E. A. G. BIERWIRTH.

BOX.

APPLICATION FILED APR. 25, 1907.

904,674. **Patented Nov. 24, 1908.**

2 SHEETS—SHEET 1.

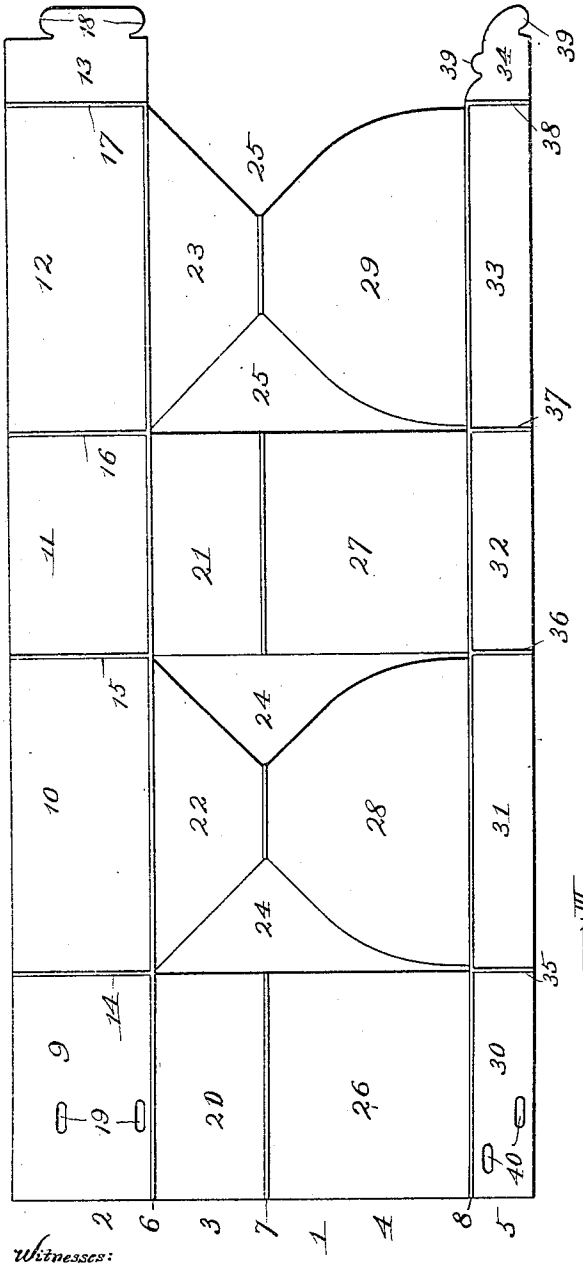


Fig. 1.

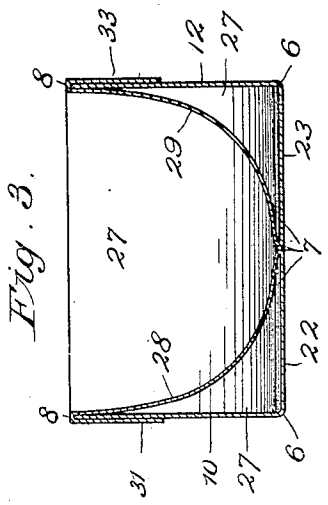


Fig. 3.

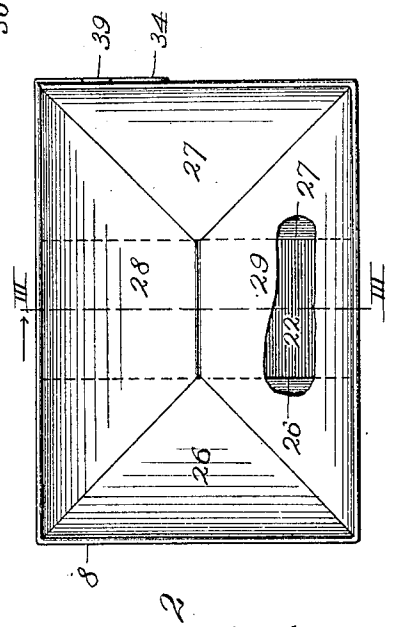


Fig. 2

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2 SHEETS—SHEET 2.

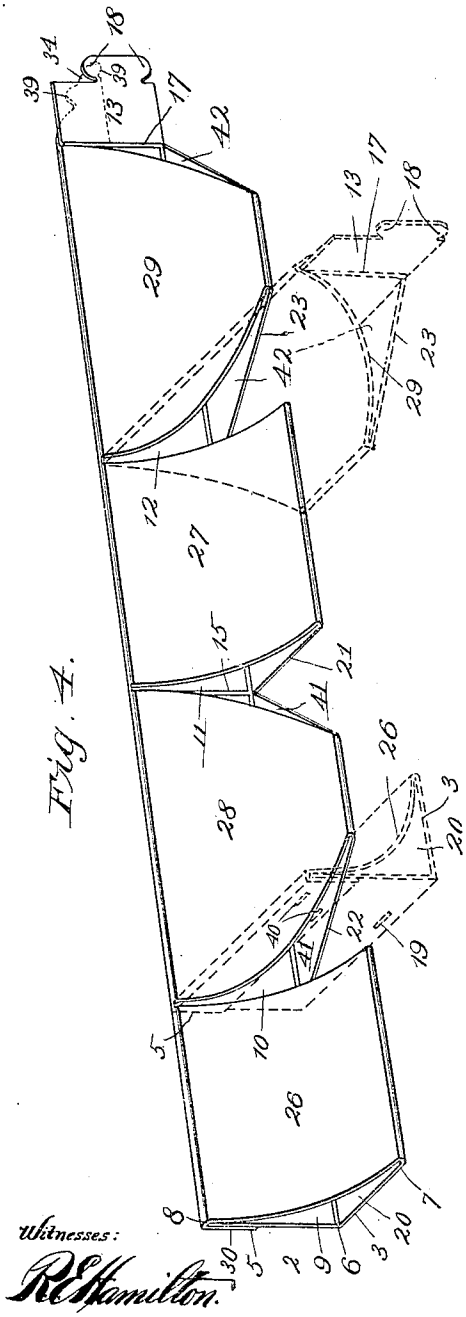


Fig. 4.

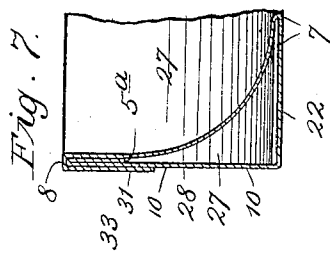


Fig. 7.

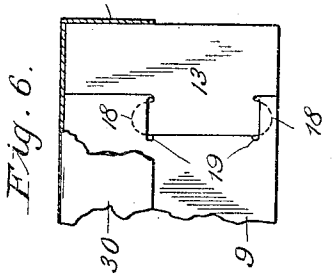


Fig. 6.

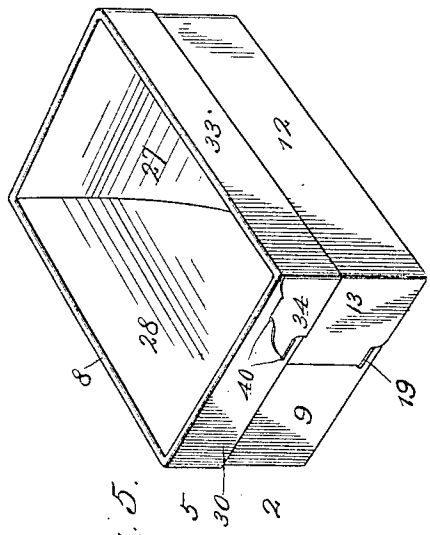


Fig. 5.

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UNITED STATES PATENT OFFICE.

ERNST A. G. BIERWIRTH, OF KANSAS CITY, MISSOURI.

BOX.

No. 904,674. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed April 25, 1907. Serial No. 370,225.

To all whom it may concern:

Be it known that I, ERNST A. G. BIERWIRTH, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Boxes, of which the following is a specification.

My invention relates to improvements in paper boxes for holding fruits, candies, plants, &c.; and my objects are first, to provide a box which may be shipped in a knockdown condition to reduce freight and express charges to a minimum; second, to provide one that can be quickly set up ready for use without employing extraneous fastening devices: and third, to provide one whose walls will have a tendency to draw in instead of bulge out beneath the weight of its contents.

Referring now to the accompanying drawings which illustrate the invention, Figure 1 represents the box in a knockdown condition. Fig. 2 is a plan view of the same set up ready for use. Fig. 3 is a cross-section on line III—III of Fig. 2. Fig. 4 is a perspective view of the box partly set up. Fig. 5 is a perspective view of the box set up ready for use. Fig. 6 is a broken front elevation of the box partly in section, showing the lock for securing the ends of the outer wall together. Fig. 7 is a broken section showing a modification.

In carrying out the invention, paper preferably in the form of waterproof folding boxboard is cut into sheets 1 of proper length and width, as shown in Fig. 1. Each sheet is divided into four longitudinal parts comprising an outer wall 2, a bottom 3, an inner wall 4, and a flange 5, by creases 6 7 8, respectively. The outer wall is divided into four sections 9 10 11 12 and a flap 13, by four transverse creases 14 15 16 and 17, respectively. Flap 13 is provided with two oppositely-disposed tongues 18, adapted to enter slots 19 in the opposite end of the wall and thus lock the ends of the same together. Bottom 3 is divided into two rectangular sections 20 21 and two beveled sections 22 23 by cutting away the boxboard at 24 25, respectively. The inner wall 4 is divided into two rectangular sections 26 27 and two beveled sections 28 29 by the cutaway portions 24 25, respectively. The rectangular sections 26 27 communicate with the like bottom sections 20 21 and the beveled sections 28 29 communicate with the like bottom sections 22 23, respectively. Flange 5 is divided into four parts 30 31 32 33 and a flap 34 by transverse creases 35 36 37 38, respectively. Flap 34 is provided with two tongues 39 adapted to engage slots 40 in the opposite end of the flange and thus lock the ends of the same together, as shown in Fig. 5, when the box is set up.

Having described the manner in which the sheet is prepared for forming the box, I will now proceed to describe one way of setting up the same. Bottom 3 is first bent at right angles to the outer wall 2 along crease 6, the inner wall is then folded back along crease 7 upon the bottom and curved upward to the outer wall, from which latter it is suspended by flange 5, which is folded along crease 8 down against the outer wall. The parts will now be in the position shown in Fig. 4, and pockets 41 42 will be formed by the beveled sections 22 28 and 23 29 to receive the ends of the rectangular sections 20 26 and 21 27, respectively. Sections 9 and 12 of the outer wall and 30 33 of the flange will next be folded along creases 14 16 and 35 37, respectively, as shown by dotted lines Fig. 4. They are then folded along creases 15 17 and 36 38, respectively, to the positions shown in Fig. 2, and their ends are secured by their respective locking devices, as shown in Fig. 5. When thus set up a portion of the bottom of the box has four thicknesses consisting of the overlapping bottom sections and the inner wall, while the sides of the box have two thicknesses consisting of the inner and the outer walls, and are further reinforced by the depending flange 5, which if desired may be extended to the bottom of the box and thus give the sides three thicknesses of material. The box is further reinforced by the ends of sections 20 21 abutting against the inside of wall 2, as shown in Figs. 2 and 3. This together with the several thicknesses above referred to, lend considerable strength to the box which is employed to the best of advantage for resisting the strains imposed thereon by suspending the inner wall from the outer wall. Hence when the box is filled the weight of its contents pressing downwardly upon the inner wall will cause the latter to draw inwardly and thus prevent the outer wall from bulging outwardly as is usually the case in boxes or baskets constructed in the ordinary manner.

In the modified form Fig. 7, the outer wall is further reinforced by a depending flange 5^a.

Having thus described my invention, what I claim is:—

1. A box consisting of an outer wall, a bottom communicating therewith, and an inner wall suspended and curved away from the outer wall and connected rigidly with the bottom.

2. A box consisting of an outer wall, a bottom integral therewith, an inner wall suspended from the outer wall and integral with said bottom, and a marginal flange depending from said inner wall and engaging the outer wall.

3. A box consisting of an outer wall, a bottom communicating therewith, an inner wall suspended from the outer wall and curved to and communicating with the bottom at a point remote from the outer wall, and a lock for securing the ends of the outer wall together.

4. A box consisting of an outer wall, a bottom communicating therewith, an inner wall suspended from the outer wall and communicating with the bottom, a marginal flange depending from said inner wall and passing outside the outer wall, and a lock for securing the ends of said flange together outside the outer wall.

5. A box consisting of an outer wall, means for reinforcing said wall, a bottom communicating at one edge with said outer wall, and an inner wall suspended from the outer wall and communicating with the remote edge of said bottom.

6. A box consisting of an outer wall, a bottom communicating therewith, an inner wall suspended from the outer wall and integral with the remote edge of the bottom, and means for locking the ends of the outer wall together.

7. A box consisting of an outer wall, a bottom communicating therewith, an inner wall suspended from the outer wall and communicating with the bottom, a marginal flange depending from said inner wall and engaging the outer wall, means for locking the ends of said flange together, and means for locking the ends of said outer wall together.

8. A box consisting of an outer wall made in sections forming upright sides, a bottom made in sections integral with the lower edges of the wall sections, an inner wall made in sections integral with the inner edges of the bottom sections, means for locking the ends of the outer wall together, and means for connecting the upper edges of the corresponding sections of the outer and inner walls.

9. A box consisting of an outer wall made in sections forming upright sides, a bottom made in sections integral with the lower edges of the wall sections and the alternate bottom sections beveled at their opposite ends, an inner wall made in sections integral with the inner edges of the bottom sections and the ends of the alternate inner wall sections beveled to correspond with said bevels of the bottom sections, means for locking the ends of the outer wall together, and means for connecting the upper edges of the corresponding sections of the outer and inner walls and for engaging the angles between the rectangular bottom- and inner wall-sections with the pockets formed by the beveled sections.

10. A box consisting of an outer wall made in sections forming upright sides, a bottom made in sections integral with the lower edges of the wall sections, alternate bottom sections being beveled at their opposite ends, an inner wall made in sections integral with the inner edges of the bottom sections and the ends of alternate inner wall sections beveled to correspond with said bevels of the bottom sections, means for locking the ends of the outer wall together, and a marginal flange made in sections integral with the remote edges of the inner wall sections and adapted to engage over the upper edges of the outer wall sections.

11. A box consisting of an upright sectional outer wall, a bottom made in sections integral with the lower edges of said wall sections, and an inner wall made in sections secured at their upper edges to the sections of the outer wall and connected at their lower edges to the bottom sections at points remote from the juncture between said bottom sections and outer wall sections.

12. A box consisting of an upright rectangular outer wall made in four sections, a bottom made in four sections integral with the lower edges of said wall sections and lapping each other in two thicknesses, and an inner wall made in sections secured at their upper edges to the sections of the outer wall and integral at their lower edges with the edges of the bottom sections at points remote from the juncture between the latter and the outer wall sections, the edges of certain of said bottom- and inner wall-sections being beveled, for the purpose described.

In testimony whereof I affix my signature, in the presence of two witnesses.

ERNST A. G. BIERWIRTH.

Witnesses:
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M. COX.