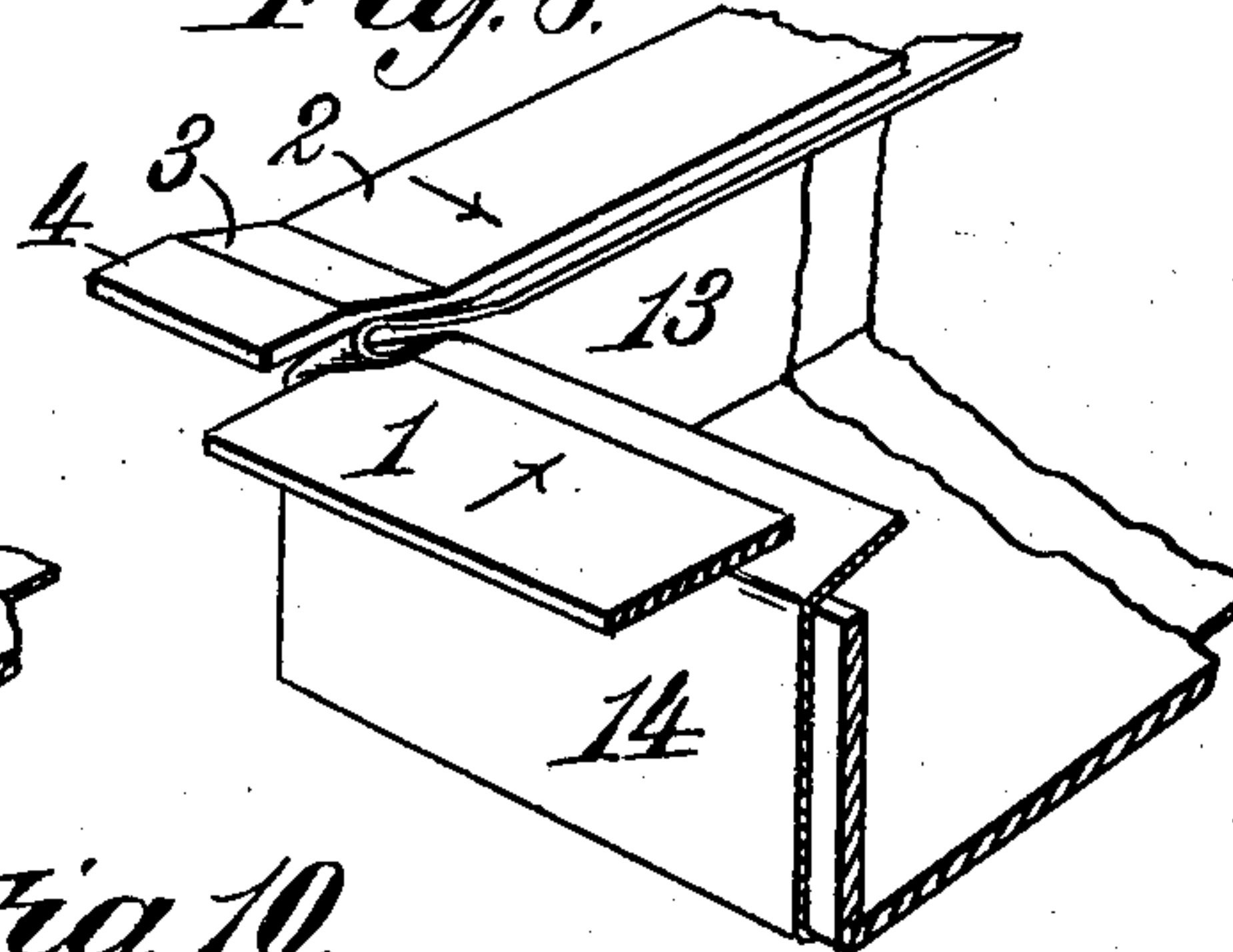


Fig. 9.

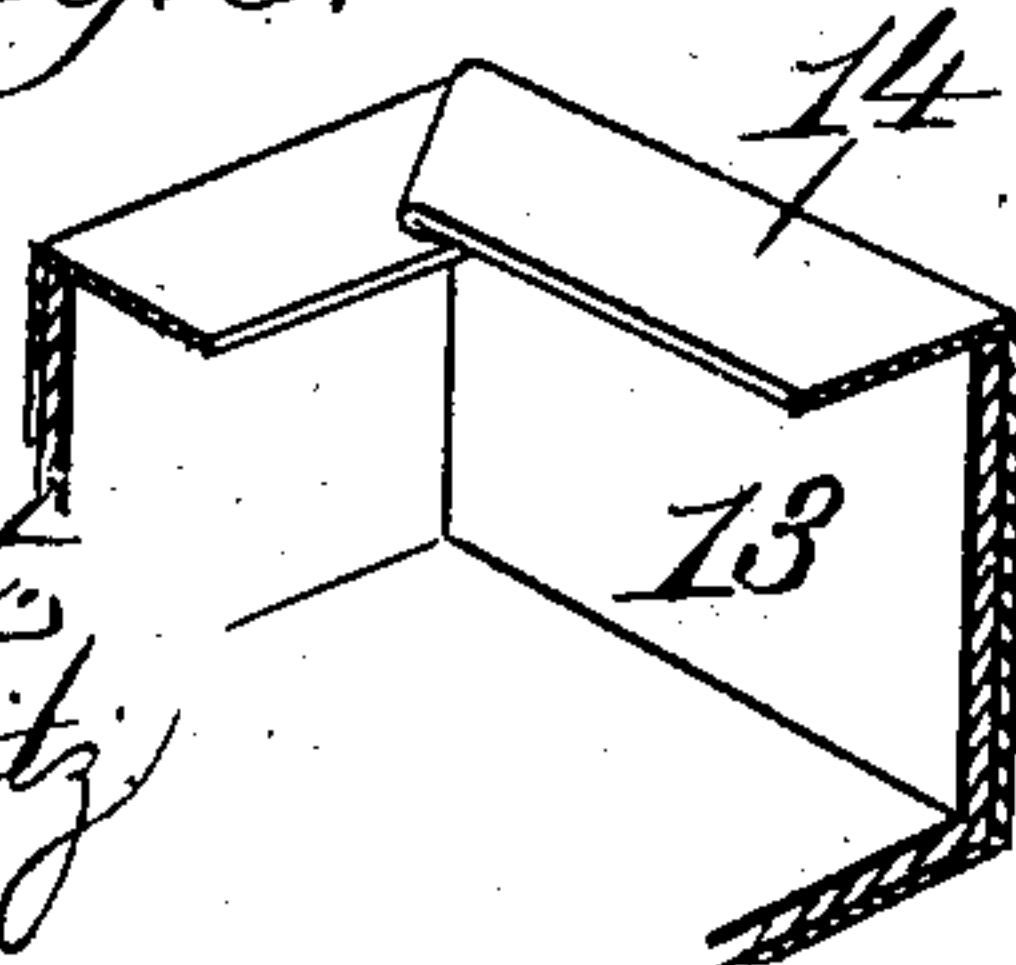
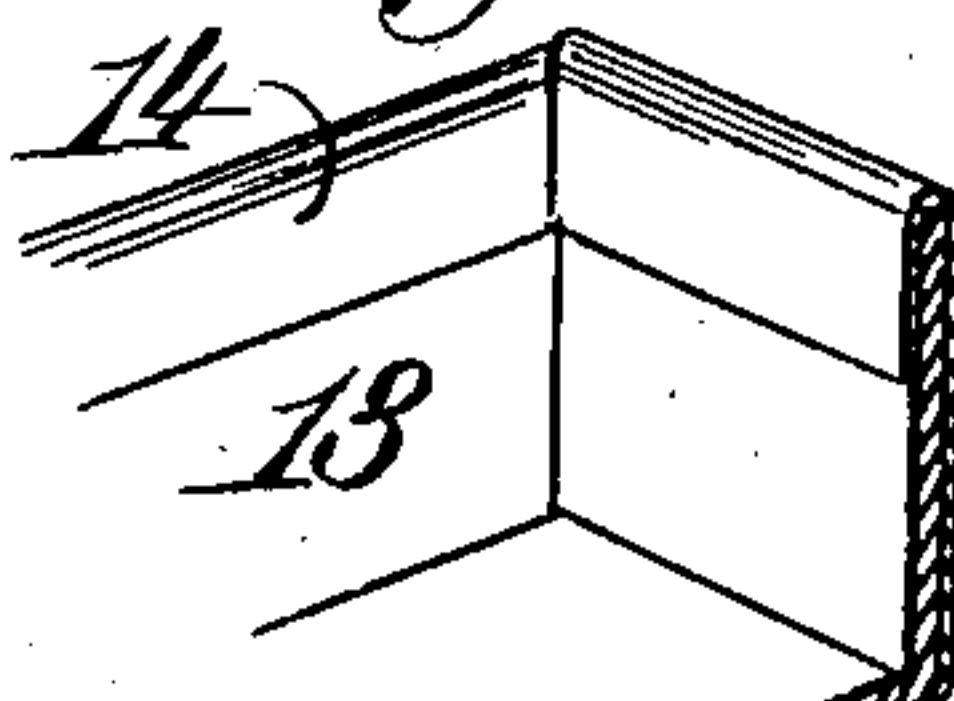


Fig. 10.



Witnesses.

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UNITED STATES PATENT OFFICE.

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BOX-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 753,524, dated March 1, 1904.

Application filed January 3, 1903. Serial No. 137,698. (No model.)

To all whom it may concern:

Be it known that I, HARRY B. SMITH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Box-Covering Machines, of which the following is a specification.

This invention relates to machines for covering paper boxes, and is in the nature of an improvement on the machine for which Letters Patent were granted on the 14th day of January, 1902, No. 691,329. In the machine shown and described in the said Letters Patent are employed what are known in the art as "edge tuck-in fingers," which operate to tuck-in the free edges of the paper covering or blank over the edges of the box in position to be engaged by a plunger, which when it descends into the box operates to force such tucked-in ends down in the box and firmly affix them thereto. In the prior machine referred to the edge tuck-in fingers consist of four straight bars, there being one such bar arranged horizontally on each side of and parallel with the upper edges of the box when the latter arrives at a position to have the edges of the cover-blank tucked in. In such arrangement the four bars or edge tuck-in fingers are moved inward in the same horizontal plane, and hence the paper covering is puckered or bunched at the four corners, with the result that when the plunger descends into the box and is withdrawn the covering is either torn or is affixed to the inner corners of the box in a ragged, uneven, and unsightly manner.

It is the purpose of the present invention to provide improved edge tuck-in fingers, so constructed and arranged that the edges of the cover-blank at the corners will be neatly and smoothly folded and in such condition will be firmly fixed to the interior corners of the box, not only in such manner as to produce a smooth, neat, and workmanlike appearance, but also aid in strengthening the corners of the box.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a detail perspective view of one of the side tuck-in fingers and the head by which it is carried, a portion of the two end tuck-in fingers being shown in dotted lines. Fig. 2 is a transverse sectional view taken on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the edge tuck-in fingers alone, showing them in their relative positions. Fig. 4 is a detail view of a portion of two of the edge tuck-in fingers, illustrating the manner in which they overlap in operation. Fig. 5 is a view similar to Fig. 3, illustrating a slight modification. Fig. 6 is a view similar to Fig. 4 of two of the edge tuck-in fingers shown in Fig. 5. Fig. 7 is a perspective view of one corner of a box and its cover before the latter has been turned in and a portion of an end and side tuck-in finger. Fig. 8 is a similar view showing the tuck-in fingers in the act of tucking in one end and side of the cover-blank. Fig. 9 is a detail perspective view of one corner of the box after the cover-blank has been tucked in and the tuck-in fingers withdrawn, and Fig. 10 is a similar view of the finished box.

In the preferred form shown in Figs. 1 to 4 of the drawings, the two end tuck-in fingers consist of straight and flat metallic strips 1 and the side tuck-in fingers consist of two metallic strips 2, flat throughout the greater portions of their lengths; but each of said strips near its opposite ends is bent up at a slight angle, as at 3, and thence horizontally, as at 4, thus making the ends of the side strips offset relatively to the body portions thereof. When the edge tuck-in fingers 1 and 2 are assembled together in operative position, as shown in Fig. 3 of the drawings, the end tuck-in fingers 1 and the body portion of the side

tuck-in fingers 2 lie in the same horizontal plane, while the offset ends 4 of the side edge tuck-in fingers 2 lie in a horizontal plane above the plane of the end tuck-in fingers, so that
 5 when the tuck-in fingers are moved horizontally inward toward each other said offset ends 4 will overlap the ends of the end tuck-in fingers 1, as most clearly shown in Fig. 4. Each of the strips forming the edge tuck-in
 10 fingers is removably held in a movable support constructed as follows, reference being had to Figs. 1 and 2 of the drawings. Referring to said figures, the numeral 5 indicates a metallic head rabbeted on its upper side, as
 15 shown most clearly in Fig. 2 of the drawings, the upper side of said rabbeted portion at its front edge being grooved or planed off, as at 6, in which grooved portion is fitted the rear or outer edge of the edge tuck-in finger. Fitted
 20 in the rabbeted portion of the head is a cap-plate 7, which is clamped to the head by a screw 9, having a milled head 10, by means of which the edge tuck-in finger is rigidly and firmly clamped between the head and its cap.
 25 Projecting rearwardly from the opposite ends of the head are two parallel and horizontal guide-rods 11, which in practice are movably fitted in suitable guides forming a part of the frame of the machine, and projecting rear-
 30 wardly from the rear edge of the head intermediate the ends of the latter is a cross-head 12, to which is adapted to be attached a pitman, (not shown,) by means of which the head and the edge tuck-in finger carried thereby
 35 may be reciprocated back and forth. It will of course be understood that each of the edge tuck-in fingers will be supported and moved in the manner immediately above described.

As shown in Fig. 5, both the end tuck-in
 40 fingers 1^a and the side tuck-in fingers 2^a are perfectly flat and straight; but the side fingers are arranged in a higher plane than the end fingers, whereby the ends of the side fingers overlap the ends of the end fingers when
 45 said fingers are moved inward to tuck in the edges of the cover-blank.

In machines of the type to which this invention belongs the box to be covered is first
 50 cemented on its bottom centrally to the cover-blank, which is pasted on its upper side, and the box and cover-blank are placed on a vertically-movable plunger. The plunger is then caused to descend down between covering-
 55 rolls and turn-in devices, which affix the cover-blank to the sides of the box and turn in the ends of the blank and affix them to the ends of the box, as shown in Fig. 7 of the drawings, wherein the numeral 13 indicates the
 60 box, and 14 the cover. In practice the cover-blanks have substantially V-shaped gores cut out of the four corners. The box is next moved down until its upper edge is very slightly below the plane of the end tuck-in
 65 fingers, and one section of the plunger is then withdrawn from the box. The edge tuck-in

fingers are now caused to move inward toward one another simultaneously, whereupon they engage the edges of the cover-blank which project above the upper edges of the box and fold said edges inward horizontally over the
 70 edges of the box. As the ends 4 of the side tuck-in fingers project above the ends of the end tuck-in fingers or the ends of the side tuck-in fingers 2^a project above the end tuck-in fingers 1^a, the fingers come together and
 75 pass each other, as shown in Fig. 8, thus folding the corners of the side flaps of the box-blank over flat upon the corners of the end flaps of the cover-blank, as shown in Fig. 9, so that when the plunger is again caused to
 80 descend into the box and is withdrawn the corners of the cover-blank are neatly and smoothly affixed to the corners of the box, as shown in Fig. 10 of the drawings.

I have not herein shown the mechanism for
 85 actuating the heads or carriers which removably hold the edge tuck-in fingers, as the same will form the subject-matter of a separate application for patent.

Having described my invention, what I
 90 claim is—

1. In a machine of the class described, side and end tuck-in fingers arranged to move in horizontal planes to tuck the edges of the
 95 cover-blank over the upper edges of the box, the ends of two opposite tuck-in fingers being arranged to move above the adjacent ends of the other tuck-in fingers to smoothly fold the corners of the cover-blank, substantially as described. 100

2. In a machine of the class described, side and end tuck-in fingers arranged to move toward one another to tuck the edges of the
 105 cover-blank over the upper edges of the box, the ends of two opposite tuck-in fingers being arranged to move above the ends of the other two tuck-in fingers simultaneously as the said other two tuck-in fingers move longitudinally beneath the upper tuck-in fingers, whereby
 110 the corners of the tucked-in blank are smoothly folded, substantially as described. 110

3. In a machine of the class described, an edge tuck-in device comprising two parallel side tuck-in fingers and two parallel end tuck-in
 115 fingers arranged at right angles to the side tuck-in fingers and at a lower level, the ends of two opposite tuck-in fingers being arranged to move above the adjacent ends of the other tuck-in fingers to engage and smoothly fold
 120 the cover-blank at the corners of the box, substantially as described. 120

4. In a machine of the class described, an edge tuck-in device comprising two parallel side tuck-in fingers and two parallel end tuck-in
 125 fingers arranged at right angles to the side tuck-in fingers, two opposite ends of said fingers being offset at their ends to project above the adjacent ends of the other fingers, substantially as described.

5. In a machine of the class described, an 130

edge tuck-in device, comprising four flat metallic strips arranged in the form of a rectangle and movable toward and from each other, two of the opposite strips being offset at their 5 ends and arranged to overlap the adjacent ends of the other two strips when said strips are brought together, substantially as and for the purpose specified.

10 6. An edge tuck-in finger consisting of a strip having its opposite ends offset or raised above the plane of the body of the strip.

7. An edge tuck-in finger comprising a flat metallic strip having its opposite ends offset and lying in a plane above that of the body 15 of the strip.

8. Mechanism for tucking the covering material over the upper edges of a box and for

folding the said material at the corners of the box, comprising two pairs of fingers arranged to move toward one another, one pair of said 20 fingers being no longer than the length of the box to be covered and the other pair being arranged to move above the ends of said before-named pair and at right angles thereto whereby to engage the covering material along two 25 lines at each corner of the box and smoothly fold the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY B. SMITH.

Witnesses:

SAMUEL BITTERMAN,
I. H. KRAMER.