PROTECTIVE SHIELD ATTACHE CASE


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ABSTRACT

Disclosed is an attache case that can be used in the conventional manner for transporting personal effects but which additionally functions as an armor shield to protect a user from projectiles fired by hand guns. At a time of use an armor assembly is expanded from a compact nested arrangement into an expanded configuration that increases the surface area of the protective shield.

22 Claims, 10 Drawing Figures
PROTECTIVE SHIELD ATTACHE CASE

BACKGROUND OF THE INVENTION

This invention relates generally to an attache case and, more particularly, to an attache case that can be easily and quickly converted into a protective shield for projectiles fired from firearms.

The incidence of both crippling and mortal injury of personnel engaged in law enforcement activities has increased alarmingly in recent years. Frequently such injuries are caused by bullets discharged from hand guns fired by law violators of various description. The injuries are suffered by all types of law enforcement personnel including those at local, state and federal levels. Furthermore, although armor shields of varied configuration are known and available, their infrequent use has done little to alleviate the problem. One reason is that law enforcement officers tend to employ such devices, if at all, only when in a high risk activity while the majority of firearm inflicted injuries occur spontaneously during routine operations. In addition, the cumbersome, bulky designs of known protective shields creates an inherent reluctance for their use for both practical and psychological reasons.

The object of this invention, therefore, is to provide a convenient armor shield that will be both accepted and widely used by law enforcement personnel so as to reduce therefor the risk of serious injury.

SUMMARY OF THE INVENTION

The invention is characterized by the provision of an attache case that can be used for transporting personnel effects in the conventional manner but which is further provided with armor that will resist penetration of projectiles fired by hand guns. A user suitably positioning the case between himself and an armed adversary is reasonably well protected from serious injury. Furthermore, its diverse utility and inconspicuousness render the attache case of the present invention prone to wise acceptance and extensive use.

A preferred embodiment of the invention includes parallel armor plates slidably mounted in a compact nested arrangement within the case and extendible through slots therein into an expanded position. The plates are retained within the case by a latch mechanism that is released by a trigger at the time of use. In one form of this embodiment the triggered plates slide through slots in opposite side walls of the case into positions in which each plate is approximately half exposed. In these expanded positions the plates provide a continuous shield approximately double the size of the closed case. One of the slides is forced outwardly by a spring member while the other slide is allowed to drop under the influence of gravity. A transparent armor material is preferred for the armor plates so as to render a confronted party visible to the user of the case. The plates occupy only a portion of the case's interior leaving an open volume for storage of personal effects. In another form of this embodiment, there are retained within the attache case three parallel plates only two of which slide through a single slot upon release. The released plates fall by gravity into positions wherein the bottom edge of one is adjacent the top edge of the other so as to provide with the third plate retained within the case an expanded shield substantially three times the size of the unopened case.

DESCRIPTION OF THE DRAWINGS

These and other objects and features of the present invention will become apparent upon a perusal of the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view illustrating a preferred attache case embodiment of the invention;

FIG. 2 is a schematic view of the attache case of FIG. 1 with armor plates in an expanded position;

FIG. 3 is a partial cross section view taken along lines 3-3 of FIG. 2;

FIG. 4 is a partially cut away top view of the case shown in FIG. 2;

FIG. 5 is a detailed view of the carriage slide mechanism shown in FIG. 4;

FIG. 6 is a sectional view of another embodiment of the invention;

FIG. 7 is a detailed view showing the armor plate assembly of FIG. 6;

FIG. 8 is a top view of the assembly shown in FIG. 7;

FIG. 9 is a schematic view illustrating still another embodiment of the invention; and

FIG. 10 is a partial view of a modified protective plate.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIG. 1 there is shown an attache case 11 formed by separable top and bottom sections 12 and 13. The top section 12 retains a bullet proof, expandable armor assembly described in detail below while the bottom section 13 defines a volume 14 for receiving personal effects. In one preferred embodiment, the volume 14 retains a molded insert 15 having recesses shaped to receive particular personal effects. For example, the recesses can accommodate personal effects typically utilized by law enforcement personnel such as the gun 16 and handcuffs 17 illustrated in FIG. 1 and secured by elastic bands 18.

The top section 12 supports a carrying handle 21 and latch members 22 that are accommodated by compatible latch elements 23 in the bottom surface 13. Opposite the latch members are a pair of hinges 24 that connect the sections 12 and 13 while allowing relative movement therebetween.

Referring now to FIG. 2, the attache case 11 is shown closed with substantially flat top and bottom walls 26 and 27, respectively, joined by opposing side walls 28, 29 and 31, 32, respectively. The top and bottom walls 26 and 27 are included parts, respectively, of the top and bottom sections 12 and 13 while the side walls 28, 29, 31 and 32 each include a side wall portion of both sections 12 and 13.

As shown in FIGS. 3 and 4 the top section 12 includes an inner wall 35 that conceals an expandable
armor assembly 36. Included in the armor assembly 36 are a pair of armor plates mounted parallel to the top wall 26 and having surface areas substantially coextensive therewith. The armor plates 37 and 38 are formed of a suitable material that is impenetrable by the projectiles fired by typical hand guns. A preferred material is Lexan which material has the additional advantage of being transparent. Supporting the armor plates 37 and 38 from the inner surfaces of side walls 31 and 32 are slide units 39 shown more clearly in FIG. 5 and described in greater detail hereinbelow. An extending member has ends secured to opposite internal extremities of the top wall 26 and a mid-portion attached by a bracket 42 to the lower mid-portion of the outer armor plate 37. The spring member 41 exerts a biasing force tending to force the armor plate 37 through a slot opening 43 in the side wall 28. A similar slot opening 44 in the opposite side wall 29 permits movement of the inner slide 38 out of the upper case section 12 under the influence of gravity. Preventing this movement of the plates 37 and 38 is a lever 45 pivotally supported by a bracket 46 from the inner wall 35 and having a pin portion 47 that extends through apertures 48 in each of the armor plates 37 and 38. The inner side wall 35 is secured to the upper portion 49 of the lever 45 opposite the retaining pin portion 47 is a trigger pin 49 that extends through a trigger slot 51 in the side wall 28 directly below the handle 21.

FIG. 5 shows a detail of the slide units 39 shown in FIG. 4. Each unit includes a pair of slide members 53 fixed to one of the side walls and slidably supporting movable carriages 54 which in turn slidably support the armor plates 37 and 38. A force exerted on either of the plates 37 and 38 in directions parallel to the fixed slides 53 induces movement of both the plates and the carriage elements 54. The carriages 54, however, move at a slower speed than the plates so as to undergo a lesser magnitude of linear movement. Stops (not shown) in the units 39 limit movement of the plates 37 and 38 to a distance approximately one half their length in the direction of travel. With the plates in such expanded positions, the carriage elements 54 are extended such that one half their length is supporting the adjacent plate while the other half is supported by the adjacent fixed slide member thereby providing substantially stability to the plates when in their expanded positions. The details of the slide assemblies 39 do not, per se, comprise a portion of the present invention and details of suitable slides of this type are disclosed, for example, in U.S. Pat. No. 2,124,511.

The attach case 11 can be used by any of a wide variety of law enforcement personnel while engaged in their normal duties. In general use, the case 11 serves the usual function of an attach case with the volume 14 accommodating personal effects of the owner. However, at any time a user anticipates facing an armed adversary he converts the case into an expanded armor shield that is then maintained between himself and the opponent. Expansion of the armor assembly 36 is achieved simply by movement of the trigger pin 49 within the slot 51 producing pivotal movement of the lever 45 as shown dotted in FIG. 4. This movement removes the retaining pin portion 47 from the apertures 48 and permits the spring member 41 to eject the armor plate 37 through the opening 43 into the position shown dotted in FIG. 3. With the case held by the handle 21 in an upright position, the released inner armor plate 38 descends through the opening 44 under the force of gravity to the position also shown dotted in FIG. 3. The slide mechanism limits movement of the plates so as to retain a slight overlapping thereof within the top section 12. Thus, the extended plates 37 and 38 form a continuous shield approximately twice the area of the top wall 26. The expanded shield provides protection for the users vital organs located in the body portion between the head and lower abdomen. An important feature of the invention is the use of transparent armor plate that allows the user to hold the top edge of the plate above eye level while still permitting visual contact of the party confronted.

Referring now to FIG. 6 there is shown another embodiment 51' of the present invention. As above, an attach case 52' includes top 53' and bottom 54' sections and is provided with a carrying handle 55. A fixed separator plate 56 made of a bullet proof material divides the interior of the case 52' into a portion that retains an armor plate assembly 57 and a hollow volume 58 for personal effects. As shown more clearly in FIGS. 7 and 8, the assembly 57 includes a first armor plate 61 slidably supporting a second armor plate 62 and itself slidably in a pair of slides 63 fixed to opposite interior side walls of the case 52'. The slides 63 are U-shaped members having inner slide surfaces 64 that terminate with shoulder portions 65 that provide auxiliary slide surfaces 66. Fixed to the opposite edges of the first plate 61 are U-shaped slide mounts 67 similar to the fixed slides 63 and each having internal slide surfaces 68 terminating with a shoulder portion 69 that provide auxiliary slide surfaces 71. Fixed to ends of the slide mounts 67 is a hanger plate 72 having projections 73 that extend beyond the edges of the mounts 67. A similar hanger plate 75 with projections 76 is fixed to one edge of the armor plate 62.

During normal use of the case 54' the armor plates 61 and 62 are retained in a compact nested arrangement within the case 52' by a lever mechanism 81 identical to that shown in FIGS. 1 and 3. However when protection is desired, a user merely manipulates the trigger 82 to pivot a retainer pin 83 out of apertures 84 and 85 in the armor plates 61 and 62, respectively. This allows the plates to drop due to gravity out of the case 54' through an elongated slotted opening 86 in a side wall 87 of the case 52'. The first armor plate 61 falls within the slides 63 until the projections 73 engage the shoulder portions 65 to thereby prevent further movement. The second armor plate 62, however, then falls within the slide mounts 67 until its projections 76 engage the shoulder portions 69 so as to retain the assembly with the plates 61,62 in the expanded positions shown in FIG. 7. In those positions the armor plates 61 and 62 together with the fixed internal divider plate 56 provide a bullet repellent surface equal to about 3 times the surface area of the closed case 52'.
when protection is desired, a user merely grasps a ring
97 secured to the exposed edge 94 and withdraws the
full length of sheet material 93 through the slot 95 as
shown dotted in FIG. 9. In this expanded position, the
sheet material 93 together with the fixed plate 91 pro-
vides an enlarged protective surface that when suitably
positioned protects a user from projectiles fired from
hand guns by an adversary.

FIG. 10 shows a modified protective plate 101 that
can be substituted for any of the plates 37, 38, 61 or 62
shown in FIGS. 2 and 6. Plate 101 includes a lamin-
ation 102 formed of a solid bullet-proof material such as
Lexan and lamination 103 is composed preferably of a
compressed fiber material. The layer 103 absorbs much
of a bullet's velocity and thereby increases the effec-
tiveness of the plate 102. Consequently, even relatively
thin laminated plates 101 will stop high caliber projec-
tiles such as those fired by 30 or 40 caliber magnum re-
volvers.

Obviously, many modifications and variations of the
present invention are possible in light of the above
teachings. For example, by providing each section of an
attache case with a fixed armor plate, the opened case
would provide an expanded shield surface twice the
size of the closed case. Similarly, the desired dual func-
tion of the attache case would be provided by forming
the entire case of a suitable bullet proof material. It is
to be understood, therefore, that the invention can be
practiced otherwise than as specifically described.

What is claimed is:
1. A protective carrying case for protecting a user's
body from bullets and comprising:
a multi-sided portable case enclosure means defining
a volume for retaining articles to be transported,
said enclosure means comprising separate sections
movable relative to each other so as to provide ac-
cess to said volume, armor means substantially co-
extensive with at least one side of said enclosure
means, said armor means being impenetrable by
bullets discharged at relatively close range by con-
tventional 20 to 45 caliber guns; and
attachment means connecting said separate sections.
2. A case according to claim 1 wherein said armor
means comprises relatively movable armor surfaces
that can be expanded from a compact configuration to
an expanded configuration that increases the user's
body surface area that can be protected thereby.
3. A case according to claim 1 wherein said armor
means comprises a laminated armor plate including a
first lamination composed of a solid bullet resistant ma-
terial and a second lamination composed of an absor-
bent fibrous material.
4. A protective carrying case for protecting a user's
body from bullets and comprising:
a portable case enclosure means defining a volume
for retaining articles to be transported, said enclo-
sure means comprising separate sections movable
relative to each other so as to provide access to said
volume and armor means rendering said enclosure
means impenetrable by bullets, said armor means
comprising relatively movable armor surfaces that
can be expanded from a compact configuration to
an expanded configuration that increases the user's
body surface area that can be protected thereby;
and
attachment means connecting said separate sections.
5. A case according to claim 4 wherein said armor
surfaces are provided by armor plates that establish in
said expanded position an armor shield of larger sur-
face area than any plane surface area of said separate
sections.
6. A case according to claim 5 wherein said armor
plates comprise one armor plate supported within said
case enclosure means by one of said separate sections
and movable relative thereto through an accommodat-
ing opening in said case enclosure means.
7. A case according to claim 4 wherein said enclosure
means is an attache case formed by top and bottom
walls of substantially the same area and opposing first
and second and third and fourth side walls of smaller
area, said top and bottom walls comprising said sepa-
rate sections, and said attachment means comprises re-
lease latch means connecting said top and bottom walls
along said first side wall and hinge means connecting
said top and bottom walls along said second side wall.
8. A case according to claim 7 wherein said armor
plates are provided by armor plates that establish in
said expanded positions an armor shield of larger sur-
face area than that of either said top or bottom walls.
9. A case according to claim 8 wherein said armor
plates comprise one armor plate supported by slide
means within said attache case and slidable through an
opening in one of said side walls.
10. A case according to claim 9 wherein said handle
means is attached to said one side wall, and one armor
plate is formed of a transparent material.
11. A case according to claim 9 including retaining
means for preventing movement of said one armor
plate out of said case through said opening and trigger
means for releasing said retaining means to allow said
movement.
12. A case according to claim 11 including bias
means for forcing said one armor plate out of said case
after actuation of said trigger means.
13. A case according to claim 9 wherein said armor
plates comprise a second armor plate supported within
said attache case in a position substantially parallel to
said first plate.
14. A case according to claim 13 wherein said second
armor plate is supported by said slide means and slid-
able through an opening in a side wall opposite to said
one side wall.
15. A case according to claim 14 including retaining
means for preventing movement of said one and second
armor plates out of said case through said openings,
and trigger means for releasing said retaining means to
allow said movement.
16. A case according to claim 15 wherein said one
and second armor plates have an area substantially
equal to that of said top and bottom walls, and includ-
ing stop means for preventing substantial portions of
said plates from moving out of said case after actuation
of said trigger means.
17. A case according to claim 15 wherein said slide
means comprise fixed slides mounted within said case
adjacent and parallel to said side walls other than said
one and opposite side walls, and carries sliding on
said fixed slides and slidably supporting said armor
plates.
18. A case according to claim 17 wherein said oppo-
site side wall is said first side wall, said hinge means
comprises a pair of separate hinges spaced apart along
said first side wall, said opening in said opposite side
wall is a slot extending between said separate hinges, said second armor plate is between said one armor plate and said volume, and said opening in said one side wall in a slot therein.

19. A case according to claim 18 wherein said handle means is attached to said one side wall, and one armor plate is formed of a transparent material.

20. A case according to claim 19 including gun mount means for retaining a hand gun within said volume.

21. A case according to claim 4 wherein said armor means comprises a cylindrical roll of woven metallic sheet material rotatably mounted within said enclosure and extendible through a slot therein into said expanded position.

22. A case according to claim 4 wherein said armor means comprise one armor plate slidably mounted within said case and slideable through an opening therein and a second armor plate slidably mounted on said one armor plate, said second armor plate being parallel and substantially coextensive with said one plate within said case and slideable on said one plate in a direction parallel to the surface thereof upon release from said case.