My invention relates to a recoil pad for a gun stock, and more particularly to the type of recoil pad adapted to be permanently attached to the stock of a gun. My copending application, Serial No. 458,158, filed May 31, 1930, which has many features in common with the present invention, is directed more particularly to a boot type of gun pad.

An object of my invention is to provide a new and improved recoil pad for a gun stock. A further object is to provide means for securing a recoil pad to a gun stock.

A further object is to provide a reinforcing insert for a recoil pad which at the same time serves to secure the pad to the gun stock. A further object is to provide an attaching insert for a recoil pad which does not materially decrease the resiliency of the pad.

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 my invention,

Fig. 2 is a sectional view on line 2—2 of Fig. 1,

Fig. 3 is a fragmentary bottom view of a modified form of the invention,

Fig. 4 is a sectional view on line 4—4 of Fig. 3,

Fig. 5 is a fragmentary bottom view of another modified form of the invention,

Fig. 6 is a sectional view on line 6—6 of Fig. 5,

Fig. 7 is a fragmentary bottom view of still another modification of the invention,

Fig. 8 is a sectional view on line 8—8 of Fig. 7,

Fig. 9 is a side elevation of a further modification of the invention,

Fig. 10 is a sectional view on line 10—10 of Fig. 9, and,

Fig. 11 is a sectional view similar to Fig. 10 showing another modified form of the invention.

The recoil pad shown in Figs. 1 and 2 comprises a smooth upper surface 14 against which the shoulder rests when the gun stock is placed against the shoulder. The interior of the pad has a plurality of intersecting walls 15 which extend from the base to wall 14 and form a plurality of hexagonal air pockets within the pad or cushion. The ends 16 and 17 of the cushion are preferably made of solid, but resilient rubber without air pockets. This permits the portion intermediate the ends to yield quite readily, while the ends are less yielding, thereby allowing the cushion to conform to the shape of the shoulder, with the ends 16 and 17 respectively, below and above the shoulder. The side walls 18 and 19 of the cushion are made of greater thickness than the intermediate intersecting walls. This allows the cushion to be cut down to the shape of the gun stock without destroying the side walls. For instance, when a recoil pad is attached to a gun stock and it is slightly too large, the side walls of the pad are cut down until the side walls are flush with the gun stock. In order to reinforce the cushion and also to attach it to the gun stock, an insert 21 of metal or other suitable material is molded into the side walls and ends of the cushion. This insert consists of an oval shaped rim which is set inward slightly from the periphery of the cushion and near the base of the cushion. The ends of the insert are provided with an enlarged portion 22, preferably of the same thickness as the intermediate portion. These end portions 22 are provided with apertures 23 through which screws may be inserted to secure the pad to the end of the gun stock. In order to reduce the amount of metal in the insert, and consequently the weight thereof, the end portions of the insert may be provided with cut-out portions 24.

Figs. 3 and 4 illustrate a modified form of the invention. This form is similar in most respects to that shown in Figs. 1 and 2, ex-
cept that the insert is replaced by a plate 25 of hard rubber, metal, bakelite, pressed fiber, or other suitable material, and the cushion 26 is adhesively secured thereto by methods well known in the art. The upper face of plate 25 is provided with a raised bead 27 of oval shape, which fits into a similarly shaped groove in cushion 26. The bead 27 prevents the base portion of the cushion from spreading laterally when a pressure is exerted on the cushion 28. The plate 25 is provided with apertures 28 through which screws may be inserted for securing the pad to the end of a gun stock.

Figs. 5 and 6 illustrate another form of the invention. In this embodiment of the invention the cushion 31 is quite similar to the previously described forms. An insert 32 is molded into the base of the cushion and has an oval shape corresponding to the contour of the cushion. The insert is U-shaped in cross section with the open end of the U extending outwardly. Thus the cross sectional shape of the insert insures permanent interconnection between the cushion and insert. The ends 33 of the insert are provided with apertures 34 for securing the insert and cushion to the end of a gun stock. It has been found that where the entire base of a cushion lies in one plane, there is sometimes a tendency for the edges of the cushion to separate from the gun stock, producing an unsightly appearance, and permitting dust and dirt to collect between the pad and gun stock. In order to overcome this difficulty the edges of the cushion as shown at 35 are bevelled downwardly so that when the pad is secured to the end of a gun stock the entire periphery of the cushion will firmly contact with the peripheral edge of the gun stock.

Figs. 7 and 8 illustrate a further modification of the invention. In this embodiment the air pockets 36 extend only to the insert 37 which is a flat oval shaped plate. The side walls 38 of the cushion have an inwardly extending flange 39 which lies against the under side of insert 37. The peripheral base edge 40 of the cushion is tapered similarly to the cushion illustrated in Figs. 5 and 6. When the pad is secured to the end of a gun stock by means of screws extending through apertures 42, the flange 39 is clamped between the insert 37 and the end of the gun stock to firmly hold the pad on to the end of the gun stock.

The embodiment of the invention shown in Figs. 9 and 10 consists of intermediate intersecting walls 45 forming air pockets and side walls 44. An insert 46 similar to the insert of Figs. 1 and 2 is molded into the base of side walls 44. On account of the rigidity of insert 45 it has been found that the side walls are less flexible or yielding than the intermediate walls and that the insert may be felt by pressing against the upper wall of the cushion. In order to render the side walls more flexible and eliminate the stiffening effect of the insert, the side walls are provided with a longitudinal groove 46 which permits the side walls to flex more readily under pressure. The side walls are also preferably tapered as shown as 47, along the base thereof.

Fig. 11 illustrates a recoil pad quite similar to that illustrated in Fig. 10 except that the side walls 48 are of the same thickness throughout except adjacent the base and top of the pad, and the walls are disposed at an angle so as to converge upwardly. The base of the side walls is of increased thickness and has an insert 49 molded therein. The upper portion of the cushion, as a result of the upwardly tapering side walls, has an overhanging portion 51 which extends along the sides of the cushion but not around the ends.

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 may be made therein without departing from the spirit and scope of the invention. What I claim is new and desire to protect by Letters Patent of the United States is:

1. A recoil pad for a gun stock comprising a flat base plate of rigid material, a raised bead extending around the plate and set inwardly of the periphery, a resilient cushion having a groove for receiving said bead, said cushion being adhesively secured to said plate.

2. A recoil pad for a gun stock comprising a resilient cushion having a smooth upper surface and a plurality of apertures extending from the base into the cushion forming resilient walls, the side walls of said cushion being of greater thickness than the intermediate walls, a rigid insert in the base of the side walls, said side walls being provided with a longitudinal groove to increase their flexibility.

3. A recoil pad for a gun stock comprising a resilient cushion having a smooth upper surface and a plurality of apertures extending from the base into the cushion forming resilient walls, the side walls of said cushion being of greater thickness than the intermediate walls, and a longitudinal groove in each of said walls for increasing the flexibility thereof.

4. A recoil pad for a gun stock comprising a resilient cushion, the base of said cushion having a central plane portion and the peripheral portion of the base being bevelled downwardly to insure a close fit between the periphery of the cushion and the gun stock.

5. A recoil pad for a gun stock comprising a resilient cushion having a plurality of apertures extending from the base into the cushion and forming resilient walls, the side
walls of the cushion being of greater thickness than the inner walls, a rigid insert in the base of the side walls, the base of said side walls being tapered downwardly to insure close contact between the side walls and the gun stock.

6. A recoil pad for a gun stock, comprising a flat base plate of rigid material, a raised bead extending around the plate and set inwardly of the periphery, and a resilient cushion having a groove for receiving said bead, said plate having apertures for securing the pad to a gun stock.

In witness whereof, I hereunto subscribe my name this 1st day of Oct., 1930.

WILLIAM W. KNIGHT.