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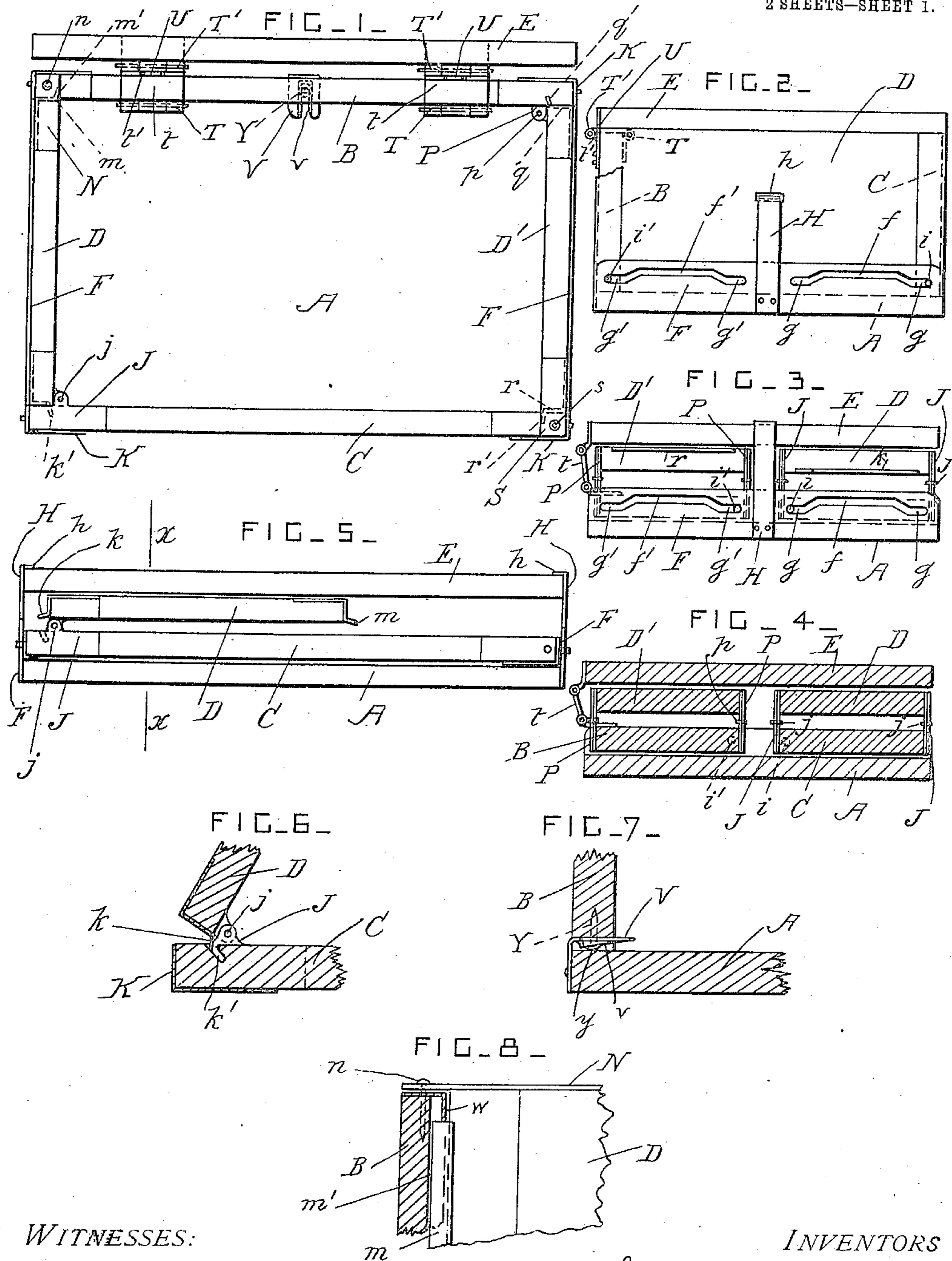
PATENTED DEC. 31, 1907.

J. E. TURTON, JR. & J. T. HENSHAW.

FOLDABLE BOX.

APPLICATION FILED NOV. 7, 1906.

2 SHEETS—SHEET 1.



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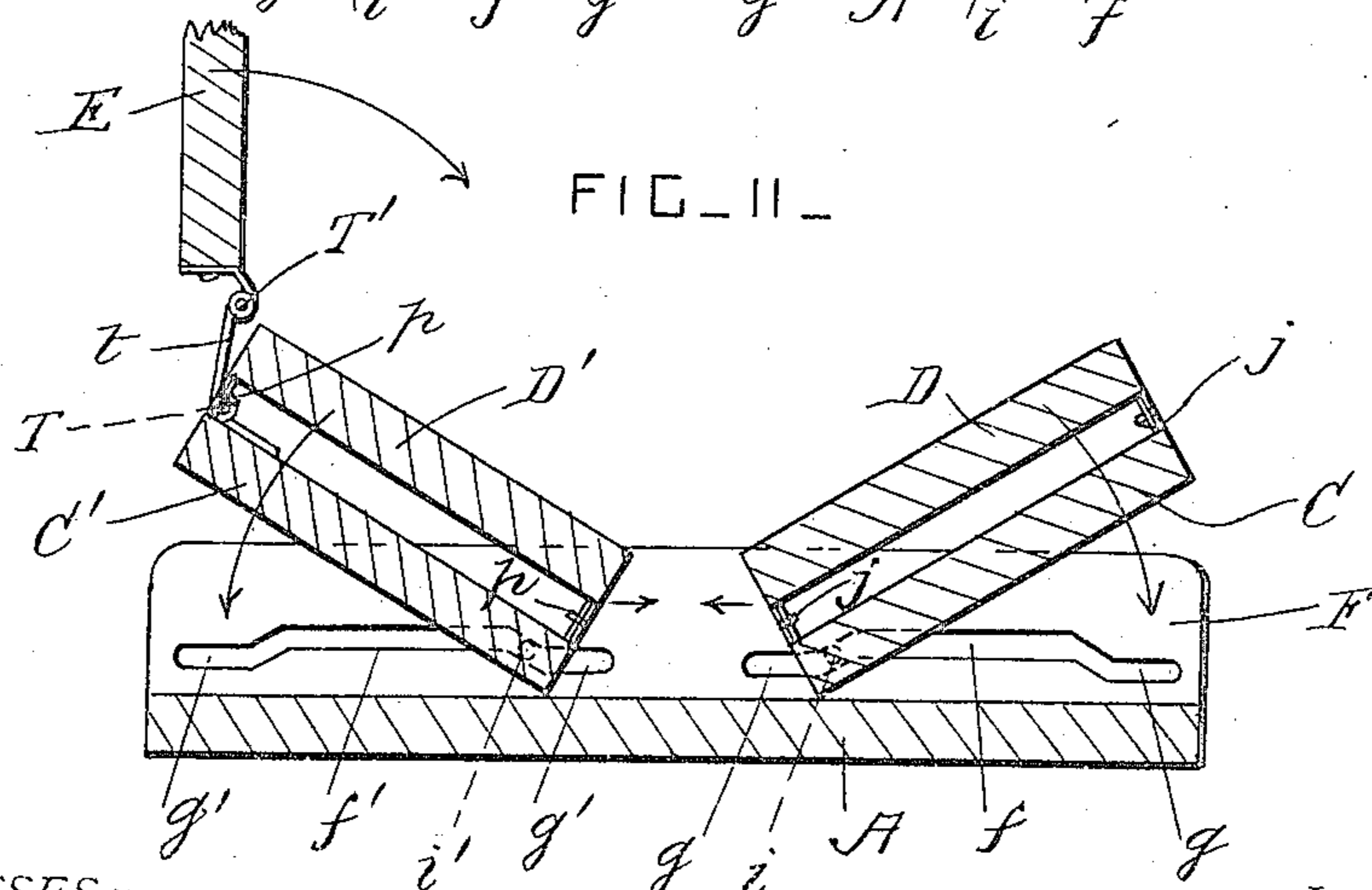
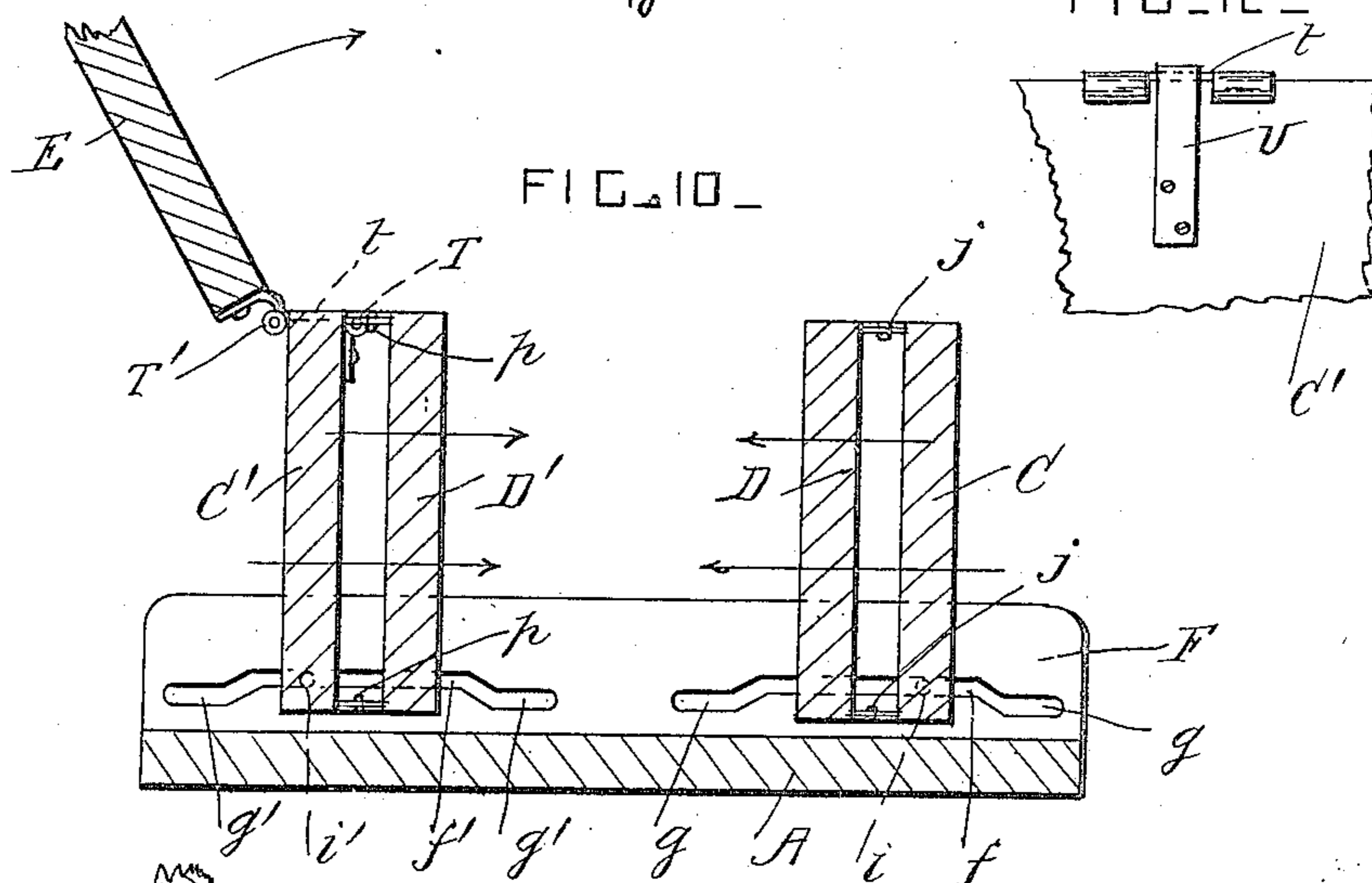
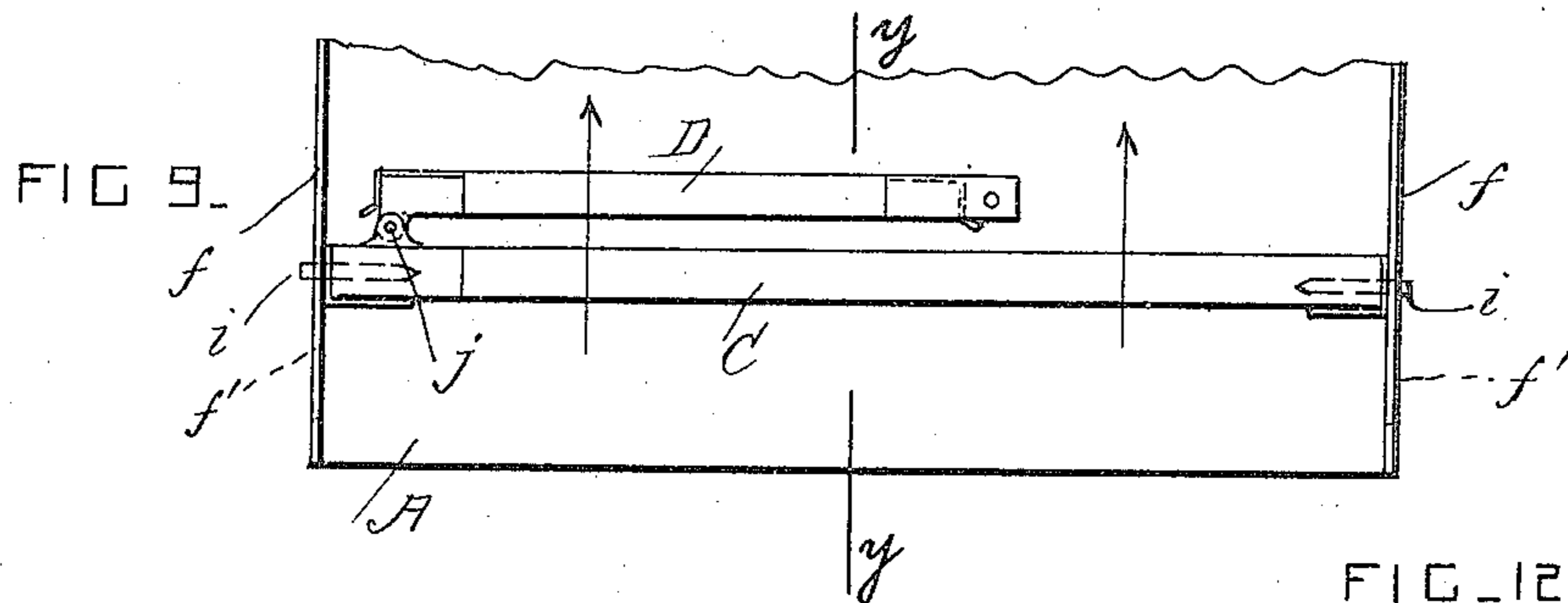
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES EDWARD TURTON, JR., AND JAMES THOMAS HENSHAW, OF WASHINGTON, DISTRICT OF COLUMBIA.

FOLDABLE BOX.

No. 875,014.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed November 7, 1906. Serial No. 342,404.

To all whom it may concern:

Be it known that we, JAMES EDWARD TURTON, JR., and JAMES THOMAS HENSHAW, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Foldable Boxes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to foldable boxes; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

The object of this invention is to provide a good and well-made box which will be tight and which will resist the entrance of moist air, so that small seeds, fine crackers and other similar articles, can be shipped in it without danger of leakage or injury. When empty, the box being a good one and worth returning, is folded up into a small space and is shipped back at a small cost to be refilled, and is used continuously until worn out.

In the drawings, Figure 1 is a plan view of the box with the lid raised. Fig. 2 is an end view of the box with the lid closed. Fig. 3 is an end view of the box when folded. Fig. 4 is a cross-section through the box, when folded, taken on the line $x-x$ in Fig. 5. Fig. 5 is a front view of the box when folded. Fig. 6 is a detail sectional plan view of one side corner of the box. Fig. 7 is a detail sectional view of a portion of the bottom and back of the box showing the locking plate. Fig. 8 is a section showing the tongue N and plate w . Fig. 9 is a partial plan view of the box showing the parts C and D moved rearwardly before being folded over. Fig. 10 is a cross-section on line $y-y$ in Fig. 9 and drawn to a larger scale. Fig. 11 is a view similar to Fig. 10 but shows the parts C and D in the act of being folded over onto the bottom A . Fig. 12 is a rear view of one of the spring tongues U showing a part of one of the double-hinges.

A is the bottom of the box.

B is the back of the box.

C is the front of the box.

D D' are the two ends of the box, and E is the lid.

F are two guide plates which are rigidly secured to the ends of the bottom A of the

box. Each of these plates is provided with two guide slots f and f' respectively. The end portions g g and g' g' of the said guide slots are arranged nearer the bottom edges of the plates than their middle portions. The two guide slots of each plate are arranged end to end, and their end portions are preferably straight and horizontal for a short distance. The middle portions of the slots are also preferably straight and horizontal and are joined onto the end portions by gently curved or inclined portions as shown in the drawings, but the slots may be made curved for their entire length or shaped in any other approved manner provided their middle portions are slightly above the level of their end portions.

H are locking springs secured to the bottom of the box between the adjacent ends of the said guide slots and projecting over the said guide plates and provided with projections h at their free ends for engaging with holes in the ends of the box.

The front C and the back B of the box are provided with pivot pins i and i' respectively at their ends, which engage pivotally and slidably with the slots f and f' respectively. The pivot pins and the end portions of the said slots press the bottom edges of the parts B and C against the bottom A so as to prevent the pulverized contents of the box from leaking out, and before the parts B and C can be folded they must be slid bodily towards each other until their said pivot pins pass into the upper and middle parts of the said slots. The parts C and D are then raised so that their corners can clear the bottom A in the act of folding them over on their pivot pins. One end D is pivoted to the front C by hinge-plates J and pins j . These hinge-plates are preferably secured to the top and bottom of the parts D and C , but any approved form of hinge may be used and it may be secured to the said parts at any convenient point. The end D is provided at its hinged end with a guard plate k having a projecting portion which engages with a groove k' in the front C . The guard plate k extends along the end of the part D and protects it, and it also prevents the escape of the pulverized contents of the box from between the parts C and D , and the ingress of moist air. The groove k' is arranged at an angle with the inner face of the front C adjacent to the center line of the pivot pins

j, so that the projecting portion of the guard plate *k* can slip into it when the box is set up for use.

At its free end the end *D* is provided with a guard plate *m* which engages with a groove *m'* in the inner face of the back *B*. The end *D* is also provided with a tongue *N* which projects over the back *B* at the corner of the box, and *n* is a pin or nail which is inserted into the back through a hole in the said tongue. This pin locks the back to the end, and the spring catch *H* locks the bottom to the end of the box. The other end *D'* of the box is hinged to the back of the box instead of being hinged to its front like the end *D*. The end *D'* is provided with hinge plates *P* and pins *p* at its top and bottom edges, and it has a projecting guard plate *q* which engages with a groove *q'* in the inner face of the back. At its free end the end *D'* is provided with a guard plate *r* which engages with a groove *r'* in the inner face of the front *C*. The end *D'* is also provided with a tongue *S* which projects over the front at the corner of the box, and *s* is a pin or nail which is inserted into the front through a hole in the said tongue to lock the front to the end *D'*.

The guard plates *m* and *r* are preferably a little shorter than the ends of the box so that they slip under plates *w* at the top edges of the front and back of the box.

The lid *E* of the box is pivoted to the back by double-hinges *T T'* of any approved construction. The middle portions *t* of these double-hinges, between their two pivot pins, have openings or slots *t'* arranged substantially in line with the outer surface of the back of the box, and *U* are spring tongues which are secured to the back *B* and which engage with the slots *t'* when the box is in use and thereby prevent the middle portion *t* from moving when the lid is raised and lowered.

The spring-tongues *U* press forwardly against the edges of the parts *t* and thereby check undesirable movement of the parts *t*, but they do not lock the parts *t* so that they cannot be moved when the box is being folded up.

In order to prevent the bottom from sagging at the back of the box, an angle-shaped plate *V* is provided. This plate is preferably attached to the back edge of the bottom *A* so that its upper part extends over the upper part of the bottom *A*. The upper part of the said plate *V* is provided with a longitudinal slot, and *v* are wedge-shaped flanges formed by bending up the metal of the said plate at the sides of the said slot.

Y is a pin having a head *y* and projecting from the bottom edge of the back *B*. This pin engages with the slotted plate *V* and its head bears against the wedge-shaped flanges so that the back and bottom are drawn together. The bottom edge of the back is pref-

erably cut away around the pin *Y* so as to fit over the slotted plate. A plurality of these slotted locking plates may be used when the box is long, and the front of the box may also be provided with these locking plates if desired. When the box is small and short the locking plates *V* may be omitted.

The box is folded by first raising the lid and removing the pins *n* and *s*. The back and the front can then be sprung sufficiently apart upon their pivots to draw the guard plates out of their grooves at the free end portions of the ends of the box. The end *D* is then folded inward against the front, and the end *D'* is folded inward against the back. The front and back are now slid towards each other bodily as shown in Figs. 9 and 10, and when the pivots pass into the middle and upper portions of the guide slots *f* and *f'* they raise the bottom edges of the back and front clear of the bottom of the box, so that the said back and front can be turned on their pivots and can finally be laid flat against the bottom *A* when the pivot pins reach the other and adjacent ends of the said slots.

Fig. 11 shows the parts *C D* and *C' D'*, and the top *E*, in the act of being folded over onto the bottom *A*, the direction of motion being indicated by arrows. The lid is then closed down over the back and front with their hinged ends.

The double-hinges permit the lid to be folded flat, and the middle parts of the double-hinges then disengage themselves from the spring tongues *U*. When the box is thus folded up the spring catches *H* engage with the lid as shown, and hold all the parts securely in position.

What we claim is:

1. In a foldable box, the combination, with a bottom, of guide-plates secured to the said bottom, each of the said guide-plates being provided with a guide-slot having a cam-shaped end portion arranged adjacent to one extremity of the said bottom and having its main portion arranged farther above the said bottom than its said end portion, a side member provided with pivot pins which engage with the said guide-slots, one edge of the said side member being pressed against the said bottom by the cam-shaped end portions of the said slots when the box is in use, and foldable box members to complete the box also operatively connected with the said bottom.

2. In a foldable box, the combination, with a bottom, of stationary guide-plates secured to the said bottom, each guide-plate having two similar slots and each slot having its middle portion arranged farther above the said bottom than its opposite end portions, a front and a back each provided with pivot pins which engage with the said slots, and ends operatively connected with the said front and back.

3. In a foldable box, the combination,

with a bottom, of guide-plates secured to the said bottom, each said guide plate being provided with two slots having their middle portions arranged above the level of their end portions, a front and a back provided with 5 pivot pins which are slidable in the said slots, ends operatively connected with the said front and back parts, a top hinged to the said back, and spring-catches secured between the adjacent ends of the said slots and engaging with the said box-ends when the box is in 10 use and with the said top when the box is folded up.

4. In a foldable box, the combination, with a bottom, and sides foldably connected 15 therewith, of ends hinged at one end to the said box sides, said sides having grooves adjacent to the pivots of the hinges and arranged at an acute angle to their inner faces, and guard-plates secured to the said ends 20 and provided with inclined projecting por-

tions which engage with the said grooves when the box is opened up and in use.

5. In a foldable box, the combination, with a foldable body portion provided with a 25 back, of a lid, double-hinges connecting the said back and lid, each double-hinge having a middle plate which rests on the top edge of the back when the box is not folded and having also two pivot pins, and spring-tongues 30 secured to the outside of the said back and engaging with slots in the said middle plates and preventing the accidental movement of the said middle plates.

In testimony whereof we affix our signatures, in presence of two witnesses. 35

JAMES EDWARD TURTON, JR.
JAMES THOMAS HENSHAW.

Witnesses:

HERBERT W. T. JENNER,
THEODORE BLOCK.