

E. C. SCHWAB.
COLLAPSIBLE BOX.
APPLICATION FILED FEB. 16, 1912.

1,102,445.

Patented July 7, 1914.

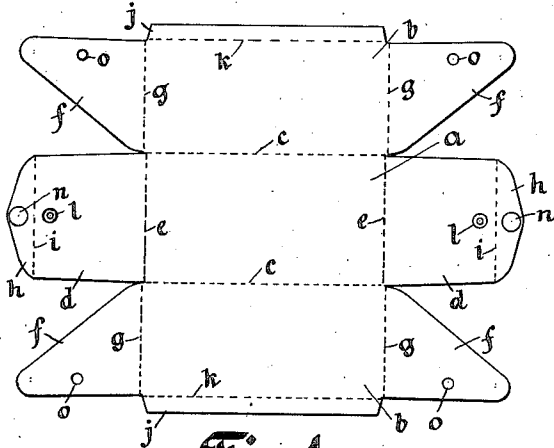


Fig. 1

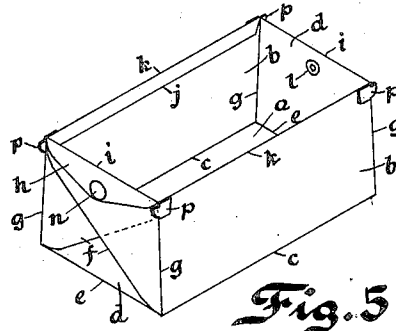


Fig. 5

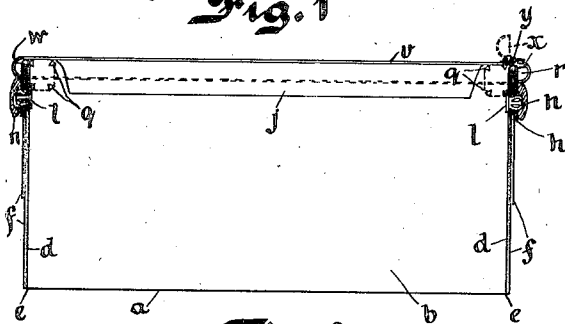


Fig. 2

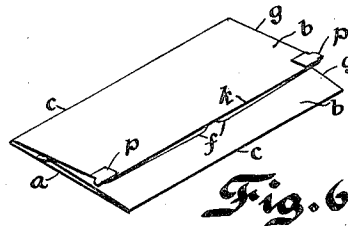


Fig. 6

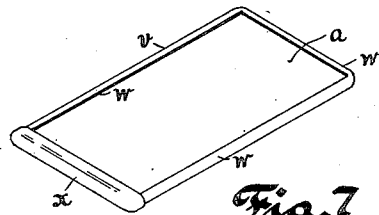


Fig. 7

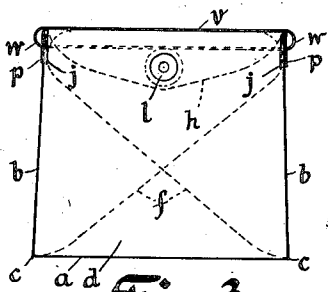


Fig. 3

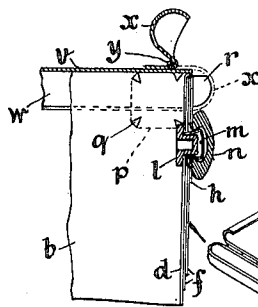


Fig. 9

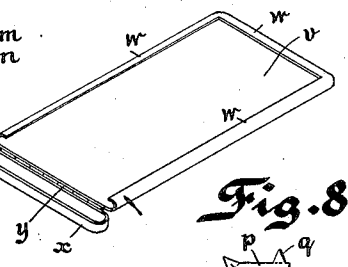


Fig. 8

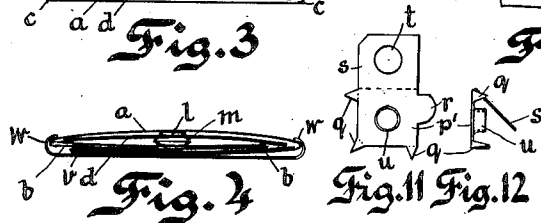


Fig. 4

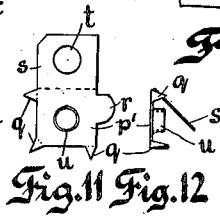


Fig. 11 Fig. 12

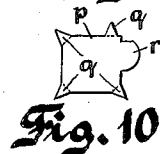


Fig. 10

Edward C. Schwab, Inventor

Witnesses

Florence Mallon
W. J. C. as true copy

By *Leopold R. Moore* Attorney

UNITED STATES PATENT OFFICE.

EDWARD C. SCHWAB, OF MILWAUKEE, WISCONSIN.

COLLAPSIBLE BOX.

1,102,445.

Specification of Letters Patent.

Patented July 7, 1914.

Application filed February 15, 1912. Serial No. 677,765.

To all whom it may concern:

Be it known that I, EDWARD C. SCHWAB, of Milwaukee, Wisconsin, have invented a Collapsible Box, of which the following is a specification.

This invention relates to folding or collapsible receptacles, and has particular adaptability and use as a lunch-box or similar container; and my object is to provide a receptacle, ordinarily made of paper or some form of carbonized cellulose fiber, comprising a simple, light and cheap box and cover of such construction, that while when in use it holds its shape uniformly and strongly, it can be readily folded flat into so compact a space that it can be inserted and carried in an ordinary coat pocket without undue bulging or weighting thereof.

I further aim to provide such a box, which when folded will be without rough edges or metal corners, which might tear or wear through the pocket.

According to my invention, I provide a blank in sheet-material, such as paper, press-board, or similar pliable material with a certain amount of stiffness, of such shape that it can be folded to form a rigid box open at the top and provided with means, which hold it in said condition; and a rectangular member of sheet-material with three recurved or channeled sides, and a cup-shaped element which closes the fourth side; the whole being adapted to fit over the open side of the box as a cover, and, when the box is folded, to contain and hold the latter like a case.

My invention further comprises the constructions and combinations hereinafter described and set forth in my claims.

Referring now to the accompanying drawings, which illustrate one form of my box, Figure 1 shows the outline of the blank or box-form, which is cut from sheet-material, together with the attachments thereto, and crease-lines, by means of which it is shaped into a box; Fig. 2 is a longitudinal central section through the completed box with the cover; Fig. 3 is a transverse central section of the same; Fig. 4 is a transverse central section of the box as collapsed and inserted in the cover-member ready for putting in the pocket; Fig. 5 is a perspective view of the set-up box without the cover; Fig. 6 is a perspective view of the same folded over ready for insertion in the cover; Fig. 7 is a perspective of the folded-up box inserted in the cover ready for putting in the pocket;

Fig. 8 is a perspective view of the cover separately; Fig. 9 is a fragmentary longitudinal section through one end of the box on a larger scale than Fig. 2; Fig. 10 is a view of one of the corner-clips before being bent and inserted; and Figs. 11 and 12 are front and side-views respectively of another form of corner-clip.

The reference letters refer each to the same part in each figure of the drawings.

The box, as shown flattened out in Fig. 1, comprises the bottom-portion *a*, the two side-portions *b* separated therefrom by creases *c*; the two end-portions *d* separated from the bottom-portion by creases *e*; the two end-flaps *f* on the ends of each of said side-portions and separated therefrom by creases *g*; folding-flaps *h* on the ends of each of the end-portions and separated therefrom by creases *i* for a purpose to be presently described; and selvage-flaps *j* on the upper edges of the side-portions *b* and separated therefrom by creases *k*, these latter being merely for the purpose of giving to the free edge of the side a proper stiffness and finish, and may be omitted so far as the principle of the box is concerned. The blank is creased along the lines *c*, *e*, *g*, *i* and *k*, the creases being all turned inwardly, except the creases *i*, which are preferably turned outwardly.

Various means may be used to hold the end of the box rigid, that herein illustrated consisting of snap-studs similar to those used as glove-fasteners, each of which consists, as shown in Fig. 9, of a post-stud *l* carrying a resilient expansible head *m* and a hollow button *n* in the concavity of which it is adapted to engage. The parts of the snap-stud are fixed to the portions *d* and *h* in such a manner that when the flap *h* is folded down against the flap *d*, the button *n* snaps over the stud *l*. Each of the end-flaps *f* is perforated with a hole *o*, so placed that when the end-portions *d* and side-portions *b* are successively turned up, and then the end-flaps *f* folded at right angles upon the end-pieces *d*, the holes *o* fall over the studs *l*, and between them and their respective buttons *n*, thus holding the three members at each end in fixed relative position, as clearly shown in Figs. 2 and 9. It will be readily seen, however, that the snap-studs or other devices are not absolutely necessary to an operative box, as the overlap *h* is sufficient of itself to prevent the end-flaps *f* from spreading; and on the other hand the over-

lap h may be omitted, as a device such as the snap-stud, when properly attached, is sufficient by itself to hold the end-members of the box together.

The box is completed by four corner-clips p or p' , Figs. 10 and 12, which are preferably small stampings of sheet-metal provided with pointed tangs g adapted when turned up to be forced through the material of the box and to be clenched on the inside, said clips having further each a projecting element r , which is adapted to form a point of engagement for the cover to be presently described. The member p' of Figs. 11 and 12 is provided with a folding-flap s , which is perforated by a hole t , and is folded over the upper edge of the box, so as to lie inside thereof, and thus form a stronger point of attachment for the tangs g than would the material of the box itself. An upstanding eyelet u is punched in the body of the clip, and riveted through the hole t when the clip is in place. I wish it understood, however, that any other form of clip may be used consistently with my invention.

The cover-member v is of sheet-metal having its side-edges and one end-edge pressed over to form a rounded channel or flange w , as shown, thus presenting a perfectly smooth and rounded outer surface. The open end of the member v is closed by a cup-shaped cap or end-piece x , which may be detachable or permanently attached in various ways, for instance by means of a hinge y ; said end-piece, when placed in the position shown in the full lines in Fig. 2, forming a complement of the channeled-flange w on the opposite end.

It will be observed from Figs. 1, 3 and 5 that the two side-pieces b are not parallel, but that the box is slightly narrower at the top than at the bottom, an effect produced by giving the side-edges of the end-portions d a slight taper. The purpose of this is to enable the cover-member v to fit neatly over the top of the box, as shown in Figs. 2 and 3, in this case the closed end-flange w being first engaged with the projections r at one end of the box and then the end-piece x being turned down so as to cover and engage the projections r at the other end of the box; but when the box is folded up, its width is that of the bottom, which is sufficient to cause it to engage under both of the channel-flanges w , as shown in Fig. 4. When folded, as in Fig. 6, then the box is slid into the cover from the open end, the bottom of the box being up, and the end-piece x being then closed, as shown in Fig. 7.

I wish it understood that my invention is not limited to the use of all the above described features and constructions, for some may be omitted and others may be varied or modified in various ways, as will readily occur to those skilled in the art.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A collapsible-box comprising, in combination, a rectangular cover-member of rigid sheet-material having its side-edges and one end-edge turned into channeled-flanges, and a folding-box portion which when set up has one side open, and adapted to be received by said cover-member in which case said flanges pass over the edges of the open side of the box; and said box when folded being adapted to slide into the cover through the open end thereof, the side-edges of the folded box being engaged by and under said channeled flanges; said cover-member having further a movable channeled end-piece adapted to close the open end of said cover.

2. A collapsible-box comprising, in combination, a rectangular cover-member of rigid sheet-material having its side-edges and one end-edge turned into channeled flanges, and a folding-box portion which when set up has one side open and adapted to receive said cover-member in which case said flanges pass over the edges of the open side of the box; said box when folded being adapted to slide into the cover through the open end thereof, the side-edges of the folded box being engaged by and under said channeled flanges; said cover-member having further a movable channeled end-piece adapted to close the open end of said cover; and said box having at each end adjacent to the open side a pair of projections, two of which are adapted to be engaged by and under the flange on one end of said cover, and the other two by said end-piece.

3. The combination of a box-member consisting of a rectangular bottom, the sides and ends attached thereto and adapted to be folded thereover and having means for holding them upright in fixed box-relation to each other, the box so formed being narrower at the upper edge than said bottom, and a rectangular cover-member having channeled flanges formed on its opposite sides between which the side-edges at the top of the box are adapted to pass when set up and under which the side-edges of the bottom are adapted to engage when folded by reason of the greater width of said bottom.

4. The combination of a box-member consisting of a rectangular bottom, the sides and ends attached thereto and adapted to be folded thereover and having means for holding them upright in fixed box-relation to each other, the box so formed being narrower at the upper edge than said bottom, and a rectangular cover-member having rounded continuous corners and rounded channeled flanges formed on its opposite sides between which the side-edges at the top of the box are adapted to pass when set up and under

which the side-edges of the bottom are adapted to engage when folded by reason of the greater width of said bottom.

5 5. The combination of a box-member consisting of a single piece consisting of a bottom two side-portions and two end-portions hingedly attached to one another along
10 creases, means for holding them in box-relation to each other, and a rigid cover provided with channel-flanged edges; the width
15 of said box-member when folded being greater than the distance between the edges of the flanges on said cover whereby said box-member is adapted to slide between said
flanges and be retained thereby in juxtaposition to said cover.

6. The combination of a box-member consisting of a single piece consisting of a bottom two side-portions and two end-portions
20 hingedly attached to one another along creases, means for holding them in box-relation to each other, and a rigid cover provided with channel-flanged edges; the width
25 of said box-member when folded being greater than the distance between the edges of the flanges on said cover whereby said box-member is adapted to slide between said
flanges and be retained thereby in juxtaposition to said cover, said cover having further
30 a fixed channel-flange at one end and a hinged channel-flange at the other end adapted to engage and retain the respective ends of said box-member when so folded.

7. The combination of a box-member consisting of a single piece of sheet-material cut
35 to form a rectangular bottom-portion, side-portions and end-portions, the latter hingedly united to the bottom by creases, said side and end-pieces having means for
40 holding each other in mutual upright relation, said side-pieces converging slightly from bottom to top when in such relation, and a cover-member of rigid sheet-material having incurved flanges on its opposite side
45 edges, the distance between the inner edges of said flanges being substantially the same as between said side-pieces at the top of the box whereby the said flanges are adapted to pass over the latter and are also adapted to

engage the edges of the bottom-portion of 50
said box-member when the latter is folded up and slid endwise between flanges of said cover, said cover having further a rounded
inturned end-flange at one end thereof which
55 is united and continuous with the flanges on the sides of said cover by a quadrantly turned portion and a hinged endpiece on the other end of said cover having an inturned rounded flange.

8. The combination of a box-member consisting of a single piece of sheet-material cut
60 to form a rectangular bottom-portion, side-portions and end-portions, the latter hingedly united to the bottom by creases, said side and end-pieces having means for holding
65 each other in mutual upright relation, said side-pieces converging slightly from bottom to top when in such relation, and a cover-member of rigid sheet-material having incurved flanges on its opposite side-edges, the
70 distance between the inner edges of said flanges being substantially the same as between said side-pieces at the top of the box whereby the said flanges are adapted to pass
75 over the latter and are also adapted to engage the edges of the bottom-portion of said box-member when the latter is folded up and
slid endwise between flanges of said cover, said cover having further a rounded
inturned end-flange at one end thereof which
80 is united and continuous with the flanges on the sides of said cover by a quadrantly turned portion and a hinged endpiece on the other end of said cover having an inturned
rounded flange opposite the other flange; 85
said box-member having upon its edges which are at the upper corners of the box four projecting members which are adapted to engage under opposite flanges of said
cover thereby holding the cover in place on 90
the box.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

EDWARD C. SCHWAB.

Witnesses:

HANNAH BRANDT,
J. MENDELSON.