July 3, 1934. P. F. BOEYE 1,965,215

BATTERY CONTAINER

Filed March 6, 1933

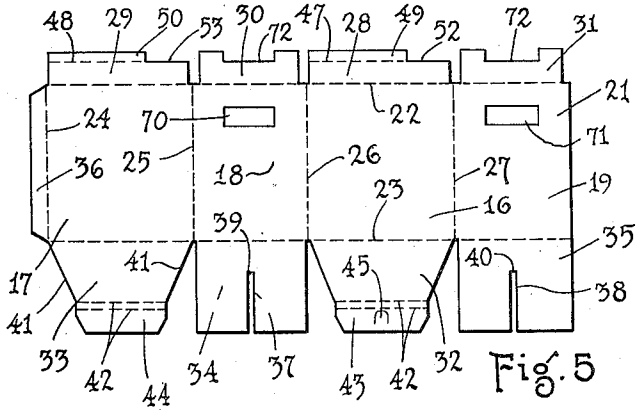


Fig. 5

Fig. 6

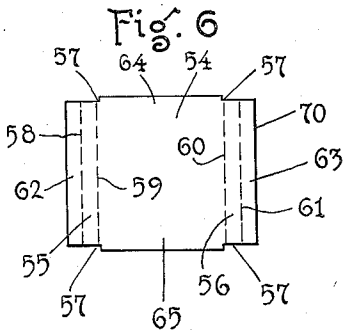


Fig. 2

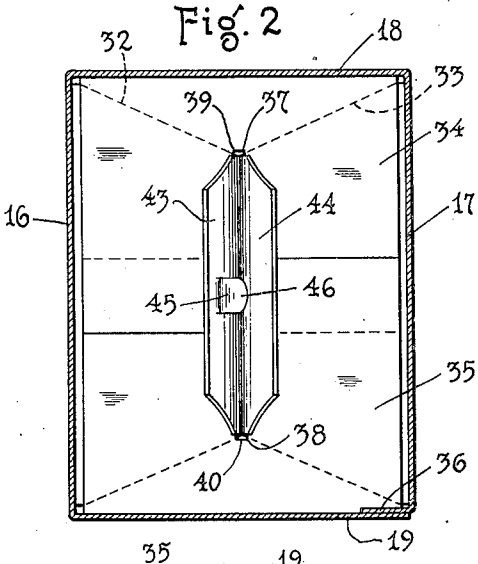
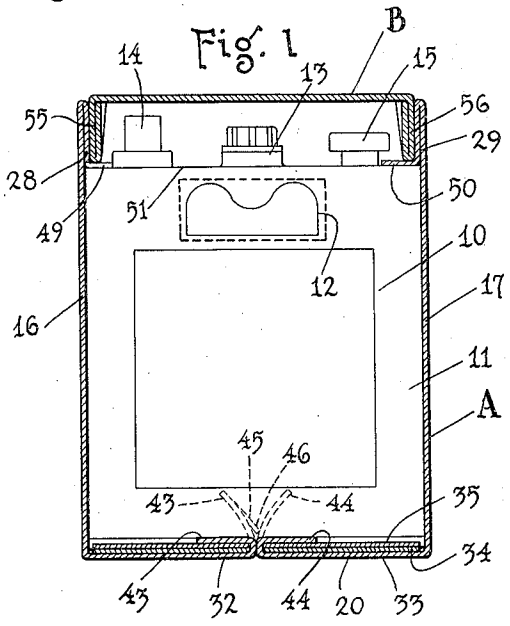


Fig. 1



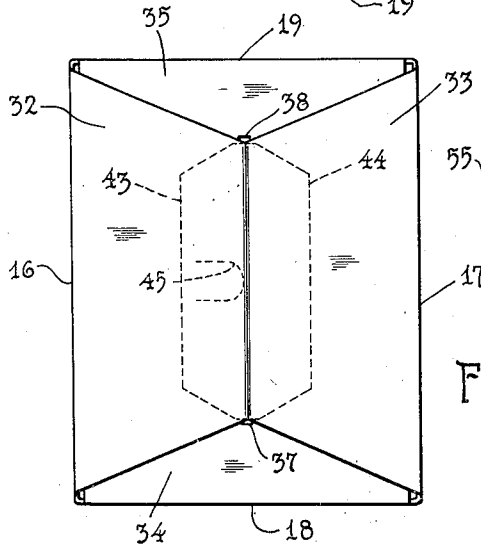


Fig. 3

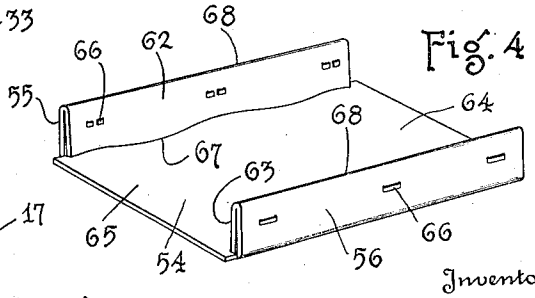


Fig. 4

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BATTERY CONTAINER

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Application March 6, 1933, Serial No. 659,650

12 Claims. (Cl. 206—46)

My invention relates to containers and particularly to containers for use in packing batteries such as storage batteries, dry cells and the like, and has for its object to provide a container in which the terminals of the battery are fully protected.

An object of the invention resides in providing a knocked down container which can be easily erected.

Another object of the invention resides in providing a container by means of which movement of the battery out of the container is restrained when the container is closed.

A still further object of the invention resides in providing a container having a bottom structure which will readily withstand the stresses produced by extremely heavy articles of storage batteries and like commodities contained within the container.

An object of the invention resides in constructing certain of the walls of the container at their upper ends with flaps adapted to be bent inwardly into the container to form abutments for engagement with the end of the battery to hold the same immovable within the container.

Another object of the invention resides in providing a closure for the container having flanges bent outwardly therefrom and adapted to extend into the container and to engage said flaps for holding the same in proper position within the container.

A feature of the invention resides in providing a closure with a planiform portion from which the flanges issue and in constructing the planiform portion with projections which engage certain of the walls of the container and limit the movement of the flanges of the closure into the container.

An object of the invention resides in constructing the flaps of the walls of the container with inwardly extending flanges adapted to form abutments for engagement with the upper end of the battery to hold the same from movement out of the container when the flaps are in proper position.

A still further object of the invention resides in constructing the flanges on the closure so that the ends of the same seat against the flanges on the flaps.

A feature of the invention resides in constructing the flanges of the closure so that portions thereof are doubled back on themselves to form a more rigid and substantial construction.

An object of the invention resides in constructing the bottom of the container with a number of flaps issuing from the lower ends of the walls of the container and in so arranging the flaps that certain of the flaps become locked in position with respect to the other flaps when the parts are properly assembled.

Another object of the invention resides in constructing the bottom structure of the container so that the weight of the battery when resting thereon holds the bottom structure assembled.

An object of the invention resides in constructing two of the flaps of the bottom structure with slots and the other two of the flaps with tongues adapted to extend through said slots and into the interior of the container and to overlie the inner surface of the bottom of the container.

Another object of the invention resides in constructing the slots in the end flaps of the container and in disposing the same longitudinally with respect thereto, and in further causing said slots to fall short of the ends of the container from which the end flaps issue.

A still further object of the invention resides in constructing the other flaps of the container of a width at their ends somewhat narrower than the length of the container and in constructing said tongues at the reduced ends of these flaps.

An object of the invention resides in disposing the slots in the end flaps of the container in alignment with one another and centrally between the sides of the container.

A still further object of the invention resides in constructing the flaps issuing from the side walls of the container of a length greater than one-half the width of the container and in forming the same so that the tongues thereof abut one another and jointly extend through the slots.

An object of the invention resides in constructing one of said tongues with a tab adapted to engage the other tongue for the purpose of holding the tongues in diverging relation when assembled within the box to permit of spreading said tongues and causing the same to lie flat upon the inner surface of the bottom when the battery is placed within the container.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a transverse sectional view of a container illustrating an embodiment of my invention and showing a battery disposed within the same.

Fig. 2 is a plan sectional view of the container

shown in Fig. 1 with the battery removed therefrom.

Fig. 3 is a bottom view of the container shown in Fig. 2.

Fig. 4 is a perspective view of the closure used with the container shown in Fig. 1.

Fig. 5 is a developed view of the blank from which the container shown in Figs. 1, 2 and 3 is constructed.

Fig. 6 is a developed view of the blank from which the closure shown in Fig. 4 is constructed.

In the packing and shipping of batteries and other similar heavy articles having delicate parts to be protected, considerable difficulty has been encountered and such containers have usually been constructed of wood or other similar materials. The present invention provides a device to be used for shipping and packing batteries by means of which cardboard or other paper materials may be used and in which the delicate parts of the battery are fully protected.

For the purpose of illustrating the application of my invention, I have shown in Fig. 1 an ordinary storage battery 10 such as used in automobiles and for radios and for other similar purposes. This battery comprises a case 11 containing the elements of the battery. At the ends of the case 11 are provided recesses 12 which form hand grips by means of which the battery may be carried. At the top of the battery are provided filler caps 13 through which water or acid may be added to the battery when desired. In addition, terminals 14 and connectors 15 are employed by means of which the electrodes of the various cells of the battery may be connected together and by means of which the current may be conducted from the battery to the particular apparatus with which the battery is to be used.

My invention proper is best shown in Fig. 1 and comprises a container indicated in its entirety at A and a closure therefor separable from said container and indicated in its entirety by the reference character B. The container A consists of side walls 16 and 17, end walls 18 and 19, and a bottom structure 20, which various parts are constructed as will be presently described. The container A is open at the top as best shown in Fig. 1 and is closed through the closure B in a manner to completely envelope the battery 10 which is placed within the container.

The container A is constructed from a blank of cardboard or other suitable material indicated at 21 in Fig. 5. This blank is scored along two longitudinal lines 22 and 23 and along four transverse lines 24, 25, 26 and 27 to form the sides 16 and 17 and the ends 18 and 19. The blank is so constructed as to form flaps 28 and 29 issuing from the upper ends of the side walls 16 and 17 and with similar flaps 30 and 31 issuing from the upper ends of the end walls 18 and 19. The blank is further constructed to provide still other flaps 32 and 33 issuing from the lower ends of the side walls 16 and 17 of the container and flaps 34 and 35 issuing from the lower ends of the end walls 18 and 19 of the container. In addition, a flap 36 is provided at the end of the side walls 17 by means of which the said side wall and the end wall 19 may be connected together as shown in Fig. 2. These two parts may be glued, stapled or otherwise secured together in any suitable manner so that the walls are all secured together to permit of erection without the use of glue or fasteners.

The two flaps 34 and 35 are formed with longitudinally extending slots 37 and 38 which are centrally disposed with respect to said flaps and which terminate at localities designated at 39 and 40 lying inwardly of the lower edges of the end walls 18 and 19 as defined through the score line 23. When the two flaps 34 and 35 are folded into the plane of the bottom along the score line 34 the two slots 37 and 38 lie in continuation of one another. These slots are of substantially the same width as double the thickness of the structure from which the blank 21 is constructed. In the folding of the two flaps 34 and 35 the portions thereof on opposite sides of the slots 37 and 38 may be interlocked as shown in Fig. 2, the portion on one side of said slot of one flap being upon the top of the corresponding part of the other flaps and the similar portion of said flap on the other side of the slot being on the underside of the corresponding part of the other flap.

The two flaps 32 and 33 are preferably constructed tapered along their edges 41 so that the ends thereof are considerably narrower than the portions of said flaps at the score line 23. Said flaps near the ends thereof are provided with pairs of score lines 42 which form at the extreme ends of said flaps tongues 43 and 44. These tongues are of a width equal to the composite length of the slots 37 and 38 formed when the two end flaps 34 and 35 are folded into overlying position as shown in Fig. 2. The two tongues 43 and 44 may be bent along the score lines 42 and caused to extend at right angles to the flaps 32 and 33. These score lines 42 are so situated that when the tongues are bent along the same the two tongues 43 and 44 meet one another in the center of the box whereby said tongues may be jointly inserted into the slots 37 and 38 and into the interior of the container. Due to the use of double score lines at 42, tongues 43 and 44 when disposed upon the interior of the container, may be bent away from each other and in such a manner as to overlie the bottom structure as shown in Fig. 1. When the said tongues are inserted into position and the battery 10 caused to rest upon the same, as shown in Fig. 1, the bottom structure of the box is held locked together through the weight of the battery. When the parts are so disposed it becomes impossible to pull the various flaps apart and all of said flaps being integral with the wall structure of the container, serve to firmly and rigidly support the battery within the container.

In order to cause the two tongues 43 and 44 to spread apart and to lie flat upon the bottom of the container the tongue 43 is constructed with a tab 45 which is struck out of the material of said tongue and is arranged with its free edge 46 in close proximity to one of the score lines 42. When the tongues 43 and 44 have been inserted into the interior of the container the same may be spread apart and the tab 45 pressed out of the plane of tongue 43 and into a position such as indicated in dotted lines in Fig. 1. The free edge 46 of said tab then engages the other tongue 44 and holds the two tongues permanently in diverging relation. With the parts so disposed the said tongues may readily be caused to spread apart when the battery is inserted within the container. After the battery has once been brought to rest upon the bottom of the container, tongues 43 and 44 lie flat upon the bottom of the container, as shown in full lines in Fig. 1 and are so held. By means of this construction the battery is firmly and rigidly supported within the container through the bottom thereof which is integrally connected within the wall structure of the container and which is held

in locked position through the weight of the battery itself.

For the purpose of preventing the battery from being accidentally slid out of the container through the open end thereof, the flaps 28 and 29 are employed. These flaps are scored along lines 47 and 48 to form flanges 49 and 50 issuing outwardly from said flaps at the outer edges thereof. These flanges are adapted to be folded as indicated in Fig. 1 and when so disposed, extend parallel to the upper surface 51 of the case 11 of the battery proper. The flaps 28 and 29 are of such a length that the flanges 49 and 50 engage the upper surface 51 of the battery and form abutments which prevent the movement of the battery out of the container while the flaps 28 and 29 lie adjacent the inner surfaces of the walls 16 and 17 of the container. It will be noted that the flanges 49 and 50 are cut away at 52 and 53. This is for the purpose of causing the said flanges to clear certain of the protruding structure formed on the particular type of battery to be contained within the container.

The closure B consists of a planiform portion 54 which forms a cover for the open end of the container and which has flanges 55 and 56 issuing outwardly from the lateral edges thereof. The closure B may be constructed from a blank such as shown in Fig. 6 which is notched at its ends as designated at 57 and which is formed with transverse score lines 58, 59, 60 and 61. By means of this construction the top or planiform portion 54 is provided as well as the flanges 55 and 56. In addition, portions 62 and 63 are formed which constitute part of the flanges 55 and 56 and which are doubled back upon the said flanges as shown in Fig. 4, to form an extremely rigid and substantial flange construction. The notches 57 of the blank form projections 64 and 65 on the planiform portion 50, which project outwardly beyond the edges of the end walls 18 and 19 of the container. The flanges 55 and 56 are constructed by doubling back the portions 62 and 63 of said flanges upon themselves and securing the doubled over parts together through staples 66. This causes the said parts to buckle as indicated at 67. By constructing the parts 62 and 63 of a suitable length the buckled edges 67 may be caused to abut against the inner surface of the planiform portion 54 of the closure, thereby transmitting stresses applied to the flange directly to the cover part or vice versa.

The flanges 55 and 56 of the closure B are of such length or height that the free edges 68 of said flanges extend into the interior of the container and rest upon the flanges 49 and 50 of the container proper and that the projections 64 and 65 of the cover proper rest upon the edges of the end walls 18 and 19. By means of this construction the distance that the flanges 55 and 56 may be inserted into the container proper is limited. When the parts are secured together through tape, glue or otherwise, the stresses applied to the flanges 49 and 50 are transmitted through the flaps 28 and 29 and through the flanges 55 and 56 to the closure and wall structure of the container proper. Also stresses procured through weight applied to closure B is transmitted directly through the flanges 55 and 56 to the battery proper.

For the purpose of stiffening and reinforcing the edges of the end walls 18 and 19 of the container, flanges 30 and 31 are employed which are folded inwardly into the container and overlie the inner surfaces of the said end walls 18 and 19. These flanges may or may not be constructed so that the same engage the surface 51 of the battery proper. In the event that the said flaps merely overlie the inner surface of the end walls of the container, the said flaps extend below the upper surface of the battery and cushion the container adjacent the upper margin of the same.

For the purpose of handling the battery, two openings 70 and 71 are employed which are formed in the upper portions of the end walls 18 and 19 of the container and directly opposite the recesses 12 forming the finger grips of the battery. The said finger grips may then be readily engaged by the user by insertion of the fingers through the holes 70 and 71. Where the flaps 30 and 31 are of sufficient length, the same are provided with notches 72 and 73 which register with the openings 70 and 71 when said flaps are folded inwardly into the container.

The use of the container is as follows: The flap 36 is preferably glued or secured to the end wall of the container in the factory and during the manufacture of the container. The wall structure thus formed is continuous and may be collapsed by folding the same along diagonal corners of the container and prior to the bending outwardly from the wall structure of the container the various flaps connected therewith. The containers in such knocked down form are shipped and handled and may be stored until desired for use. When desired for use the container is erected by opening up the body structure and arranging the walls thereof in rectangular form. The two end flaps 34 and 35 are next folded along the score line 23 and brought into a common plane. In applying these parts the portion of the end flap 34 to the right of the slot 38 is brought upon the interior of the container and the part to the left of the score line is brought upon the exterior of the container as clearly shown in Fig. 2. In assembling the parts in this manner the corresponding parts of the end flap 34 become arranged on opposite sides of the container. This interlocking of parts holds the two end flaps in proper position while the further erection of the container continues. When the two flaps 34 and 35 are disposed as described, the two slots 37 and 38 lie in continuation of one another and extend partially across the bottom of the container and along the center of the same. The tongues 43 and 44 are next bent along the score lines 42 and the flaps 32 and 33 thereafter folded along score line 23 to bring the said flaps into the plane of the two flaps 34 and 35 of the bottom structure 20. The said score lines 42 being situated as previously described tongues 43 and 44 come together and may be jointly inserted into the slots 37 and 38 and caused to project inwardly into the interior of the container. After the flaps 32 and 33 have been caused to lie snugly against the under surface of the said flaps 34 and 35 the two tongues 43 and 44 are spread apart as indicated in dotted lines in Fig. 1. Tab 45 is next forced out of the plane of the tongue 43 by applying pressure to said tab from the underside of the tongue as viewed in Fig. 2, which causes the free edge 46 of said tab to be projected outwardly in such a manner as to engage a part of the tongue 44. This temporarily holds the two tongues 43 and 44 in diverging relation as shown in dotted lines in Fig. 1. Flaps 30 and 31 are next folded to overlie the inner surfaces of the end walls 18 and 19 and the battery then inserted into the container. When the battery 10

is lowered into the container the bottom of the same engages the free edges of the two tongues 43 and 44 which causes the said tongues to spread apart until the said tongues overlie the inner surface of the bottom 20 as shown in full lines in Fig. 1. When the tongues are so disposed the various parts of the bottom 20 are locked together and disengagement of the same prevented. The two tongues 43 and 44 become held locked in position through the weight of the battery 10 which rests directly upon the said tongues. By means of this construction it becomes unnecessary to glue the parts of the bottom together or to secure the same in position through any other fastening means.

After the battery has been properly placed within the container the flaps 28 and 29 are folded along score lines 22 and along score lines 47 and 48. These parts are then turned inwardly into the container, bringing the said flaps 28 and 29 against the inner surfaces of the side walls 16 and 17 of the container. The same movement brings the flanges 49 and 50 against the upper surface 51 of the battery. These flanges form abutments which engage the said surface and prevent removal of the battery from the container as long as the flaps 28 and 29 are held in such position. Thereafter the flanges 55 and 56 of closure B are folded at right angles to the plane of the top 54 thereof and the said structure inserted into the container, the said flanges following along the inner surfaces of the flaps 28 and 29 and engaging the same. Due to the fact that flanges 56 and 57 are folded in the opposite direction with respect to the flaps 28 and 29 and due to the bulged edges 67 of the portions 62 and 63 of said flanges the said flanges exert a pressure upon said flaps urging the flaps into engagement with the inner surfaces of the walls 16 and 17 of the container. As soon as the closure is within the container the flaps 28 and 29 are firmly held against the sides of the container through the action of these flanges which limit the movement of the parts as described. When the closure B is in proper position, the projections 64 and 65 thereof rest upon the upper edges of the end walls 18 and 19 of the container, while the free edges 68 of said flanges rest upon the flanges 47 and 48 of flaps 28 and 29. With the parts so assembled tape may be run along the various joints between the closure and container proper and the said closure thereby rigidly secured to the container.

Although I have illustrated the flaps 28 and 29 of the container as provided with flanges 49 and 50 it can readily be comprehended that the said flanges may be dispensed with and the edges of the flaps 28 and 29 used to form the abutments for holding the battery in place within the container. Likewise abutments may be formed on the flaps 30 and 31 and the said flaps also used to hold the battery within the container. If desired, the flanges 55 and 56 may be made of a single thickness of material.

With a container constructed in accordance with my invention, the battery is firmly and securely held in place within the container and cannot possibly be dislodged therefrom. By means of the special bottom construction employed, the parts of the bottom are held locked through the weight of the battery proper. Through the particular flange construction employed with the flaps integral with the upper ends of the walls of the container, movement of the battery out of the container through the open end thereof is prevented, as long as the flaps are in proper position. By means of the special flange construction formed on the closure, the flanges of the container are held in such position as to retain the battery in the container. At the same time said flanges serve to transmit load, thereby assisting in holding the battery within the container and at the same time permitting of stacking several packed batteries one upon the other without danger of crushing the containers. Through the action of the tab formed on one of the tongues of the bottom structure of the container the said tongues may be held in diverging relation so that the same spread apart when the battery is lowered into the container. With my invention a clear space is provided in the upper end of the container in which the terminals and other delicate parts of the battery are disposed and by means of which protection is afforded to the same against breakage. The contents of the container may be readily inspected by merely removing the closure from the container and when it is desired to close the container, the same may be accomplished by merely reapplying the closure to the open end of the container as previously described. My invention is exceedingly simple in construction and can be manufactured at an extremely dow cost. My improved container may be knocked down and quickly and easily erected, requiring no glue or other means for holding the parts together. My improved container forms cushioning means for preventing breakage of the parts of the battery and at the same time completely encloses and protects the case, as well as the delicate parts of the battery.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

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

1. In a container having side and end walls, flaps issuing from the lower edges of said walls and overlying one another to form a bottom for the container, two of said flaps having slots therein and tongues formed on the other of said flaps and extending inwardly into the container through said slots, said tongues being folded back upon the bottom of the container and superimposing the flaps from which they issue the folded edges of the tongues reinforcing the weakened part of the first named flaps formed through the slots therein.

2. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of a number of said walls of the container and folded inwardly into the container to overlie the upper end of the battery, said flaps being formed with inwardly extending flanges adapted to rest upon the upper portion of the battery and to hold the same within the container and providing a clear space above the battery for the terminals thereof, and a closure for the container, said closure having means for engagement with said flanges and cooperating with the flaps to hold the flaps of said walls in position within the container.

3. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end hereof, flaps formed on the upper ends of a number of

said walls of the container and folded inwardly into the container to overlie the upper end of the battery and a closure for the container, said closure having flanges bent outwardly therefrom along the edges thereof corresponding with the flaps of the walls of the container, said flanges being insertable into the container and engaging said flaps for holding said flaps in position to restrain movement of the battery out of the container.

4. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of a number of said walls of the container and folded inwardly into the container to overlie the upper end of the battery, said flaps being formed with inwardly extending flanges adapted to rest upon the upper portion of the battery and to hold the same within the container and providing a clear space above the battery for the terminals thereof, and a closure for the container, said closure having flanges bent outwardly therefrom along the edges thereof corresponding to the flaps of said container, said flanges engaging said flaps to hold the same in proper position and the ends of said flanges resting upon the flanges of said flaps.

5. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of a number of said walls of the container and folded inwardly into the container to overlie the upper ends of said walls, and a closure for the container, said closure having flanges formed on the edges thereof corresponding to the flaps of the walls of the container, said flanges being doubled back upon themselves and engaging said flaps, said flaps and flanges being of substantially the same length.

6. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of two of the opposite walls of the container and turned inwardly into the container to engage the upper portion of the battery for the purpose of restraining movement of the battery out of the container, a closure for the container comprising a planiform member having flanges thereon adapted to extend into the container and to engage the flaps and to hold the same in position in the container, said planiform portion having projections extending outwardly beyond the other walls of the container for limiting the movement of said closure into the container.

7. In a container having side and end walls, and flaps issuing from the lower edges of said end walls, said flaps having slots extending longitudinally of the container and in continuation of one another, side flaps issuing from the lower edges of the side walls of the container, said flaps overlying one another to form a bottom for the container, tongues on the ends of said side flaps, said tongues extending jointly through said slots and being adapted to be spread apart and to overlie the inner surface of the bottom of the container and a tab formed on one of said tongues and bendable out of the plane thereof for engagement with the other tongue to hold the tongues in diverging relation prior to the insertion of the contents into the container.

8. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of a number of said walls of the container and doubled back inwardly upon the upper ends of said walls, a closure for the container, said closure having flanges thereon for engagement with said flaps to hold the flaps against the walls of the container.

9. In a container having side and end walls and a bottom structure connected therewith forming a compartment for the reception of a battery provided with terminals at the upper end thereof, flaps formed on the upper ends of a number of said walls of the container and doubled back inwardly upon the upper ends of said walls to form a clear space in the upper portion of the container for protecting said terminals, and a closure for the container, said closure having means for engagement with said flaps to hold the flaps against the walls of the container from which they issue.

10. In a container having side and end walls, and flaps issuing from the lower edges of said end walls, said flaps having slots extending longitudinally of the container and in continuation of one another, side flaps issuing from the lower edges of the side walls of the container, said flaps overlying one another to form a bottom for the container, tongues on the ends of said side flaps, said tongues extending jointly through said slots and being adapted to be spread apart and to overlie the inner surface of the bottom of the container and means formed on one of said tongues for engagement with the other tongue to hold the tongues in diverging relation prior to the insertion of the contents into the container.

11. A container for batteries comprising a case having a top provided with terminals issuing therefrom, said container comprising side and end walls and a bottom structure connected therewith and forming a compartment for the reception of the battery, said walls projecting above the top of the battery, and a closure for the container, said closure having flanges bent downwardly therefrom and extending along the walls of the container, said flanges being disposed above the top of the battery and serving as legs to transmit weight applied to the closure to the battery.

12. In a container having side and end walls, flaps issuing from the lower edges of said walls and overlying one another to form a bottom for the container, two of said flaps having slots therein and tongues formed on the other of said flaps and extending inwardly into the container through said slots, said slots being of a width equal substantially to the thickness of both tongues, said tongues being folded back upon the bottom of the container and superimposing the flaps from which they issue, the folded edges of said tongues abutting one another at said slots.

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