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(54) **FIREARM SHOULDERING ADAPTER**

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(57) **ABSTRACT**

An adapter for shouldering a firearm of the type having a recoil tube wherein the recoil tube has a rearward end; the adapter for shouldering the firearm incorporating a base; incorporating a recoil tube stop which is fixedly attached to or formed wholly with from the base; incorporating a socket underlying the recoil tube stop, wherein the socket is fitted for receiving the recoil tube's rearward end; and incorporating a matrix of flexible straps connected to the base, the straps being adapted to hold the base upon a rifleperson's upper torso.

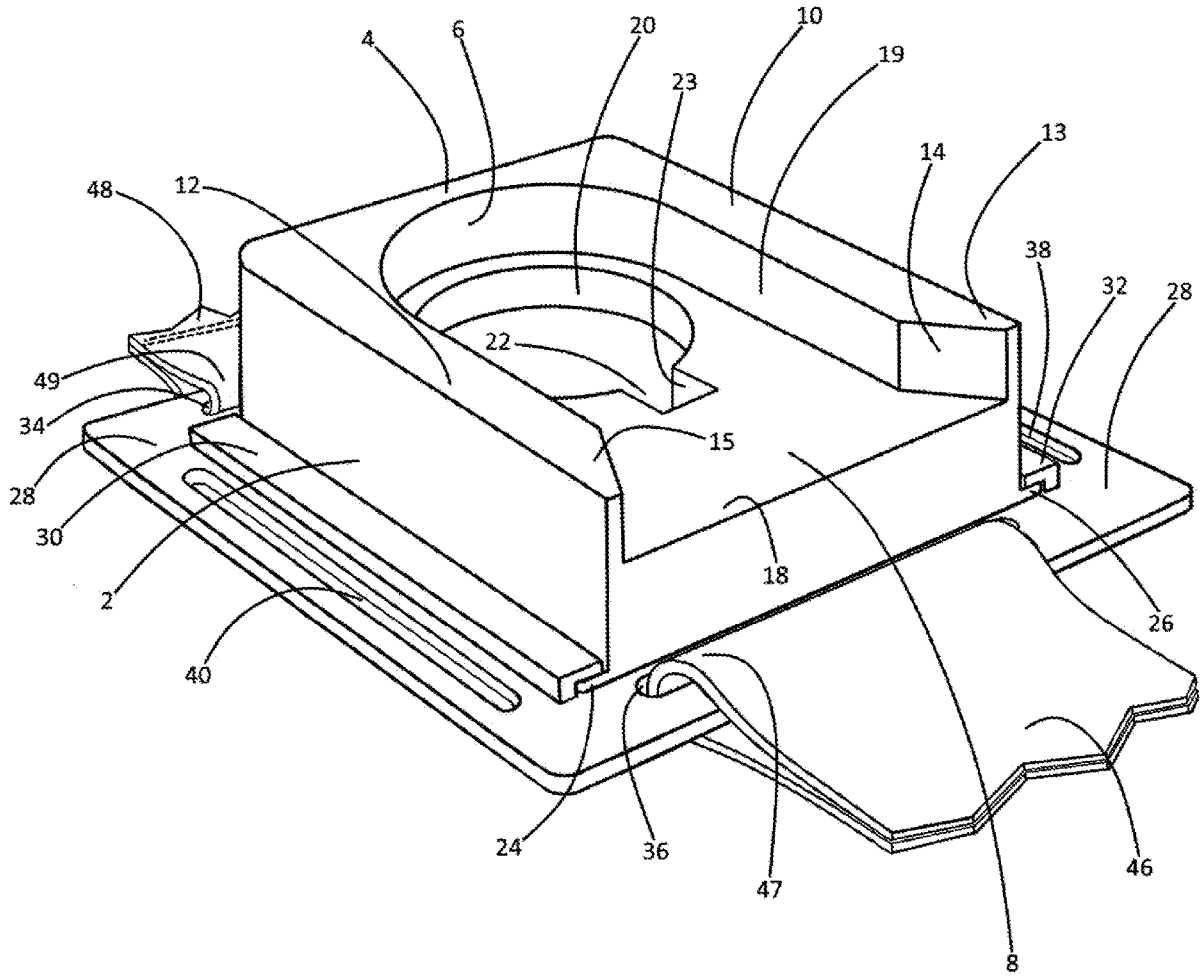


Fig. 1

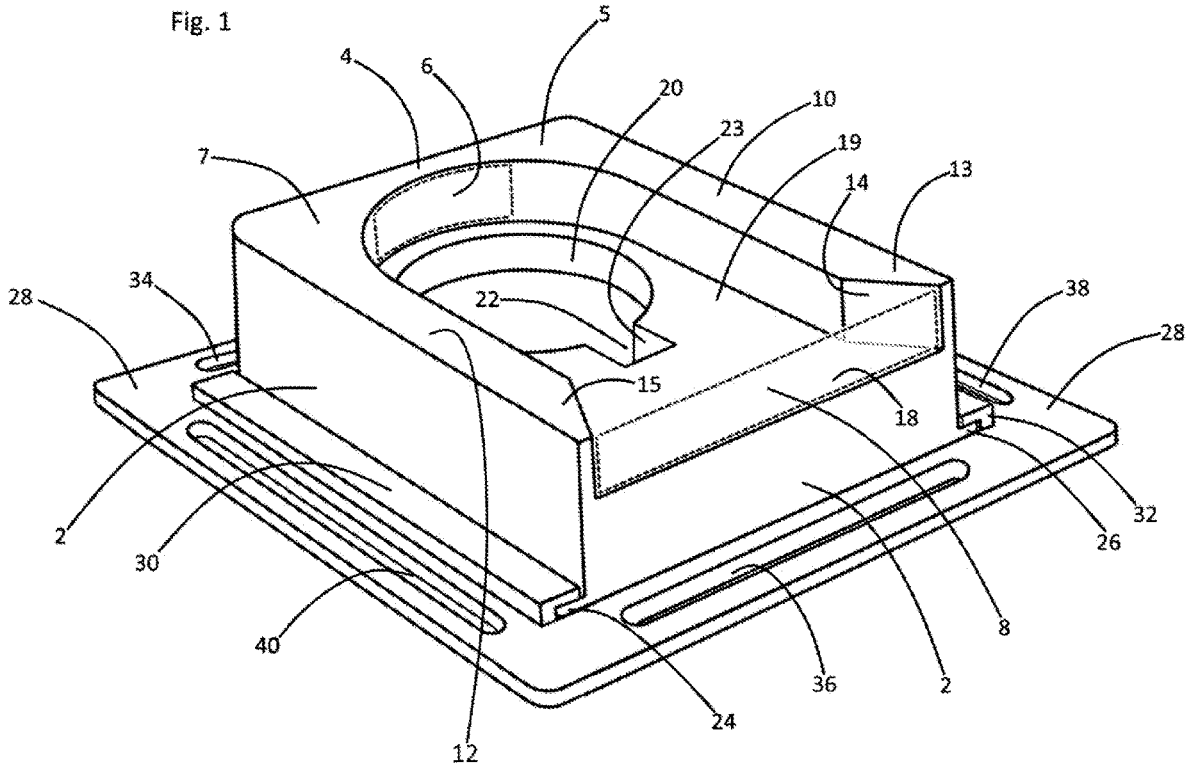
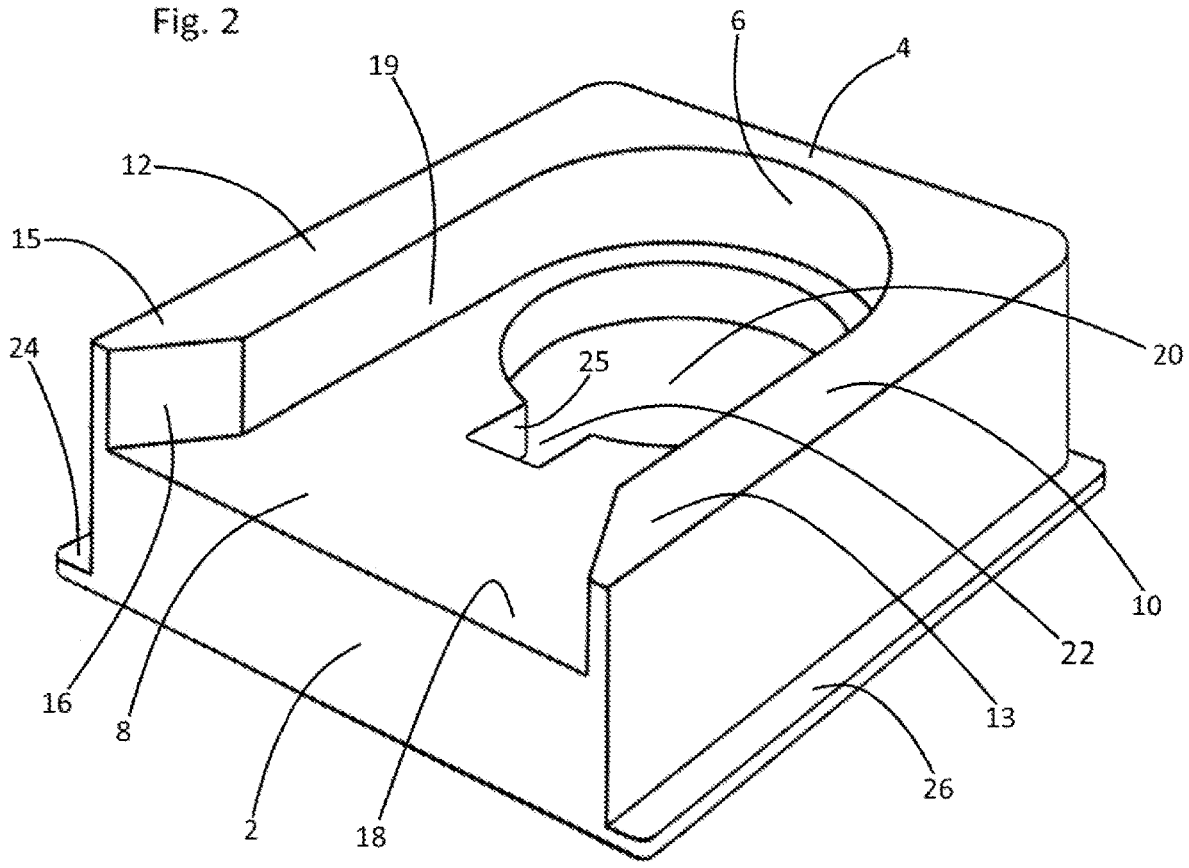


Fig. 2



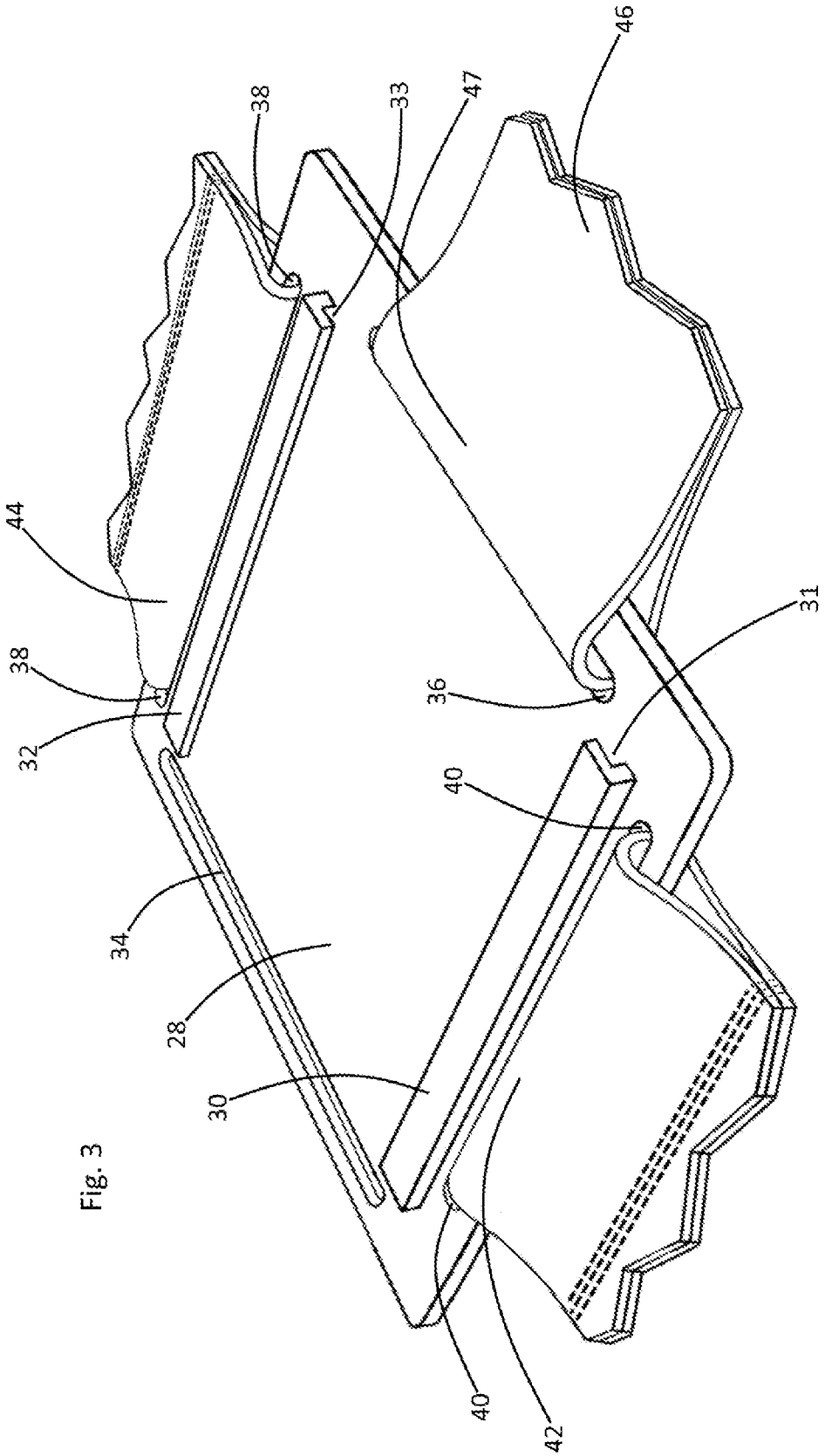


Fig. 3

Fig. 4

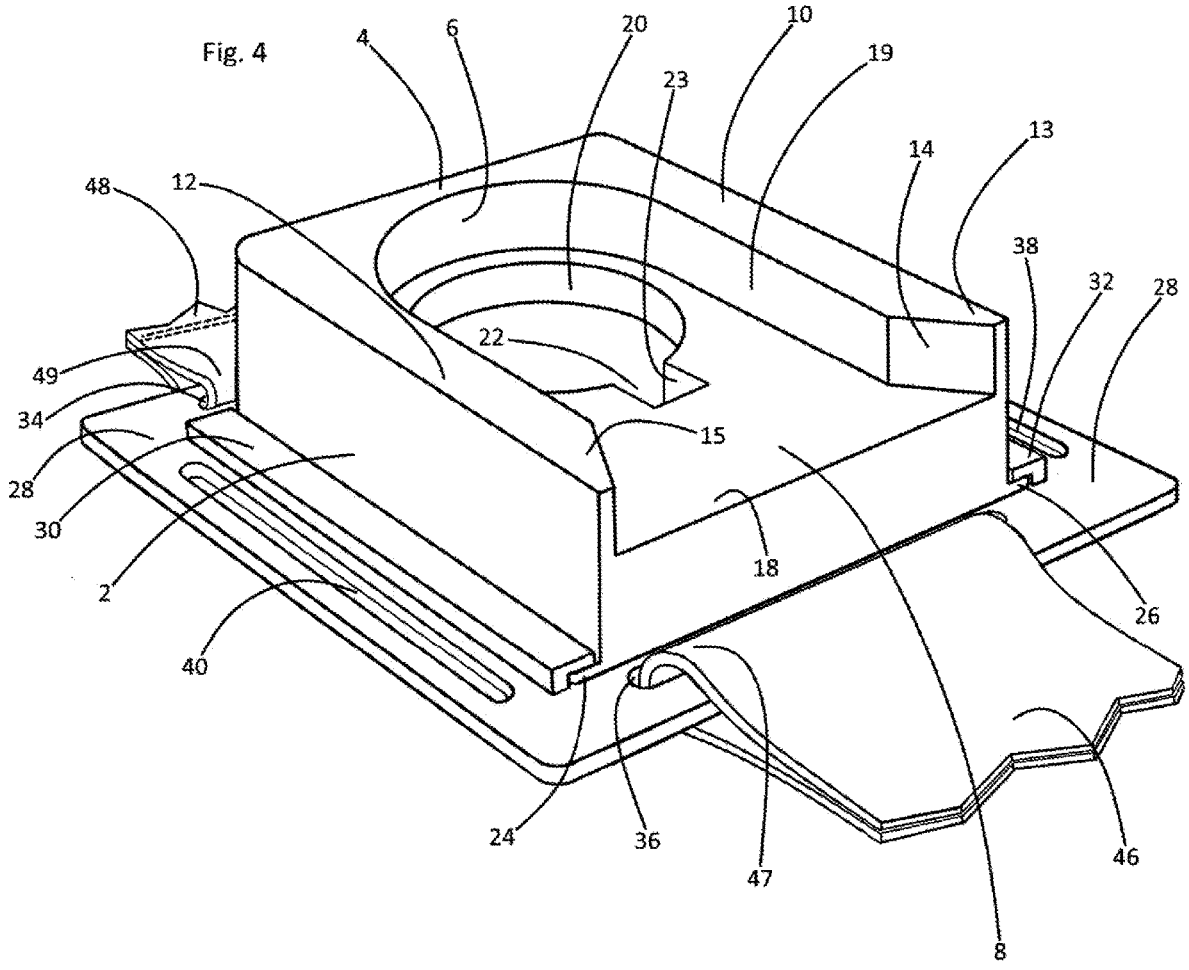

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Fig. 5

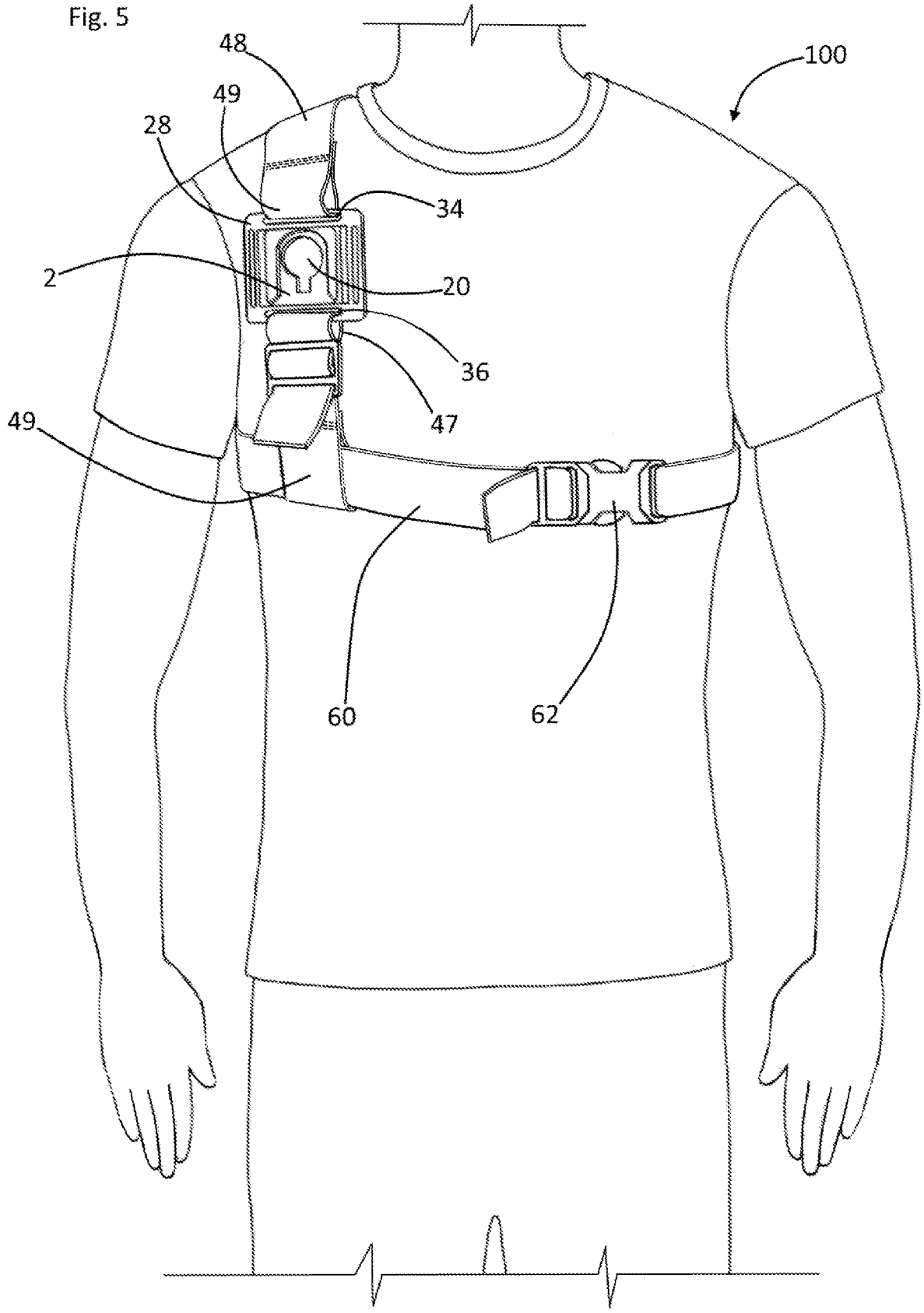
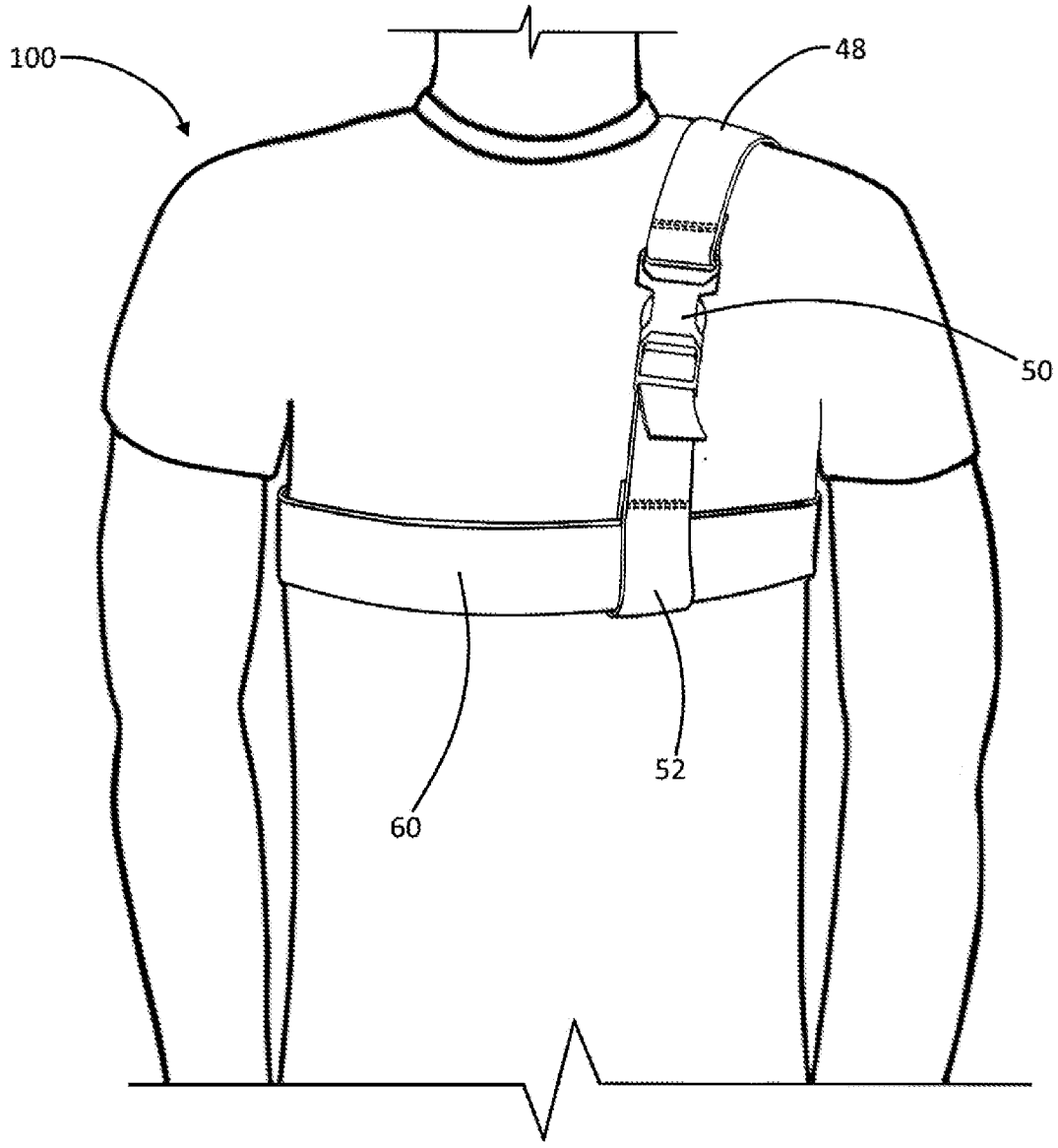


Fig. 6



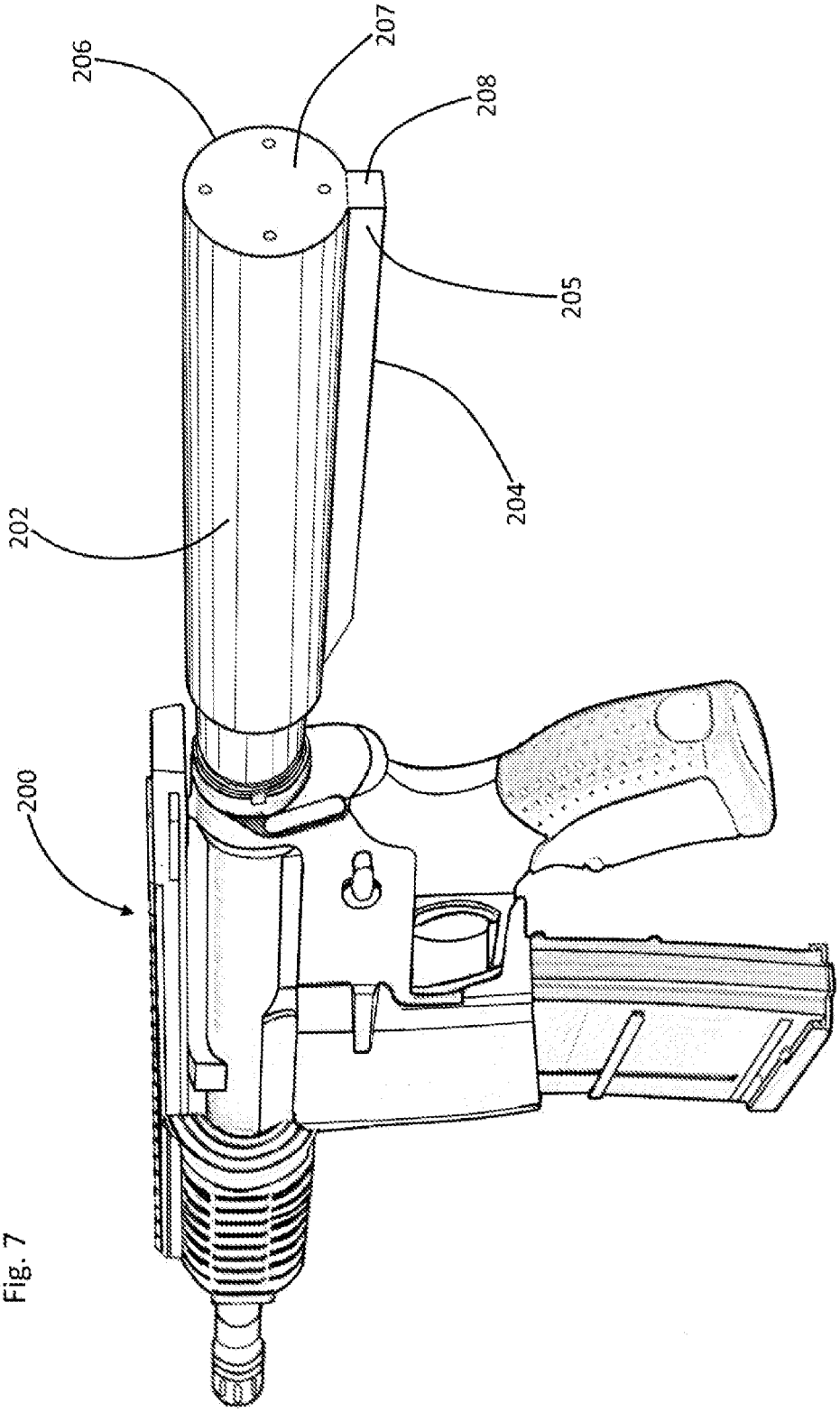
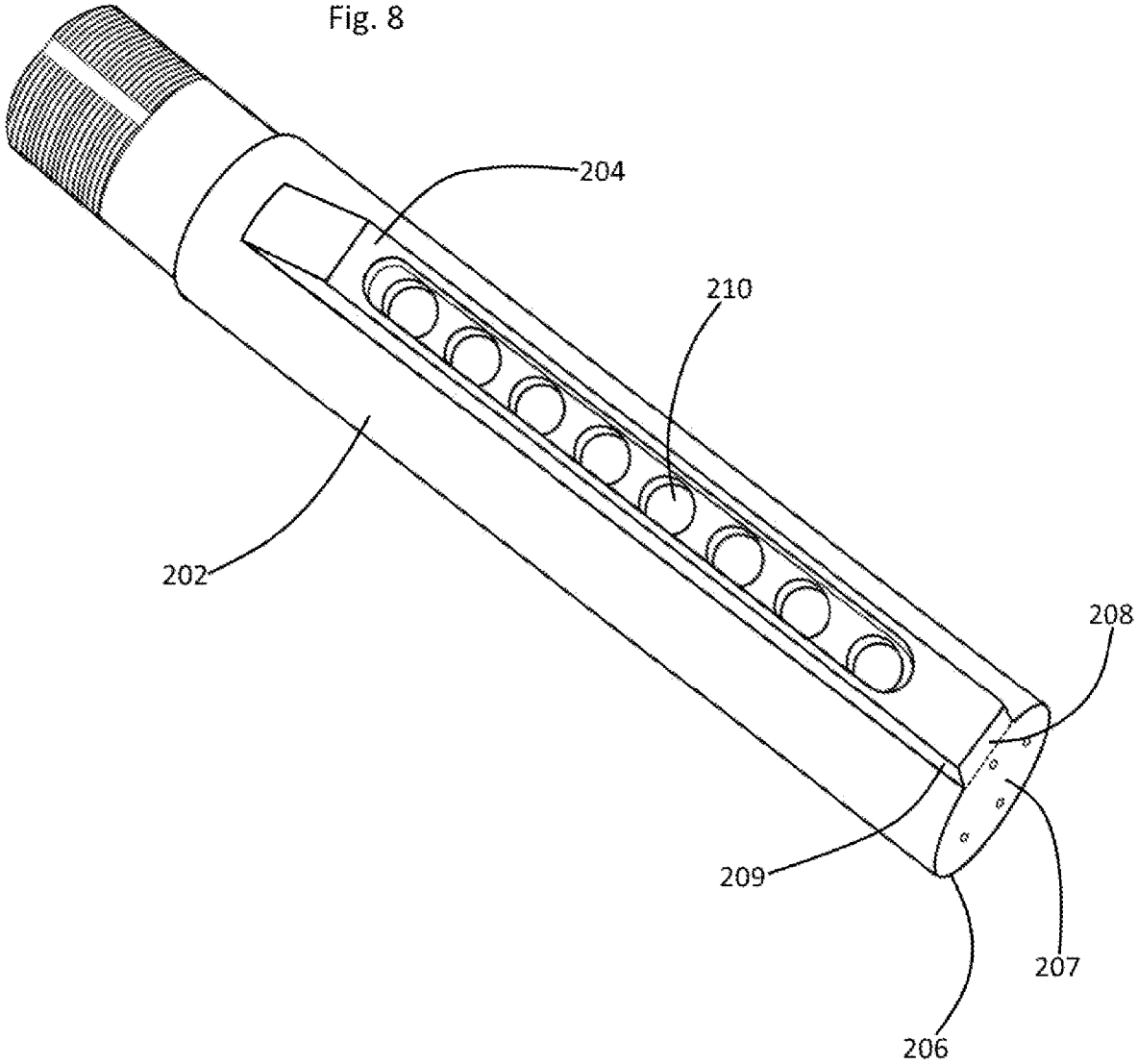


Fig. 7

Fig. 8



FIREARM SHOULDERING ADAPTER

FIELD OF THE INVENTION

[0001] This invention relates to firearms. More particularly, this invention relates to recoil tube adapted semi-automatic pistols, along with apparatus and assemblies which are configured for assisting a rifleperson in shouldering and aiming such firearms.

BACKGROUND OF THE INVENTION

[0002] Semi-automatic pistols often incorporate a breach end or rearwardly extending recoil tube or buffer tube. Such tubes typically incorporate an interior spring and an interior cylindrical weight whose longitudinal motion within the tube is dampened by the spring. Upon firing of a weapon including such recoil tube, a portion of the recoil or rearward "kick" experienced by the weapon translates to the cylindrical weight within the recoil tube, advantageously lessening recoil or kick experienced by other portions of the weapon and by a rifleperson operating the weapon.

[0003] During firing of such recoil tube adapted firearms, a rifleperson may, upon occasion, utilize the rearward end of the recoil tube as a weapon stabilizing surface. During such use, a chosen point of contact between the weapon and the rifleperson may approximate the common shouldered position rifle's butt during standing position firing. Such point of contact is commonly located at the rifleperson's upper torso over his or her right or left upper trapezius areas, the contact point being shifted laterally toward the "pocket" which is formed between the rifleperson's raised arm and shoulder.

[0004] While such bodily contact with the rearward end of a firearm's recoil tube is intended to perform a function of weapon stabilization, such contact often is itself undesirably unstable. The intended stabilizing recoil tube contact often drifts or slides over the rifleperson's outer clothing, undesirably skewing the aim of the weapon.

[0005] The instant inventive firearm shouldering adapter solves or ameliorates the problems, defects, and deficiencies associated with stabilizing shouldering contact with a firearm's recoil tube by providing specially configured and interconnected base, "U" bracket, and socket components, in combination with the provision of attached means for mounting such interconnected components anteriorly over the rifleperson's upper torso or thorax area.

BRIEF SUMMARY OF THE INVENTION

[0006] A first structural component of the instant inventive adapter for shouldering by a rifleperson of a firearm comprises a base component or element. In a suitable embodiment, the base comprises a square or rectangular box configured block which is composed of a durable and substantially rigid material such as high density polyethylene (HDPE) plastic.

[0007] A further structural component of the instant inventive adapter comprises a recoil tube stop which is fixedly attached to or is wholly formed with the base. In a preferred embodiment, the recoil tube stop component has a downwardly facing surface and such stop extends forwardly from the base. The recoil tube stop is suitably positioned at an upper end of the base.

[0008] A further structural component of the instant inventive adapter comprises a forwardly opening socket. In a preferred embodiment, such socket is fitted for receiving the rearward or breachward end of the recoil tube of a firearm which is wielded and operated by the rifleperson. The recoil tube stop component may suitably comprise a downwardly facing section of the peripheral wall of the forwardly opening socket. In a preferred embodiment, the socket component extends rearwardly into the base, and is positioned immediately below and slightly rearwardly from the recoil tube stop.

[0009] Further structural components of the instant inventive adapter comprise mounting means which are connected operatively to the base for fixedly positioning the base anteriorly over the rifleperson's upper torso, preferably at an upper left or right shoulder area. In a preferred embodiment, the mounting means comprise a matrix of flexible straps which incorporates quick connect/disconnect fasteners and buckles. Such matrix securely mounts and holds the matrix itself about the rifleperson and securely mounts and hold the base and its socket upon the rifleperson.

[0010] In use and operation of the instant inventive adapter, a rifleperson may initially manipulate components of the adapter's mounting means to securely position and hold the base anteriorly over the rifleperson's upper torso. Thereafter, the rifleperson may access and wield, for example, a semi-automatic pistol having a rearwardly or breachwardly extending recoil tube or buffer tube. While grasping such weapon, the rifleperson may manually move the weapon upwardly and rearwardly in a weapon shouldering motion, such motion causing the rearward end of the recoil tube to move toward the adapter's base component. Continuation of such shouldering motion may direct the recoil tube's rearward end generally toward the forwardly opening socket and toward the recoil tube stop which overlies or comprises a wall portion of such socket.

[0011] Such directed shouldering motion of the pistol may continue until an upper end of the rearward end of the recoil tube comes into contact with the recoil tube stop. Thereafter, the rifleperson may manually draw the pistol rearwardly, causing the rearward end of the recoil tube to securely nest and seat within the adapter's forwardly opening socket. Upon completion of such movements of the recoil tube's rearward end in relation to the inventive adapter, the rearward end of the recoil tube becomes captured within and is securely held at a fixed location over the shoulder portion of the upper torso of the rifleperson. While the rearward end of the pistol's recoil tube remains captured within the adapter's forwardly opening socket, aiming accuracy and stability of the weapon is enhanced.

[0012] While the above described matrix of straps constitutes a suitable mounting means, other mechanical means for holding the base component anteriorly over the rifleperson's upper torso are considered to fall within the scope of the invention. For example, flexible stitch receiving flanges may be formed at the rearward periphery of the base, allowing the base component to be securely sewn onto a rifleperson's outer clothing. As further examples, snap fasteners or flexible hook and loop fasteners known by the trademarked name "Velcro" may be alternatively provided as the adapter's means for securely holding the base component upon the rifleperson's clothing and over the rifleperson's torso.

[0013] Accordingly, objects of the instant invention include the provision of an adapter for shouldering by a rifleperson of a firearm which incorporates structures as described above, and which arranges those structures in

relation to each other in manners described above for the performance of beneficial functions described above.

[0014] Other and further objects, benefits, and advantages of the instant invention will become known to those skilled in the art upon review of the Detailed Description which follows, and upon review of the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. **1** is a perspective view of interconnected base and plate components of the instant inventive adapter for shouldering a firearm.

[0016] FIG. **2** is an alternative perspective view of the base component of FIG. **1**, the view of FIG. **2** showing FIG. **1**'s plate component removed.

[0017] FIG. **3** depicts a plate component of the structure of FIG. **1**, the view of FIG. **3** showing FIG. **1**'s base component removed, and showing in cut away views attachments of a matrix of flexible straps.

[0018] FIG. **4** redepicts the structure of FIG. **1**, the view of FIG. **4** additionally showing in cut away views an attachment of an alternatively configured matrix of flexible straps.

[0019] FIG. **5** presents an alternative perspective view of the structure of FIG. **4**, the view of FIG. **5** showing the alternative matrix of flexible straps of FIG. **4** in a configuration which mounts the interconnected base and plate components of FIG. **1** upon a rifleperson's upper torso.

[0020] FIG. **6** is a reverse or back side view of the rifleperson and strap matrix of FIG. **5**.

[0021] FIG. **7** is a perspective view of a semi-automatic pistol having a rearwardly extending recoil tube.

[0022] FIG. **8** is an alternative perspective view of the recoil tube component of the semi-automatic pistol of FIG. **7**, such recoil tube being shown disconnected and removed from the weapon.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0023] Referring now to the drawings and in particular simultaneously to Drawing FIGS. **1-4**, the instant inventive adapter for shouldering a firearm comprises a base **2** which is suitably substantially square or box configured. The base **2** is preferably composed of a durable high strength material such as HDPE (high density polyethylene) plastic.

[0024] A further structural component of the instant inventive adapter comprises a recoil tube stop, an example of which is represented by a downwardly facing surface **6** which is bordered in dashed lines drawn upon Drawing FIG. **1**. The assembly's recoil tube stop component **6** suitably comprises a lower or downwardly facing surface of a "U" bracket which includes a laterally spanning web portion **4**, the web portion having left and right ends **5** and **7**. The "U" bracket suitably further comprises left and right downwardly extending arms **10** and **12**. Such arms have their proximal ends fixedly attached to or formed wholly with the web's left and right ends **5** and **7**, and the arms' distal ends **13**,**15** extending downwardly with respect to said left and right web ends **5**, **7**. The "U" bracket is fixedly attached to or formed wholly with the base **2**, and the undersurface of the "U" bracket's web **4** suitably serves as the adapter's recoil tube stop component **6**.

[0025] The adapter's "U" bracket component **4**,**10**,**12** defines and bounds a hollow throat **19** whose lower throat opening forms and functions as a recoil tube passage **8**. The adapter's recoil tube passage component is drawn in dashed lines upon FIG. **1**. The distal ends **13**,**15** of the "U" bracket's left and right arms **10**,**12** preferably present inwardly facing chamfers or beveled surfaces **14**,**16**, such chamfers advantageously widening the recoil tube passage **8** for assistance with upward passages there through of recoil tube rearward ends.

[0026] A further structural component of the instant inventive adapter comprises a socket **20** which opens forwardly at the rearward floor **18** of the "U" bracket's throat **19**. While surface **6** represents a preferred configuration of the adapter's recoil tube stop, such stop may suitably alternatively comprise an upper aspect or end of the peripheral wall of the socket **20**. Referring simultaneously to FIGS. **7** and **8**, such socket **20** is preferably fitted to facilitate a nesting rearward receipt of a rearward or breachward end **206** of a recoil tube **202** component of a firearm such as, for example, a semi-automatic pistol **200**. Such firearm recoil tubes commonly present at their undersurfaces a latch pin receiving flange or rail **204**, such flange presenting multiple downwardly opening gun stock position adjustment sockets **210**. Where such flange or rail **204** is presented upon a semi-automatic pistol's recoil tube **202**, the rearward end **206** of such tube commonly forms an upper circular section or surface **207** and lower substantially square or rectangle section or surface **208**. Where such surfaces **207** and **208** are presented upon a firearm **200** which is intended to be used in conjunction with the inventive adapter's base **2**, the adapter's socket component **20** preferably correspondingly forms both an upper substantially circular section and an underlying and communicating square or rectangular section void **22**. The upper and lower sections of the socket **20** are preferably respectively fitted for nesting receipts of the recoil tube's surfaces **207** and **208**. The inside diameter of the upper circular portion of the socket **20** is preferably slightly greater than the circular diameter of the tube's section **207**, and the square dimensions of socket section **22** are preferably slightly greater than those of the tube's section **208**.

[0027] Mounting means which are adapted to anteriorly hold the base **2** upon the upper body or torso of a rifleperson are preferably provided as an integral component of the inventive adapter. Referring simultaneously to FIGS. **1** and **2**, suitable mounting means comprise a square or rectangular plate **28**, which incorporates a fastener adapted to securely interconnect the base **2** and the plate **28**.

[0028] In a suitable embodiment, the adapter's fastener comprises left and right slide ridge and slide channel combinations. Referring to FIGS. **1-3**, a left slide ridge **26** may be formed wholly with and may extend leftwardly from the lower end of the base **2**. Such slide ridge **26** may be nestingly received within a slide channel **33** which is formed by an "L" bracket **32** which is formed wholly with the plate **28**, such nesting receipt forming a left slide ridge and slide channel fastener combination. Correspondingly, a right slide ridge **24** may be mirroringly formed at the opposite side of the base **2**, such ridge being received within a slide channel **31** within a mirroringly formed "L" bracket **30**. Simultaneous engagements of "L" brackets **32** and **30** with slide ridges **26**, **24** may advantageously securely fasten those slide ridges **26**, **24** within the slide channels **33** and **31**, such holding actions translating to secure holding of the base **2**. The slide ridges, channels, and brackets **24**, **26**, **31**, **33**, **30**, and **32** are intended as being representative of other commonly known

fastening assemblies which are capable of holding base structures such as base **2** upon plate structures such as plate **28**.

[0029] Referring simultaneously to FIGS. **1-3**, **5**, and **6**, the adapter's mounting means component suitably additionally incorporates a matrix of flexible straps **48**, **49**, **52**, and **60**. A looped end **49** of flexible strap **48** may extend through and engage an upper slot **34** within plate **28**, such strap further extending rearwardly over the right shoulder of a rifleperson **100**. As shown in FIG. **6**, such strap **48** may incorporate a quick disconnect fastener and take up buckle combination **50**, and may incorporate a lower and rearward loop **52** for engagement with a torso encircling strap **60**. A second flexible strap **46** may similarly include a loop which engages a lower slot **36** within the plate **28**, such strap having a lower loop **49** which similarly engages torso encircling strap **60** at the rifleperson's front. A take up buckle and quick disconnect fastener combination **62** may be provided for securely holding and fitting the torso strap **60** about the rifleperson's torso. Referring to FIG. **3**, differently configured flexible straps **42** and **44** which engage vertical slots **40** and **38** within the plate **28** may advantageously alternatively support a differently configured matrix of flexible straps.

[0030] The plate **28** and flexible straps mounting means depicted in FIGS. **3-6** are intended as being representative of other types of mounting means which may be suitably substituted. For example, "Velcro" fasteners, snap fasteners, clasp fasteners, and zipper attachment (not depicted within views) may be suitably alternatively provided for securing the base **2** and/or the plate **28** upon a rifleperson's outer clothing.

[0031] In an exemplary use and mode of operation of the instant inventive adapter, the base **2** and plate **28** components may be initially configured as depicted in FIG. **4**. In such configuration, the plate **28** resists any rearward motion of the base **2** in relation to the plate **28**, while the left and right slide ridges **26** and **24** in combination with the left and right "L" brackets **32** and **30** resist any relative forward, leftward or rightward motions of the base **2**. In the assembled configuration of FIG. **4**, the loop **47** extending through slot **36** further limits motion of the base **2** by interfering with relative downward motion of the base **2**, and loop **49** within upper slot **34** correspondingly resists any relative vertical motion. Accordingly, a secure and snug configuration of the flexible straps **46**,**48**,**60** about the upper torso and shoulder of the rifleperson **100** advantageously fixes the base **2** and its socket **20** upon the rifleperson **100** while resisting any relative sliding or skewing motions of the base over the rifleperson's upper torso and shoulder area.

[0032] Following donning the assembly upon the rifleperson's upper torso as indicated in FIGS. **5** and **6**, the rifleperson may hold the exemplary semi-automatic pistol **200** of FIG. **7** by grasping such weapon's rear pistol grip with his or her right hand and by grasping such weapon's foregrip with his or her left hand. Thereafter, the rifleperson may raise the weapon, causing the rearward end **206** of the weapon's recoil tube **202** to move in a firearm shouldering motion upwardly and rearwardly toward the adapter's base **2**. During such shouldering motion, the rifleperson may carefully direct the motion of the rearward end **206** of the recoil tube **202** toward the adapter's recoil tube passage **8** which resides and opens at the lower end of the "U" bracket's throat **19**. Such directed upward and rearward shouldering motion of the recoil tube's rearward end **206** may continue until an upper end of such tube rearward end **206** contacts the recoil tube stop **6** which resides at the undersurface of the "U" bracket's web **4**. Upon such contact, a shouldering motion stopping function is beneficially performed by the stop **6** upon the recoil tube **202**. Such stopping function advantageously positions the tube's rearward end **206** so that it forwardly overlies the adapter's forwardly opening socket **200**.

[0033] Immediately following or substantially simultaneously with the performance by the recoil tube stop **6** of its shouldering motion stopping function, a slight rearward pulling action may be applied by the rifleperson **100** to the weapon **200**. Such pull advantageously causes the rearward end **206** of the recoil tube **202** to be driven rearwardly into the socket **20** and to securely seat against the rearward floor of the socket. During such rearward driving action, the upper circular section **207** of the recoil tube's rearward end **206** seats within the circular portion of socket **20**, and the tube's lower rectangular section **208** simultaneously seats upon the floor of socket section **22**.

[0034] Referring simultaneously to FIGS. **1** and **2**, it may be observed that the lower rectangular section **22** of socket **20** presents a leftwardly facing wall **25** and a rightwardly facing wall **23**. Upon a nesting receipt of the rearward end surface **208** of the recoil tube's slide ridge **204** within the socket section **22**, the rearward end of such slide ridge's leftwardly facing wall **205** directly abuts and faces the socket's rightwardly facing wall **25**. Correspondingly, referring to FIG. **8**, the rearward end of the rightwardly facing wall **209** of slide ridge **204** directly abuts and faces the leftwardly facing wall **23** of socket segment **22**. Accordingly, while the peripheral walls of the socket **20**,**22** operatively resist any vertical or lateral motions of the rearward end **206** of the recoil tube **202** with respect to the base **2**, the leftwardly and rightwardly facing walls **25** and **23** of the lower socket segment **22** beneficially abuttingly engage the rearward ends of the slide ridge walls **209** and **205**. Such wall to wall engagements advantageously resist rotary motions of the recoil tube **202** and of the weapon **200** in relation to the base **2**. Thus, the inventive adapter assembly, while securely holding the rearward end **206** of the recoil tube **202** at the shoulder of the rifleperson **100**, in addition to resisting vertical and lateral skewing motions of such end **206**, resists rotary motions of the weapon **200**. Similarly with the weapon vertical aligning function which is performed upon shouldering a rifle's stock within the "pocket" formed between a rifleperson's raised arm and upper chest, the instant inventive adapter's socket section **22** advantageously performs a vertical weapon aligning function.

[0035] While the principles of the invention have been made clear in the above illustrative embodiment, those skilled in the art may make modifications to the structure, arrangement, portions and components of the invention without departing from those principles. Accordingly, it is intended that the description and drawings be interpreted as illustrative and not in the limiting sense, and that the invention be given a scope commensurate with the appended claims.

1. An adapter for shouldering a firearm, the firearm having a recoil tube, the recoil tube having a rearward end, the adapter for shouldering a firearm comprising:

(a) a base;

(b) a recoil tube stop fixedly attached to or formed wholly with the base;

(c) a socket underlying the recoil tube stop, the socket being fitted for receiving the recoil tube's rearward end; and

(d) mounting means connected to the base, the mounting means being adapted for holding the base upon a rifleperson's upper torso.

2. The adapter for shouldering a firearm of claim **1** comprising a "U" bracket fixedly attached to or formed wholly with the base.

3. The adapter for shouldering a firearm of claim **2** wherein the "U" bracket comprises a web and left and right downwardly extending arms.

4. The adapter for shouldering a firearm of claim **3** wherein the web has a downwardly facing surface, and wherein the recoil tube stop comprises said surface.

5. The adapter for shouldering a firearm of claim **4** wherein the "U" bracket bounds a downwardly opening throat, and further comprises a recoil tube passage, said passage comprising the throat's downward opening.

6. The adapter for shouldering a firearm of claim **5** wherein the socket opens forwardly and extends rearwardly into the base.

7. The adapter for shouldering a firearm of claim **6** wherein the socket comprises an upper circular section and a lower rectangular section.

8. The adapter for shouldering a firearm of claim **7** wherein the socket's lower rectangular section is bounded by left and right rotation stopping walls.

9. The adapter for shouldering a firearm of claim **1** wherein the mounting means comprise a matrix of flexible straps.

10. The adapter for shouldering a firearm of claim **9** wherein the mounting means further comprise a plate and a fastener, wherein the fastener interconnects the base and the plate.

11. The adapter for shouldering a firearm of claim **10** wherein at least a first strap among the matrix of flexible straps is fixedly attached to the plate.

12. The adapter for shouldering a firearm of claim **11** wherein the fastener comprises a left slide ridge and slide channel combination and a right slide ridge and slide channel combination.

13. The adapter for shouldering a firearm of claim **12** wherein the matrix of straps incorporates at least a first quick release fastener.

* * * * *