June 13, 1950 B. KLEIN ET AL 2,511,211

NOVELTY BOX

Filed April 26, 1946 3 Sheets-Sheet 1

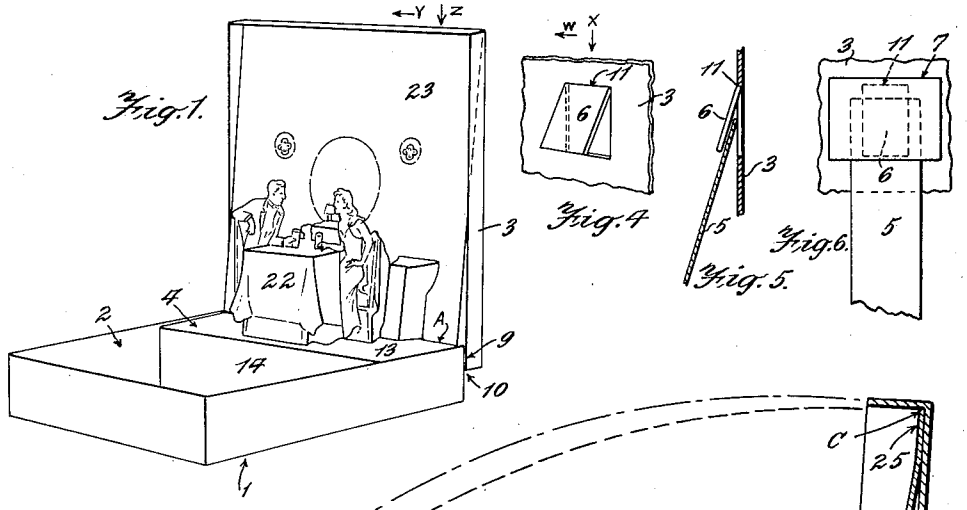



Fig. 1.




Fig. 4




Fig. 5.




Fig. 6.

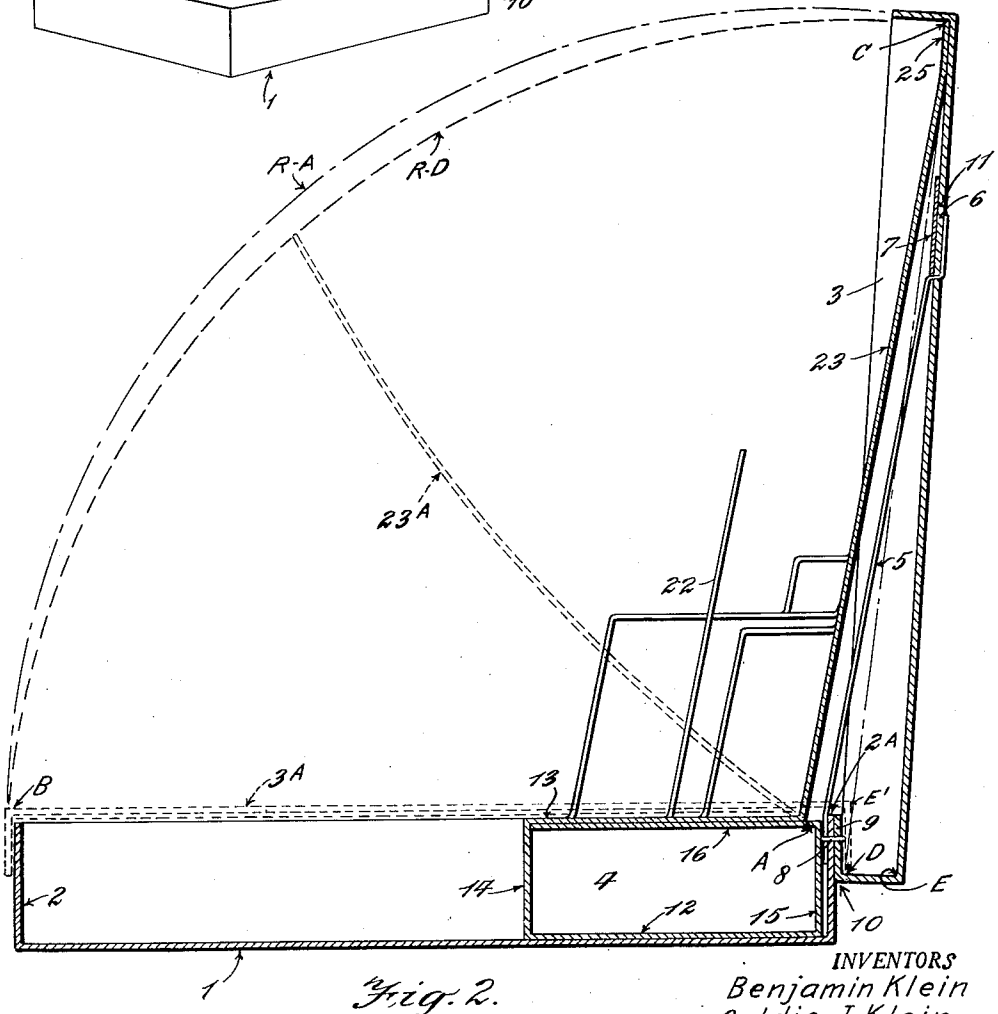



Fig. 2.

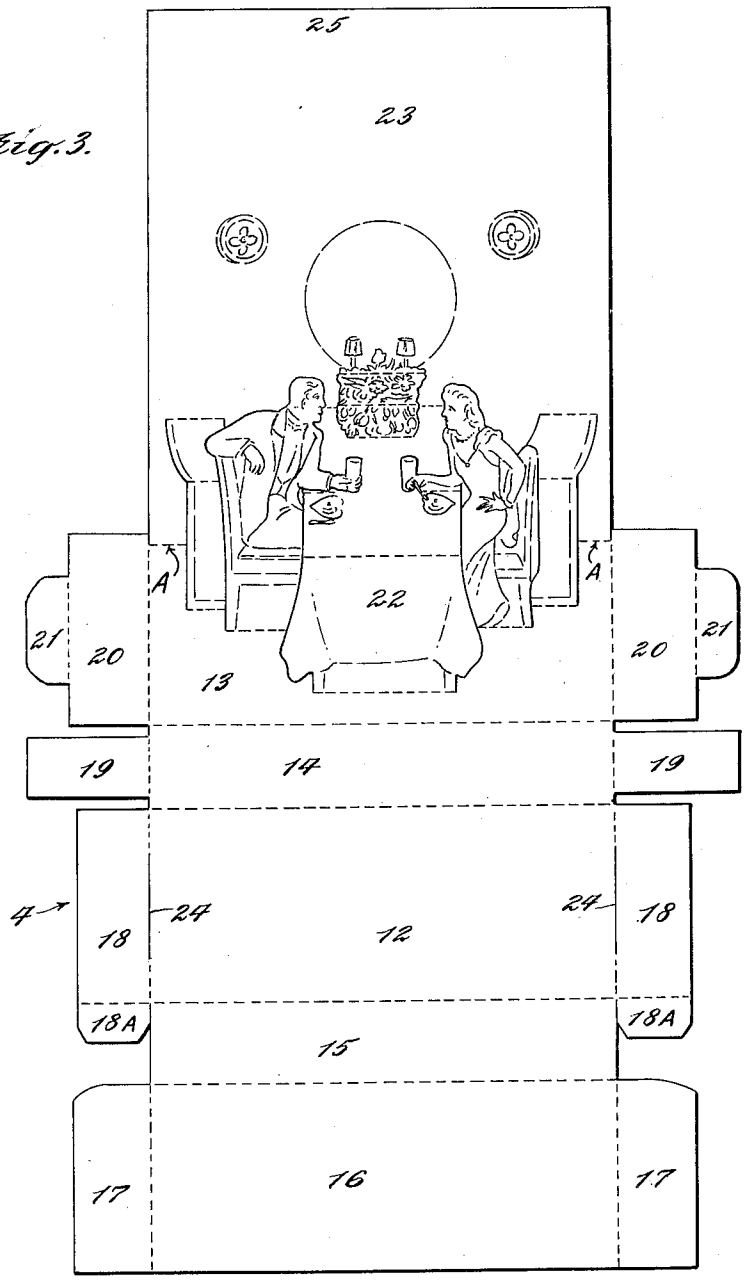
INVENTORS
Benjamin Klein
BY Goldie J. Klein
Lackenbach & Hirschman
ATTORNEYS

June 13, 1950 B. KLEIN ET AL 2,511,211

NOVELTY BOX

Filed April 26, 1946 3 Sheets-Sheet 2

Fig. 3.




INVENTORS
Benjamin Klein
Goldie J. Klein

BY Rackenbach & Hirschman
ATTORNEYS

June 13, 1950 B. KLEIN ET AL 2,511,211

NOVELTY BOX

Filed April 26, 1946 3 Sheets-Sheet 3

Fig. 7.

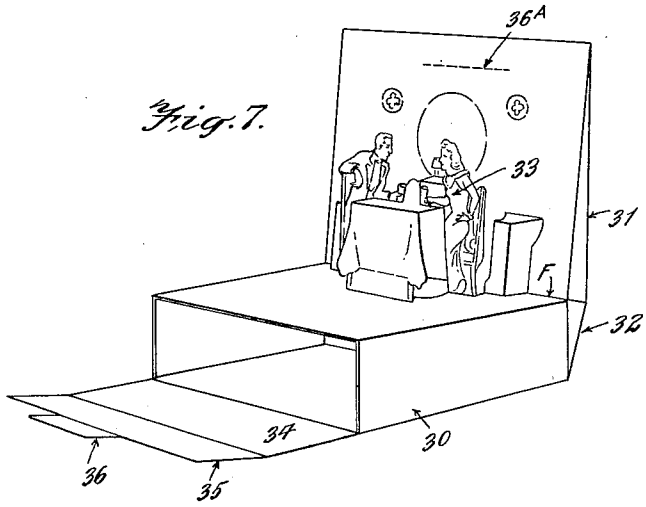
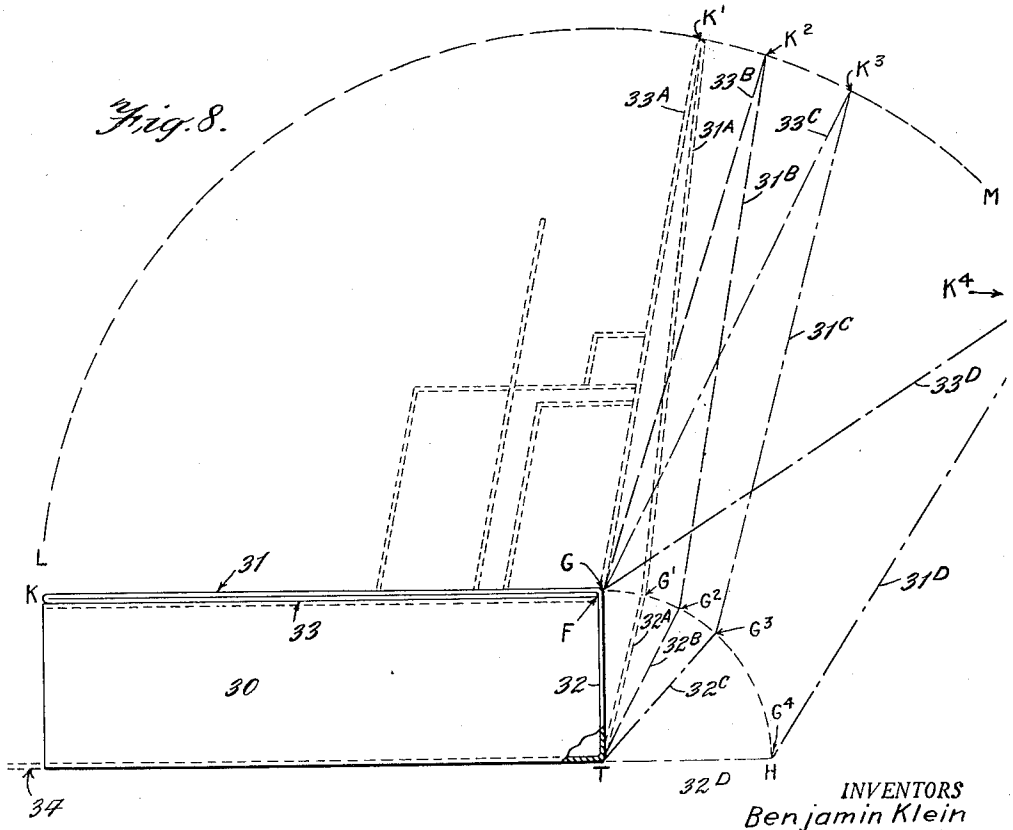



Fig. 8.




INVENTORS
Benjamin Klein
Goldie J. Klein

BY
Rothenbach & Hirschman
ATTORNEYS

Patented June 13, 1950 2,511,211

# UNITED STATES PATENT OFFICE

2,511,211

## NOVELTY BOX

Benjamin Klein and Goldie J. Klein,
Long Island City, N. Y.

Application April 26, 1946, Serial No. 665,212

19 Claims. (Cl. 40—7)

1

This invention relates to novelty boxes, particularly those that have the appearance of an ordinary hinged-lid box but which, when opened in the usual manner, disclose an interior structure integral with the lid and remainder of the box which is therefore not merely the contents of the box, but discloses a theretofore undisclosed element. In this instance the interior structure is a three-dimensional picture construction having various portions arranged to extend in different vertical and horizontal planes when the hinged lid of the box is opened in the usual manner. The novelty box constructed in accordance with our invention has the additional features that the lid of the box will automatically stay open at an angle just a little more than ninety degrees from the bottom of the box without any tape, that holds it in position, being exposed and without any other device being used to hold the lid in position. The lid can be closed in the same manner that any ordinary hinged-lid box would be closed, without manipulating the three-dimensional picture construction, which will automatically fold flat within the box upon closing the lid.

To the best of our knowledge no box has been manufactured heretofore with the above features. One of the deterring factors has been the cost of pasting individual pieces of a three-dimensional picture construction into position in a box to make a picture unit within it. Another reason was that the three-dimensional picture construction had to be manually set up, after the lid was opened, thereby losing the surprise element. Also, the lid could not be closed at will without manipulation of the picture portion within it. Tapes limiting the movement of the lid had to be in an exposed position, detracting from the appearance of the box.

Our box, in its simplest form, is made of one sheet of flexible material cut and scored in such a way that it can be erected by simple bending and passing operations on existing equipment, to comprise a box, a lid, a three-dimensional picture construction enclosed between the box and its lid, and means for locking the lid to the body portion of the box, all in such a way that it can be opened and closed at will, and when opened it will stay in that position without a tape or other means holding it. Even when made of heavy material, only three sheets of material are required, and, if desired a concealed tape. We do not require that our picture construction have adjacent portions cooperating with it to

2

lock or otherwise help hold the lid in open position.

We are aware of the fact that the construction of a three-dimensional picture from a single sheet of material constitutes a prior art and make no claim to such construction.

Other objects and features of the invention, than those hereinabove indicated, will appear as the description of the drawing progresses.

In the drawings, Fig. 1 is a perspective view of a box in open position and made of heavy material, in the construction of which the present invention has been embodied;

Fig. 2 is a vertical cross-section of the structure shown in Fig. 1, taken at Z in the direction Y;

Fig. 3 is a plan view of the cut and scored blank from which the three-dimensional picture construction and its supporting block are to be erected;

Fig. 4 is a fragmentary portion, in perspective, of the lid of the box shown in Fig. 2, before the tape is attached to it;

Fig. 5 is a vertical section taken on Fig. 4 through X looking toward W, with the tape ready to be locked in place;

Fig. 6 is a fragmentary portion of the lid, in front elevation, showing the tape locked in place and sealed by a sticker.

Fig. 7 is a perspective of a modified form of box embodying our invention; and

Fig. 8 is a vertical section through such modified form of box.

Referring now to the drawings, in which similar reference characters identify similar parts in the several views, 1 designates, in general, a complete box constructed in accordance with the present invention and comprising a container portion 2, a hinged-lid portion 3, a combination base and three-dimensional picture construction section 4, a tape 5, a locking member 6, a sticker 7, and a staple 8.

In the box shown in Figs. 1 and 2, the container portion 2 and the lid portion 3 are constructed and manufactured in the usual manner of a set-up box with the following variation: When the blank is die-cut for the lid, an extra piece of material 9, running the length of the hinged side of the lid, is left attached to it by a score line and the lock tab 6 is cut on three edges, and scored on the fourth one as at 11. The tab 6 is pushed inward as shown in Fig. 5, before the cover paper is wrapped on the lid, so that the paper will not adhere to the tab, the reason for which will become apparent later. In

the illustrations, the cover wrapper has not been shown because it is not pertinent to the invention. The combination block and three-dimensional picture construction portion **4** is formed from a blank as illustrated by Fig. 3. It is cut and scored so that part of it can be formed in the manner of a folding box, to form a block which acts as a base for the picture portion. The bottom of the block is denoted by **12**, the top by **13**, the front by **14**, the back by **15**, the portion that underlies the top, to strengthen it and to conceal cut-away portions, by **16**. There are end pieces and flaps attached to some of them, as shown by **17**, **18**, **18A**, **19**, **20**, and **21**. The portion of the blank that is cut and scored to form the three-dimensional picture construction is denoted by **22** and its background **23** is fastened to the inside of the cover at **25**. The letter A denotes the medial fold line for the three-dimensional picture construction.

The box is assembled as follows:

The outside surface of piece **9** of the lid **3**, is glued or stapled to the outside surface of the back wall **2A** of the container **2**, with the top edge of **9** flush with the top edge of the back of the box. One end of tape **5** is glued or stapled to the inside surface of the back wall **2A**. The other end is inserted under lick tab **6**, allowing a predetermined amount of tape between the two attachments. The tape is wider than the tab, as illustrated in Fig. 6, so that when the tab is closed flush with the lid, from which it was formed, it will edge the tape along the three edges. The sticker **7**, which is larger in area than the tab **6** is glued over it and onto the surrounding area of the inside of the lid, to prevent the tab from opening. The tape is preferably placed at a point behind the three-dimensional picture construction where it is least apt to be seen from the front of the box. The three-dimensional picture construction **22** is formed by folding in the proper direction on the score lines in the usual way (this is part of the process of assembling but not a part of the present invention) before the rest of the blank **4** is assembled. Piece **23** is now at an obtuse angle to **13**. Surface **14** is bent at right angles away from **13**; **12** at right angles away from **14**; **15** at right angles away from **12**; and **16** at right angles away from **15**. Piece **16** lies under piece **13**. End pieces **17** are bent downward at right angles to **16**. End pieces **18** are bent upward at right angles to **12** over the outer surface of **17**, and the tabs **18A** are inserted to rest against the inside surface of **15**. End pieces **19** are bent at right angles to **14** and over the outer surface of **18**. End pieces **20** are bent at right angles to **13** and over the outer surface of **19**. The flaps **21** are then inserted in the slots **24**. The assembled block **4** is glued inside the container **2** with the back surface **15** of the block against the inside surface of the back of box **2A** and the ends **20** of the block against the sides of the container. The height of the assembled block is slightly less than the height of the inside of the container to allow space for the three-dimensional picture construction to fold down when the lid is closed. The back surface of piece **23** is glued, along its outer extremity **25**, to the inside surface of the lid **3**, with extremity **25** against the corner of the lid. Piece **23** is just slightly less in width than the inside of the lid.

It will be noted from Fig. 2 that section **23** hinges at point A, which is forward of the back wall of the container **2**. The point A, is not an arbitrary one. It is determined in the following manner and for the following reason. The inside of lid **3** must be of a length to permit it to close over the top of container **2** plus the thickness of strips **9** which is fastened rigidly to **2**. In closing, lid **3** hinges at **10** and is shown in the closed position by **3A**. From the above it will be seen that once the size of the container **2** is determined and the thickness of the stock used for 3 is set, the length EC, the inside of the lid, is established. The lid **3** pivoting from **10** describes an arc RD the radius of which is DC. It is known that the end **25** of piece **23** is going to be at point C when the lid is open and at point B when the lid is closed. It is known that when the lid is closed, the inside of it, which is length EC, is going to be contiguous with **23** and therefore BA plus AE' will have to be the same length as the inside of the lid, or EC. Lid **3** will have to pivot from **10** at the same time that **23** pivots from A and therefore A must be at a point along BE' which is equi-distant from B and C. In checking, it will be found that the arcs drawn using radii AC and DC from points A and D respectively, intersect at B and C, the only two points at which the picture construction background piece **23** and the lid **3** can come to rest, in their closed and open positions. The reason for this is that the arcs R—D and R—A describe the circumferences of two circles having different centers, so that they can intersect only at two points: B and C. To move the lid **3** beyond the point C, while it pivots at **10**, would require that it pass the intersecting point C carrying section **23** with it. To accomplish this would require that either **23** increase in length, which it cannot do, or that the rigidly constructed lid **3** decrease in length, which it cannot do. Therefore, the opposing forces will cause the lid **3** and section **23** when in the open position to come to rest at point C. A is the only point at which **23** can hinge, so that it can be opened to an obtuse angle to the container and also so it can be closed over the container simultaneously with the lid. It will be noted that the arc R—D described by using the radius DC from D is different from the arc R—A which was described by using the radius A—C from A. The lid is of rigid construction and therefore point C must travel along the arc R—D, carrying with it the end **25** of the section **23**. If **23** were not attached to **3** at **25** its arc would be R—A. Because of the difference in the arcs that **3** and **23** tend to describe simultaneously, section **23** is intentionally constructed of flexible material so that it can bulge slightly as indicated by **23A** when the lid **3** is being opened and closed. It will be straight when the lid is closed or in its maximum open position C. The lid **3** is constructed so that its vertical length and its weight are greater than those of the portion of the picture construction **23** which is above the medial fold line A, so that when the lid **3** is lifted and pushed back slightly beyond the vertical position, it will pull the section **23** back of the vertical line and the combined lid **3** and section **23** will come to rest at point C, for the reason hereinabove given. The length of the tape **5** is such that it will be taut when the lid is in the aforedescribed open position and it will therefore help to prevent the sheet **23** from tearing if the cover is forced backward further than point C. It is simply used as a reinforcing for **23**.

Figs. 7 and 8 are two views of a variation of the invention. Fig. 7 is a perspective view of the open box. Fig. 8 is an end view of the box with the three-dimensional picture construction closed and diagrammatic indications of the cover open-

ed. In this form, the container, cover and closing member are made out of one die-cut and scored sheet, two edges of which are glued together, in the form of a folding box. The three-dimensional picture construction is made out of either the same sheet or a separate sheet. If it is a separate sheet, it is pasted into position. In the illustrations, 30 is the container, into which may be slid a drawer, to contain merchandise, or an object; 31 is the top portion of the cover, 32 forms the back portion of the cover of the box when it is closed, 33 is the three-dimensional picture construction, 34 forms the front cover of the container when it is closed, 35 overlaps 31 when it is closed, and 36 is a flap which slides into a slot 36A in 31 to hold the cover down, in the closed position. The letter F indicates the medial fold line of the three-dimensional picture construction. It is to be noted that the entire container is made of stock; or picture construction 33 is made of lighter stock than the rest of the container. The combined weight of the cover portions 31 and 32 is greater than that of the portion of the picture construction 33 which is above the medial fold line F, and the combined length of cover portions 31 and 32 is greater than the length of the portion of picture construction 33 extending above the medial fold line F. When cover portion 31 is lifted and pushed back slightly beyond the vertical position, its weight, combined with that of the cover portion 32 will be greater than the portion of picture construction 33 extending above the medial fold line F; therefore, the combined weight of the cover portions 31 and 32 will pull and hold the picture construction 33 back of the vertical line.

Referring to Fig. 8 there is shown diagrammatically, therein, what takes place when the cover is opened. As the top portion of the cover 31 is lifted, it must carry with it the three-dimensional picture construction 33 because of the connection at K. 33 pivots from F and its fixed length is FK which becomes the radius of the arc LM which it will describe. The fixed length of cover portion 31 is also FK. The back portion of the cover 32 must move at the same time as the top portion of the cover 31 because they are connected at G, and the back portion of the cover pivots from T. Its length is TF which becomes the radius of the arc GH which it will describe.

From the above observations, it will be seen that K must always travel along the arc LM because F is a fixed point and 33 a fixed length, but G is not a fixed point and as the top portion of the cover 31 moves back in unison with 33, G and K must assume positions such as are illustrated at G′—K′, $G^2$—$K^2$—$G^3$—$K^3$, $G^4$—$K^4$, and 33 must assume the positions 33A, 33B, 33C, and 33D. 31 must assume the positions 31A, 31B, 31C, 31D. The movement is that of a quadrilateral whose angles are changed while one side remains in constant relation to the container portion of the box. The position $G^4$—$K^4$ would be the maximum distance that the top portion of the cover 31D could travel back if it were forced back, because the back portion of the cover 32D would come to rest on the surface on which 30 rests. In that position, the three-dimensional picture construction 33D slants too far back. This is counteracted by the fact that the portion of the three-dimensional picture construction that is forward of F will tend to resist the weight of the combined top and back covers 31 and 32 and the picture construction will rest at a place approximately 33B, which is ideal for our purpose.



From the foregoing disclosure, it will be apparent that we have, by the discovery of how the various parts described above act in unison, made it possible to design a box in which the three-dimensional picture construction will come to rest, in its open position, at a predetermined point, without the need of a supporting device to prevent the cover from falling too far back, or a deterring device to prevent the cover from falling forward; and yet permit the opening and closing of the box at will.

While we have illustrated and described specific embodiments of our invention, it will be obvious that various changes therein, particularly in the configuration and disposition of the parts thereof may be made without departing from our invention.

We claim:

1. An article of the character described, comprising a box having a container portion, a hinged cover therefor, a folding interior structure contiguous with the cover and having a medial fold line, the component parts of the cover being of greater length and weight than the section of the interior structure above the medial fold line, so that when the cover is lifted past the vertical position it will fall back and down from such vertical position, carrying the interior structure with it and will come to rest at a predetermined angular relation to the container portion of the box, limited by the relative lengths and weights of the component parts of the cover and of the section of the interior structure above the medial fold line, the resting position of the cover being such that the interior structure will have assumed an obtuse angular relation to the container portion of the box.

2. An article of the character described, comprising a box having a container portion, a hinged cover therefor, and an interior three-dimensional picture structure contiguous with the cover and having a medial fold line, the component parts of the cover being of greater length and weight than the section of the interior structure above the medial fold line, so that when the cover is lifted past the vertical position it will fall back and down from such vertical position, carrying the interior structure with it and will come to rest at a predetermined angular relation to the container portion of the box, limited by the relative lengths and weights of the component parts of the cover and of the section of the interior structure above the medial fold line, the resting position of the cover being such that the interior structure will have assumed an obtuse angular relation to the container portion of the box.

3. An article having the features set forth in claim 1, including a block for supporting the folding interior structure, and wherein the interior structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box.

4. An article having the features set forth in claim 1, wherein the cover is provided with an auxiliary strip contiguous with one face thereof, said strip being fastened to the body of the box to form a hinge for the cover.

5. An article having the features set forth in claim 1 wherein the container portion of the box and the cover of the box are provided with means to limit the backward movement of the cover.

6. An article having the features set forth in claim 1 wherein the container portion of the box and the cover of the box are provided with means

to limit the backward movement of the cover, said means comprising a tape attached at one end thereof to the container portion of the box and at the other to the cover of the box.

7. An article having the features set forth in claim 1 wherein the medial fold line of the interior structure contained in the box is forward of the back wall of the container portion of the box.

8. An article having the features set forth in claim 1 including a block for supporting the interior structure and wherein the interior structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box, and the medial fold line of the interior structure is forward of the back wall of the container portion of the box.

9. An article having the features set forth in claim 1, including a block for supporting the interior structure, and wherein the interior structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box, the cover having means for limiting the movement thereof, said means being fastened at one of its ends to the back wall of the block and the back wall of the container portion of the box, the other end of said limiting means being fastened to the cover.

10. An article having the features set forth in claim 1, wherein the cover is fastened to the outside of the back wall of the container portion of the box.

11. An article having the features set forth in claim 1 having a cover-movement limiting means secured to the container portion of the box and to the cover in such a manner that it is concealed from view from the front of the box.

12. An article having the features set forth in claim 2, including a block for supporting the folding three-dimensional picture structure, and wherein the picture structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box.

13. An article having the features set forth in claim 2 wherein the medial fold line of the three-dimensional picture structure contained in the box is forward of the back wall of the container portion of the box.

14. An article having the features set forth in claim 2 including a block for supporting the three-dimensional picture structure and wherein such picture structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box, and the medial fold line of the interior structure for the box is forward of the box.



15. An article having the features set forth in claim 2, including a block for supporting the three-dimensional picture structure, and wherein such structure is constituted of the same sheet as the block, the block being mounted within the container portion of the box, the cover having means for limiting the movement thereof, said means being fastened at one of its ends to the back wall of the container portion of the box, the other end of said limiting means being fastened to the cover.

16. An article having the features set forth in claim 1, wherein the hinged cover comprises two sections, one of which is hingedly attached to the bottom of the container portion of the box.

17. An article having the features set forth in claim 1, wherein the container portion, the folding interior structure, and the hinged cover are constituted of a single piece of material.

18. An article having the features set forth in claim 2, wherein the hinged cover comprises two sections, one of which is hingedly attached to the bottom of the container portion of the box.

19. An article having the features set forth in claim 2, wherein the container portion, the folding interior structure, and the hinged cover are constituted of a single piece of material.

BENJAMIN KLEIN.
GOLDIE J. KLEIN.


## REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 1,662,491 | Crankshaw | Mar. 13, 1928 |
| 1,681,700 | Folmer | Aug. 21, 1928 |
| 2,122,738 | Drummond et al. | July 5, 1938 |
| 2,322,849 | Horr | June 29, 1943 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 461,794 | Great Britain | Feb. 24, 1937 |
| 171,908 | Switzerland | Dec. 1, 1934 |
| 273,153 | Great Britain | June 30, 1927 |
| 509,172 | Great Britain | July 12, 1939 |
| 15,640 | Germany | Mar. 26, 1904 |