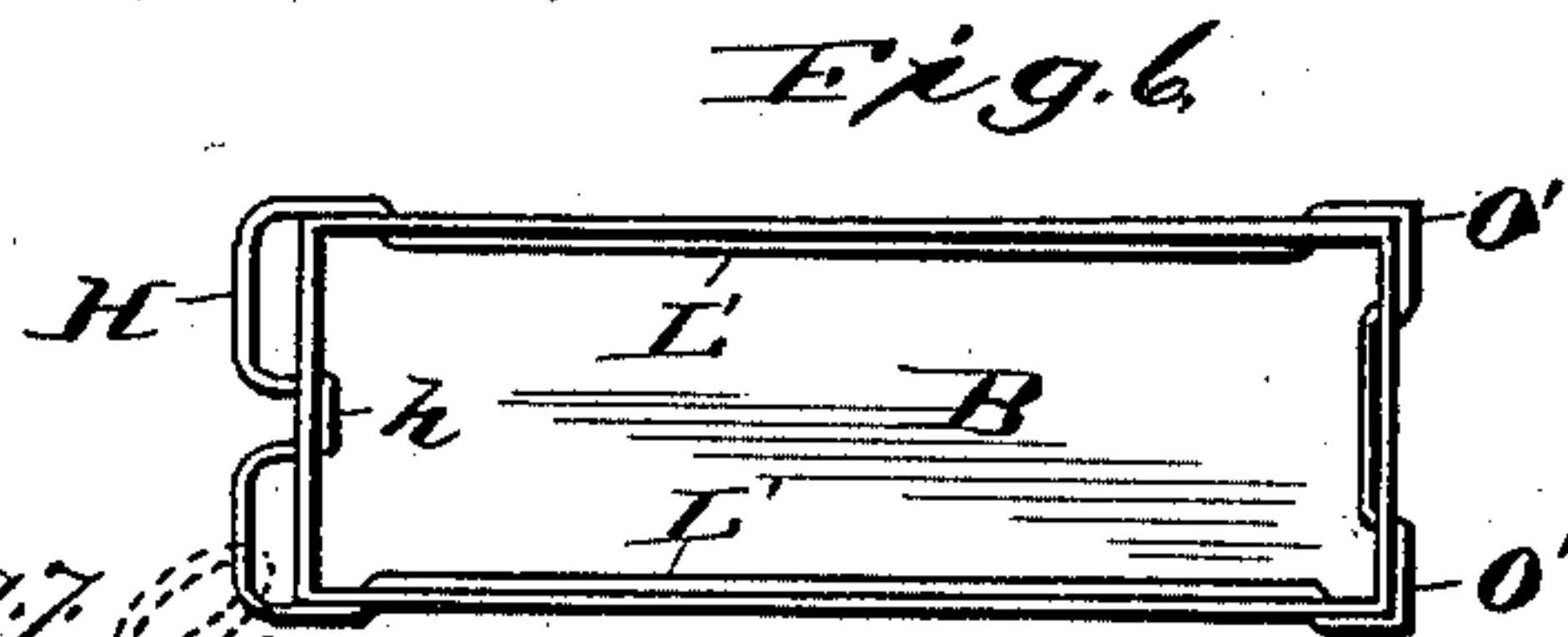
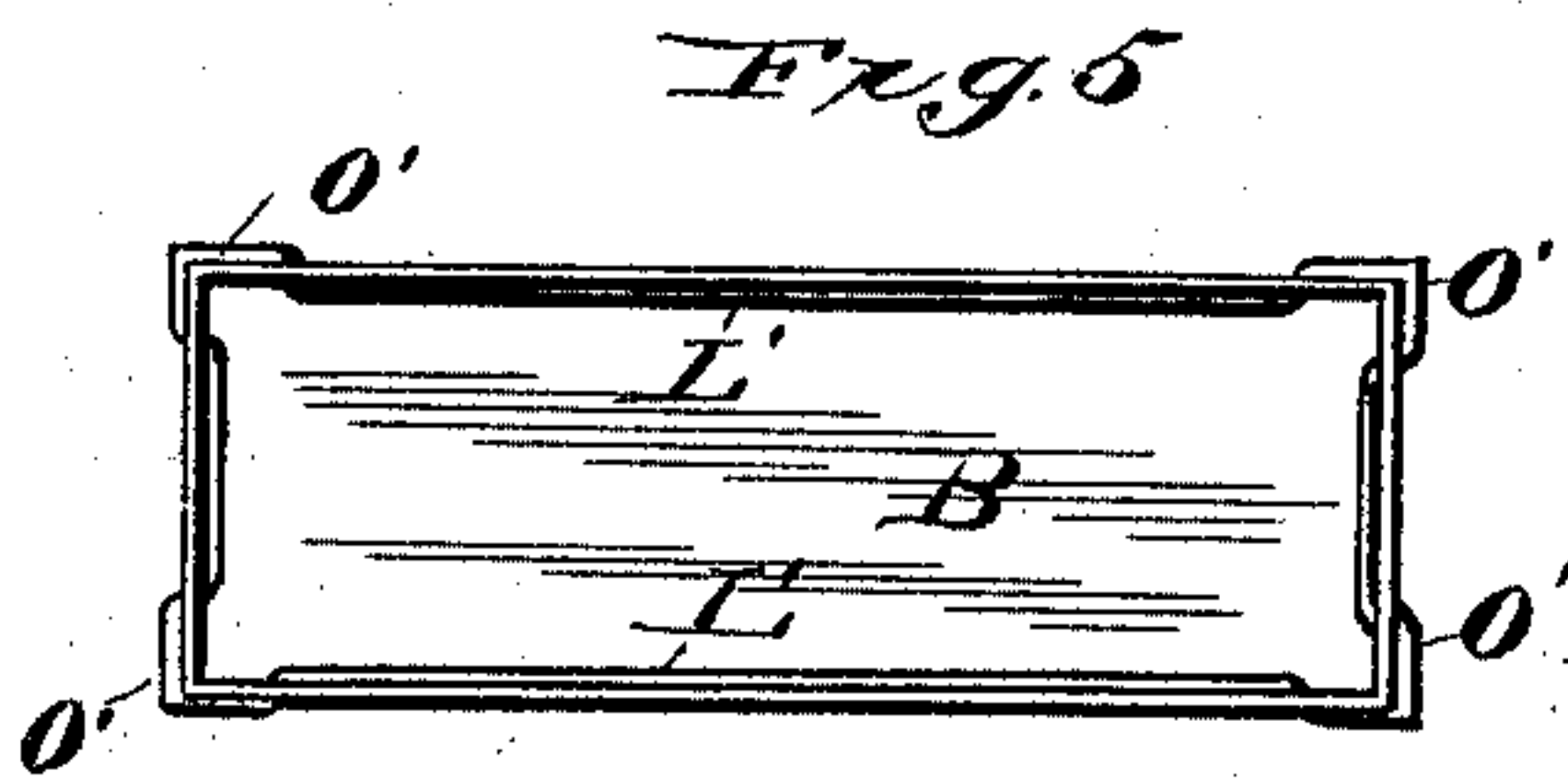
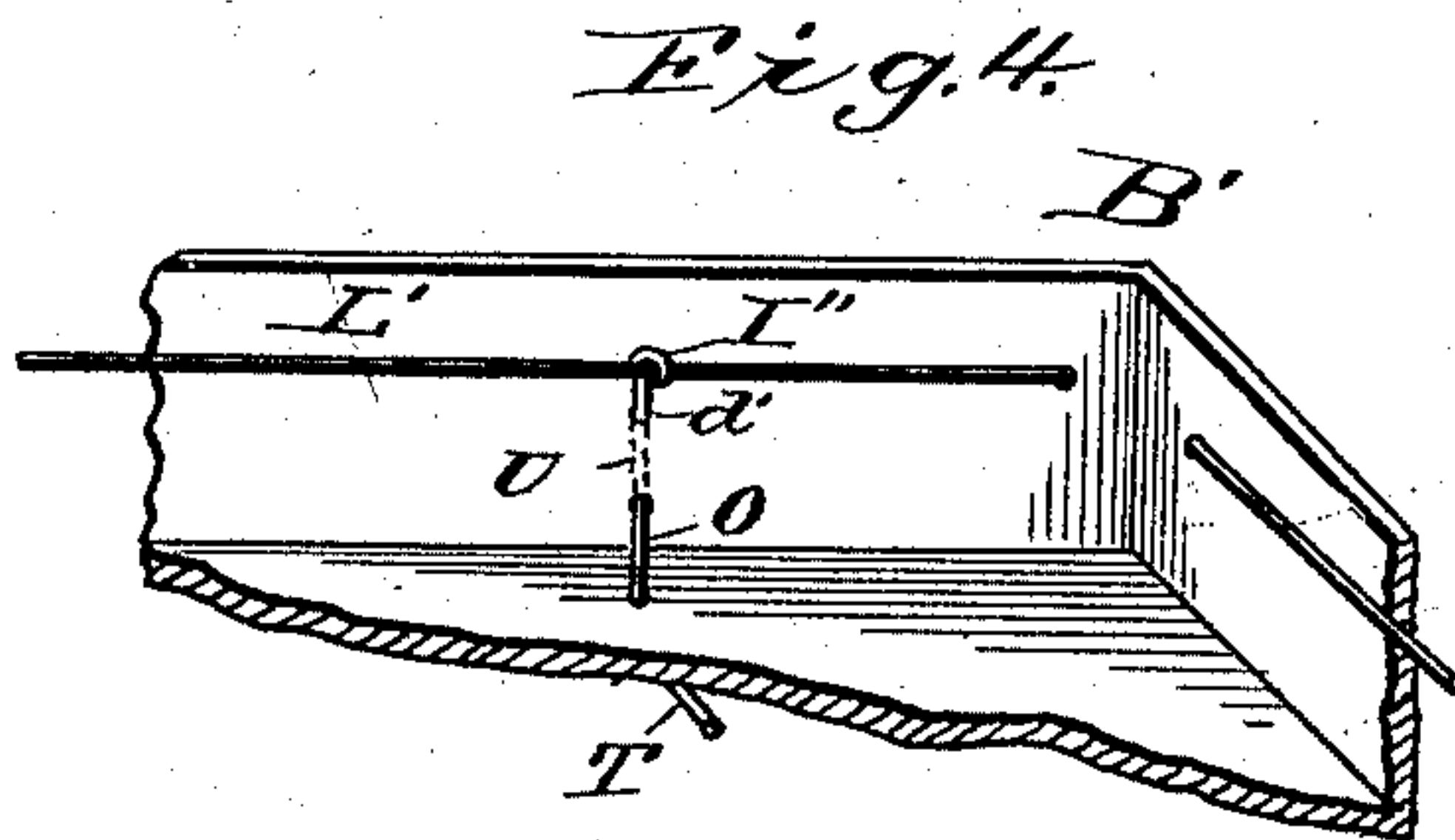
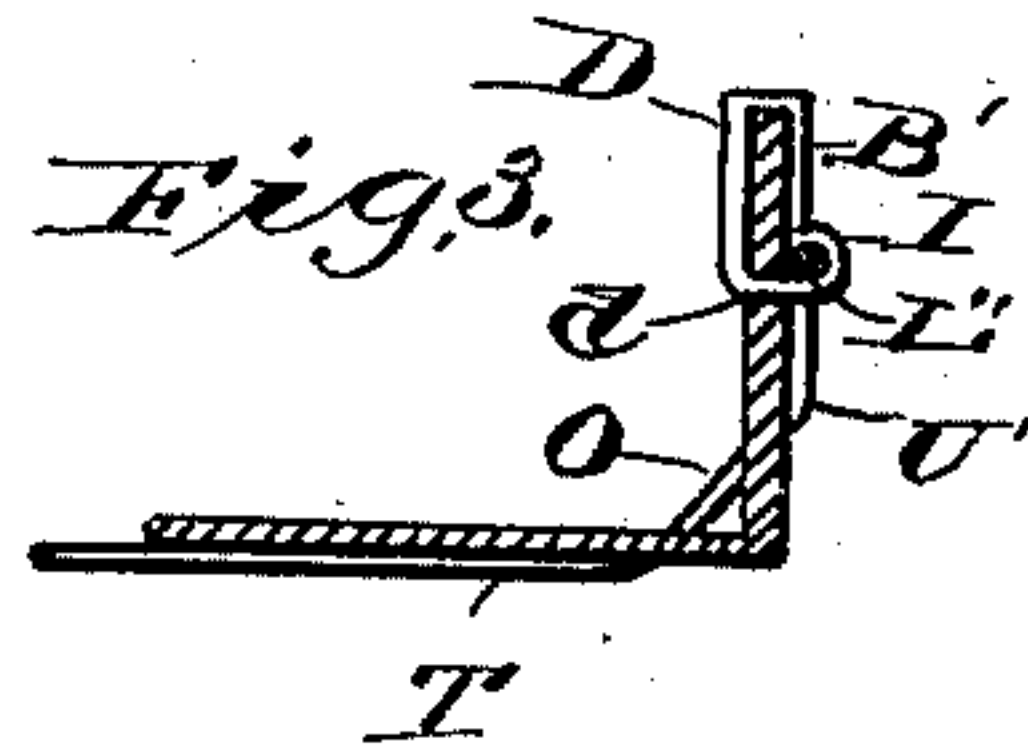
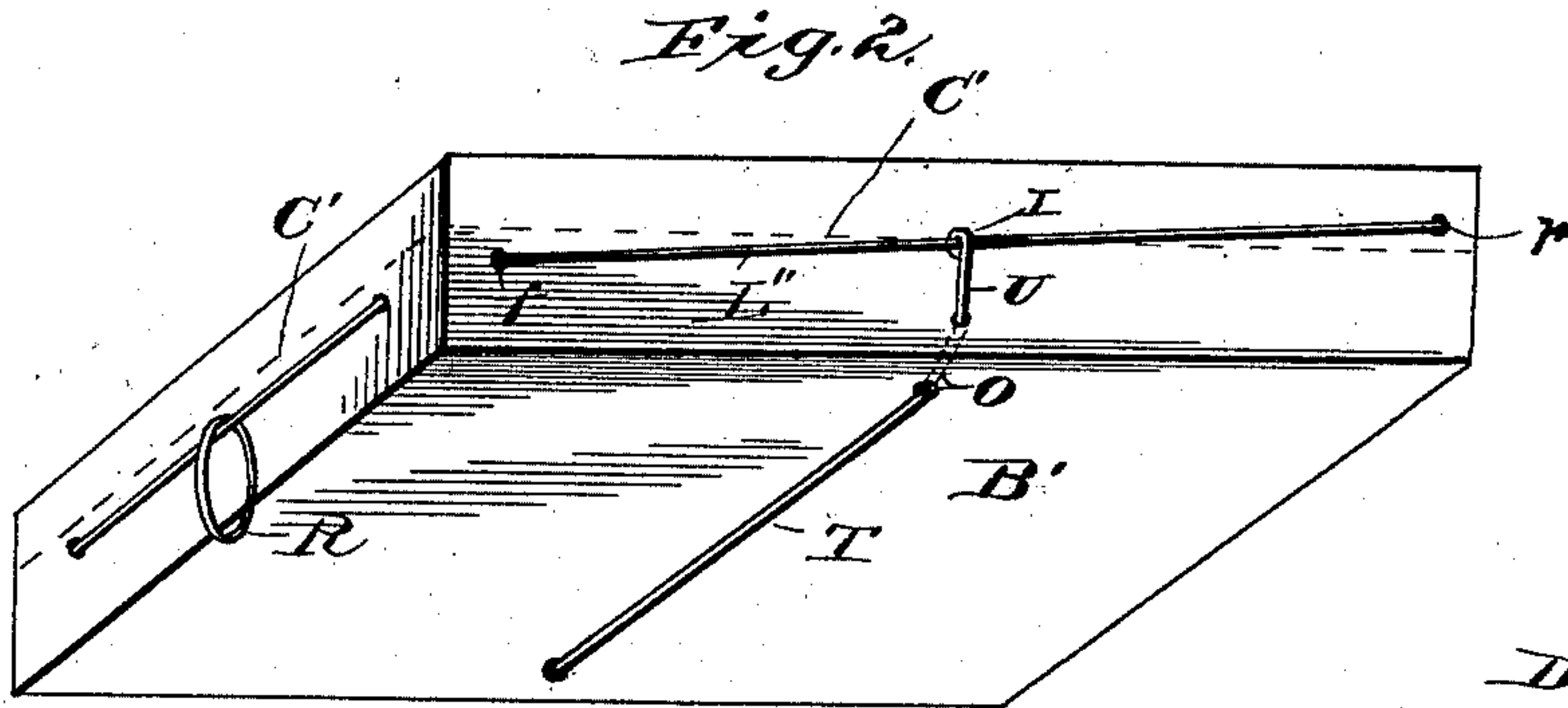
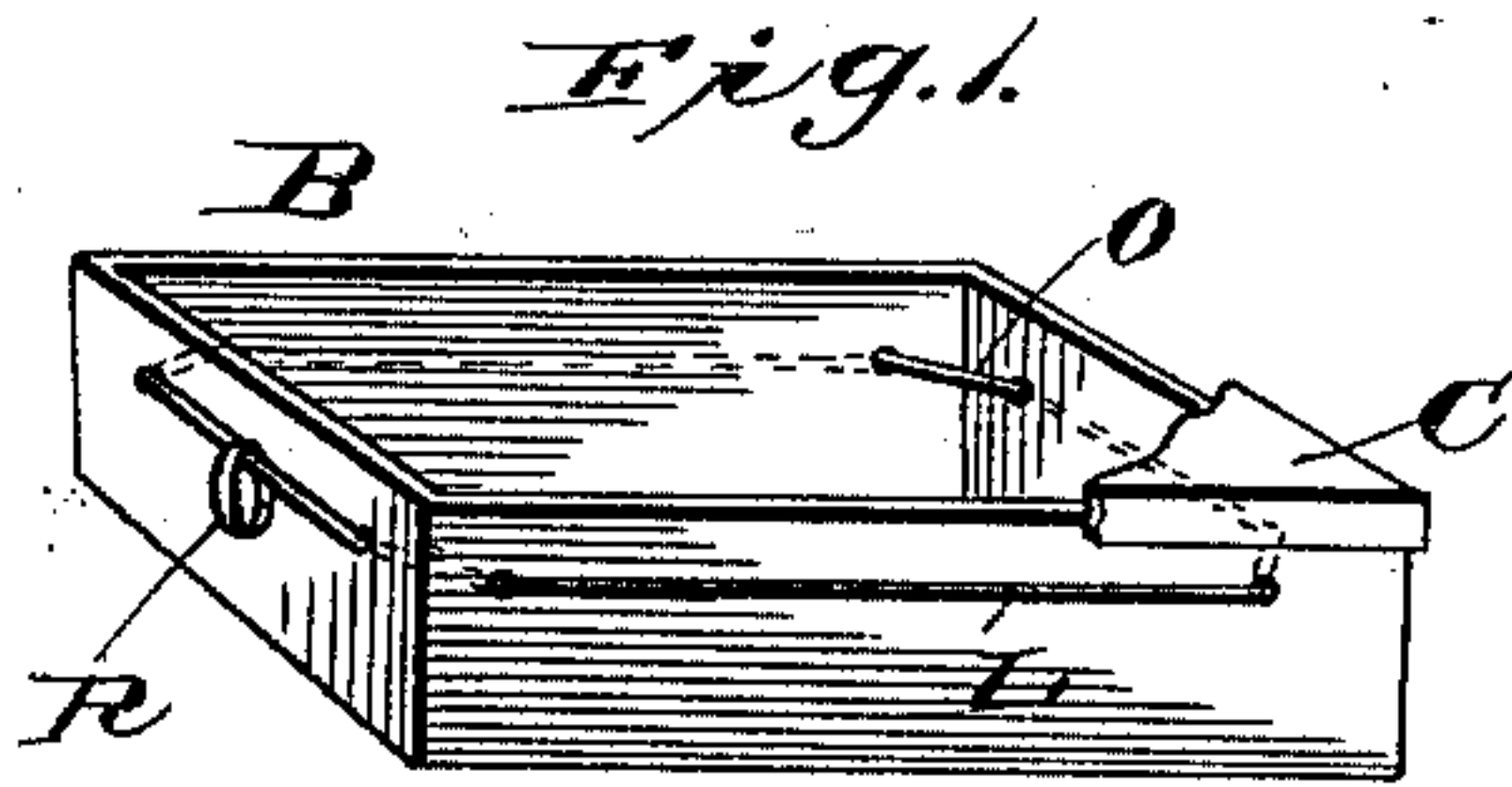


(No Model.)

J. G. MIHELITCH.
BOX STAY.

No. 509,753.

Patented Nov. 28, 1893.



Witnesses:

J. M. Fowler Jr.
J. H. Jochem Jr.

Inventor:

John G. Mihelitch,
By Collamer & Co.,
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN GEORGE MIHELITCH, OF ST. CLOUD, MINNESOTA.

BOX-STAY.

SPECIFICATION forming part of Letters Patent No. 509,753, dated November 28, 1893.

Application filed March 30, 1893. Serial No. 468,286. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE MIHELITCH, a citizen of the United States, and a resident of St. Cloud, Stearns county, State of Minnesota, have invented certain new and useful Improvements in Box-Stays; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to packing and storing vessels of paper or similar material, and more especially to the stays which are employed with angular boxes of this character for the purpose of strengthening them; and the object of the same is to construct a stay of this nature which is very cheap, easily applied, and out of the way, and which strengthens the box against strain in all directions and in some cases affords means for withdrawing the box from a pile as in shoe stores, hardware stores, and the like where boxes are stored in this fashion.

To this end my invention consists in a loop of wire, cord, thread, light chain, or any suitable material, standing against the inner or outer face of the sides and ends of the box near its open top and passing twice through the material of the box at its corners.

The invention also consists of a brace which I may sometimes use and which extends across beneath the bottom of the box, diagonally through its lower corners, upward, and connects with the sides of said loop.

The invention further consists in certain details of construction, all as hereinafter more fully described and as illustrated in the drawings, wherein—

Figure 1 is a perspective view of a shoe box and a portion of its cover, showing my improved stay in one form as attached to the box. Fig. 2 is a perspective view from the under side of a somewhat larger box provided with a stay of the same character except that it inclines downwardly from the rear to the front of the box; and this view also shows one form of the brace which is used for supporting the bottom of this box. Fig. 3 is a small section showing how each end of the brace shown in Fig. 2 could be carried up over the edge of the box. Fig. 4 is a perspective view showing the inside of one corner and one side

of one of these large boxes, and illustrating how the brace can be used with the loop when the latter extends along the inner face of the sides and ends of the box. Figs. 5, 6, and 7 are diagrammatic views illustrating different stringings of the loop.

In the said drawings the letter B designates a box of pasteboard, paper, paper cloth, or other suitable light, flexible, and generally rather weak material—such, for instance, as are used by shoe manufacturers at the present time and each box containing one pair of shoes. C is the cover of this box.

B' is a somewhat larger box such as are used for containing many pairs of small shoes; and the cover of this box when in place comes down to the dotted cover line C' in Fig. 2. It is well known to those who handle boxes of this character, and especially to the retail shoe dealer, that the boxes will break at their corners, often in a short time and always if they are subjected to much rough usage as is sometimes the case. The boxes are placed on the shelves in piles from four to six deep and the clerk is frequently called on to draw out the lowermost box while he holds the upper ones back with his hand. To so draw out this box he must put his finger under the front end of the cover; and I therefore desire to be understood that my improved stay hereinafter described is applicable to the covers of the boxes as well as to their bodies. At any rate, the rough handling to which the boxes are subjected and the strain incident to forcing a large pair of shoes into a small box, is often sufficient to bulge the box outward at its sides and break it open at its corners. I have therefore provided the following stay.

L is a loop preferably of light wire which in Fig. 1 passes along against the outer face of the sides and ends of the box, and at the corners thereof passes twice through the material of the box and obliquely across within the same as seen at O—the whole being preferably arranged beneath the cover line. On the loop at the front end of the box may be placed a small ring R into which the operator can insert his finger for drawing the box toward him when desired. In Fig. 5 the loop L' lies against the inner face of the sides and ends of the box, and at the corners the loop

passes twice outward through the material of the box and is bent tightly around on the exterior of the box-corners as seen at O'. In Fig. 6 the same construction prevails, except that at the front of the box the corner bends are bowed outward as at H to form two handles, and between these handles the loop passes twice through the material of the box as seen at h so as to prevent the loop being drawn out of place when strain is exerted on the handles. The ring R shown in dotted lines is not here necessary, but may be employed if desired. In Fig. 7 the loop L is, at the left end, the same as shown in Fig. 1; but at the right end this loop does not pass through the material of the box but is only led closely around upon the outer face of the corner, and the cloth or stiff paper P which is usually applied to strengthen box-corners is pasted or glued over the wire to hold it in place. It is obvious that this form of connection could prevail at all corners of the box without departing from the general idea or principle of my invention.

In larger boxes, such as those used for transporting a number of pairs of shoes or rubbers, the same objection arises that the sides of the box are liable to be bulged outward by the weight and bulk within, and here, since the corners are more remote from each other, the sides are weaker. In addition, the bottom of the box may be forced out by the weight of the superimposed contents. I have therefore illustrated in Figs. 2, 3, and 4 how a brace can be employed with my improved stay on such boxes or whenever desired. In Fig. 2 the loop L' is connected with the box as in Fig. 1 except that the side lengths of such loop incline downward from the rear end of the box to its front end so that the rear end r is above and the front end f is below the cover line C', and the front length of the loop (which may carry a ring R as shown or which may have handles H as in Fig. 6) stands below the lower edge of the cover. T is a transverse wire forming a brace which passes along beneath and across the bottom of the box, obliquely through its lower corners as at O—precisely as does the loop L in Fig. 1—up outside the sides of the box as at U, and has an eye I connected with the loop L'. In Fig. 3 the upward extension U' leads up over the upper edge of the side of the box B', thence down again as at D, thence out through the side of the box as at d, and has an eye I' engaging the loop L'. This construction is advisable in some instances since the passage of the brace through the material of the side as at d prevents the eye, and hence the center of the side length of the loop, from rising and falling undesirably. In Fig. 4 the same brace is used, the same corner, and the same upward extension as in Fig. 2; but, as the loop L' here passes around inside the sides and ends of the box as in Fig. 5, the upward extension U must be passed inward through the side of the box as at d' before

the eye I' can be caused to embrace the loop L'. It will thus be seen that the use of this brace along with the loop not only strengthens the bottom and lower corners of the box but prevents the centers of the side lengths of the loop from becoming displaced which would frequently occur in taking off or replacing the cover since such side lengths are here of considerable length.

I have not illustrated a cover provided with this improved stay as it is not always necessary because the cover is not subjected to so much strain as the box, but it will be obvious that the oblique corners O cannot well be used on the cover since they would strike the corners of the box when the cover was put on. As above stated, with shoe boxes the greatest strain on the cover is in withdrawing the box from a pile, and if my stay with its handle or ring is used this strain is not exerted.

I do not, of course, limit myself to the materials or parts nor to their sizes, proportions, or exact details; and I reserve the right to make such changes in the specific construction as will come within the spirit of my invention.

What is claimed as new is—

1. A stay for angular boxes of paper and the like, consisting of a wire loop extending along the sides and ends of such box and secured to its corners, and a brace passing under and across the bottom of the box, twice through the material thereof, into and obliquely across within the lower corners, up the sides, and connecting with said loop, as and for the purpose set forth.

2. A stay for angular boxes of paper and the like, consisting of a wire loop extending along the sides and ends of such box and secured to its corners, and a brace passing under and across the bottom of the box, twice through the material thereof, into and obliquely across within the lower corners, up the sides, over the upper edges, down again, and connecting with said loop, as and for the purpose set forth.

3. A stay for angular boxes of paper and the like, consisting of a wire loop extending along the sides and ends of such box and secured to its corners, the corner fastening thereof at the rear end of the box being above, and at the front end below the lower edge of the sides of the cover when in place, and a handle connected with the loop at the front end of the box, as and for the purpose set forth.

4. A stay for angular boxes of paper and the like, consisting of a wire loop extending along the sides and ends of such box and secured to its corners, the stretch of wire across the front end of the box being bowed outward therefrom to form two handles, between which it passes twice through and is connected with the box, as and for the purpose set forth.

5. A stay for angular boxes of paper and the like, consisting of a wire loop extending

along the sides and ends of such box and passing through the material thereof at its corners, the stretch of wire across the front end of the box being bowed outwardly there-
5 from to form two handles, between which it is connected with the box, as and for the purpose set forth.

6. A stay for angular boxes of paper and the like, consisting of a wire loop extending
10 along the sides and ends of such box and secured to its corners, the corner fastening thereof at the rear end of the box being above, and at the front end below the lower edge of the sides of the cover when in place,
15 as and for the purpose set forth.

7. A stay for angular boxes of paper and the like, consisting of a wire loop extending along one face of the sides and ends of such box and passing twice through the material
20 thereof at its corners, and a brace passing under and across the bottom of the box, twice through the material thereof, into and ob-

liquely across within the lower corners, up the sides, and connecting with said loop, as and for the purpose set forth.

8. A stay for angular boxes of paper and the like, consisting of a wire loop extending along one face of the sides and ends of such box and passing twice through the material thereof at its corners, and a brace passing
30 under and across the bottom of the box, twice through the material thereof, into and obliquely across within the lower corners, up the sides, over the upper edges, down again, and connecting with said loop, as and for the pur-
35 pose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 27th day of March, A. D. 1893.

JOHN GEORGE MIHELITCH.

Witnesses:

EDWARD AMBORN,
H. C. WAITE.