No. 696,468. Patented Apr. 1, 1902.

B. B. McFADDEN.

FOLDING BOX.

(Application filed Feb. 6, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

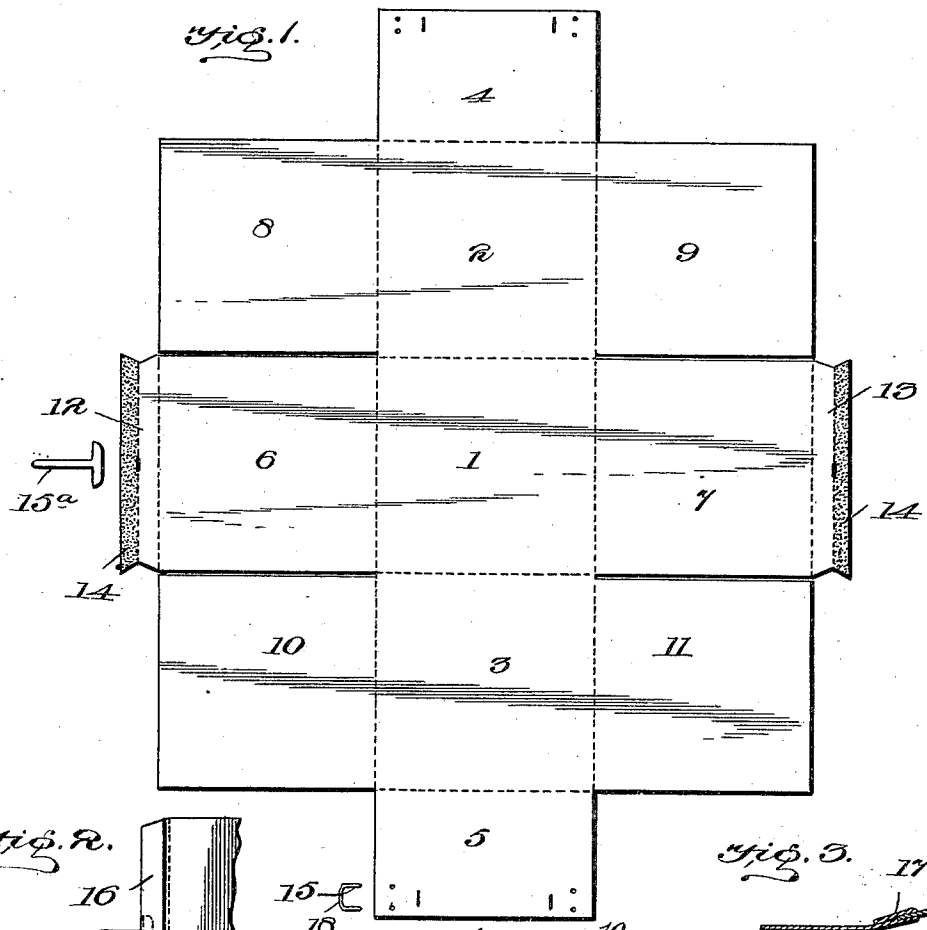


Fig. 2.

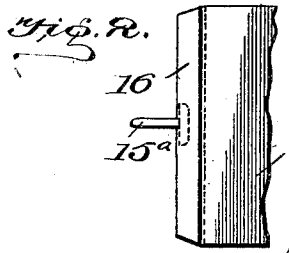


Fig. 3.

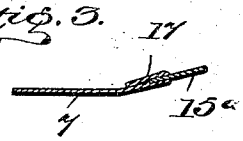


Fig. 4.

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By
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Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(Application filed Feb. 6, 1901.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

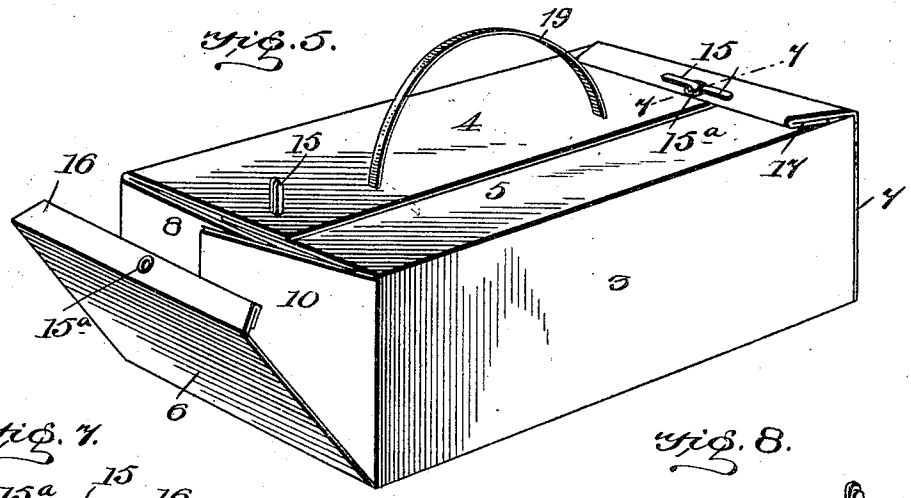


Fig. 7.

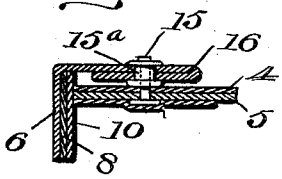


Fig. 8.



Fig. 6.

Fig. 9.

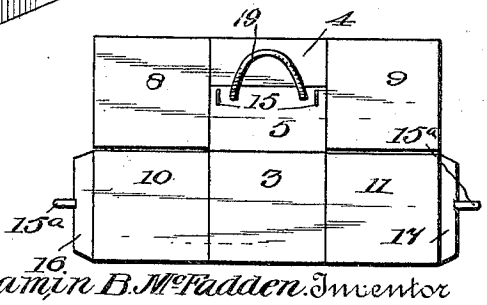


Fig. 11.

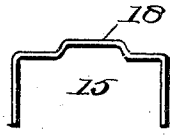
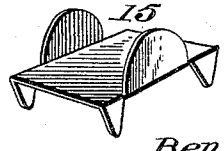
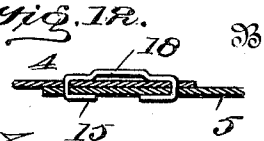


Fig. 10.



Benjamin B. McFadden. Inventor

Fig. 12.



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UNITED STATES PATENT OFFICE.

BENJAMIN B. MCFADDEN, OF BINGHAMTON, NEW YORK.

FOLDING BOX.

SPECIFICATION forming part of Letters Patent No. 696,468, dated April 1, 1902.

Application filed February 6, 1901. Serial No. 46,215. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN B. MCFADDEN, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented a new and useful Folding Box, of which the following is a specification.

This invention relates to foldable paper boxes adapted to be employed for the reception of the various goods usually contained in such receptacles, and has for its object the production of a box-blank of a novel form and adapted to be shipped to the purchaser in its flat or unfolded shape or partially-folded shape and capable of being folded into its box form when required for use.

The invention further embodies novel means whereby the box when folded may be secured and the closures removably connected.

The invention is capable of application to all the various forms of paper boxes used for a great variety of purposes for which such boxes are readily employed, and is especially applicable to boxes containing articles which require protection from the weather or from damage by jarring and shaking, and the box constructed according to the present invention will combine all of these advantages without increase of cost or material.

The invention consists in a novel means for securing the parts when folded so as to not only insure the protection of the goods, but also to render the box easily accessible when required and to permit it to be used repeatedly.

The invention further consists in a novel form of box-blank wherein one of the sides or the top or bottom is in two sections, adapted to be united intermediate of the box, whereby the strength of the box is increased and the ability to fasten it simplified.

In the drawings illustrative of the invention I have shown several modifications of my construction of box-blank and the box formed thereby, but all embracing the invention and all substantially embodying the same construction.

Figure 1 represents one of the blanks as formed ready to be folded into the box form. Figs. 2 and 3 are detached details of one of the guard-flaps with the outer fastener member connected therewith. Fig. 4 is a perspective view of one of the blanks folded up into a box with one end open and the other end closed and one form of the fastener attached thereto. Fig. 5 is a modified form of the box folded up from one of the blanks with a modified form of fastener shown securing its ends. Fig. 6 is a view similar to Fig. 5 of another modified form of box, illustrating the use of another form of fastener. Fig. 7 is an enlarged sectional detail on the line 7 7 of Fig. 5, illustrating the manner of forming the fastener mechanism for the end of the box. Fig. 8 is a perspective view of the form of fastener shown in Fig. 5. Fig. 9 is a perspective view of one of the boxes partially folded up and then flattened down for convenience of transportation. Fig. 10 is an enlarged perspective view of the box-member part of the form of fastener shown in Fig. 6. Fig. 11 is an enlarged detail view of the box-member part of the form of fastener shown in Figs. 1 and 2.

The blank from which the box is to be formed is of pasteboard of suitable texture and adapted to be folded into the required shape, one of these blanks being shown in Fig. 1 with the different parts which will form the box when folded in one single piece, with creases along the lines where the folds will occur indicated by dotted lines. In Fig. 1 a blank is shown which will when folded as in Fig. 4 form a box substantially square in outline, which will be the form generally employed for millinery and hat boxes. In Fig. 5 an oblong form of box is shown, which will be the form generally employed for confectionery and similar goods, and in Fig. 6 another oblong form of box is shown, but of a deeper interior, these various forms being employed to illustrate the fact that the blank is capable of being employed to form boxes of all the various sizes and shapes in which such boxes are manufactured. In this blank, 1 represents the portion which will constitute the bottom of the box, 2 and 3 the parts which will constitute the sides, 4 and 5 the parts which will constitute the top, 6 and 7 the parts which will constitute the ends or closures, 8, 9, 10, and 11 the parts which will constitute the end flaps, and 12 and 13 the parts which will constitute the guard-flaps for closing and pro-

tecting the spaces between the top and the end flaps.

The boxes will be manufactured in the form of "blanks," such as shown in Fig. 1, with the edge of one of the parts 4 or 5 preferably gummed, as indicated at 14, so that the adjacent edges of these parts, which preferably overlap when the box is folded up into shape, may be secured by moistening the gummed edges and compressing the overlapping portions. Instead of the previous gumming the edges of the parts 4 and 5 may be pasted together when the box is folded up. Under some circumstances the adjacent edges of the top sections 4 5 may be made to coincide instead of overlap; but generally they will be arranged to overlap, as shown in Figs. 4, 5, and 6. The two parts 4 5 will preferably be of uniform width, so that the joint between them will come substantially midway of the top; but they may be formed of unequal widths under some circumstances, if preferred, without departing from the spirit of my invention, as one of the novel features of my invention is the top section formed in two parts and adapted to be united at any intermediate point of the box. The blanks may be constructed to form boxes of any size or shape, as before stated, and may be ornamented in any desired manner and adapted to have advertising or other printed or engraved matter impressed on the sides or ends.

In place of the gumming or pasting, or in addition thereto, fasteners, preferably of metal, will be employed, as shown, to secure the parts 4 5, and these fastenings will likewise preferably be utilized to afford means for fastening the closure-flaps 12 and 13, as hereinafter shown. When thus employed in their dual capacity, the fasteners will be in two parts—one upon the body of the box to unite the parts 4 5 and the other upon the guard-flaps 12 and 13—and to denote these two parts the member of the fastener on the body of the box is designated by 15 and the corresponding other member on the guard-flaps 12 and 13 by 15^a.

To form the box up into shape, the sides 2 and 3 are folded up at right angles to the bottom 1 and the top parts 4 5 folded over with their free edges overlapping, as in Figs. 5 and 6. The overlapping portions, if the overlapping form is used, are then pasted or gummed together, (if paste or gum is used,) or the fasteners 15, either instead of or in addition to the paste or gum, "clenched" through both the overlapping parts to firmly secure them. The body of the box is thus formed and firmly secured, as shown in Figs. 4, 5, and 6, with the ends open, this being a feature that differentiates this box from the art, for, as is well known in all foldable boxes, the top is the last part that is closed and secured, whereas, as pointed out in this box, the top is the first part closed and secured. This arrangement renders it possible to present a box in which certain of the parts are assembled when delivered in blank form—a feature that will recommend itself to users generally. When the top is thus secured, the blank may be flattened down for convenience of transportation, as shown in Fig. 9.

If the arrangement of the coinciding edges of the parts 4 5 is employed, the metal fasteners 15 may be arranged to "bridge" the joint between the parts and clench through both parts, and thus unite and fasten the edges, or any other suitable means may be employed to secure them in position. The flaps 8 and 9 and 10 and 11 are then folded inward and preferably overlapped and the end parts 6 and 7 folded up over these end flaps and the guard-flaps 12 and 13 folded over upon the ends of the connected parts 5 and 6, as shown. The end sections 6 and 7 are reinforced at their outer edges by folding the outer edges over upon the body of the end section, as indicated at 16 17. These folded-over edges will generally be pasted down upon the body of the end sections, but may be secured in any other suitable manner. The outer members of the fasteners 15^a, by which the ends are secured to the body of the box, may be utilized to secure these turned-over edges instead of or in addition to the fastenings, if preferred, and as shown in Figs. 4, 5, and 6.

The fasteners 15 15^a will preferably be of metal of any approved form, as shown in the various figures of the drawings; but any other material may be employed for that purpose, if preferred. As before stated, the fasteners will preferably be so constructed and arranged as to afford means for being utilized for securing the closure-flaps 12 and 13, as shown in Figs. 4, 5, and 6, in addition to their function as fasteners for the parts 4 and 5. In Figs. 1, 4, and 11 wire-staple fasteners are shown, with the body portion of the staple 15, which comes outside the part 4, bent outward into a flap loop, as at 18, to provide for the insertion beneath it of a metal clip, as at 15^a, attached to the flaps 12 and 13, as shown at the right-hand end of Fig. 3. The staple, with its loop 18, thus forms one member 15 of the fastener and the clip 15^a forms the corresponding other member of the fastener.

In Figs. 4, 5, 7, and 8 an ordinary paper-fastener is shown as the fastening means, which will be the preferable structure employed under some circumstances. In this modification an eyelet is shown clenched through the folded-over edges 16 17 of the end parts 6 and 7 and adapted to receive the projecting ends of the fastener in the parts 4 5, the eyelet thus forming the one member 15^a of the fastener and the bifurcated part in the top portion 4 5 the corresponding other part 15.

In Figs. 6 and 10 the fastener is in the form of a sheet-metal plate having downwardly-bent points adapted to be clenched through

the overlapping portions of the parts 4 and 5 and with reversely-bent upper sides adapted to project through apertures in the flaps 12 and 13 and be bent over outside the flaps, as shown in Fig. 6. Fig. 10 represents one of these sheet-metal fastener members detached to illustrate its construction more fully. In this modification the metal plate, with its projecting ears, constitutes the member 15 of the fastener, while the perforations through the end portions 6 and 7 constitute the corresponding other part 15^a.

To facilitate transportation of the box by a customer, the handle 19 is suitably associated with the box at any preferred point, as on the top, as here shown, the handle to be made of any suitable flexible material adapted for the purpose.

While I have shown these several modifications of fasteners, I do not wish to be limited to the use of any specific form, as I am aware that other equivalent forms may be employed for the same purpose.

By the novel arrangement of the overlapping two-part top 4 5 the dividing-line between them occurs at a point intermediate of the top of the box, whereby the structure is greatly strengthened and the joint less liable to break under strains than it would if the joint were placed at any of the folded corners of the box. By using any of the forms of fasteners illustrated the box-closures are detachable, so that the box may be employed repeatedly or opened or closed any desired number of times. The box will thus be found very useful for the transportation of articles to which access may be required for examination or for containing articles designed for use at frequent intervals and when the box is required to be opened and closed without destroying the same.

In Fig. 9 one of the blanks is shown partially folded by bringing the parts 4 and 5 together and connecting them by pasting or by the fasteners, or by both, as the construction shall provide, and then compressing the sides 2 or 3 and the two-part top 4 5 down upon the bottom 1 and sides 3 or 2, as the case may be. Thus if the partially-folded box be compressed in one direction the two-part top 4 5 and the side 3 will rest upon the bottom and side 2, and if the partially-folded box be compressed in the opposite direction the two-part top 4 5 and side 2 will rest upon the bottom 1 and side 3. When thus partially set up and then compressed, the blank will occupy less area than in its open form, as in Fig. 1, and will be more convenient for use when required, as it is then only necessary to open it out into its box-like form by compressing the sides and securing the ends by the fasteners to complete the transformation of the blank into a box. This is the preferable form in which the article will be furnished to the trade, although it may also be furnished in the form shown in Fig. 1.

Two or more of the fasteners may be employed at each end and additional fasteners may be employed at the sides, if required; but these additional fasteners would not affect the invention or change or modify its functions.

In the box constructed in accordance with my invention all the corners are covered and reinforced by overlapping parts, so that the contents are thoroughly protected from the weather, and the corners, which are generally the parts of the box subjected to the greatest strain, greatly reinforced and strengthened, and thus the box will not be liable to fracture when handled or during transportation. The protection of the contents is therefore insured and the box rendered especially valuable for the transportation of goods of a delicate or fragile nature or goods which require to be protected from the weather.

The boxes formed from my novel construction of blank may be employed as millinery or hat boxes, for confectionery, the various forms of foods, and is especially applicable for the reception of goods which require protection from outside pressure. The blanks are so constructed that they can be very quickly folded up into box-like form and be secured in that shape by any person who may desire to use the boxes to be made therefrom. All the parts are so related that no mistake can occur in folding the blank, as it can be assembled in one way only, and that way is self-evident from the appearance of the parts and the location of the fold-lines of the blank.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim is—

1. The herein-described folding-box blank, embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be united intermediate of the box, and the ends having reinforced guard-flaps to fold over the ends of the two-part top, the flaps being provided with means to constitute one member of a fastening device to coact with a second member carried by the box-top.

2. The herein-described folding-box blank embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be united intermediate of the box, the sides having flaps integral therewith to be folded inward to form closures for the ends of the box, guard-flaps carried by the ends proper and adapted to fold over the ends of the two-part top, and a two-part metallic fastening device, one member of which is carried by the top and the other member by the guard-flap.

3. The herein-described folding-box blank embodying the bottom, top, sides and ends in one piece, and foldable into box-like form, the ends having guard-flaps integral therewith and reinforced by folding the outer edge over upon the body of the end section, and fastening means for securing the ends to the top, said means being connected with the guard-flaps and with the said top.

4. The herein-described folding box embodying the top, bottom, ends and sides in one piece and foldable into box-like form, the top being in two sections, to be secured permanently together prior to the assemblage of the other parts of the blank and constituting no part of the ends of the box, and two-membered metallic fastening devices one member being secured to the top and serving as holding means for the two sections thereof, and the other member being secured to the ends proper.

5. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections and adapted to be united intermediate of the box, the ends of the box having guard-flaps formed by folding the outer edge over the body of the end closure, and two-membered fasteners to hold the ends in folded position with relation to the top, one member being secured to the top and the other member being secured between the folds of the guard-flap.

6. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections and constituting no part of the ends of the box, fasteners adapted to unite the adjacent parts of the top sections independently of the other parts of the box, and means whereby the same fasteners are utilized to secure the ends of the box in operative position.

7. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections adapted to be secured together independently of, and prior to the assembling of, the other parts of the box, said top constituting no part of the ends of the box, and fasteners adapted to secure the ends of the box to the top, the same fasteners serving as holding means for the sections of the top.

8. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two overlapping sections to be secured together prior to the assemblage of the other parts of the box, said top constituting no part of the ends of the box, fasteners adapted to unite the adjacent parts of the overlapping top sections, and means coacting with the fasteners and carried by the ends proper to secure the ends of the box in position.

9. The herein-described folding box embodying the bottom, top, ends and sides in one piece, and foldable into box-like form, the top being of two sections adapted to be secured together independently of the other parts of the box, said top constituting no part of the ends of the box, one member of a fastener secured to said top, and a corresponding member of said fastener secured to the adjacent foldable end.

10. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the top being in two sections to be permanently secured together prior to the assembling of the other parts of the box, the end parts having guard-flaps integral therewith and reinforced by folding the outer ends over upon the body of the end sections, and fastening means for securing the folded ends to the top, said fastening means being connected with the guard-flaps and the box-top.

11. The herein-described folding box embodying the bottom, top, ends and sides in one piece and foldable into box-like form, the end parts having guard-flaps integral therewith and reinforced by folding the outer edge over upon the body of the end sections, the top section being in two parts and to be secured together prior to the assemblage of the other parts of the box, and a two-membered metallic fastener device for securing the ends of the top, one member of the fastener being attached to the top of the box and serving as an additional means of holding the top sections assembled, and the other member of the fastener being secured between the members of the guard-flap.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJ. B. McFADDEN.

Witnesses:
JAMES F. LOUGHLIN,
LOUIS LIVERMORE.