Aug. 25, 1964 D. J. CAVANAGH 3,145,871

HINGED BOX CONSTRUCTION

Filed Aug. 21, 1962

2 Sheets-Sheet 1

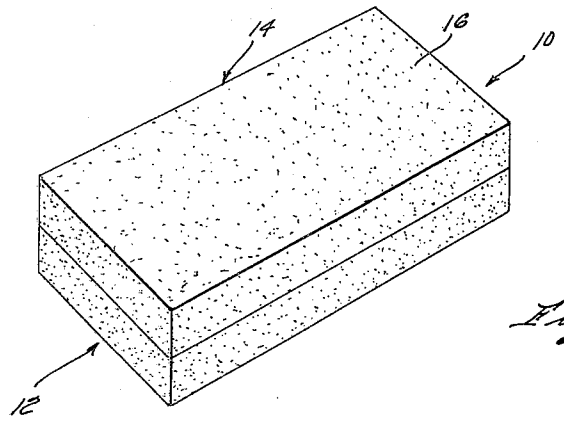

Fig. 1

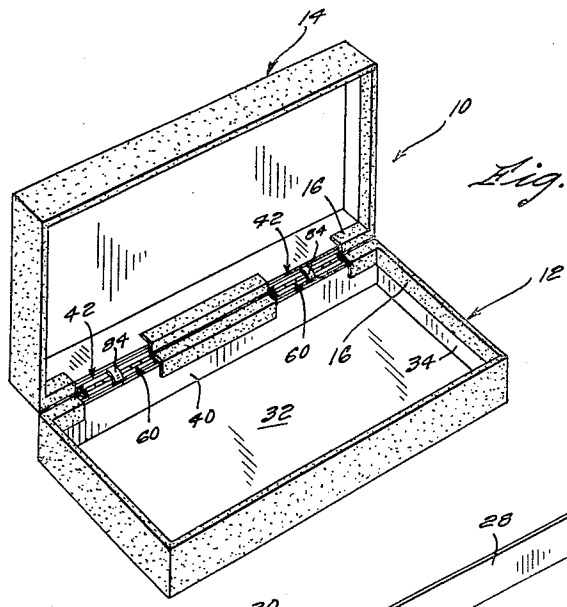

Fig. 2

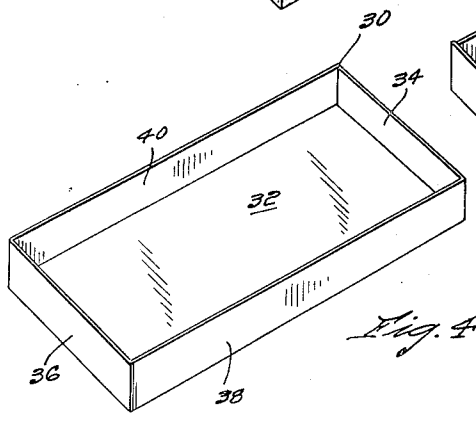

Fig. 4

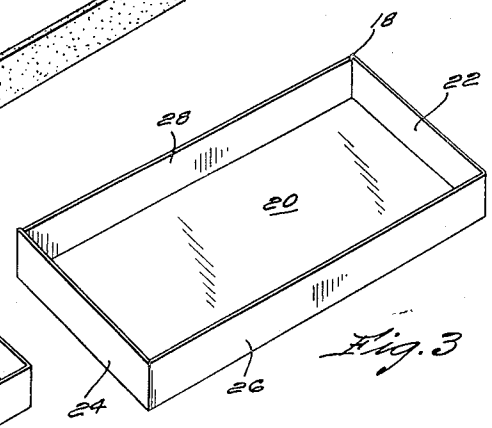

Fig. 3

INVENTOR.
Daniel J. Cavanagh
BY
Fulton & Michaelson
Attorneys.

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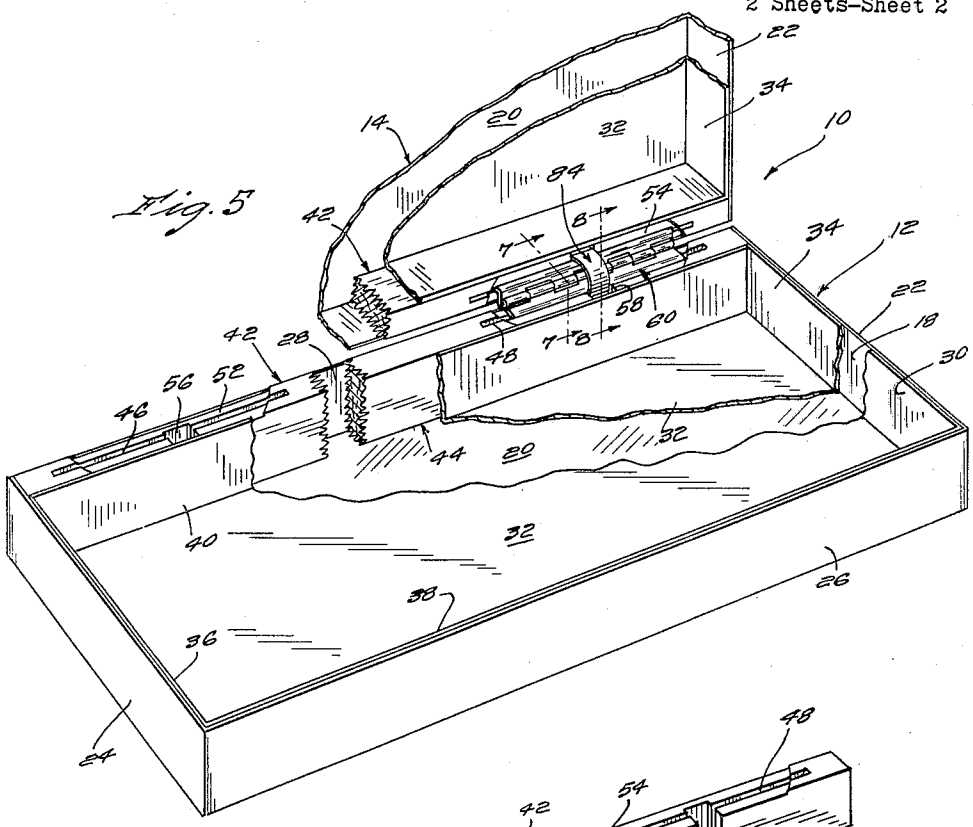
2 Sheets-Sheet 2

Fig. 5



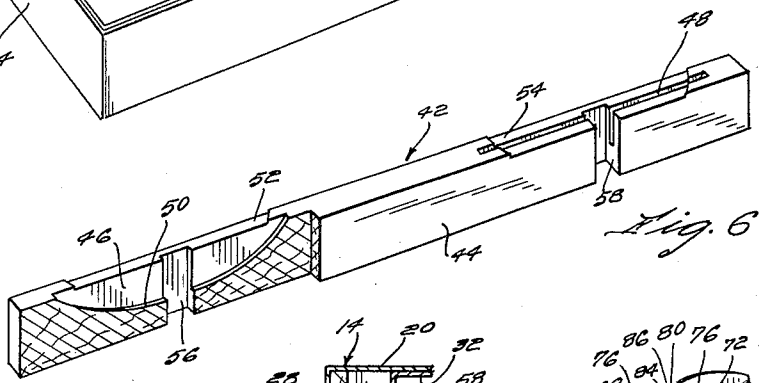


Fig. 6

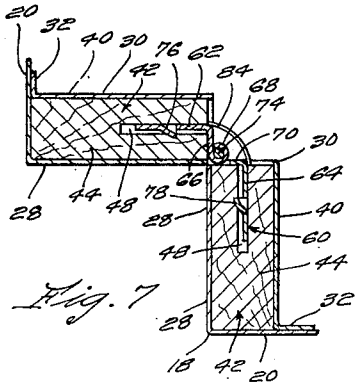


Fig. 7

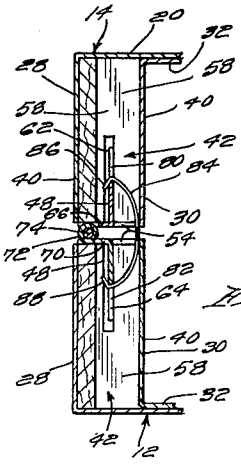


Fig. 8

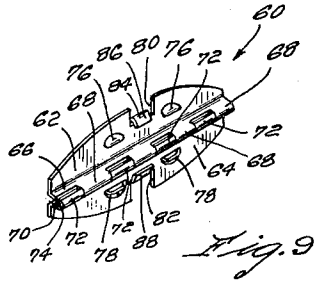


Fig. 9

INVENTOR.
Daniel J. Cavanagh
BY
Salter & Michaelson
Attorneys.

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3,145,871

HINGED BOX CONSTRUCTION

Daniel J. Cavanagh, North Attleboro, Mass., assignor to F. H. Buffinton Co., Inc., Providence, R.I., a corporation of Rhode Island

Filed Aug. 21, 1962, Ser. No. 218,263
2 Claims. (Cl. 220—31)

The present invention relates to a box construction. More particularly, the present invention relates to a box construction having hinged top and bottom sections, the top and bottom sections being formed essentially of nonmetallic materials and being hingedly connected together by a novel hinge assembly.

Display boxes for use in the packaging of small articles, such as jewelry and the like, have normally been fabricated of metal materials. The metal display box has been preferred because of the economies of construction thereof as compared with the wooden box construction that normally requires considerable hand labor and is therefore uneconomical. The metal display box known heretofore also had the advantage of being able to receive the hinge elements that interconnected the top and bottom sections of the display box. However, even the metal display boxes were relatively expensive, and some difficulty has been experienced heretofore with the connection of the hinge elements to the top and bottom sections of the boxes. Some efforts have been made heretofore to fabricate cardboard boxes for use in the display of jewelry items and the like with simplified hinge assemblies, but these prior known box constructions have not been entirely satisfactory since they were difficult to assemble, and the use of some metal materials therein prohibitively increased the cost thereof.

The present invention represents a departure from the prior known box construction and provides an assembly that includes only cardboard and wood materials together with the metal hinges and thereby provides a relatively inexpensive construction that is easy to assembly and durable in use. In carrying out the concept of the present invention, the top and bottom sections are hingedly interconnected together, both the top and bottom sections including an outer shell and an inner shell. The inner shell is confined within the outer shell, but the wall thereof that is adjacent and parallel to the hinge axis of the box construction is spaced from the adjacent wall of the outer shell. An insert member is disposed in the space between the inner and outer shells and is adapted to receive the hinge members therein. The hinge members located in the inserts of both top and bottom sections hingedly interconnect the top and bottom sections which may be provided with an ornamental covering on the outer surface thereof and with interior puffs for completing the assembly of the box.

It is therefore an object of the present invention to provide a box construction that is essentially formed of cardboard and wood and that is relatively inexpensive and simple to manufacture and assemble.

Another object of the invention is to provide a box construction that includes interconnected top and bottom sections, both of which include inner and outer shells, inserts being located within the inner and outer shells of the sections for hingedly connecting the sections together.

Still another object is to provide a unique hinge assembly for use in a box construction that includes an insert that is disposed between spaced walls of the sections and that has hinge members joined thereto.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

FIG. 1 is a perspective view of the assembled box embodied in the present invention wherein the box is disposed in the closed position thereof;

FIG. 2 is a perspective view of the box illustrated in FIG. 1 showing the cover section in the open position for revealing the interior hinge construction of the box;

FIG. 3 is a perspective view of an outer shell of one of the box sections;

FIG. 4 is a perspective view of an inner shell of a box section that is adapted to be disposed within the outer shell illustrated in FIG. 3;

FIG. 5 is a perspective view of the bottom section of the box embodied herein and a partial perspective view of the top section hingedly connected thereto, portions of both the top and bottom sections being illustrated in section and the outer decorative cover being removed;

FIG. 6 is a perspective view with parts shown in section of an insert that is adapted to be located between the spaced walls in the top and bottom sections;

FIG. 7 is a sectional view taken along lines 7—7 in FIG. 5;

FIG. 8 is a sectional view taken along lines 8—8 in FIG. 5 with the assembled box in closed position; and

FIG. 9 is a perspective view of one of the hinge members that is received by the insert and that interconnects the top and bottom sections of the box construction.

Referring now to the drawings, and particularly FIGS. 1 through 5, the box construction embodied herein is generally indicated at **10** and includes a bottom section generally indicated at **12** and a top section generally indicated at **14**. The box construction **10** is designed for use primarily as a display box for small articles such as jewelry or the like. However, it is understood that the concept of the invention embodied herein may be utilized in box constructions that are employed for various other purposes.

As will be described, the bottom section **12** and top section **14** will normally include a layer of decorative cloth or paper material indicated at **16**. The decorative layer of material **16** covers the outer surfaces of the top and bottom sections **12** and **14** and may include any ornamental design or configuration therein as desired.

Referring now particularly to FIGS. 2 and 5, reference will now be made to the construction of the bottom section **12**, it being understood that the top section **14** is identically formed. As will be described hereinafter, the top and bottom sections are adapted to be connected together in hinged relation so as to form the complete box construction. As shown more clearly in FIG. 5, the bottom section **12** includes an outer shell **18** that is defined by a bottom wall **20**, side walls **22**, **24**, front wall **26**, and rear wall **28**. The outer shell **18** is preferably formed of a nonmetallic material, such as cardboard, the outer shell being folded from blank form to the position illustrated in FIG. 3, and the side, front and rear walls being secured in the upright positions thereof by any suitable means. In the upright position of the walls of the outer shell **18**, they are located substantially perpendicular with respect to the bottom wall **20**.

As will be apparent from the description hereinafter, the outer shell **18** of the bottom section **12** defines the outer case of the bottom section and receives the decorative layer of material **16** directly thereon.

Disposed within the outer shell **18** and completely confined therein is an inner shell **30** that is substantially similar in appearance and construction to the outer shell **18**. The inner shell **30** includes a bottom wall **32**, side walls **34**, **36**, front wall **38**, and rear wall **40**. The inner shell **30** is formed of a cardboard material similar to that from

which the outer shell **18** is formed, and the side walls **34**, **36**, front wall **38** and rear wall **40** are all disposed in perpendicular relation with respect to the bottom wall **32**. The longitudinal dimensions of the front wall **38** and rear wall **40** of the inner shell **30** are slightly less than those of the front and rear walls **26**, **28**, of the outer shell **18**. However, the dimensions of the side walls **34**, **36** of the inner shell **30** are somewhat less than the dimensions of the side walls **22**, **24** of the outer shell **18**. Thus, as illustrated in FIG. 5, when the inner shell **30** is disposed within the outer shell **18**, the front walls **26** and **38**, the side walls **22**, **34** and **24**, **36** are all disposed in substantially face-to-face relation. It is, of course, understood that when the inner shell **30** is confined within the outer shell **18**, the bottom walls **20** and **32** are located in face-to-face engaging relation. Since the lateral dimension of the inner shell **30** as represented by the dimensions of the side walls **34**, **36** is somewhat less than the lateral dimension of the outer shell **18**, a space is defined by the rear walls **28** and **40** of the outer and inner shells **18**, **30**, respectively. As will be described below, the space formed by the rear walls **28** and **40** receives an insert member generally indicated at **42**.

Referring now to FIGS. 5 and 6, the insert member **42** as shown is defined by an elongated body **44** that has a substantially rectangular cross section and that is preferably formed of a wooden material. The longitudinal dimension of the body **44** is formed such that the insert member **42** will be snugly received between the side walls **22**, **24** of the outer shell **18**. The lateral dimension of the body **44** is substantially that of the space defined by the rear walls **28** and **40**, whereby the insert member **42** is snugly received within the space located between the inner and outer shells.

Formed in the body portion **44** of the insert member **42** and extending through the top wall thereof are slots **46** and **48** that are located in spaced relation with respect to each other. The slots **46** and **48** are preferably formed by a circular saw, the innermost edge of the slots being rounded or arcuate in shape as indicated at **50** in FIG. 6. Formed in the top wall of the body portion **44** and located between the outer limits of the slots **46** and **48** are grooves **52** and **54** that are defined by cutting out a portion of the top wall. The grooves **52** and **54** are stepped with respect to the upper surface of the body portion **44** and are adapted to accommodate a portion of the leaves of a hinge to be described hereinafter. Formed intermediate the grooves **52** and **54** and extending through the slots **46** and **48** are vertical slots **56** and **58**. The vertical slots **56**, **58** also extend through the front wall of the body portion **44** thereby exposing the interior of the slots. The slots **56**, **58** are provided for receiving a spring of the hinge member to be described.

In the assembly of the box construction, the insert member **42** is placed between the walls **28** and **40** of the outer and inner shells prior to the assembly of the hinge member. It will be apparent that both the top and bottom sections are both assembled in the manner just described with the insert members located in their respective assembled positions, and it is in this position that the spring members are secured to the top and bottom sections to hingedly connect these sections together.

Referring now to FIGS. 7, 8 and 9, one of the hinge members is illustrated and is generally indicated at **60**. The hinge member **60** is conventional in the manner of use thereof but is somewhat different in configuration so as to be accommodated by the slots **46** and **48** of the insert member **42**. The hinge member **60** includes opposed leaves **62** and **64**, the outermost edges of which are formed with a generally arcuate configuration. As mentioned above, the arcuate configuration of the leaves **62**, **64** is necessary in order for the spring member to be received within the slots **46**, **48**. The leaf **62** is formed with an inturned inner edge **66** on which are formed hinge knuckles **68**. The leaf **64** is similarly formed with an inturned edge **70** on which are formed hinge knuckles **72**. A hinge pin **74** extends through the hinge knuckles **68** and **72** and is secured to an endmost hinge knuckle **68** in the well-known manner. Thus, the hinge leaves **62** and **64** are hingedly mounted on the hinge pin **74** so as to be movable relative to each other.

Struck out from the body of the hinge leaves **62** and **64** are projections **76** and **78**, respectively, that are adapted to retain the hinge leaves within the slots **46** and **48** when the hinge leaves are inserted within these slots. The projections **76** and **78** are stuck out from the body of the hinge leaves **62**, **64** such that a taper is formed, the most outwardly struck portion of each projection being located more closely to the hinge knuckles. When the hinge members are inserted into their respective slots **46**, **48**, the less tapered end of the projections which are located adjacent the curved outer edges of the hinge leaves are moved through the slots without exerting any appreciable resistance. However, once the hinge members **60** are fully inserted within their respective slots **46**, **48**, return movement thereof is prevented by the enlarged or most outwardly extending portion of the projections **76**, **78**. The interaction of the projections **76**, **78** with respect to the slots into which they are inserted is shown more clearly in FIG. 7.

Formed intermediate the hinge leaves **62**, **64** and in opposed relation are cutout portions **80** and **82**. A bowed spring member **84** having inturned edges **86** and **88** interconnects the hinge leaves **62**, **64** and is disposed in the cutout portions **80**, **82**, the inturned ends **86**, **88** overlapping the inner edge of the cutout portions to anchor the spring member in position. It is apparent that the spring member **84** will provide for a positive opening or closing of the top section **14** with respect to the bottom section **12** when the top and bottom sections are hingedly connected together.

In the assembly of the box construction **10**, the bottom and top sections **12** and **14** are assembled independently. Thus, the bottom section is assembled by placing the inner shell **30** within the outer shell **18** and then disposing the insert member **42** between the spaced walls **28** and **40**. The top section **14** is similarly assembled, and the inner shell is located within the outer shell for receiving the insert member therebetween. With the top and bottom sections preassembled as indicated, the hinge members **60** are then inserted into the slots **46** and **48** of both the top and bottom sections. In order to carry out this assembly, the hinge leaf **64** of each hinge member **60** is thrust into the slots **46**, **48** with the insert member **42** located in the bottom section **12**. The hinge leaves **62** of the hinge member **60** are then inserted within the slots **46** and **48** of the top section **14**. It is understood that once the hinge leaves **62** and **64** are fully thrust within the slots **46** and **48** of the top and bottom sections, the projections **76** and **78** will prevent the withdrawal thereof. Since the slots **46** and **48** are formed with an inner curved edge **50**, the slots will accommodate the curved outer edges of the hinge leaves. The groove **52** acts to seat the edge **70** of the hinge member **60**, while a corresponding groove formed in the insert member **42** of the top section **14** seats the edge **66** of the hinge member **60**. The edges **66** and **70** of the other hinge member **60** are seated by the groove **54** of the insert member **42** and in a corresponding groove formed in the insert member of the top section **14**. The slots **56** and **58** formed in the insert member **42** accommodate the spring members **84** of each hinge member **60**. The hinge members **60** are thus positively located in position in the insert members **42**, and since the insert members **42** are placed between the inner and outer shells of the top and bottom sections, the top and bottom sections **14** and **12** are located in hinged relation. After the assembly of the top and bottom sections as described above, the outer decorative layer **16** is applied thereto, the outer decorative layer **16** further acting to seal the insert members **42** within their respective sections. In this connec-

tion and as shown in FIG. 2, the decorative layer of each section overlaps the walls 28 and 40 of the outer and inner shells and the insert member 42, leaving only the hinge member 60 exposed. The outer decorative layer 16 may be of any suitable material, such as ornamental cloth or paper, and may be glued or otherwise applied to the surfaces of the top and bottom sections. It is also understood that once the top and bottom sections are assembled, interior puffs may be placed therein for completing the ornamental appearance thereof.

It is seen that the unique construction of the top and bottom sections that include the inner and outer shells, the insert members 42 and the hinge members 60 provides for a simple and inexpensive construction. The finished box construction has all the characteristics of the prior known metal box and has the advantage of being light in weight, simple in construction and easy to fabricate.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

What is claimed is:

1. In a box construction, a top section, a bottom section hingedly connected to said top section, said top and bottom sections each including an outer shell defined by a bottom wall and at least four side walls joined to said bottom wall, an inner shell positioned within said outer shell and including a bottom wall and at least four side walls, the bottom wall of said inner shell and at least three side walls thereof being located in face-to-face relation with the corresponding bottom and side walls of said outer shell, the other side wall of said inner shell being spaced from the other side wall of said outer shell to form an elongated slot, and an insert located in said slot and being precut to receive hinge members in spaced relation therein, said hinge members being received in the inserts of both said top and bottom sections to interconnect said top and bottom sections in hinged relation.

2. In a box construction, a first section, a second section hingedly connected to said first section, both said sections including an outer shell and an inner shell that is confined within said outer shell but occupies less than the full dimension thereof to define a space therewith, an insert located in the space formed in each section, and hinges joined to said inserts for interconnecting said sections in hinged relation, said first and second sections each including a flat bottom wall and side walls joined to said bottom wall and located in perpendicular relation with respect thereto, the flat bottom walls and at least three side walls of said sections being located in face-to-face engaging relation, the remaining side walls of each section defining said space in which said inserts are located and being positioned adjacent the hinge axis of said box construction.

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