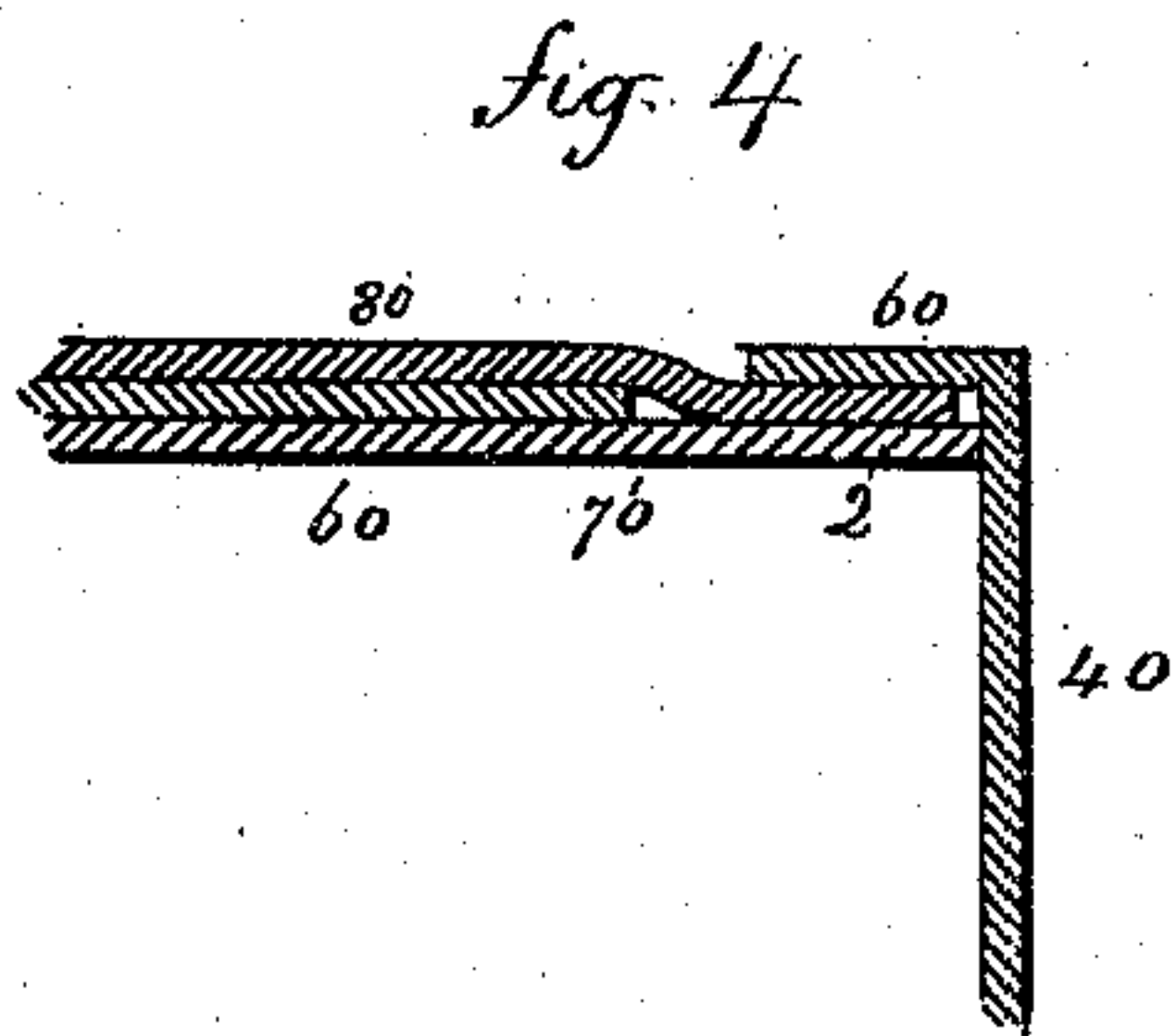
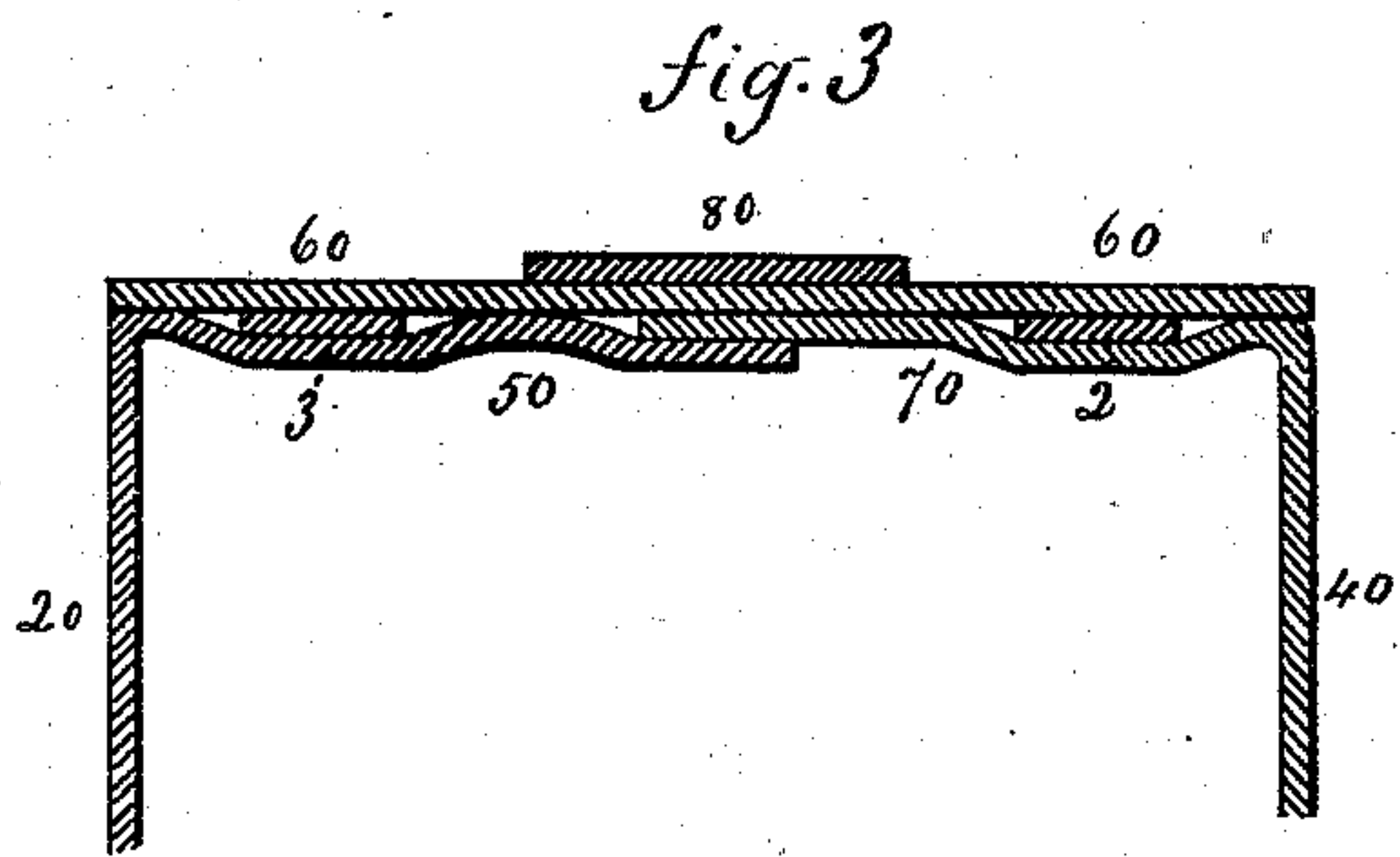
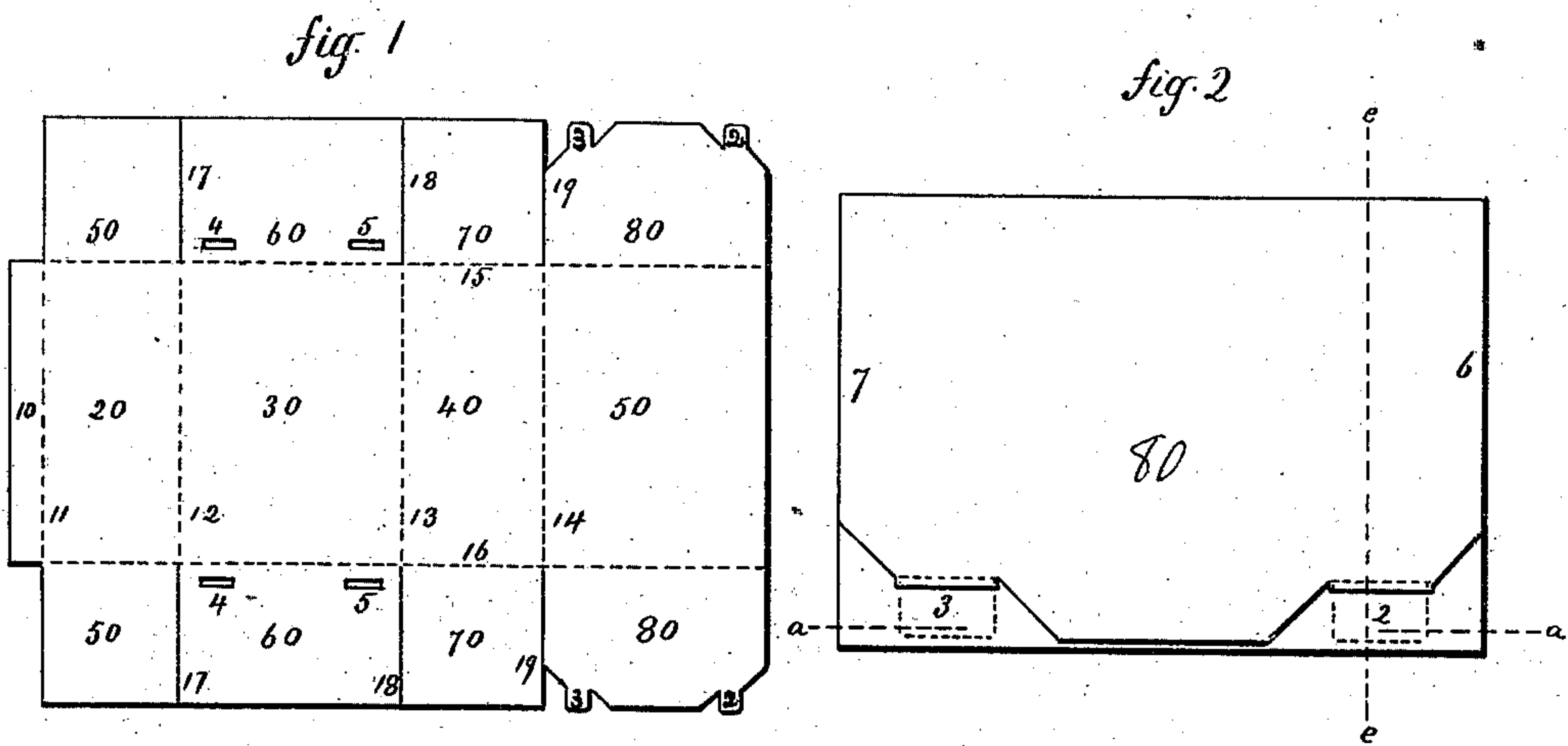


H. S. MUNSON.
Paper Box.

No. 227,916.

Patented May 25, 1880.



WITNESSES

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PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 227,916, dated May 25, 1880.

Application filed June 20, 1879.

To all whom it may concern:

Be it known that I, HARVEY S. MUNSON, of the city and county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Paper Boxes, of which the following is a specification.

This invention relates, generally, to that class of paper boxes generally known as "knock-down" boxes, the blank composing which is so constructed that it may be folded flat to attain economical packing, and yet be readily set up and secured in box form. It particularly relates to such boxes as are composed of a blank having longitudinal and transverse creases and cuts, that adapt it (the free edges of its sides being united) to form a cubical body with walls composed of a single thickness, from one or both ends of which projects a hinged end-closing flap, which flaps, folded inwardly, overlie each other and form the box end. The flaps thus extended inwardly from all sides completely envelop the box end, and prevent any opening leading thereto being formed, by merely springing the walls outward, as is the case where the flap is omitted from one wall to admit a tongue extending from the flap of the opposite wall to enter the box-body and form the locking means. The lapping flaps extending from all the body-walls have been first secured in place, to maintain the cubical form of the box, by gluing them together, then by a tie-string. The two outermost and opposite flaps were then interlocked by a central tongue from one that entered a central slit in the other, which fastening was incapable of resisting any considerable internal pressure from the contents without separating, and was practical for light contents only. To secure the end-closing flaps against the pressure of weighty and solid contents the outermost flap was provided with lateral tongues projecting from opposite sides of its forward free end, each being arranged to enter a slot cut into the next underlying flap near its hinged end and at right angles thereto. This structure, if the tongues were made to snugly fit into the slots, necessitated their abrupt bending to such a degree, in order to enter them into said slots, as to give them such a set as to enable them to readily escape from the slots, and thus destroy the

security of the fastening, which latter defect will also exist if the tongues are made short enough to enter the slots with little or no bending.

All of these defects are removed by my invention, which consists in an improved box formed from a blank all of the sides of which have hinged flaps swinging inwardly to close its ends, the outermost of such flaps at each end being provided with two longitudinally-projecting tongues, adapted to be entered by a right-line movement into transverse slits formed in the next underlying or opposite flap without materially bending said flaps, and when so entered to be retained in place and securely lock the outer flaps by a frictional resistance that is not sufficiently decreased by any movement of such tongues caused by the weight or pressure of its contents when the box is filled to detach its locking devices, all of which will now be fully set forth.

The drawings, illustrating a box embodying my improvements, show, in Figure 1, a plan view of a flat blank from which said box is formed. Fig. 2 shows an end view of a box constituted by such a blank when its sides are joined together and its end flaps are in-folded and locked in place to secure the blank in cubical or box form. Fig. 3 represents the relation of the flaps and locking devices thereof by a sectional view taken upon the line *a a* of Fig. 2, and Fig. 4 is a like illustration taken on the line *e e* of Fig. 2.

The blank from which the box is made is cut into the form shown in Fig. 1, and is creased or scored on the lines 11, 12, 13, and 14, which define its longitudinal foldings, that divide its body into sections, of which those marked 20, 30, 40, and 50 constitute the box-sides, and that marked 10 the pasting-flap, whereby the outer edges of said body are united together. It is also scored or creased upon the lines 15 and 16, which define its transverse foldings or hinges of the end-closing flaps 50, 60, 70, and 80, which flaps project from opposite ends of the blank and are detached from each other by incisions 17 18 19, that extend, respectively, to the lines 15 and 16. Each folding end flap 80 is provided at its front end and near the sides thereof with two longitudinally-projecting locking-tongues, 2 3, which are

formed by suitable incisions that provide said tongues with sides parallel with those of the flap itself. Each folding flap 60 is provided with two locking-slits, 4 5, cut transversely through the body of said flap near its rear end or folding-line, forming its hinge, and so as to be parallel therewith, said slits being provided for the purpose of receiving the tongues 2 and 3 when the box-ends are closed.

To form the box its blank is usually first folded on the line 12 and then upon the line 14, which brings the extreme edges of the sections 10 and 50 together, with the section 10 underlying the section 50, which section 10 is pasted to the section 50 to form a flat tube adapted to be economically packed and shipped.

To adjust it into box form it is bent on its longitudinal lines of creasing so as to bring it into tubular form, in which condition it is ready for the closing of its ends. The flaps 50 and 70 are then infolded, one overlying the other. The flap 60 is then infolded and rests on the flaps 50 and 70. The outer flap, 80, is folded over all, and slightly bent in its center on a line parallel with its front and rear edges, to enable its tongues 2 and 3 to be entered by a right-line movement into the slits 4 5.

The best mode of manipulating the outer or closing flap, 80, is as follows: The box being held by the left hand, the said flap should be seized upon its opposite sides 6 7 between the thumb and third finger; then by placing the first and second fingers upon the outer surface of the flap, just in the rear of the tongues 2 3, the central portion of the flap may be held up while its forward end is bent downward, which will properly direct the tongues and cause them to enter into the slots 4 5 by a right line or simple forward movement. This done, the pressure of the thumb and third finger is released and the outer flap at once springs down into its flat position upon the other flaps. Thus no abrupt bending of the outer flap is required, and no part of the locking members are injured, all portions thereof remaining intact and retaining all the original strength furnished by the material composing the box.

A box thus constructed, when filled with material, has all of the outward pressure of such material upon its ends developed and distributed on the infolded end-closing flaps, which pressure, by reason of the fact that these flaps overlap each other, is principally exerted near

the hinges of said flaps, or the points where they join the sides of the box, as seen in Figs. 3, 4. The forward end of each flap, except the outer one, is clamped down by the next overlying flap; hence it follows that the securing of the free end of the outer flap will hold all the rest in place and close the box-end; and since the tongues 2 3 of this outer flap project through the slots 4 5 and lie between the flap 60, containing said slots, near its hinge, and the surface of the flaps 50 and 70, next underlying it, said tongues, thus entered into the slots 4 5, are not only normally held in place by the resistance of the stiff material composing the flap 80, but are securely clamped and bound between the two surfaces, as 50 or 70 and 60, that press upon their opposite faces, as in Figs. 3 and 4, with a power determined by the internal pressure exerted upon the ends of the box by its contents. The frictional resistance thus exerted upon these tongues is adequate to usually prevent any movement of withdrawal, and when the pressure upon the box-ends is sufficient to move them such movement will be a slight one, wholly insufficient to detach the fastening, for the reason that the tongues are of equal width throughout their length, and hence afford the same transverse extent of holding-surface to be gripped or clamped by the surfaces 50 or 70 and 60, so long as they remain entered in their slits.

Having thus described my invention, what I claim is—

A box composed of a blank all of the sections whereof that constitute the box-sides have hinged flaps that provide for the complete closing of the box-ends, one of which flaps, at each end of the box, is provided at its forward end and near its sides with two longitudinally-projecting tongues, while the opposite flap is provided near its folding-line or hinge with two transverse slits adapted to receive the said tongues, the construction being such that said tongues may be entered into the slits by a forward or right-line movement without abruptly bending their carrying-flap, and be clamped between portions of the end flaps pressing upon their opposite surfaces, whereby the flaps are locked and the box-ends secured, substantially as described.

HARVEY S. MUNSON.

Witnesses:

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