No. 837,455. PATENTED DEC. 4, 1906.

A. T. DUNCAN.

CUSHIONED BUTT PLATE.

APPLICATION FILED DEC. 11, 1905.

Fig. 2.

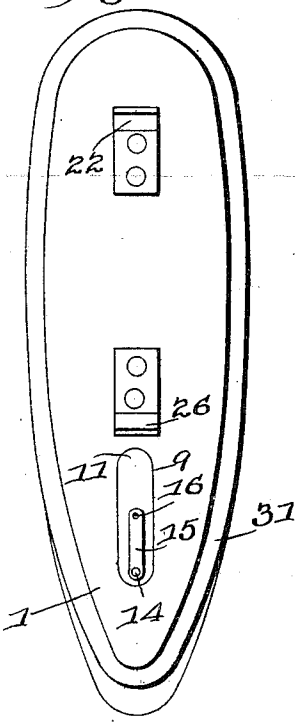


Fig. 1.

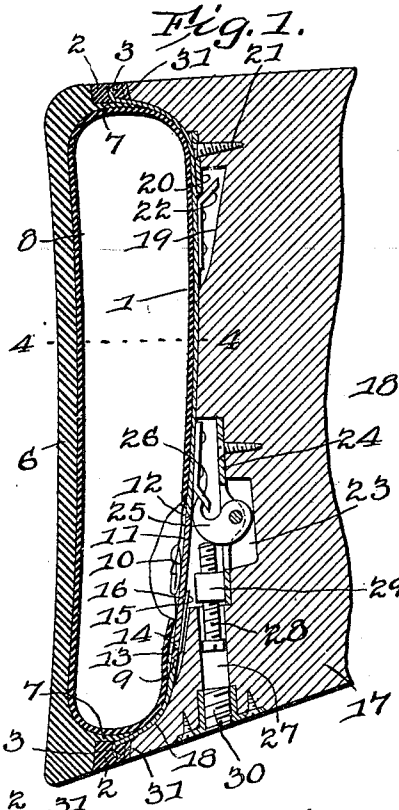


Fig. 3.

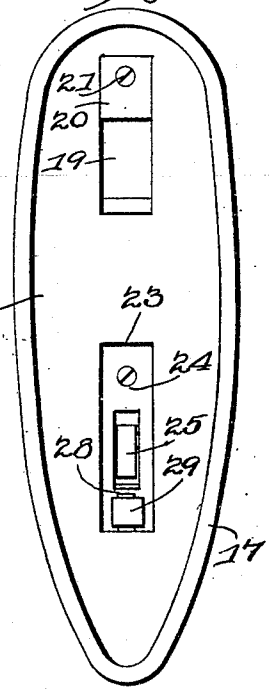
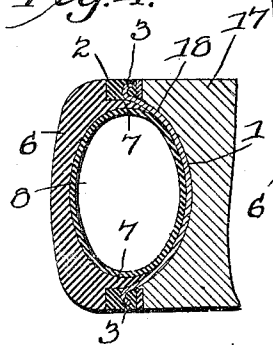


Fig. 4.



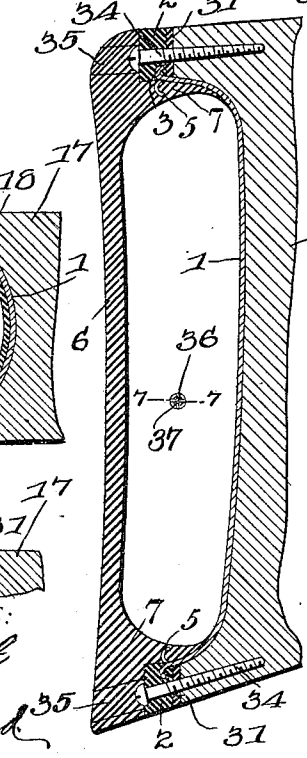


Fig. 5.

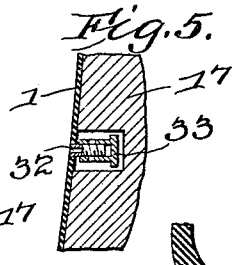


Fig. 6.

Fig. 8.

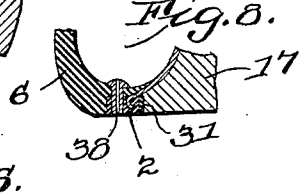


Fig. 7.

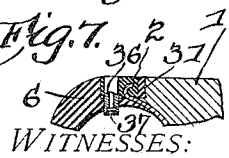
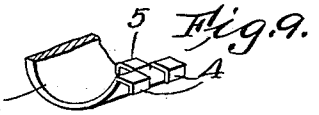


Fig. 9.



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UNITED STATES PATENT OFFICE.

ARTHUR THOMPSON DUNCAN, OF CLINTON, MISSOURI.

CUSHIONED BUTT-PLATE.

No. 837,455. Specification of Letters Patent. Patented Dec. 4, 1906.

Application filed December 11, 1905. Serial No. 291,302.

To all whom it may concern:

Be it known that I, ARTHUR THOMPSON DUNCAN, a citizen of the United States, residing at Clinton, in the county of Henry and State of Missouri, have invented a new and useful Cushioned Butt-Plate, of which the following is a specification.

This invention relates to butt-plates for firearms, and has for its object to cushion the same for the purpose of taking up the kick or jar incident to the recoil of the firearm.

It is proposed to embody the invention in the nature of a complete butt-plate which is capable of taking the place of an ordinary butt-plate without requiring any material change in the stock of the firearm and at the same time preserving the usual configuration of the butt-end of the stock.

It is furthermore designed to employ air as the cushioning element and to provide the butt-plate with an air-chamber having a yieldable rear wall for engagement with the shoulder of the user.

Another object of the invention is to embody the same in a form to take the place of the ordinary butt-plate and also to embody the same in a form for application to the stock in the original manufacture thereof and to enable the convenient removal of the device for inflation thereof should leakage of the air occur sufficient to require the inflation of the air-chamber.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a sectional view taken through the butt-end of a stock of a firearm having one embodiment of the present invention applied thereto. Fig. 2 is a front face view of the butt-plate. Fig. 3 is a rear elevation of the stock prepared for the reception of the butt-plate. Fig. 4 is a cross-sectional view on the line 4 4 of Fig. 1. Fig. 5 is a detail sectional view showing an arrangement of an inflation-valve for the air-chamber. Fig. 6 is a view similar to Fig. 1, showing the invention embodied in permanent form. Fig. 7 is a fragmentary sectional view on the line 7 7 of Fig. 6. Fig. 8 is a view similar to Fig. 7, showing a modification. Fig. 9 is a fragmentary perspective view illustrating a modification in the plate-metal member of the air-cushion.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

Referring at first more particularly to Figs. 1 to 4, inclusive, wherein has been shown the detachable embodiment of the present invention, 1 designates the plate-metal back of the butt-plate, which is dished or concaved transversely and longitudinally throughout its inner face and is provided around its edge with an annular rim or flange 2, formed of hardened or vulcanized rubber. It is proposed to embed the peripheral edge of the metallic shell in the hard rubber 2, and in order to anchor the edge of the shell in the hard rubber said edge is provided with an annular series of outturned hooks 3, or, as shown in Fig. 9, the hooks may alternate at the inner and outer sides of the shell, as shown at 4 and 5. The outer side of the metallic shell is closed by a soft-rubber shell or covering 6, which is secured to the hard rubber 2 and has an internal annular flange portion 7 overlapping the joint between the metal shell and the hard-rubber rim, so as to prevent leakage of air through this joint. For the purpose of inflating the air-chamber there may be employed a sack 8 of thin rubber, which can be introduced into the air-chamber through an opening 9, formed in the metallic shell and provided with an inflation-stem 10, accessible through the opening 9 and capable of being pushed back into the chamber after the sack has been properly inflated. A removable closure-plate 11 snugly fits within the opening 9 and is provided at one end with a lip or projection 12, lying within the chamber and against one face of the metallic shell. A similar lip 13 is provided at the other end of the plate and is carried by a pivot-pin 14 rotatably piercing the plate and provided at its outer end with a spring-arm 15, having a stud or projection 16 upon its free end to snap into a socket or recess in the outer face of the plate when the latter is in place, thereby to hold the lip 13 in engagement with the metallic shell to prevent displacement of the cover-plate. This cover-plate may be conveniently removed by turning the arm 15 so as to disengage the lip 13 from the shell, whereupon the plate may be

drawn out of the opening to give access to the inflation-stem 10. To accommodate the butt-plate thus described, the butt-end of a stock (shown at 17) is hollowed out or recessed, as at 18, to form a seat or socket of a shape to receive the metallic shell portion of the butt-plate. A cavity 19 is formed in the recessed portion adjacent the top thereof, and a plate or the like 20 is secured to the back of the recess by a fastening 21 with the lower end of the plate overlapping the cavity 19. To cooperate with this plate, a projection 22 is secured to the outer side of the metallic shell 1 and inclines upwardly and outwardly therefrom, so as to engage back of the plate 20, and thereby detachably connect the upper portion of the butt-plate with the upper portion of the stock. It will here be noted that the plate 20 and the cavity 19 produce a flanged or undercut cavity with which the inclined projection 22 is designed to engage to form a detachable connection between the butt-plate and the stock.

Below the cavity 19 there is another cavity 23, which is covered by a metallic plate 24, that is slotted and carries within its slot a pivotal hook 25, which has its bill turned upwardly to engage a keeper or projection 26, carried by and inclined downwardly and forwardly from the metallic shell, so as to hold the lower portion of the butt-plate against the stock. The under edge of the stock is pierced by a vertical opening 27 for the reception of a threaded pin 28, which is carried in a threaded bearing 29, provided upon the lower end of the plate 24, the outer end of the pin having a screw-driver slot or seat which is accessible through the outer end of the passage or channel 27, whereby the pin may be adjusted into engagement with the hook 25 to hold the latter engaged with the keeper 26, and thereby prevent looseness and accidental disengagement of the butt-plate. By withdrawing the threaded pin 28 from the hook 25 to permit the latter to gravitate out of engagement with the keeper or projection 26 the butt-plate may be removed downwardly and rearwardly from the stock, wherefore the butt-plate may be very conveniently applied and removed. The lower end of the passage 27 is normally closed by a threaded plug 30 to prevent choking of the passage by the accumulation of foreign matter therein.

By reason of the inclined disposition of the keeper 26 the butt-plate may be drawn into snug engagement with the stock by forcing the pin 28 against the hook 25. In connection with this feature it is proposed to provide the hard-rubber flange 2 with a facing-strip 31, of rubber, felt, or other yieldable material, so as to form a tight joint between the flange and the rear end of the stock when the present device is assembled therewith.

In practice when the firearm is discharged the recoil thereof is taken up by the air-cushion in a manner to absorb practically all of the jar, thereby preventing bruising of the shoulder of the user and also enabling the user to hold a much steadier aim at the time of the discharge of the firearm.

In some instances it may be found desirable to dispense with the sack 8 and to inflate the air-chamber through a suitable inflation-valve 32, as shown in Fig. 5 of the drawings. While this inflation-valve may be of any of the ordinary types, it is proposed to have the same include a tubular stem provided with a perforate closure-cap 33, threaded thereon and capable of being backed off of the stem, so as to uncover the openings, whereby the air-chamber may be inflated by blowing into the stem with the latter in the mouth, the cap being afterward held in the teeth and the butt-plate rotated to set the cap upon the stem and close the openings without removing the stem from the mouth.

The embodiment of the invention shown in Fig. 6 of the drawings includes the metal shell 1, the soft-rubber shell or cover 6, and the hard-rubber rim or flange 2, as hereinbefore described, but is arranged for permanent connection with the stock of a firearm by means of threaded fastenings 34, which pierce the opposite ends of the soft-rubber cover 6 and the end portions of the hard-rubber rim or flange 2 and enter the stock, the openings in the soft-rubber portion being afterward closed by means of plugs 35. In this form of the device the air-chamber is subjected to atmospheric pressure only and is in communication with the atmosphere by means of a valve including a tubular stem 36, piercing the hard-rubber rim or flange 2 at some suitable point and provided at its inner end with a valve 37, which closes outwardly and opens inwardly. By this arrangement when a recoil takes place the jar is absorbed by the soft-rubber cover and the air-chamber, escape of the air being prevented by the valve 37, and leakage is compensated for by the fact that the valve opens inwardly, and any reduction in pressure within the chamber will permit the valve to open, and thus supply air from the atmosphere.

In lieu of the valve and as shown in Fig. 8 an open-ended tube 38 may be employed, said tube piercing the hard-rubber rim or flange and communicating with the air-chamber, the area of the passage through the tube being comparatively small, so that when the air-chamber is subjected to pressure by the recoil of the firearm the air will be permitted to escape to a slight degree, whereby the cushioning effect will be obtained. After the pressure is removed air will pass inwardly through the tube, so as to take the place of such air as was discharged under the effect of the recoil of the firearm.

From the foregoing description it will be

understood that I have embodied the invention in a form to be applied to firearms in the original construction thereof, this embodiment of the invention being detachable for convenience in inflating the air-chamber should the latter become deflated sufficiently to impair its efficiency. Moreover, the invention has also been embodied in a form to take the place of the ordinary butt-plate, which may be removed and the butt-end of the stock recessed or hollowed out to receive the metallic-shell portion of the present plate. In each form of the device the hard-rubber rim and the soft-rubber cover should be of a size to project beyond the sides of the stock in order that these parts may be dressed down to accurately fit the stock, and thereby avoid undesirable projecting of the butt-plate at the sides of the stock. The present butt-plate is of course proportioned so as to exactly occupy the position of the ordinary butt-plate, thereby to avoid increase of length of the stock when the present device is attached thereto.

When the metallic shell 1 is flanged, as in Fig. 9, the internal hooks or flange members 5 are embedded, as shown in Fig. 6, in the flange portion 7 of the soft-rubber shell 6, so as to effectually hold the flange portion 7 in place.

Having thus described the invention, what is claimed is—

1. A gun having a butt-plate comprising a shell which is closed throughout one side and open through the other side, and a soft-rubber cover for and carried by the open side of the shell, the shell and the cover defining an air-chamber to cushion the cover, and means for detaching the shell from the gun without removing the soft-rubber cover or deflating the same.

2. A butt-plate including an air-chamber made up of a dished side for engagement with a gun-stock, a molded rim having the peripheral edge of said side embedded therein, and a yieldable cover connected to the rim and formed for engagement with the shoulder of the user.

3. A butt-plate including an air-chamber made up of a dished metallic side for engagement with a gun-stock and having its peripheral edge flanged, a hard-rubber rim having the flange embedded therein, and a soft-rubber cover connected to the rim and formed to engage the shoulder of the user.

4. The combination of a gun-stock, a butt-plate, a pivotal hook carried in the stock, means upon the butt-plate for engagement by the hook, the stock being provided with an opening leading to the hook for access thereto, and an endwise-movable element working in the opening in coöperative relation with the hook for controlling the same.

5. The combination of a gun-stock having a recess in the butt-end thereof, an opening leading through one side of the stock to the recess, a butt-plate, a pivotal hook mounted within the recess, a keeper upon the butt-plate for engagement by the hook, a threaded bearing in alinement with the opening in the stock, and a threaded member working in the opening and through the bearing into co-operative relation with the hook for controlling the latter.

6. The combination of a gun-stock, a cushioned butt-plate including a dished shell for engagement with the stock and having its outer side open, a yieldable cover for the open side of the shell, and means located in the stock for engagement with the shell to detachably connect the latter with the stock, the stock being provided with an opening to give access to the attaching means.

7. The combination of a gun-stock having its butt-end hollowed out and provided with a flanged recess, a butt-plate including a metallic shell having a projection to detachably engage the flanged recess, and a yieldable cover for the shell, the shell and the cover defining an air-chamber, a pivotal hook within the hollowed-out portion of the stock, a keeper upon the shell for engagement by the hook, the stock being provided with an opening leading to the hook, and means working in the opening to control the hook.

8. A cushioned butt-plate including a metallic shell having one side closed and its other side open, a yieldable cover for the open side of the shell, the shell and the cover defining an air-chamber, an inflatable sack within the chamber and provided with an inflation-stem, the shell being provided with an opening for access to the same, a cover-plate provided at one end with a lip to engage the inner side of the shell, a pivotal shell-engaging lip carried by the other end of the cover, and a swinging spring-arm connected to the pivotal lip and bearing against the exterior of the plate to hold the pivotal lip against movement, and means for connecting the metallic shell to a gun-stock.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ARTHUR THOMPSON DUNCAN.

Witnesses:
H. C. JONES,
W. M. STEVENS.