May 31, 1932. W. W. KNIGHT 1,861,234

RECOIL PAD FOR GUNSTOCKS

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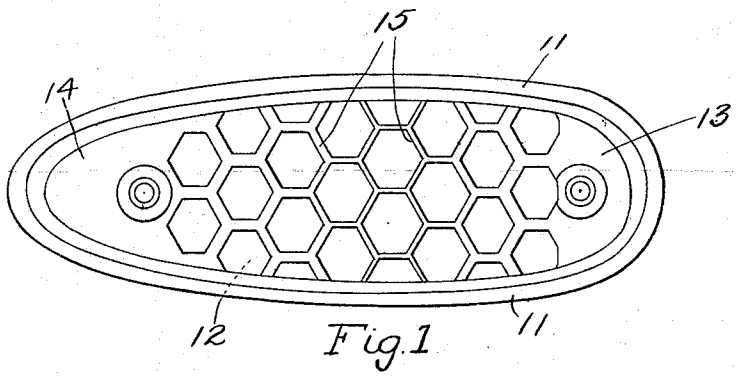


Fig. 1

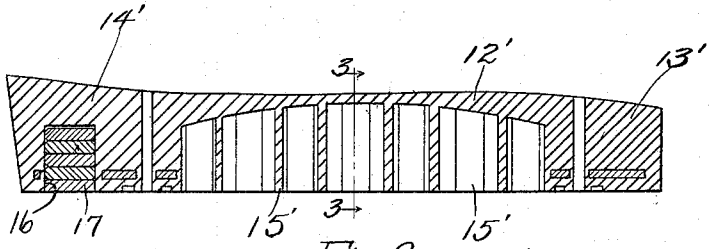


Fig. 2

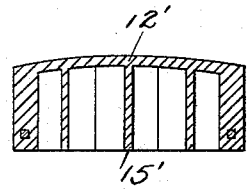


Fig. 3

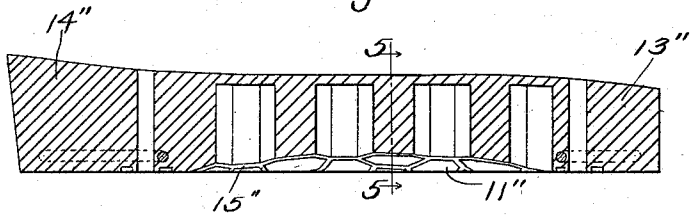


Fig. 4

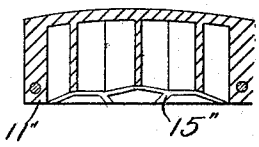


Fig. 5

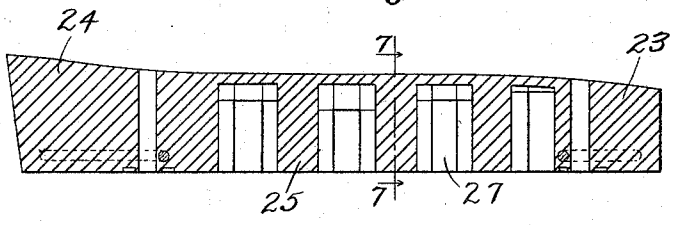


Fig. 6

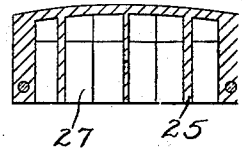


Fig. 7

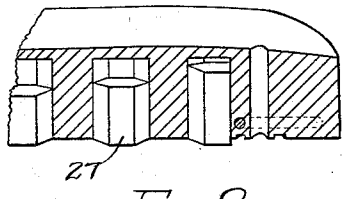


Fig. 8

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RECOIL PAD FOR GUNSTOCKS

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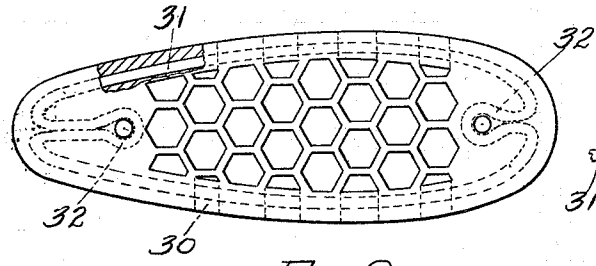


Fig. 9

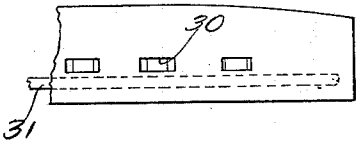


Fig. 10

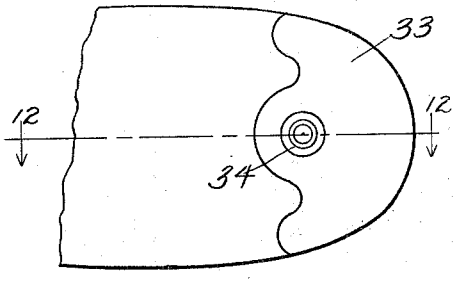


Fig. 11

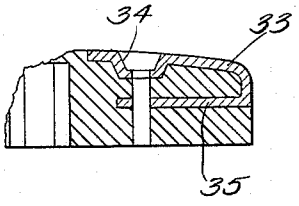


Fig. 12

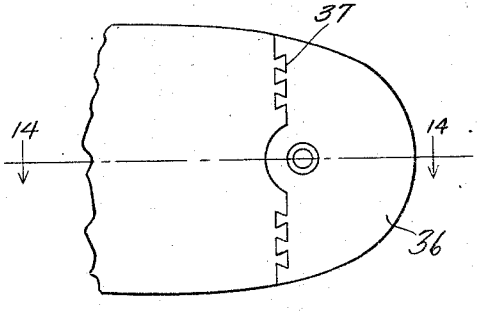


Fig. 13

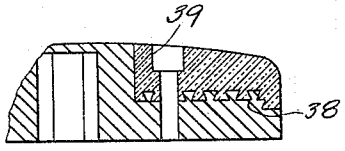


Fig. 14

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Patented May 31, 1932

1,861,234

UNITED STATES PATENT OFFICE

WILLIAM W. KNIGHT, OF CICERO, ILLINOIS, ASSIGNOR TO ROTH RUBBER COMPANY, OF CICERO, ILLINOIS, A CORPORATION OF ILLINOIS

RECOIL PAD FOR GUNSTOCKS

Application filed May 18, 1931. Serial No. 538,079.

My invention relates to a recoil pad for a gun stock.

The end of a gun stock is substantially a plane surface and it is evident therefore that when a recoil pad is secured thereto having a similar surface it will not conform to the shape of the shoulder against which it rests. On account of the shape of the shoulder the intermediate portion of the recoil pad is compressed to a greater extent than the end portions of the pad therefore, in order to provide a uniform pressure of the pad against all points of contact with the shoulder, I make the intermediate portion of the pad more readily compressible.

An object of the invention is to provide a new and improved recoil pad for a gun stock.

A further object is to provide a gun stock pad exerting uniform recoil pressure against all parts of contact with the shoulder.

A further object is to provide a recoil pad in which the relative resiliency of the intermediate and end portions is adjustable.

A further object is to provide a recoil pad which may be readily positioned against the shoulder without catching on the shoulder of the user as it is being placed in position.

Other objects and advantages will appear as the description proceeds.

Referring to the drawings,

Fig. 1 is a bottom view of a recoil pad embodying the invention,

Fig. 2 is a longitudinal section of a modified form of the invention,

Fig. 3 is a cross-section taken on line 3—3 of Fig. 2,

Fig. 4 is a longitudinal section of another modified form of the invention,

Fig. 5 is a cross-section taken on line 5—5 of Fig. 4,

Fig. 6 is a longitudinal section of another modified form of the invention,

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 6,

Fig. 8 is a perspective view of the form of the invention shown in Figs. 6 and 7,

Fig. 9 is a bottom view partly in section showing a modified form of the invention,

Fig. 10 is a cross-sectional view of the pad shown in Fig. 9,

Fig. 11 is a fragmentary plan view showing a hard surface end portion for a pad,

Fig. 12 is a section taken on line 12—12 of Fig. 11,

Fig. 13 is a fragmentary plan view of a modified form of the invention shown in Fig. 11, and

Fig. 14 is a sectional view taken on line 14—14 of Fig. 13.

Referring now more in detail to the drawings and particularly to Fig. 1, a recoil pad having lateral walls 11 and a top surface 12 is shown. The end portions 13 and 14 of the pad are made of solid resilient material for the purpose of providing relatively rigid portions at the ends of the pad. The intermediate portion of the pad within the lateral walls 11 is provided with a plurality of webs 15 which form hexagonal pockets in the intermediate portion to render the intermediate portion relatively highly resilient. I have found that in order to distribute the recoil pressure uniformly over the entire contact area of the recoil pad with the shoulder, the resiliency of the pad should taper towards the center increasing in resiliency in graduations as the center is approached. For this purpose the thickness of the walls forming the hexagonal pockets are made of greater thickness, adjacent the end portions 13 and 14 and the walls gradually decrease in thickness toward the center of the pad.

In the embodiment of the invention shown in Figs. 2 and 3 a similar result is obtained by a different structure. The end portions 13′ and 14′ are again made of solid resilient material and the intermediate portion is provided with walls or webs 15′ forming hexagonal pockets in this portion. In order to provide a tapering resiliency of the pad toward the center, the top surface 12′ of this pad is made of greater thickness toward the end portions, gradually decreasing in thickness toward the center of the pad. In view of this construction, the resiliency in the middle of the pad will be relatively higher than the rest of the pad.

In some cases it is found desirable to balance the gun by inserting a weight in the gun pad. For this purpose a tubular opening 16

may be formed in one end of the pad and this opening filled with discs 17 of lead or other heavy material. The number of these discs may be varied in order to obtain the desired balance of the gun. The discs are of such a diameter that they fit firmly into the tubular opening 16 and will be held securely in position whether the opening is entirely filled or not.

In Figs. 4 and 5 an embodiment of a further modification of the invention is shown. In this form of the invention the recoil pad is provided with solid end portions 13'' and 14'' of solid resilient material and the intermediate portion of the pad is provided with webs 15'' forming hexagonal pockets in this portion. In order to increase the resiliency of this pad toward the middle of the intermediate portion, the base or bottom of webs 15 are spaced inwardly from the lateral wall 11''. This gives an arched appearance to the lower ends of the walls forming the pockets in the intermediate portion of the pad.

In Figs. 6 to 8 is shown another modification embodying the invention. In this embodiment the end portions 23 and 24 are made of solid resilient material and the intermediate portion is provided with a plurality of webs 25 forming hexagonal pockets in the intermediate portion of the pad. In order to modify the resiliency of the intermediate portion of the pad, a plurality of inserts 27 are provided which are located within the hexagonal pockets. The inserts toward the end portions 23 and 24 are preferably made longer and the length of the inserts tapers toward the center of the intermediate portion, the shortest length insert being at the center. In this way the center of the intermediate portion will have a higher resiliency than the end portions. Under certain circumstances it may be desirable to change the relative resiliency of the portions of the pad, as for instance, when different size shot is used for different types of game. With the embodiment of the invention shown in Figs. 6 to 8, the resiliency may be adjusted at will by using the proper length of insert in the apertures.

Fig. 9 shows a gun pad having a wire insert 31. This insert has a general oval contour corresponding with that of the gun pad and at each end the insert is provided with a loop 32, which extends inwardly and passes around the aperture for securing the pad to a gun stock. In applying this pad to a gun stock the screws for attaching the pad are usually counter sunk into the opening until the heads of the screws rest against the eyes formed at the ends of the loop.

It will be noted that in the modification of this figure as well as in the other embodiments of the invention the outer walls are thicker than the inner pocket forming walls. The purpose of this is to prevent the outer walls from folding instead of compressing. However, this renders the outer walls less resilient which is an undesirable feature and in order to overcome this difficulty, I provide a plurality of laterally extending apertures 30 through the outer walls which renders them more resilient without increasing their tendency to fold. These apertures may extend completely through the walls or a thin web may remain to prevent dirt from entering the pockets within the pad.

Fig. 11 illustrates a gun pad having a metallic end portion 33. It is frequently found that in attempting to position a gun that is provided with a rubber pad against the shoulder, that the pad catches the clothing of the user and interferes with a rapid positioning of the gun against the shoulder. For this purpose the metallic end portion 33 is provided, which is made of a metal having a smooth surface so that it will slide freely against the shoulder and thus permit a rapid positioning of the gun against the shoulder. This end portion has a counter sunk aperture 34 for receiving one of the screws by which the pad is secured to the gun stock. In cross-section the end portion 33 has a general U shape, being provided with an inwardly extending plate 35 which extends beyond the aperture in the end of the pad and around the screw for holding the pad onto the stock. This end portion may be molded directly into the pad and on account of its shape it will be firmly held in the pad.

Fig. 13 shows a modified form of the device shown in Fig. 11, and the pad in this embodiment of the invention is provided with a hard rubber or bakelite end portion 36. The end portion 36 is provided with vertical dovetails 37 and transverse dovetails 38. Thus, when the end portion 36 is molded into the pad the interlocking dovetails will retain this end portion securely on the pad. The aperture 39 for securing one end of the pad to the stock passes through the bakelite or hard rubber portion as well as through the resilient portion of the pad.

It will be understood that the nature and embodiments of the invention herein described and illustrated are merely convenient and useful forms of the invention and that many changes and modifications may be made therein without departing from the spirit and scope of the invention.

What I claim as new and desire to protect by Letters Patent of the United States is:—

1. A recoil pad for a gun stock, comprising end portions, an intermediate portion having apertures in axial alignment with the gun stock, said apertures being closed by a top wall, and said top wall being of greater thickness toward the end portion than at the center.

2. A recoil pad for a gun stock, comprising end portions and an intermediate portion,

said intermediate portion having apertures extending from the base into the pad, said apertures having inserts therein to control the resiliency of said portion, said inserts being of the same cross-section as the apertures and fitting tightly in said apertures whereby the base of insert remains fixed in the same plane as base of the recoil pad.

3. A recoil pad for a gun stock, comprising end portions and an intermediate portion, said intermediate portion having apertures extending from the base into the pad and the base of said intermediate portion forming an arched surface to increase the resiliency of said portion.

4. A recoil pad for a gun stock, comprising solid end portions of resilient material and an intermediate portion of resilient material having a plurality of air-filled apertures extending from the base into the pad, the resiliency of said intermediate portion being graduated from the ends toward the center thereof.

5. A recoil pad for a gunstock, comprising lateral walls and a top surface, a plurality of inner walls between the lateral walls forming pockets extending from the base to the top surface, said inner walls being of greater thickness adjacent the ends of the pad and tapering in thickness toward the center of the pad.

6. A recoil pad for a gun stock comprising a resilient body portion, a wire insert imbedded in said body portion and extending around the periphery thereof, said body portion having apertures therethrough for receiving screws to attach the pad to a gun stock, said wire forming loops surrounding said apertures to reinforce the apertures.

7. A recoil pad for a gun stock, comprising a resilient body portion having apertures therethrough for receiving attaching screws, and a wire insert imbedded in said body portion and having loops extending from the ends of said pad inwardly around said apertures.

8. A recoil pad for a gun stock, comprising a resilient body portion adapted to be secured to the end of a gun stock, and an end piece having a low coefficient of friction secured to one end of said pad, said end piece being secured to the pad and serving as an attaching element in securing the pad to the end of the gunstock.

9. A recoil pad for a gun stock, comprising a resilient body portion, an end piece having a low coefficient of friction molded into said body portion, said end piece and body having overlapping portions.

10. A recoil pad for a gun stock, comprising a resilient body portion, an end piece having a lower coefficient of friction secured to said body portion, said end piece and body portion being in overlapping relation and having an aperture extending through the overlapping portions for securing the pad to a gun stock.

11. A recoil pad for a gun stock having a plurality of pockets extending from the base upwardly into the pad, an outer peripheral wall of greater thickness than the walls forming said pockets, said outer wall having a plurality of lateral apertures therein.

12. A recoil pad for a gun stock, comprising a resilient body portion, pellets of relatively heavy material and means for detachably supporting said pellets in said body portion for balancing the gun when in use.

13. A recoil pad for a gun stock, comprising end portions of resilient material, an intermediate portion of resilient material having apertures extending from the base into the pad, pellets of relatively heavy material and an aperture in one of said end portions for receiving said pellets for balancing the gun when in use.

14. A recoil pad for a gun stock, comprising a resilient body portion, an aperture in one end of said pad extending from the base into the pad, pellets of relatively heavy material having substantially the same cross sectional shape as said aperture, means whereby said pellets may be inserted in said aperture before the application of the pad to the gun stock, and means whereby the gun stock maintains the pellets within the aperture after the pad has been applied to said gun stock.

In witness whereof, I hereunto subscribe my name this 13th day of April, 1931.

WILLIAM W. KNIGHT.