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(54) **Recoil pad for sporting rifle or fire arms**

(57) A recoil pad comprising a body (1), manufactured from an elastic material, with means for connecting it to the stock of a sporting rifle or firearm, characterised in that it comprises at least two transversal cavities (3,4),

separated by an elastic partition wall (5) that connects the left side (8) of the recoil pad to the right side (9) of the recoil pad and at least two removable gel pads (6,7), one per cavity (3,4), which fit inside said cavities.

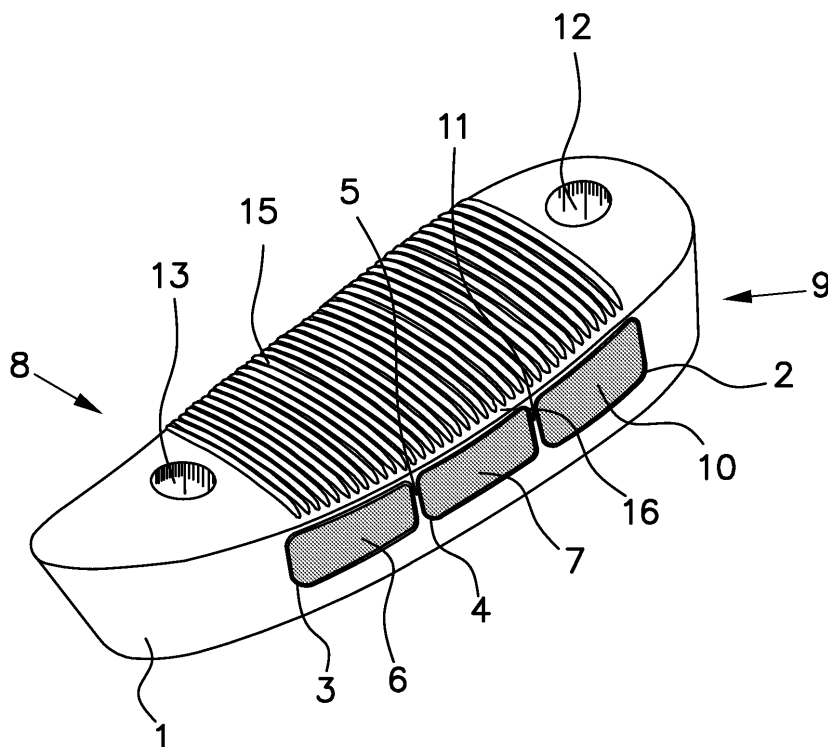


FIG. 1

Description

[0001] A recoil pad for sporting rifle or firearm, of the type that comprises a body, manufactured using an elastic material, with the means for connecting to the stock of a sporting rifle or firearm, **characterised in that** it comprises at least two transversal cavities, separated by an elastic partition wall that connects the left side of the recoil pad to the right side of the recoil pad and at least two removable gel pads, one per cavity, which fit inside said cavities.

BACKGROUND OF THE INVENTION

[0002] The use of gel as shock-absorbing means in recoil pads is known in the technical field.

[0003] There are very old patents that describe a pad with an elastic insert. Thus, in patent US 1,418,532 "Recoil pad" of 1922 already claims a stock with a cushion comprising a plate shaped to the stock base, a base element made of a soft resin and a "vulcanised vegetable oil" insert. The base element is secured to the stock base with screws. In this way, the stock recoil is damped upon firing.

[0004] A design along the same line of a pad with an insert is described in another patent, US 4,683,671 "Recoil shock pad" from 1987. Figure 7 shows one of the embodiments that uses as a gel insert. The cushion comprises a moulded plate fixed to the stock base, a sleeve made of plastic material that surrounds a bag containing the gel. Therefore, taking into account this patent, we can conclude that at least since 1987, in other words, for over twenty years, the use of gel has been known in this type of pad.

[0005] Thus, the firm Beretta, give by already known, the use of gel in its European patent EP 1122507 "Butt pad made of a composite material for firearms" from 2001. The object of said patent is the cushion that includes an exterior cover with an elastically variable shape, a high-viscosity element inside said cover and congruent with the shape variations of the latter and a base element and semi-rigid support joined to the cover and designed to adjust the pad to the firearm stock. As an independent claim in one of its embodiments, it is proposed to use silicone gel. In view of the embodiments, this patent is indicated for pistols.

[0006] Patent US 6,889,461 (US publication No 2004/0144011) "Recoil pad, particularly for firearms" of 2005, for which the applicant is Benelli Armi S.p.A, describes a recoil pad for firearms that can be fixed to the stock and which includes a base and rear component manufactured from polyurethane gel coupled to the base and suitable for dissipate the energy transferred to the shoulder by the firearm recoil upon firing.

[0007] Another document is PCT application No WO 2007033342 "Gel recoil pad", of 2007 for which the applicant is Polyworks Inc. (USA), which describes a pad for firearms. The pad structure includes a slightly hard

gel as first material, a moulded plastic base with the same measurements as the stock base, a layer of coupling material adhered to the base and a final layer that covers the gel layer.

[0008] Finally, patent US 6,305,115 "Gel recoil pad" of 2001 can also be included, which protects a gel pad wrapped in a support that joins it to the stock.

BRIEF DESCRIPTION OF THE INVENTION

[0009] As can be seen from the documents of background of the invention, all of them require, to a greater or lesser extent, handling that involves separating the recoil pad from the stock to access the gel pad if this needs replacing.

[0010] Such separation is not simple because, for safety reasons, the recoil pad has to be securely fixed to the stock so that it cannot become separated from it.

[0011] Moreover, in the case that someone wants to change the pad, it can't do immediately; it needs time and some tools, which ones are not always available.

[0012] In this invention, the inventors have developed a new recoil pad, designed to provide user-adjustable elasticity, which can be adjusted whenever required by simply inserting suitable gel pads for each shooter. Moreover, said pads can be changed at any time and tools, such as screwdrivers, are not necessary. Instead, said pads, can be inserted with the fingers, into transversal cavities in the recoil pad, with said pads fitting snugly without being able to come out of the transversal cavities without pressure from the shooters fingers.

[0013] It is important that the recoil pad does not have to be separated from the stock, because this means enhanced sporting rifle safety since the parameters are already set by the factory.

[0014] Said gel pads can also be used as means for identification (colours) by the owner in order to recognise his sporting rifle or firearm, or even publicity by including an ad in the pad, which also serves as an economic stimulus.

[0015] If, for example, the shooter notes that after a certain time, the gel pads no longer has the desired effect or the sporting rifle or firearm is used by a shooter other than the usual one and the configured elasticity is not comfortable. The gel pads can be quite easily changed by pressing them on one side of the recoil pad so that they come out of the other, making their replacement very easy.

[0016] The goal of this invention is a recoil pad for a sporting rifle or firearm of the type that comprises a body, manufactured using an elastic material, with the means for connecting to the stock of a sporting rifle or firearm, **characterised in that** it comprises at least two transversal cavities, separated by an elastic partition wall that connects the left side of the recoil pad to the right side of the recoil pad and at least two removable gel pads, one per cavity, which fit inside said cavities.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] In order to facilitate the description, there are three sheets of drawings accompanying this report, which represent a practical exemplary embodiment, which is cited by way of an example that does not limit the scope of this invention.

- Figure 1 is a perspective view of the object of this invention.
- Figure 2 is a lateral view of the gel pad, in which the extra parts of Figure 1 have been eliminated to provide a better view.
- Figure 3 is a lower view of the gel pad, in which the extra parts of Figure 1 have been eliminated to provide a better view, and
- Figure 4 is a left lateral view of Figure 1.

EXEMPLARY EMBODIMENT OF THIS INVENTION

[0018] Thus Figure 1 illustrates body 1 of a recoil pad, with its left side 8 and right side 9, cavities 2, 3, 4, gel pads, 6, 7, 10, partition walls 5, 11, pass through orifices 12, 13, grooves or striations 15 and distance 16.

[0019] Figure 2 shows the gel pad 6 with channel 19.

[0020] Figure 3 is a lower view of Figure 2, showing the gel pad 6 with referred channel 19 that defines two parts 17, 18, one on either side of the channel.

[0021] Finally, body 1 has been drawn in Figure 4, seen from the left side 8, partition walls 5, 11, distance 16, the reliefs or striations 15 and a perimeter groove bottom 14.

[0022] Thus, in a specific embodiment, the shooter, in prior session of shoot, selects the gel pads 6, 7, 10 in accordance with certain elasticity characteristics, which should coincide with the shooter's personal preferences or likes, so that this person feels comfortable with the recoil pad performance, which is elastic, against the recoil of the sporting rifle or firearm after it is fired.

[0023] After selection, these pads 6, 7, 10 are inserted into their respective cavities 2, 3, 4, with these pads being firmly adjusted and unable to leave without pressure being exerted by the shooter's fingers inside the cited cavities.

[0024] The referred transversal cavities 2, 3, 4 connect the left side 8 of body 1 of the recoil pad to the right side 9. This is because it facilitates insertion and removal of gel pads 6, 7, 10 into cavities 2, 3, 4 which, unlike the related documents of the technical field, do not require any tools to change the gel pads 6, 7, 10.

[0025] If any other shooter decides to use the same sporting rifle or firearm could easily have other preferences in relation to the recoil of said rifle or firearm. If this person wishes to replace the gel pads 6, 7, 10, they should be firmly pressed from one side of the recoil pad 6, 7, 10 so that they come out of the opposite side.

[0026] The possibility of simple replacement gel pad 6, 7, 10 is also useful because, over time, they may lose their desired elasticity properties and can thus be

changed in a few seconds without having to remove the recoil pad from the stock.

[0027] Moreover, if the gel pads 6, 7, 10 are provided in several colours, they could be used by the shooter to identify the sporting rifle or firearm, in such a way that combines the club's or country's colours etc, or even facilitate camouflage.

[0028] Partition walls 5, 11 which separate the various cavities 2,3,4, are elastic in order to allow them to deform elastically during recoil and then recover their positions like the gel pads 6, 7, 10.

[0029] As shown in Figures 2 and 3, it has been arranged that the gel pads 6, 7, 10 to comprise at least one channel 19 that is transversal with respect to cavities 3, 4 that divides the mentioned gel pads 6, 7, 10 into at least two parts 17, 18, Said channel 19 is a positioner, on attaining an interior reference (not illustrated) permits a perfect fit and adjustment of gel pads 6, 7, 10 when they are inserted inside the cavities 2, 3, 4, thus ensuring that said gel pads 6, 7, 10 are unable to exit the respective cavities 2, 3, 4 without pressure from the shooter's fingers in order to intentionally remove them from inside the cavities 2, 3, 4.

[0030] The recoil pad also includes reliefs or striations 15, already known, which are placed against the shooter's shoulder when firing. Taken by the outside perimeter of the reliefs or striations 15, said reliefs or striations 15 are separated from the referred cavities 3, 4 by distance 16, equivalent to the thickness of the partition walls 5, 11. This improves the elasticity and performance of the recoil pad, during the recoil of the sporting rifle or firearm.

[0031] Pass-through orifices 12, 13 (Figure 1) are also illustrated, which secure the recoil pad to the stock, for example, by means of screws and a perimeter rabbet 14 (Figure 4) that facilitates the fit of the recoil pad to the stock of the sporting rifle or firearm.

[0032] This exemplary embodiment shows three gel pads, although as few as two can be used depending on the size of the recoil pad.

[0033] This invention describes a new recoil pad for sporting rifle or firearm. The exemplary embodiments mentioned here do not limit this invention and, for this reason, can have various applications and/or adaptations, all of which within the scope of the following claims.

Claims

1. A recoil pad for sporting rifle or firearm, of the type that comprises a body (1), manufactured using an elastic material, with the means for connecting to the stock of a sporting rifle or firearm, **characterised in that** it comprises:

- at least two transversal cavities (3, 4), separated by an elastic partition wall (5) that connects the left side (8) of the recoil pad to the right side (9) of the recoil pad and

- at least two removable gel pads (6, 7), one per cavity (3, 4), which fit inside said cavities.

2. A recoil pad, in accordance with claim 1, **characterised in that** gel pads (6, 7) on the side facing the rifle stock comprise at least one channel (19) that is transversal with respect to the cavities (3, 4) that divides the mentioned gel pad (6, 7) into at least two parts (17, 18).
3. A recoil pad, in accordance with claim 1, **characterised in that** it comprises reliefs or striations (15), the perimeter of which is separated from the referred cavities (3, 4) by distance (16) which is equivalent to the thickness of partition wall (5), of which there is at least one.

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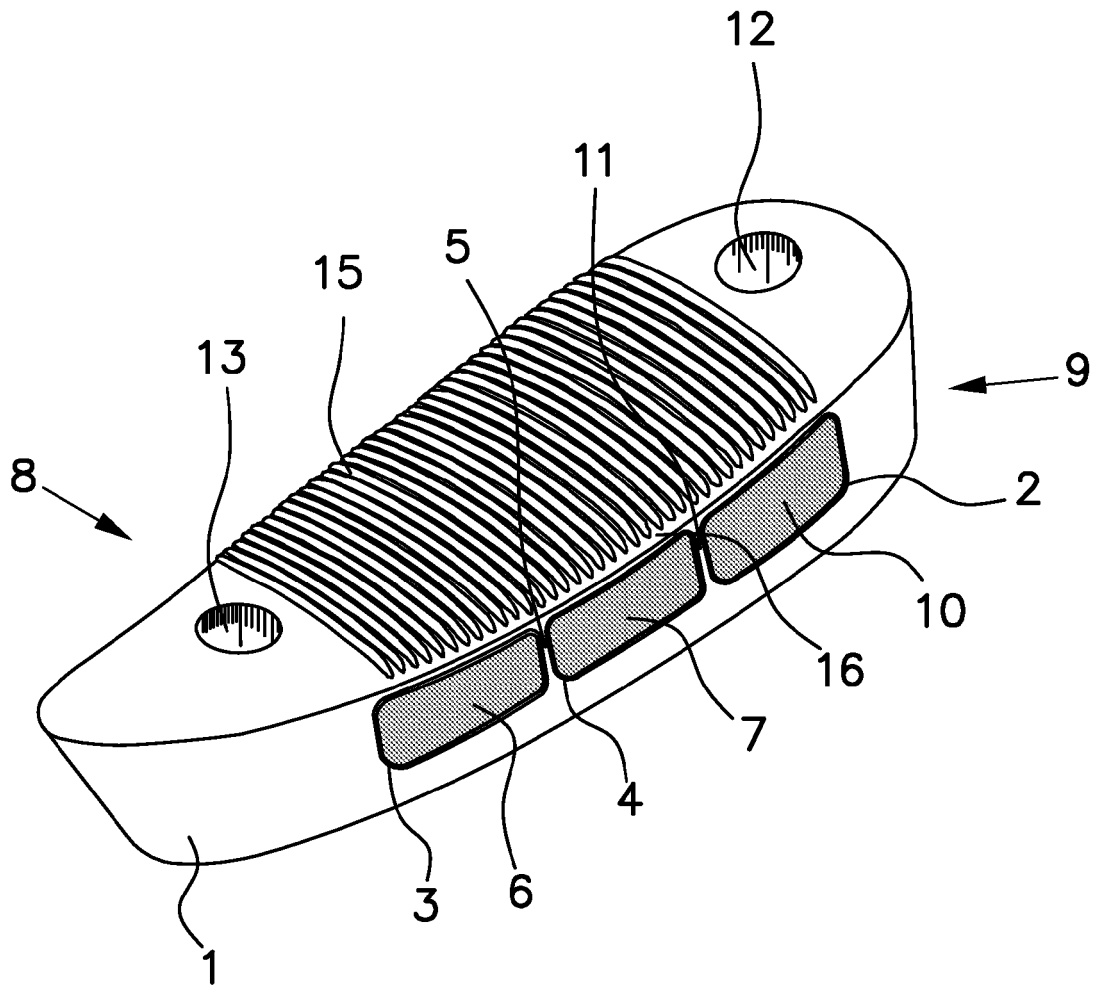


FIG. 1

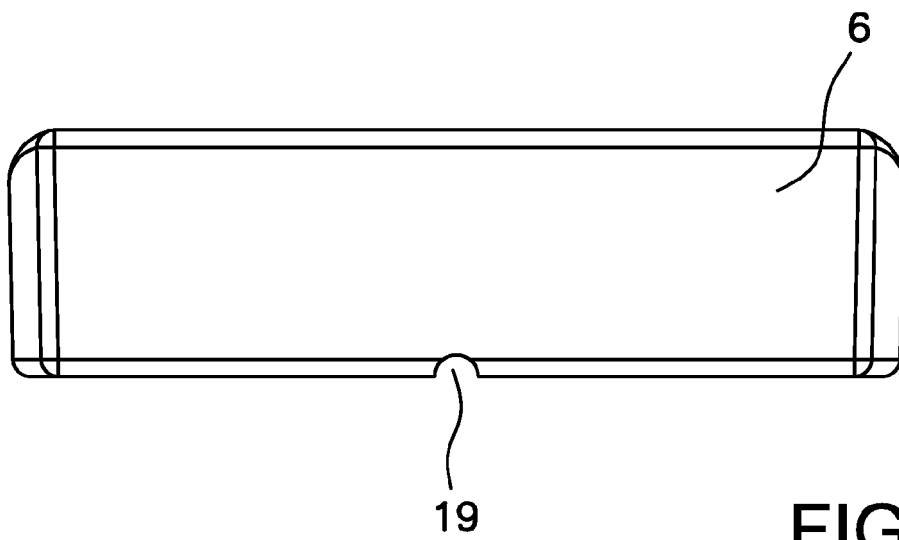


FIG. 2

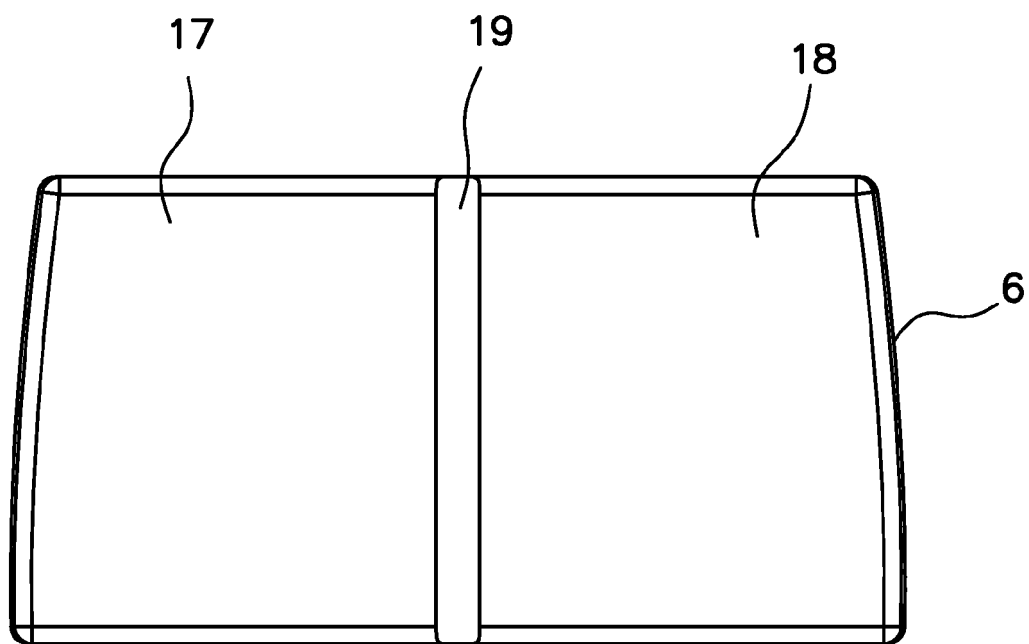


FIG. 3

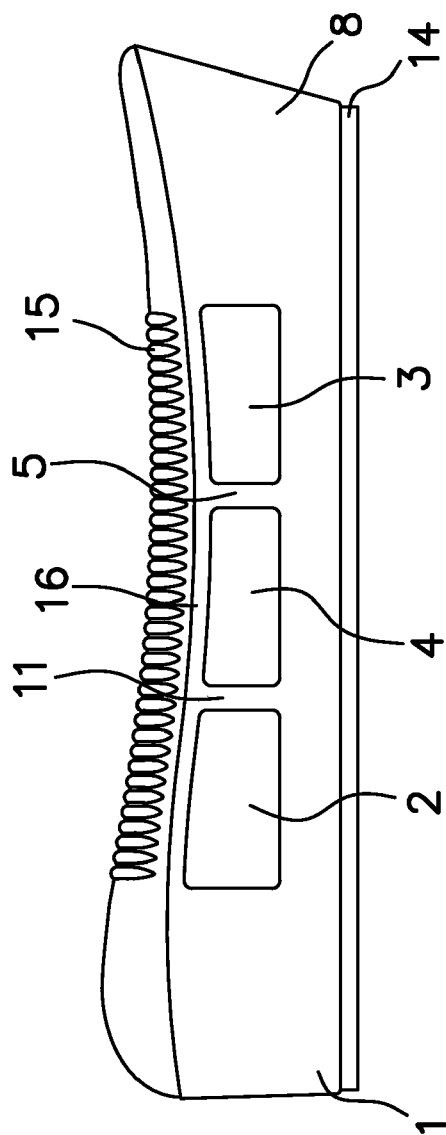


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 09 38 2165

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 4 551 937 A (SEEHASE JACK C [US]) 12 November 1985 (1985-11-12) * abstract; figures 1,2,4a * * column 1, line 33 - line 35 * * column 4, line 64 - column 5, line 31 * * column 6, line 54 - line 58 *	1,3	INV. F41C23/08
Y,D	US 4 683 671 A (FARRAR FRANK W [US]) 4 August 1987 (1987-08-04) * abstract; figure 7 * * column 3, line 39 - line 63 *	1,3	
A	US 1 729 514 A (LORIMER GEORGE W) 24 September 1929 (1929-09-24) * figures * * page 1, line 5 - line 72 *		
			TECHNICAL FIELDS SEARCHED (IPC)
			F41C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 January 2010	Examiner Schwingel, Dirk
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 38 2165

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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28-01-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4551937	A	12-11-1985	NONE	

US 4683671	A	04-08-1987	NONE	

US 1729514	A	24-09-1929	NONE	

REFERENCES CITED IN THE DESCRIPTION

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- US 4683671 A [0004]
- EP 1122507 A [0005]
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- US 20040144011 A [0006]
- WO 2007033342 PCT [0007]
- US 6305115 B [0008]