Aug. 1, 1967 R. A. HEISLER 3,333,913

HINGED CASE WITH A PIVOTED COVER AND SUPPORT PANEL

Filed Feb. 1, 1966 4 Sheets-Sheet 1

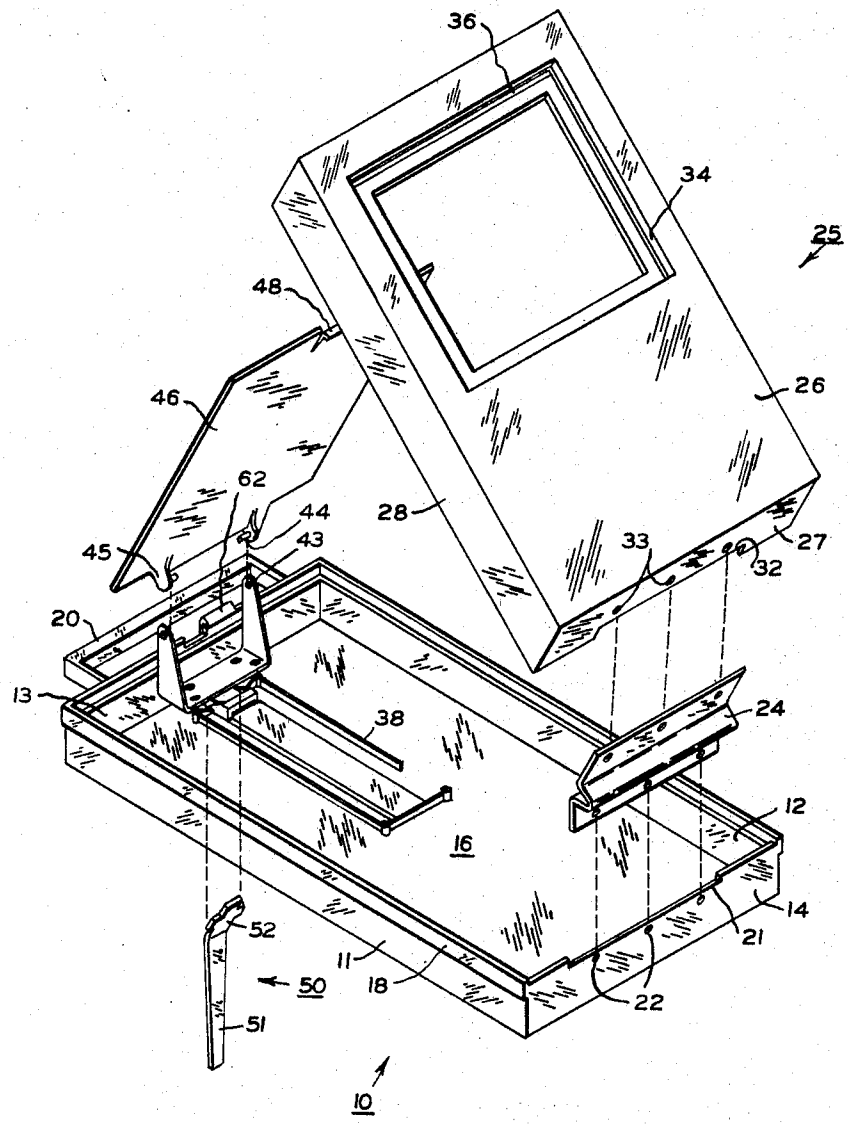

Fig. 1.

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HINGED CASE WITH A PIVOTED COVER AND SUPPORT PANEL

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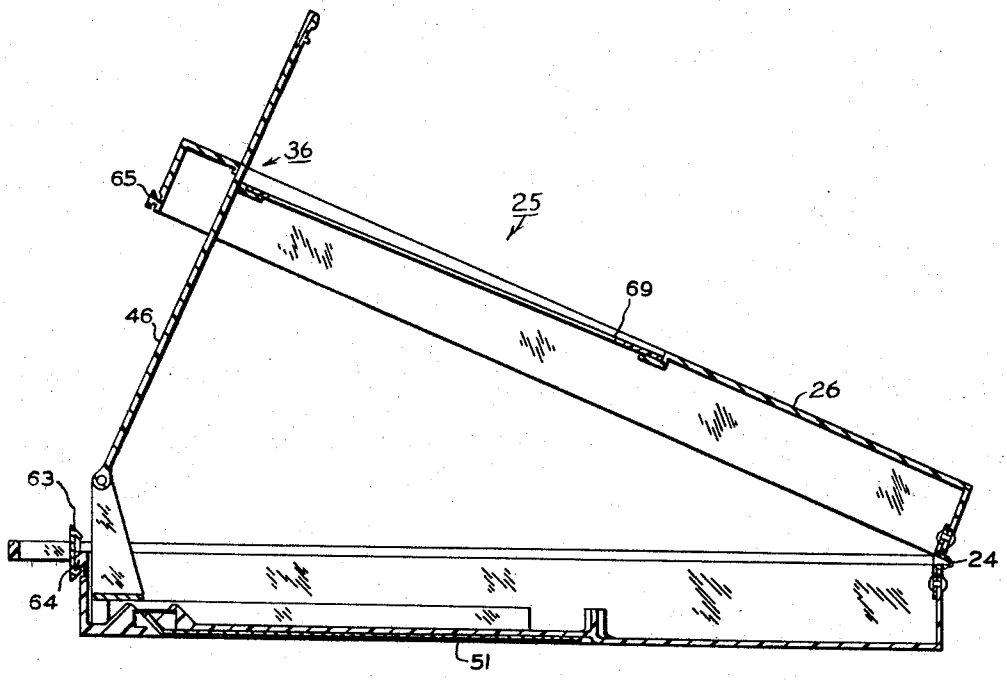

Fig. 2.

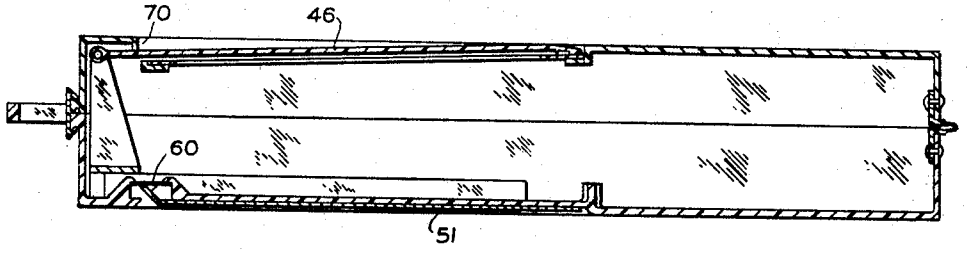

Fig. 3.

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HINGED CASE WITH A PIVOTED COVER AND SUPPORT PANEL

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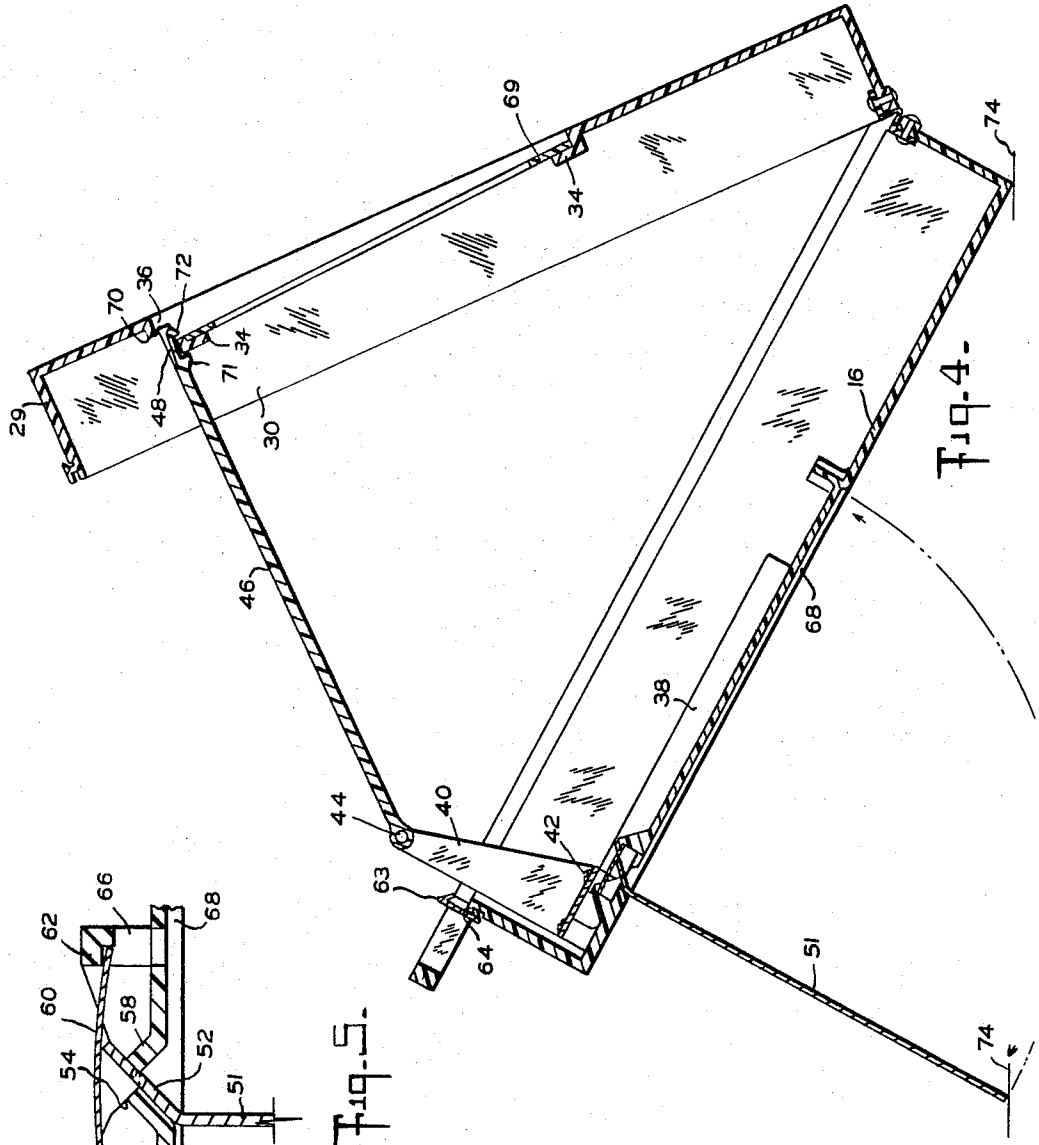

Fig. 4.

Fig. 5.

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HINGED CASE WITH A PIVOTED COVER AND SUPPORT PANEL

Filed Feb. 1, 1966 4 Sheets-Sheet 4

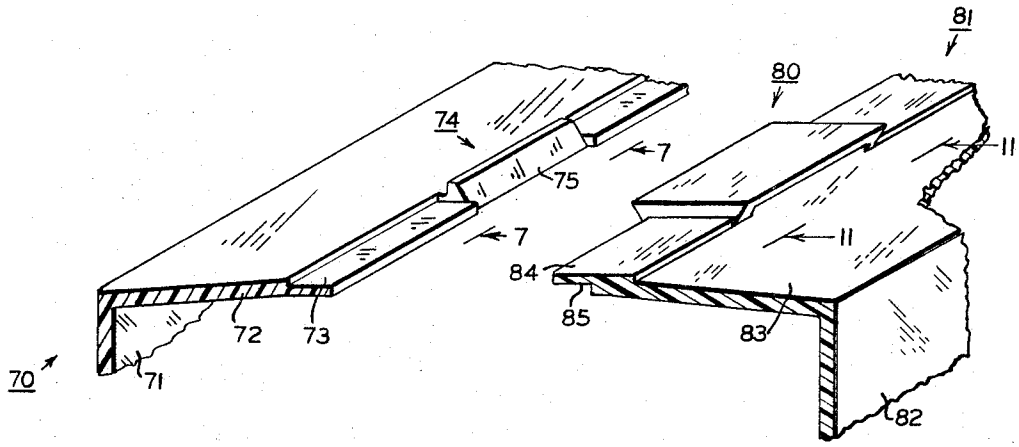

Fig. 6.

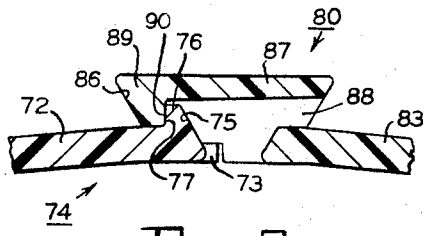

Fig. 9.

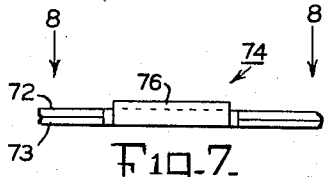

Fig. 7.

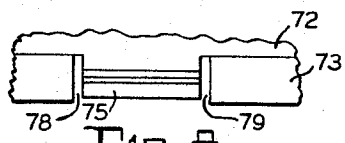

Fig. 8.

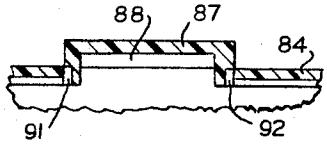

Fig. 10.

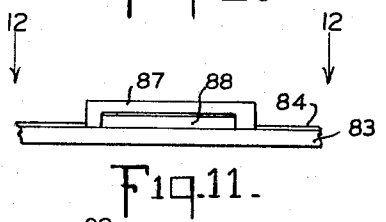

Fig. 11.

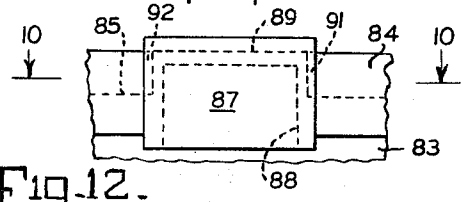

Fig. 12.

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United States Patent Office

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3,333,913

HINGED CASE WITH A PIVOTED COVER AND SUPPORT PANEL

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Filed Feb. 1, 1966, Ser. No. 524,118
17 Claims. (Cl. 312—244)

ABSTRACT OF THE DISCLOSURE

A case comprising substantially equal halves hinged at one end and with the front or cover half having a recess to receive a cover panel in the closed position and a slot adjacent the recess through which the cover panel passes to move a support position. The cover panel is hingedly attached to the back half and has a latch means disposed to releasably engage the front half near its unhinged end and hold the case in a determined open position.

This invention relates to hinged apparatus cases and in particular to those cases having a self-contained movable support leg and a self-contained and movable cover panel.

More particularly this invention relates to an apparatus case having substantially equal halves, said halves of the case being hinged at one end. This case being further distinguished as having a self-contained movable cover panel adapted to cover an opening or the like formed in one of the halves when the case is in the closed position and to uncover the opening when the case is moved to the open position and by this cover panel to provide spacing and support means between the other ends of the case.

Even more particularly this invention relates to an apparatus case made of molded halves maintained in pivotal alignment by means of a hinge. This case has one of its halves provided with a self-contained leg support having biasing means by which the leg support is maintained in an open or closed position. This case further has a movable cover panel internally hinged to one of the halves, whereby in its closed position this cover is adapted to move over and to cover an opening in one half of the case. In its open position the cover is moved so as to uncover the opening and to be disposed in a position whereby the cover panel provides a fixed support means to retain the halves in a predetermined relationship to each other.

It is an object of this invention to provide an apparatus case preferably made of plastic and molded and assembled to provide two halves hinged at one end. The case having a leg support mounted in one half and a cover panel movable in response to the opening or closing or the case to cover or uncover an opening in one of the cases. The case having a latch means so as to maintain the case in a closed condition or to release the halves for opening.

It is a further object of this invention to provide an apparatus case of economical construction, easy to assemble and to manipulate. The components comprising the case being maintained in an attached relationship to the assembled case.

Summary of the invention

The present invention contemplates an apparatus case having substantially equal rectangularly-shaped halves pivotally joined at one end and preferably by a flexible hinge. The front half is provided with a recess sized to receive a cover panel hingedly mounted internally of the case and on the rear half. The cover panel is adapted to slide in a slot adjacent the recess in the front half and is cammed by shoulder means adjacent the slot so that the panel with the case in the closed position lies in the recess which may have an opening, screen or some like element which it is desirous to protect during storage and transport. When the case is opened the halves moved to their open position the cover panel is cammed and guided by and in the slot until a latch on the end of the cover panel engages the shoulder and/or shoulders defining the slot and thus engaged the panel acts as and provides the means for supporting the front engaged one-half so as to hold the two halves in a predetermined open position. When desired, there may be formed in the back half a pivot socket in which there is mounted a leg member, the inner end of the mounted leg member is retained in the socket by a spring and the leg member is shaped so as to engage stop means adjacent the socket, the stop means providing limits to the movement of the leg member.

These and other objects and advantages of the invention will be understood from the following description and the accompanying drawings, in which:

FIG. 1 represents an exploded isometric view showing the relative relationship and the components comprising the case of this invention;

FIG. 2 represents a sectional view of the assembled apparatus case in a partly open position, the sectional view taken substantially midway of the sides;

FIG. 3 represents a sectional view of the assembled case of FIG. 2 with the case in the closed position;

FIG. 4 represents a slightly enlarged sectional view of the assembled case of FIG. 2 but with the case in the fully open position;

FIG. 5 represents an enlarged fragmentary sectional view of the leg support of the case;

FIG. 6 represents a fragmentary isometric view in an enlarged scale showing a latch means molded in mating portions of the two halves of the case;

FIG. 7 represents an end view taken on the line **7—7** and showing the tongue or male portion of the latch of FIG. 6;

FIG. 8 represents a plan view of the tongue portion shown in FIG. 7;

FIG. 9 represents an enlarged cross-sectional fragmentary view showing the latch of FIG. 6 in a closed position;

FIG. 10 represents a sectional view taken on the line **10—10** of FIG. 12;

FIG. 11 represents an end view taken on the line **11—11** and showing the clasp or female potrion of the latch of FIG. 6; and

FIG. 12 represents a plan view of the clasp portion shown in FIG. 11.

Referring now to the drawings in detail and in which like parts are designated with the same reference number, the exemplified case assembly as seen in FIG. 1

includes a base half **10** of a generally rectangular construction and having a pair of sides **11** and **12**, a top end **13** and a bottom end **14**. A back wall **16** extends from and is joined to the sides **11** and **12** and ends **13** and **14**. A lip or receiving shoulder **18** is formed on the front or engaging edges of sides **11** and **12** and top end **13**. In the present instance a handle **20** is molded as a part of the base half **10** and, as shown, extends upwardly from top end **13**. The bottom end **14** is provided with a cut-out **21** or relief formed in its front edge. Disposed at a predetermined distance from the cut-out and at a selected distance from each other are a plurality of rivet receiving holes **22** adapted to mate with like holes formed in a leg portion of a flexible hinge **24** whose U-shaped portion is sized so as to fit in the cut-out **21** in the bottom end **14**.

A top half **25** of a length and width similar to the base half **10** is, as exemplified, formed with a front wall **26**, a bottom end **27**, a left side **28**, a top end **29** and a right side **30** (end **29** and side **30** are not seen in FIG. 1 but may be seen in FIGS. 2, 3 and 4). In the bottom end **27** a cut-out **32** or relief is formed in its front edge. Disposed at a predetermined distance from the cut-out **32** are a plurality of rivet receiving holes **33** adapted to mate with like holes formed in the other leg portion of the flexible hinge **24**. This cut-out **32** is sized so as to accept and retain the hinge **24**. Formed in the upper or top portion of the front wall **26** is a recess **34** which is joined to the wall **26** on three sides and at the upper portion is formed with a slot **36** for a purpose to be described below. The base half **10** and the top half **25** are assembled in a hinged relationship by means of the flexible hinge **24** and rivets **37** mounted in holes **32** and **33**. Rivets **37** are seen in FIGS. 2, 3 and 4 and exemplify only the preferred means of mounting the hinge and the top and base half. Other means such as adhesive can also be employed to attach the leg portions of the hinge to the top and bottom half, it only being necessary that the two halves be maintained in a predetermined pivotal relationship. The halves **10** and **25** are assembled so that the receiving shoulder **18** of the half **10** engages and seats the front edge of sides **28** and **30** and top end **29**.

It is to be noted that the interior surface of the back wall **16** of the base half **10** is shown with a molded frame **38** upon and within which may be mounted apparatus not shown. The upper or left hand portion of this frame, as seen in FIG. 1, is adapted to receive a U-bracket **40** which may be attached to the frame by means of screws **42** as seen in FIG. 4. In the extremities of the upwardly extending ear portions of the bracket **40** there are formed a pair of aligned pivot holes **43** which are adapted to receive and retain inwardly extending pins **44** which are mounted in ears **45** extending from and as a part of a cover panel **46**. In the opposite end of panel **46** there is formed an engaging tongue **48** which will be more fully described below. Panel **46** is sized so as to lie within the recess **34**.

Referring now to the FIGS. 2 through 5 and partly to FIG. 1, it is to be noted that the upper or left portion of the frame **38** has a molded portion adapted to receive and retain a leg **50**. This leg has a straight lower portion **51** and a T-shaped upper portion **52** bent at an angle thereto with the lateral extending portions of the T adapted to rest in a V-receiving groove **54** molded in each side of the raised end portion of the frame **38**. Intermediate these sides and extending between each of these sides is a forward sloped shoulder member **56** and a rear shoulder member **58**. These members are spaced so as to provide a passageway for the passing therethrough of the lower leg portion **51** of the leg **50**. As reduced to practice, the outer surface of the sloped shoulder member **56** has this outer surface of the portion adjacent the passageway formed to provide a forty-five degree inward and upward slope. In like manner, the outer surface of the shoulder member **58** has this outer surface of the portion adjacent the passageway formed to provide a forty-five degree inward and upward slope. A flat spring **60** is sized so as to be retained by shoulders **61** and **62** which, as exemplified, are formed by providing "shut-offs" from the outer or bottom side of the back wall **16**. Spring **60** when mounted so as to be engaged by the shoulders **61** and **62**, is adapted to engage the upper end of the T-shaped portion **52** of leg **50**. A slide clip **63** is slidably mounted on and is retained by a suitably formed guideway **64** on the base half **10**. This slide clip is adapted to engage a guideway tongue **65** carried by the top half **25**.

Referring now to FIGS. 6 through 12, there is shown an alternate embodiment of a latch means molded in the case halves in which the latch includes a latch tongue molded on one half and a latch clasp is molded on a mating portion of the other half. In particular in FIGS. 6 through 9, a half **70** is provided which may, except for the latch, be exactly like half **10** or half **25**. This half **70** is formed with a back wall **71** connected to a top end **72** having a recessed lip **73** formed in its outer edge. Intermediate the ends of the lip **73** there is formed a tongue **74** which is provided with a front surface **75** which is sloped upwardly and rearwardly until it reaches a determined point above the normal top surface of end **72**. An upper slide surface on a stop block **76** continues to a shoulder or engaging surface **77** which extends from the top surface downwardly to the outer surface of end **72**. In the present embodiment it is desirable to make the tongue deflectable out of the plane of the end **72** hence there is accordingly provided reliefs **78** and **79** at each end of the tongue **74**. As reduced to practice, the half **70** is made of molded high-impact, high-heat resistant polystyrene and the tongue **74** is seven-eighths of an inch long with the reliefs **78** and **79** each being one-sixteenth inch wide. The tongue at the point of juncture with end **72** as well as the general thickness of end **72** is about three-thirty seconds inch thick with the stop block portion **76** extending above the plane of end **72** for a distance of about five sixty-fourths inch. The reliefs **78** and **79** are sized so as to have the portion of the tongue extending forwardly of the connection to end **72** being of a distance of about one-quarter inch.

A clasp portion **80** is molded on the other or second half **81** which is addition to the back wall **82** and end **83** has a decorative retaining or receiving strip **84**. This half **81**, except for the latch change, may be exactly like the other half **10** or half **25** described above. On the underside of strip **84** there may be formed a receiving recess **58** sized so as to receive and retain lip **73**. Intermediate the ends of the strip **84** is clasp portion **80** having a front slope **86** extending upwardly and outwardly to a determined point. An upper portion **87** extends rearwardly to about the rear edge of strip **84**. A hollow or recess **88** formed by a "shut-off" extending inwardly from the rear of portion **80** provides a bar means for receiving and retaining tongue **74**. A shoulder **90** formed at the front of the recess **88** is shaped so as to lie adjacent and engage shoulder **77** on the tongue **74**. As with the tongue, it is desirable to provide means whereby the front portion of clasp **80** is deflectable upwardly so as to provide an easier means for the sliding of the bar **89** over the stop block **76**. Shut-offs **91** and **92**, as exemplified, extend inwardly from a point adjacent the outer edge of strip **84** and to a point about at the rear of recess **85**. These "shut-offs" extend upwardly until their outer edges just meet the upper surface of strip **84**. As reduced to practice, the half **81** is made of polystyrene in the manner of half **70** and back wall **82** and end **83** is about three thirty-seconds of an inch thick. "Shut-offs" **91** and **92** are made about one-sixteenth inches wide and about five-sixteenths deep and with strip **84** about three thirty-seconds inches thick the "shut-offs" will be of a like height. The recess **88** is made about one inch wide and at the formation of

shoulder **90** is about three thirty-seconds thick so that shoulder **90** is about one sixty-fourth inches longer than stop block shoulder **77**. The overall height of clasp **80** is about three-sixteenths inches and the length is about one and one-quarters inches while the width of the clasp is about thirteen-sixteenths inches at the bottom. With the "shut-offs" **91** and **92** disposed so their upper outer edges coincide with the line forming the joining of clasp **80** and strip **84** the coinciding lines will provide a separation of clasp **80** and end **83** for that portion defined by "shut-offs" **91** and **92**. The depth of the "shut-offs" can be lengthened or shortened and the width increased or decreased so as to provide a determined amount of attachment of the clasp to the half end to provide the desired amount of stiffness to the action of the clasp.

Assembly and use

The assembly of the base of the apparatus case is made by first mounting the leg **50** in position. As seen in FIGS. 1 and 5 the leg **50** has its straight portion **51** brought through the passageway formed between shoulders **56** and **58** and with the bent T-shaped portion **52** inclined toward the bottom end **14**. The leg **50** is advanced in the passageway until the lateral extending portions of the T engage and rest in each of the V-grooves **54**. One end of the flat spring **60** is then brought under the shoulder **62** and through relief **66** whence the other end of the spring is able to be deflected downwardly toward shoulder **56** and after this spring end is deflected below the level of the shoulder **61** in the spring is moved toward and under the shoulder **61** until the spring is adjacent or is stopped by the wall portion **67** whereupon the spring is released with this one end of the spring now being retained by shoulder **61** and the other end being retained by shoulder **62**. The spring bowed by being bent from a flat plane is now biased so as to urge the leg into the V-groove **54**. When so biased and the straight portion **51** of the leg is swung within the limits of shoulders **56** and **58** the upper end of portion **52** is cammed by the spring toward either the sloped shoulder **56** or **58**. The cammed leg when released thus is urged into an open or closed position. As seen in FIG. 4, a recess **68** is formed in the back wall **16** and is sized so as to receive the straight portion **51** as it is moved toward and to wall **16**. In FIGS. 2 and 3 we see the leg **50** with the straight portion **51** moved into the closed position. With the spring **60** engaging the T-end **52** this end is urged into and is maintained in the closed position by means of the spring **60** and the shoulder **58**. To move the leg **50** to the open position of FIG. 4 the end of the straight portion **51** is grasped and, as indicated by the phantom line and arrows, the leg is swung until the T-shaped end **52** engages the sloped wall **56** (FIG. 5) whereupon the straight portion **51** is substantially at right angles to the back wall **16** and is in the open or support position and the leg is maintained in this position by spring **60** and wall **56**.

After the leg **50** and spring **60** are assembled as above, the U-bracket **40** may be mounted on frame **38** by means of screws **42** whereupon the cover panel **46** may be mounted on the U-bracket. The upstanding legs of the U-bracket are caused to be sprung toward one another an amount sufficient for the pins **44** to be inserted in the pivot holes **43** in the bracket. Upon insertion of the pins, the legs of the U-bracket are allowed to spring back to their normal position and the cover panel is now pivotally mounted to the base.

The flexible hinge **24** is attached to both the base half **10** and the top half **25** by means of rivets **37** and after assembly the halves may be moved from the closed position of FIG. 3 to an open position of more than ninety degrees. To provide a determined limit to this opening swing movement the novel cover panel **46** is used. In the apparatus case as reduced to practice, there is provided a viewing screen **69** which may be adhesively mounted to the recess shoulder **34** formed in the front wall **26**. Other means of attachment such as screws, rivets or staples may be used to attach screen **69** or the like to the shoulder **34**. It is not even necessary that a screen **69** be provided as it is contemplated that the opening occupied by the screen **69** may be used for other purposes in which it is desired that the opening be covered when the case is closed and open when the case is erected and opened as in FIG. 4. For this purpose the cover panel **46** which is pivotally mounted on bracket **40** is used as a safety cover. The engaging tongue **48** of the panel is bent or molded so as to normally be slightly out of the plane of the panel **46**. To insert the panel **46** into the desired relationship with the top half **25**, the free end of the panel **46** is brought to the slot **36** and the tongue **48** is moved upwardly into the plane of the panel and the panel is brought through the slot in the top half **25** and after passing the slot the tongue is released. The case may now be closed to the position shown in FIG. 3. In the process of closing the case a shoulder **70** formed adjacent the slot engages the outer surface of the cover panel and acts as a cam to urge and maintain this cover panel **46** in the closed position wherein it is caused to lie in and against the shouldered recess **34**. It is also to be noted that as the case is opened the panel **46** is cammed upwardly and outwardly by means of the right-hand edge of the slot **36** as viewed in FIG. 2. As seen in FIG. 2 the top half is shown as being about one-half open and the hinged panel **46** as having been swung to a nearly perpendicular position in respect to the front wall **26** of the top half **25**. As the top half **25** continues to swing outwardly approaching the position of FIG. 4, the slot **36** guides the panel **46** until the tongue **48** reaches the recess shoulder **34** whereupon the inner cam surface **71** on the tongue engages the shoulder **34** and the tongue is cammed upwardly an amount sufficient for the tongue to enter the slot **36**. When the tongue moves to a point over the recess shoulder **34** the tongue by means of its residual bias moves downwardly into its normal position whereupon the outer stop block **72** on the tongue engages the outer surface of the shoulder **34** stopping the movement of the top half **25**. The tongue with the abutment surface of its cam portion **71** and stop block **72** engaging both sides of the shoulder **34** provides the means to make cover panel **46** an engaged support leg for the top half **25**. With the leg **50** swung into the position shown in FIG. 4 the case may be seen as in the open position and ready for use and as so arranged may be placed in a rest position on a support surface indicated as by line **74**. To close the case, the tongue **48** is lifted to disengage the abutment surface of cam **71** from shoulder **34** and the above process is reversed.

The case is normally retained in a closed position by means of a slide **63** moving on a guideway **64** formed on the base half **10** and engaging a guideway tongue **65** on the top half **25**, the slide being of sufficient length to engage, at the lock position, both the guideway and guideway tongue and maintain the two portions in alignment. Other lock means such as a snap or latch can be used instead of the guideway means exemplified and described above.

The molded catch shown in FIGS. 6 through 12 and described above has both its members predisposed on their respective halves so that when the case is assembled the bringing fully together of the two halves results in an automatic locking of the two halves. The tongue **74** as it is brought into engagement with the clasp portion **80** has the slope surface **75** engaging the front slope **86** so that tongue **74** is deflected downwardly and clasp portion **80** is deflected upwardly. The total of the deflections being sufficient for the stop block **76** and the bar means **89** to pass each other whereby the residual bias in each connecting portion is sufficient to urge the tongue **74** and clasp portion **80** to their normal positions shown in FIG. 9. To open the catch and the halves, the clasp portion **80** is grasped at the slope **86** and is urged upwardly by

manipulation so as to cause the shoulder surfaces **77** and **90** to slide on each other until they become disengaged. It is to be noted that the extent of top end **72** and end **83** is such that their thickness renders them slightly deflectable hence any difficulty in the disengagement of the latch is reduced by the ability to harmlessly and slightly deflect the ends **72** and **83** as the separation manipulation is made.

The terms "up," "down," "top," "bottom," "right," "left" and similar terms are applicable to the apparatus as described in conjunction with the accompanying drawings and such terms are merely for the purpose of description and do not necessarily apply to a position in which the case may be constructed or used.

While this invention has been described in detail with respect to a preferred embodiment and an alternate latching means, it will be understood by those skilled in the art that various modifications may be made without departing from the spirit and scope of the invention, and it is intended to cover all such changes and modifications in the appended claims.

What is claimed is:

1. An apparatus case having halves hinged at one portion so that the case may be opened in a predetermined manner to expose those components mounted in the case so as to use and view said components, and when closed the halves of the case adapted to shield and protect the components therein, said case comprising (1) a first half, (2) a second half sized so as to mate with the first half when the halves are moved into a face-to-face relationship with each other, (3) a hinge attached to each half and providing means for retaining said halves in a predetermined pivotal relationship to each other, (4) a recessed portion formed in the face of the first half, said recess portion being of a selected size and depth, (5) a slot formed in the first half and disposed adjacent the recess said slot having its axis parallel to the axis of the hinge, (6) a cover plate hingedly mounted on the second half and movable therewith, the cover plate adapted to slide in said slot and sized and disposed so that when the halves of the case are moved to the closed position the cover plate will lie in the slot and adjacent the recessed portion to cover a selected portion of the recess, (7) means for maintaining the cover plate in the recess after the halves of the case are brought into the closed position, and (8) a means for latching the halves of the case so that in a latched and closed position the halves are maintained in a closed position and means for releasing the latch so as to allow the halves to be swung to the open position.

2. An apparatus case as in claim **1** in which the slot is provided with shouldered sides and in which the unhinged end of the cover plate includes an engaging tongue which is deflectable in and out of the plane of the cover plate, said tongue having camming and engaging means provided thereon so that when the cover plate is moved through the slot and the engaging tongue is brought in the way of the shouldered side a camming means on the tongue is caused to engage the shouldered side to cam the tongue into the plane of the plate whereby when the camming means passes the shouldered side the engagement means on the tongue engages the shouldered side whereupon the cover plate becomes fixed in relation to the first half and in this fixed position provides a support whereby the halves of the case in this open position are disposed in a preselected spaced relationship to each other.

3. An apparatus case as in claim **2** in which the tongue is a portion of the cover plate with a residual bias adapted to urge and maintain the tongue out of the plane of the plate and in which the camming means on the tongue is a protuberance extending from the tongue, the protuberance having on the side disposed toward the hinged end a sloped cam surface providing the cam means and the protuberance having on its opposite side an abutment surface adapted to engage the shouldered side and the tongue having at a predetermined distance from the abutment surface a stop block which acts as a stop and a retaining means to engage the shouldered side.

4. An apparatus case as in claim **3** in which the means for maintaining the cover plate in the recess is a shoulder adjacent the slot and which engages the outer surface of the cover panel and is sized so that as the halves of the case are moved toward the closed position said shoulder engages the outer surface of the cover panel to act as a cam to move the cover panel toward the first half so that when the case is fully closed the shoulder engages the outer surface of the cover panel and urges the panel into the recess.

5. An apparatus case as in claim **4** in which the hinge attached to each of the halves of the case is a flexible hinge adapted to permit the halves to be shifted a small amount so as to bring the halves into alignment.

6. An apparatus case as in claim **4** in which the second half of the case has mounted therein a leg movable in a pivoted means, the leg adapted to be moved to and releasably locked in an open case supporting position which position is at a determined angle to the second half, and at another portion of the leg operative movement the leg is moved to and releasably locked in a closed position in which said leg is disposed to lay adjacent the second half.

7. An apparatus case as in claim **6** in which the leg is formed with a pair of lateral extending portions sized so as to lie in and be retained by a receiving groove formed in the second half whereby to form the pivoting means, and in which a spring means is adapted to lie in and be retained by shoulders provided in the second half, the spring means engaging an end of the leg and by an induced bias in the spring urging the lateral portions of the leg into the receiving groove and to thereby retain the leg in the second half.

8. An apparatus case as in claim **7** in which the leg has a straight lower portion and a T-shaped upper portion which T-shaped portion is bent at a determined angle to the straight lower portion and in which, intermediate the receiving grooves for the lateral portions of the leg, there is formed a forward shoulder member and a rear shoulder member said members being spaced to provide a passageway for the retention and passing therethrough of the straight portion of the leg, the outer surface of the forward and rear shoulder members being sized, shaped and spaced so as to provide preselected stop positions for the open and closed limits of the leg.

9. An apparatus case as in claim **8** in which a receiving shoulder is formed on one of the halves, the shoulder adapted to receive, guide and retain the outer edges of the mating other half.

10. An apparatus case as in claim **9** in which there is provided a slide clip slidably mounted on and retained on a guideway provided on one of the halves and with the clip adapted to slide into engagement with and retain a guideway tongue provided on the other half, the slide clip and tongue, when in engagement, providing a means for retaining the halves in a closed position and when the slide clip is moved into disengagement the halves are free to be swung to the open position.

11. An apparatus case as in claim **8** in which the means for latching the halves includes a tongue provided on one of the halves of the case, said tongue having a stop block portion sized and shaped so as to provide a sloped camming means and a shoulder portion, and on the other half of the case there is a clasp portion formed and disposed so as to engage the tongue when the halves are brought toward and into a closed relationship said clasp portion having a slope engaging portion adapted to engage the sloped camming means of the tongue and as the two halves are moved toward each other the engagement of the tongue and clasp portion cause a deflection of at least one of the engaging members and against a residual bias in the tongue and clasp portion so that when the stop block and bar means are moved sufficiently from

a normal plane an amount sufficient for them to pass each other and thereafter when the halves are moved into the full closed position the residual bias of the deflected member urges the member to a position whereby the bar means of the clasp portion is adjacent the shoulder of the tongue and said latching means is closed.

12. An apparatus case as in claim **11** in which the latching means includes the tongue which is attached to an end of the half of the case and at only the longitudinal inner edge thereof, said attaching portion being sized and shaped so that the material forming this portion is disposed to provide a bias whereby the tongue may be urged by an applied force to move from its normal plane and by this bias to return to its normal plane when the force is removed, and in which the clasp portion is attached to an end of the other half of the case, the attachment being a preselected amount and shaped so that the material forming this attaching portion is disposed to provide a bias whereby the clasp portion may be urged by an applied force from its normal plane and by this bias to return to its normal plane when the applied force is removed.

13. An apparatus case having halves hinged at one portion so that the case may be opened in a predetermined manner to expose those components mounted in the case so as to use and view said components, and when closed the halves of the case are adapted to shield and protect the components therein, said case comprising (1) a first half of generally rectangular construction having sides, ends and a wall extending from and connected to the sides and ends, (2) a second half of generally rectangular construction having sides, ends and a wall extending from and connected to the sides and ends, the second half sized so as to mate with the first half when the halves are moved into a face-to-face relationship with each other, (3) a receiving shoulder formed on one of the halves and providing means for receiving, guiding and retaining the outer edges of the mating other half, (4) a hinge attached to one end of each of the halves and providing means for retaining said halves in a predetermined pivotal relationship to each other, (5) a recess formed in the wall of the first half, the recess being of a selected size and depth, (6) a cover plate hingedly mounted on the second half and movable therewith the cover plate adapted to slide in said slot, (7) shouldered sides defining the sides of the slot, a first shoulder providing a slide surface for the inner surface of the cover plate when the cover plate is in said slot, the second shoulder shaped and sized so that as the halves of the case are moved toward the closed position said second shoulder engages the outer surface of the cover panel and while engaging the cover panel acts as a cam to move the cover panel toward the first half so that as the halves are brought to the closed position this second shoulder engages the outer surface and cams the cover panel into the recess, (8) an engaging tongue formed on the unhinged end of the cover plate, the tongue deflectable in and out of the plane of the cover, the tongue having a residual bias adapted to urge and maintain the tongue out of the plane of the plate, (9) a protuberance formed on the tongue and having on its side disposed toward the hinged end of the cover plate a sloped cam surface providing a cam means and on its other side the protuberance has an abutment surface, (10) a stop block on the tongue, the block being disposed at a predetermined distance from the abutment surface so that when the cover plate is moved outwardly through the slot the camming surface of the protuberance is caused to engage the shouldered side of the slot to cam the tongue into the plane of the plate and as the protuberance passes the shouldered side the tongue, urged by its bias, moves toward the shouldered side so as to engage the shouldered side between the abutment surface and stop block whereupon the cover plate becomes fixed in relation to the first half and in this fixed position provides a support leg whereby the halves of the case in this open position are disposed in a preselected spaced relationship to each other, and (11) a means for latching the halves of the case so that in a latched and closed position the halves are maintained in a fixed position with their ends and sides in a face-to-face relationship and means for releasing the latch so as to allow the halves to be pivotally moved to the open position.

14. An apparatus case as in claim **13** in which the second half of the case has mounted therein a leg movable in a pair of receiving grooves disposed above the wall in the second half, the leg having a straight lower portion and a T-shaped upper portion bent at a determined angle to the straight lower portion, the T-portion having a pair of lateral extending portions sized so as to lie in and be pivotally movable and retained in said receiving grooves, and in which, intermediate the receiving grooves, there is formed a forward shoulder member and a rear shoulder member with said shoulder members being spaced so as to provide a passageway for the retention and passing therethrough of the straight portion of the leg, the outer surface of the forward and rear shoulder members being sized, shaped and spaced so as to provide preselected stop positions for the open and closed limits of the movement of the leg, and a flat spring adapted to lie in and be retained by seating means provided in the second half, the spring as it is mounted, engaging an end of the leg and being bowed thereby so as to provide a bias to urge the lateral portions of the leg into the receiving groove and to cam the leg into the open and closed limits of operation.

15. An apparatus case as in claim **14** in which the forward and rear shoulder members adjacent the leg passageway have their portions adjacent the passageway formed with sloped surfaces adapted to engage the T-shaped upper portion of the leg as it is moved to its limits of operation and in which the second half has its outer wall surface formed with a recess portion adapted to receive and retain the straight portion of the leg when the leg is moved to the closed position.

16. An apparatus case as in claim **15** in which the recess formed in the wall of the first half is of rectangular shape and with the slot adjacent the recess being on the side of the recess that is opposite the hinged end, and in which the means for latching the halves of the case is a slide clip slidably mounted on and retained on a guideway provided on one of the halves and with the clip adapted to slide into engagement with and retain a guideway tongue provided on the other half, the slide clip and tongue, when in engagement, providing a means for retaining the halves of the case in a closed position and when the slide clip is moved into disengagement the halves are free to be swung to the open position.

17. An apparatus case as in claim **15** in which the means for latching the halves of the case includes a tongue formed on and attached to an end of one of the halves of the case, the attached portion being at only the longitudinal inner edge thereof and being sized and shaped so that the material forming this attaching portion is disposed to provide a bias whereby the tongue may be urged by an applied force to move from its normal plane and by this bias the tongue is caused to return to its normal plane when the force is removed, said tongue having a stop block portion sized and shaped so as to provide a sloped camming means and a shoulder portion, and in which on the other half of the case there is a clasp portion formed and disposed so as to engage the tongue when the halves are brought toward and into a closed relationship, the clasp portion being attached to an end of this half of the case so that the material forming the attaching portion is sized and shaped to provide a bias whereby the clasp portion may be urged by an applied force from its normal plane and by this

bias the clasp portion is caused to return to its normal plane when the applied force is removed, said clasp portion having a slope engaging portion adapted to engage the sloped camming means of the tongue and as the two halves are moved toward each other the engagement of the tongue and clasp portion cause a deflection of at least one of the engaging members and against the residual bias in the tongue and clasp portions so that the stop block and bar means are moved from their normal plane an amount sufficient for them to pass each other so that when the halves are moved into their full closed position the bias in the attaching portion of the deflected member urges the member to a position whereby the

bar means of the clasp portion is adjacent the shoulder of the tongue whereupon said latching means is in the closed position.

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