(No Model.)

2 Sheets—Sheet 1.

H. E. FINNEY.

SPRING SEATED BUTT CAP FOR GUNS.

No. 328,930. Patented Oct. 27, 1885.

Fig. 2.

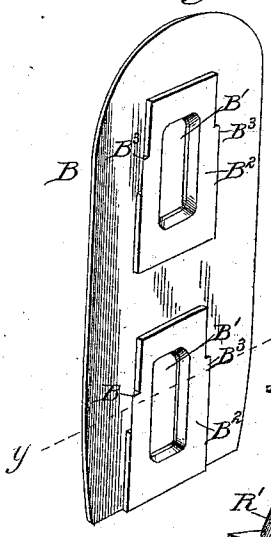


Fig. 3.

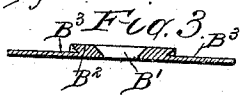


Fig. 7.



Fig. 8.



Fig. 1.

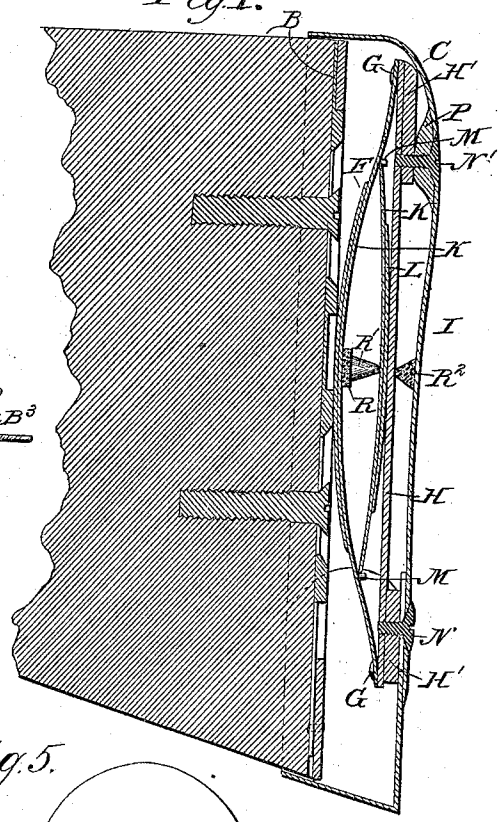


Fig. 4.

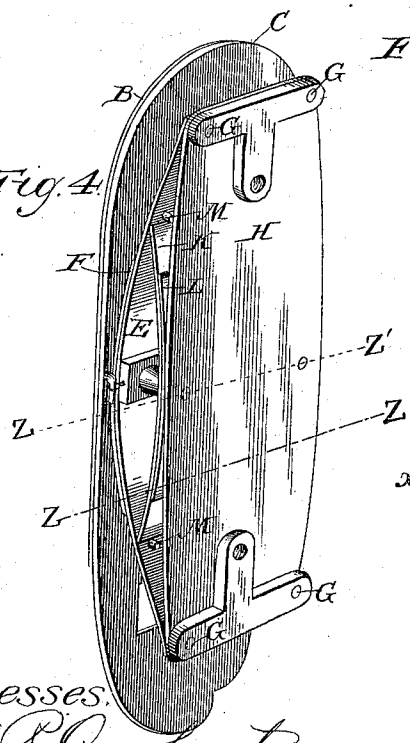


Fig. 5.

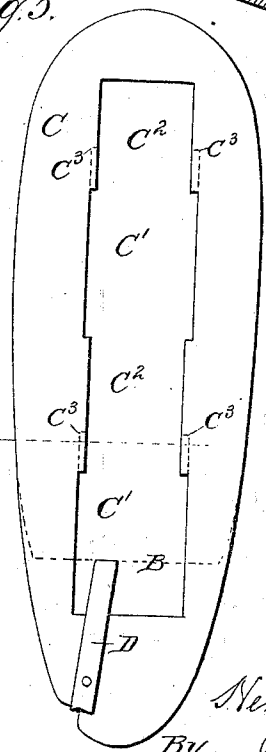
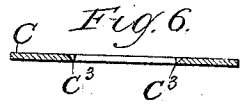


Fig. 6.



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(No Model.)

H. E. FINNEY.

2 Sheets—Sheet 2.

SPRING SEATED BUTT CAP FOR GUNS.

No. 328,930. Patented Oct. 27, 1885.

Fig. 9.

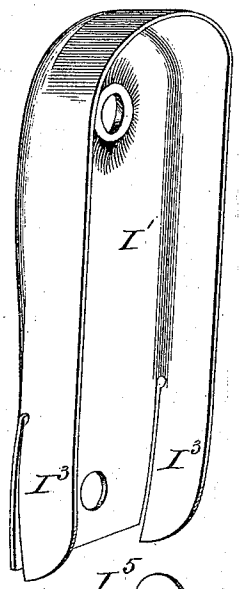


Fig. 11.

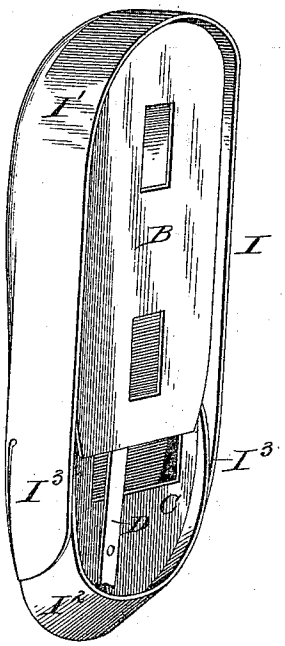


Fig. 10.

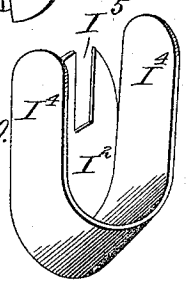


Fig. 12.

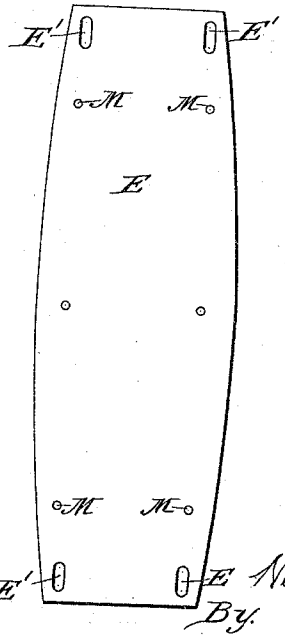


Fig. 13.

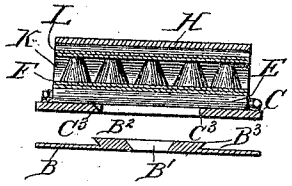
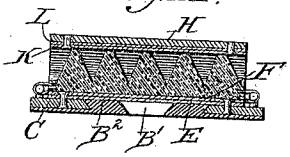


Fig. 14.



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UNITED STATES PATENT OFFICE.

HENRY E. FINNEY, OF CHICAGO, ILLINOIS.

SPRING-SEATED BUTT-CAP FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 323,930, dated October 27, 1885.

Application filed August 8, 1884. Serial No. 139,986. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. FINNEY, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Spring-Seated Butt-Caps for Gun-Stocks, of which the following is a specification.

This invention relates to improvements in spring-seated butt-caps for gun-stocks of that class in which the butt-cap is fitted to slide on the stock, and one or more springs confined between the butt-cap and the butt-end of the stock, so that when the butt-cap is held against the body of the person firing the gun the force of the recoil will cause a compression of the springs between the butt-cap and the butt of the stock as the latter is driven back in the butt-cap, whereby the spring resistance opposed to the recoil will take up the shock, and thereby relieve the person firing the gun.

The objects of my invention are to provide, in connection with the butt-cap and the springs which are connected to and confined within the latter, a base-support for the springs adapted to be detachably secured to the butt-end of an ordinary gun-stock without altering the construction of the stock otherwise than to remove therefrom the usual butt-plate, in which event the screws employed for securing the butt-plate can be utilized for securing the base attachment for the springs to the stock; also, to provide for a gun-stock a spring-butt attachment in which the springs confined within a butt-cap fitted to slide on the stock are connected with the butt-cap and with a base-plate secured on the butt-end of the stock, whereby the springs located externally to the stock shall serve as means for maintaining the butt-cap on the stock as long as the base-plate for the springs is secured upon the latter; also, to provide a strong and efficient construction and arrangement of springs which during the recoil shall prevent the butt-cap from rocking independently of the stock, and also maintain the sides of the cap which fit in the stock parallel with the line of recoil, so that the pressure against the springs shall be perpendicular to the springs, the butt-end of the stock permitted to slide accurately in and out from the butt-cap, and any binding action between the stock and the side of the cap at any one point entirely avoided; also, to provide a laterally-extensible butt-cap susceptible of being widened or shortened to fit various sizes of stocks; also, to provide a two-part base-support for the springs, one of said parts being directly connected with the spring or springs and the other being adapted to be secured to the butt of the stock in place of the ordinary butt-plate, and said two parts being adapted to be fitted and locked together, whereby after one part has been secured to the stock the remaining part, carrying the springs, can be attached to the same, so as to provide at the butt-end of the stock a base-support connected with the latter and with the springs, which are in turn connected with the butt-cap; also, to provide certain improved details of construction, as hereinafter described and claimed, and illustrated in the annexed drawings, in which—

Figure 1 represents a central section through a spring-butt attachment constructed in accordance with my invention and applied to a gun-stock. Fig. 2 is a perspective view of one of the base-plates, which is adapted to be secured directly to the butt-end of the stock. Fig. 3 is a transverse section taken on line *y y*, Fig. 2. Fig. 4 is a perspective view of the attachment without the butt-cap. Fig. 5 is a plan view of one of the base-plates designed to be locked on the plate shown in Fig. 2 after the latter plate has been secured to the stock. Fig. 6 is a transverse section on line *x x*, Fig. 5. Fig. 7 represents a set of auxiliary springs. Fig. 8 shows a spring-cushion designed to be fitted against the inner side of the butt-cap. Fig. 9 is a perspective of one portion of the butt-cap, and Fig. 10 is a like view of the remaining portion thereof. Fig. 11 is a perspective view of the complete attachment, showing the manner in which the plate C is locked on the plate B. Fig. 12 represents one of the four springs. Fig. 13 is a transverse section on line *z z*, Fig. 4, with the plates B and C separated. Fig. 14 is a like section on line *z' z'*, Fig. 4.

Referring by letter to the several figures of the drawings, in which like letters denote like parts, A indicates an ordinary gun-stock, which prior to the application of my spring-

seated butt-cap thereto can be provided with the ordinary butt-plate secured to the end of the stock-butt by means of screws, in the usual way.

My improved spring attachment for the butt-end of a gun-stock comprises three main elements—to wit, a butt-cap adapted to inclose the butt-end of the stock and to slide on the latter, a spring-seat for the butt-cap, and a base-support for the spring-seat, connected with the latter and adapted to be secured upon the butt-end of the stock. The butt-cap is made in two parts, so as to be susceptible of being enlarged or diminished in area in order to fit various sizes of gun-stocks, and the spring-seat or cushion is composed of springs constructed as hereinafter described. The base-support for the spring-seat is composed of a pair of plates, one of which is adapted to be secured directly to the stock in place of the usual butt-plates, while the other plate, C, of my base-support for the springs, constituting the spring-seat or cushion, forms a seat to which the main spring of said spring-seat or cushion is secured, said two plates being adapted to be detachably secured together, whereby in order to apply my spring-seated butt-cap the usual butt-plate can be detached, and in place thereof the oblong slotted plate B, constituting one of the members of my two-part base-support, fitted against the butt-end of the stock and secured thereon by means of the screws A′, previously employed for securing the ordinary butt-plate to the stock, which said screws can be inserted through the slots or openings B′ in the plate B and screwed in the holes in the stock which were provided for the screws in the first instance. This plate B serves as a means for connecting with the stock a plate, C, which latter constitutes a direct seat for the springs and forms the other member of the two-part base-support. The plate C is adapted to be detachably connected with the plate B after the latter has been secured to the stock, for which purpose I provide a sliding dovetail joint or connection between the two plates, which admits of their being readily connected with or disconnected from each other, and I further provide a latch for immovably locking one plate in position on the other after they have been connected together by means of the dovetail connection. As a simple and convenient means for forming this dovetail joint between the two plates, the plate B is provided upon its outer face with a pair of bosses formed around the slots in plate B, or with a pair of slotted plates, B^2, formed with or secured to plate B, and having this opening coinciding with the slots in the main plate, as in Figs. 2 and 3. These bosses or raised locking portions of plate B are received in a longitudinal slot in the plate C when the latter is fitted against the plate B, and practically constitute dovetail ribs for locking one plate with the other, for which purpose each boss, plate, or rib B^2 is made of a rectangular shape and contracted in width at one end, and provided with short beveled edge portions B^3, which commence at the points of juncture between its narrow and its wide portions and run back a short distance along the latter. The slot which is formed longitudinally through the plate C is formed, as shown in Fig. 5, with the wide portions C′ and narrow portions C^2, respectively, corresponding to the wide and narrow portions of the ribs B^2, so that the ribs on the plate B can fit in the slot in the other plate, C, when the latter is fitted on the bed-plate B. The side edges of each narrow portion of the slot in the plate C are each beveled for a short distance, commencing at the points of juncture between the wide portions and one end of each contracted portion of the slot, these beveled edge portions C^3 of the slot being made in correspondence with the beveled edge portions B^3 of the ribs B^2, as indicated in dotted lines, Fig. 5, and full lines, Fig. 6. By such construction, when the plate C is fitted against the plate B, with the ribs of the latter received in the slot C′ C^2, the plate C can be slid along on the plate B, so as to bring the beveled edge portions of the sides of its slot under and against the beveled edge portions of the ribs B^2, and thereby lock the two plates together. This dovetail joint or connection between the two members of the base-support serves to hold the said two members or plates together; but in order to prevent any slipping on the part of either plate, the plate C is provided with a latch, D, Figs. 5 and 11, pivoted near one of its ends, and arranged to be swung around against the end of the bed-plate B after the two plates have been interlocked.

In Fig. 5 the plate B is shown in dotted lines with the latch in position against an end thereof, while in Fig. 11 the two plates and the latch are illustrated in full lines. Upon one side of the plate C is arranged a half-elliptic or bow-shaped spring, E, which is riveted at its middle portion to the base-plate, and between this bow-spring and the plate I prefer to arrange a short auxiliary bow-spring, F, which constitutes a leaf for increasing the strength of the mainspring. The long main bow-spring E, which is shown detached in Fig. 12, is provided near each end with a short slot, E′, through each of which passes one of a set of screws or pins, G, which serve to connect the bow-spring with a spring back plate, H, to which latter the butt-cap I is rigidly secured. This connection between the ends of the bow-spring and the back plate (which latter, as just stated, is rigid with the butt-cap, and is therefore for some purposes a part of the same) allows a suitable extent of play on the part of the bow-spring at its ends while the said spring is being either straightened out under a recoil of the gun or while the spring is resuming its normal bent condition, and mainly serves to prevent the butt-cap from being thrown out too far from the stock. At the same time, however, this yielding connec-

tion between the long bow-spring and the back plate to which the butt-cap is attached prevents any side rocking movement on the part of the butt-cap independently of the stock during the recoil, and serves, therefore, to practically provide guides between the butt-cap and the stock, which will prevent an unsteady movement during the recoil, and hence cause a parallelism to be preserved between the sides of the stock and the flanged portion or sides of the cap which encircle the latter. Between the main bow-spring E and the back plate, H, I arrange a second bow-spring, K, which is somewhat shorter than the bow-spring E, and supplemented by a short spring-leaf, L. The spring K and its supplemental spring or spring-leaf L are fitted together and riveted at the middle to the inner side of the back plate, and are arranged with their curve reversely to the curvature of the spring E, so that the ends of the shorter bow-spring, L, shall rest against the concave side of the longer bow-spring, E, at points back of the ends of the latter. The longer bow-spring, E, is provided on its concave side with studs M, which are arranged to constitute stops or abutments for the ends of the short bow-spring K. It will be seen that as the shorter bow-spring is connected with the butt-cap through the medium of the back plate, H, its ends bearing against stops on the longer bow-spring, which is connected with a base-support secured on the stock, will assist in establishing a spring-connection between the stock and the butt-cap, which, under a recoil of the gun, will insure a compression of the springs in the direct line of the recoil, and afford between the stock and the butt-cap a yielding connection, which shall yield directly in line with the direction of the recoil, and hence prevent any rocking or side movement of the butt-cap independently of the stock when the latter recoils. The connection between the longer bow-spring and the back plate, H, also subserves the same purpose, it being understood that in its normal condition the said spring will be drawn against the stud or pins G at the ends of its slots which are nearest the ends of the spring, so that upon any subsequent compression of the spring its ends resting on the inner side of the back plate, H, shall be free to ride outwardly or toward the ends of the latter to a limited extent.

The butt-cap I is composed of two sections—the one, I′, constituting the main body portion and the other, I^2, an end portion of the cap. The part, I′, constituting the main portion of the cap is in the nature of an oblong cup cut away at one side. The sides of this part of the cap are separated from the back thereof for a short distance from their ends, so as to form a pair of spring-wings or side portions, I^3, and these spring ends of the sides are made to converge toward each other and to normally stand over the inner side of the back of the cap, as in Fig. 8. The other and smaller portion, I^2, of the cap has the ends I^4 of its sides similarly separated from the back portion of this part of the cap; but in place of converging toward each other they are arranged to diverge, so as to normally stand out or away from the side edge of the back portion, as in Fig. 10. This part I^2 of the cap is also provided with a slot or notch, I^5, for a fastening-screw, N, Fig. 1. The part I^2 of the cap is adapted to fit in the part I′, and by drawing it out the cap can be adjusted to the size of stock. The part I′ is secured by a screw, N′, to the back plate, said cap having a bearing, P, and the back plate being provided with a suitable bearing, H′, for the screws. The part I^2 is secured to the back plate by screw N passing through the slot I′ in this part of the cap, and also fitted in a bearing with which the back plate is provided. The spring sides serve as auxiliaries to the screw in holding the two parts of the cap together, since, when the part I^2 is fitted in the part I′, the action of these spring sides against one another will bring them into position so as to properly shape the cap. To resist heavy recoils, I provide an auxiliary elastic cushion, R, Figs. 1 and 7, composed of a set of solid conical rubber springs, R′, rising from a common base or bed plate, preferably formed with and of the same material as the cone-springs. This cushion is arranged between the bow-springs E and K, whereby said cone-springs will be compressed when the springs are being straightened and will oppose to the recoil a spring resistance rapidly increasing in proportion to the extent to which they are compressed. In the space occurring between the back of the butt-cap and the back plate I arrange an elastic cushion, R^2, Figs. 1 and 8, consisting of a strip of rubber made triangular or of other preferred form in cross-section.

From the foregoing it will be seen that when my attachment is applied to the butt-end of a gun-stock the butt-cap is practically connected with a spring-seat composed of bow-springs, and the said seat is in turn connected with a flat base support or bed, which is detachably fitted against the butt-end of the stock in place of the usual butt-plate, which, as hereinbefore observed, will be removed prior to applying my attachment, in which way it will be within the province of any one to apply my attachment, and hence the time and cost of procuring skilled labor avoided. It may also be observed that by means of a pair of bow-springs arranged as shown an elliptic spring is provided between the stock and the butt-cap, which spring is at one side connected with the stock through the medium of a back plate, which in effect forms a part of the cap. By forming, however, one-half of this elliptic spring longer than the other, provision can be made for effecting a sliding connection between the prolonged end portions of the spring and the back plate which is rigid with the butt-cap, thereby connecting the said cap and back plate with the base-support, since, as hereinbefore described, the longer half of the elliptic spring is secured at its middle to one of

the two members of the two-part base-support. This part of the spring therefore affords a connection between the cap and the stock, while the shorter half of the elliptic spring, in addition to its use as a part of the spring resistance opposed to the recoil, practically serves as a guide for the cap and prevents the latter from rocking independently of the stock.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A spring attachment for the butt-end of a gun-stock, consisting of a butt-cap with an elliptic spring in a plane parallel with the butt and constituting a spring-seat therefor, and a base-support for said spring detachably secured to the butt-end of a gun-stock, substantially as described.

2. The butt-cap, in combination with a spring-seat therefor and a two-part base-support for the spring-seat, one part of said base-support detachably secured to the butt-end of a gun-stock, and both parts of the same detachably secured together, substantially as described.

3. The butt-cap and a spring-seat therefor, in combination with the two-part support, composed of a pair of interlocking plates, one of which is detachably secured to the butt-end of a gun-stock in place of the usual butt-plate, substantially as described.

4. The butt-cap and a spring-seat therefor, in combination with a base-support composed of a pair of plates detachably secured together by a dovetail joint, substantially as described.

5. The butt-cap and a spring-seat therefor, in combination with a base-support composed of a pair of plates detachably secured together by a dovetail joint, one of said plates being provided with a latch for locking the plates after they have been connected together by their dovetail connection, substantially as described.

6. The butt-cap, in combination with the elliptic spring having a sliding connection at one end with the butt-cap, substantially as described.

7. The butt-cap and a base-support for its spring-seat, in combination with an elliptic spring secured at its sides to the cap and base, and at its ends having a sliding connection with the cap, substantially as described.

8. The butt-cap, in combination with a spring-seat composed of a bow-spring having at its ends a sliding connection with the cap, and a shorter bow-spring arranged to form, in conjunction with the longer bow-spring, an elliptic spring, and having its ends resting against the longer spring, and bearing against abutments formed on the concave side of the latter, substantially as described.

9. The spring E, secured at its middle to a base-support, and at its ends having a sliding connection with the butt-cap, in combination with the spring L, connected at its middle with the butt-cap and having its ends resting on the spring E, which latter is provided with stops or abutments for the ends of the spring L, substantially as described.

10. The butt-cap and elliptic spring, in combination with an elastic cushion situated within the elliptic spring, substantially as described.

11. The butt-cap and elliptic spring, in combination with the elastic cushion situated within the elliptic spring, and composed of a series of conical rubber springs, substantially as described.

12. The combination, with a spring-seat, of a two-part extensible butt-cap inclosing the same, whereby the butt-cap can be adapted to various sizes of gun-stocks, substantially as described.

13. The extensible butt-cap, composed of two parts having spring sides or flanges embracing each other, substantially as described.

14. The extensible butt-cap, composed of two parts, I′ and I^2, respectively provided with spring sides I^3 and I^5, said parts being fitted together and secured to a back plate, substantially as described.

15. The butt-cap, in combination with the bow-spring E, secured at its middle to a base-support, and at its ends connected with the butt-cap by a sliding connection, substantially as described.

16. The butt-cap and its spring-seat, in combination with the two-part base-support, composed of plates B and C, one being provided with openings for fastening-screws and with one or more ribs having dovetail edge-portions, and the other being provided with a slot, C′, having dovetail edge portions, substantially as described.

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