

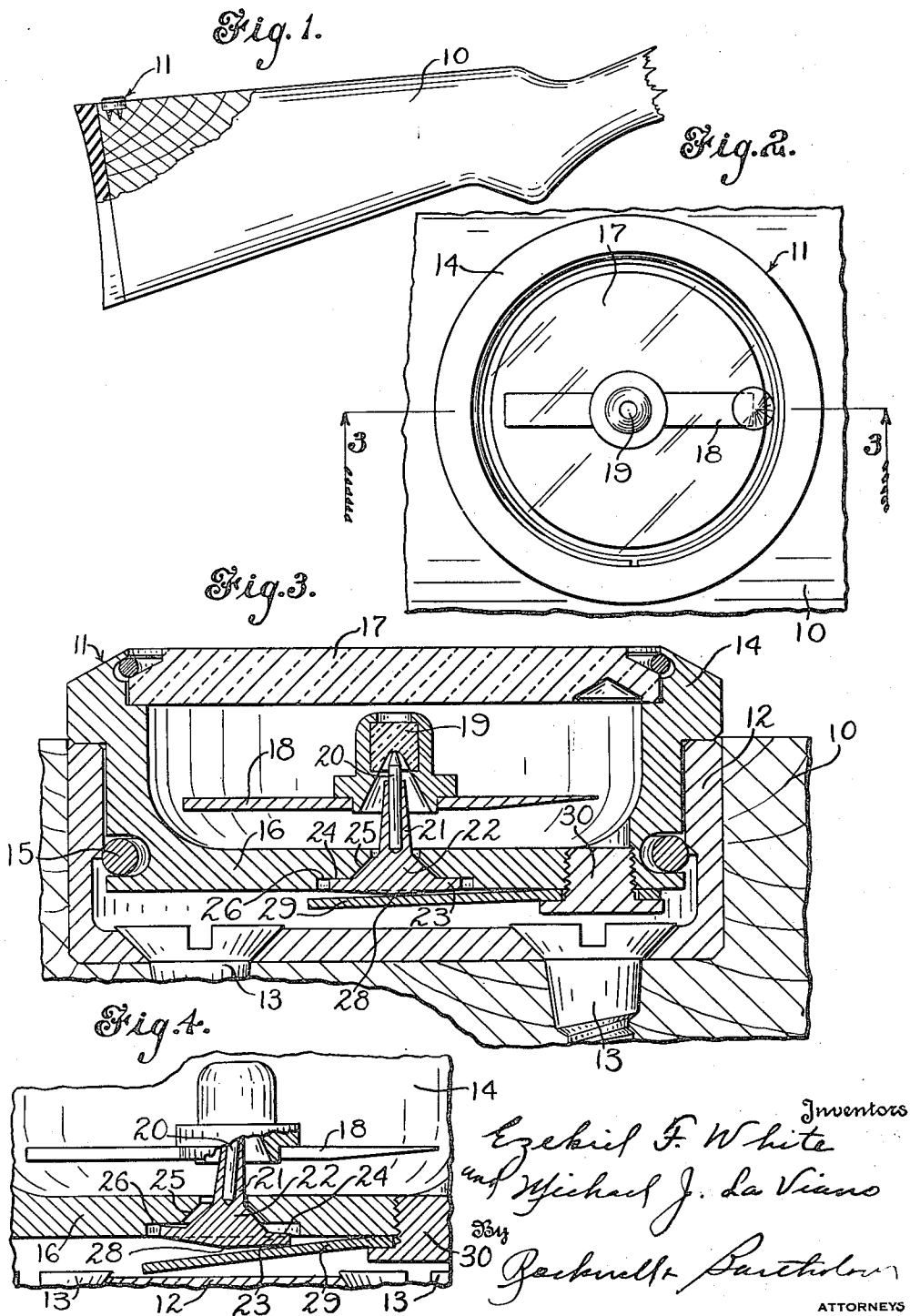
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GUN COMPASS

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GUN COMPASS

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This invention relates to a compass, and more particularly to a compass designed to be mounted on a gun or firearm.

When a hunter, for example, is hunting in strange territory, he often loses his sense of direction and is unable to find his way back to the point from which he started. This is because he has little idea of the exact direction which he has traveled, and also because there are no landmarks in sight from which he can determine the approximate location of his starting point. It has been found, however, that by placing a compass upon a gun, he can, by pointing the gun and checking his direction from time to time, not only ascertain the direction in which he is moving but he can, when desiring to return to his car or other place of beginning, ascertain the direction in which he should travel. By pointing the gun and turning it until the compass needle stands at the previously indicated position, the gun will then point in a direction in which he should travel.

It was found, however, that, when the ordinary compass was mounted upon a gun, the shock of the recoil of the gun very soon destroyed the sensitivity of the compass needle. These needles are usually provided with a jeweled bearing which seats upon a hardened pivot pin. The recoil of the gun would either destroy the jewel or the pivot or both until the compass was practically useless. It will be understood that as such a compass is usually quite small, it is desirable that the needle be very sensitive, and when either the jewel or the pivot pin is deformed, the sensitivity of the compass was lost.

We contemplate by the present invention the provision of a compass so made that it will withstand the shock of the recoil of the gun, and, to effect this result, support the needle upon a pivot pin which is so mounted in the compass case that the shock of the gun recoil will be cushioned. The pivot pin is carried by a base or hub which is so mounted in the case that it is permitted to oscillate and will, therefore, "ride" with the shock of the recoil of the gun. A resilient spring member is provided to restore the pivot pin to its normal or upright position in the case, this being a flat spring supporting the base of the pivot pin from below and tending to urge it upwardly into a seat provided therefor in the case. By this arrangement, the pivot pin is resiliently mounted so that it may oscillate or roll with the shock of the recoil of the gun, but, at the

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same time, will be accurately restored to its normal position.

One object of the present invention is to provide a compass which will be resistant to shock, such, for example, as that due to the recoil of a gun.

Another object of the invention is to provide a compass for mounting upon firearms in which the bearing of the compass needle will be cushioned or resiliently supported in order to withstand the shock due to the recoil of the gun.

Still another object of the invention is to provide a compass wherein the needle is supported upon a pivot pin and the pivot pin is so mounted in the case that it may oscillate or move when subjected to shock, and be centered or brought back to its normal operative position by a resilient spring member.

Still another object of the invention is to provide a compass wherein the needle is supported upon a pivot pin mounted in the case, the pivot pin being supported upon a base which is held in a seat in the case by a spring member engaging the lower side of the base so as to urge the pivot upwardly.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a fragmentary view of a portion of a gun stock having mounted thereon a compass embodying our improvements;

Fig. 2 is an enlarged top plan view of the compass and adjacent portions of the gun stock;

Fig. 3 is an enlarged sectional view on line 3-3 of Fig. 2; and

Fig. 4 is a view similar to Fig. 3 showing the movement of the base of the pivot pin against the supporting spring.

Illustrated in the drawing is a portion of a gun stock 10 having a compass designated generally by the numeral 11 mounted on the upper surface thereof adjacent the butt of the stock, so that it may be readily seen by the user of the firearm.

The compass in this instance comprises a cup-shaped support or shell 12 countersunk in the stock, as shown in Fig. 3, and held therein by the screws 13. Rotatably mounted in this support is the case 14 of the compass, this case being held in place by the spring ring 15. This case is also cup-shaped in form and is provided with a bottom portion 16 and a transparent cover 17 through which may be seen the needle 18.

The needle is provided with a jeweled bearing

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19 which rests upon a pivot pin 20 which may be formed of hardened steel, for example, so that the needle will swing freely upon this pivot and possess the required sensitivity.

The needle 20 is in turn mounted upon, or supported by, a base or hub 21. The upper portion of the hub is slightly tapered and receives the needle therein, and below this tapered portion is provided a portion 22 of frusto-conical shape, the wall of this portion of the base or hub being flared outwardly and downwardly at an angle of substantially 45°. It will be understood that this frusto-conical portion of the needle base is circular in cross section, and below this part is a flat circular member 23 extending outwardly in all directions from the frusto-conical portion, this circular member being provided with a flat upper base portion 24.

The bottom 16 of the case 14 is provided with an opening which forms a seat for the base 21 of the pivot. The wall of a portion of this opening is frusto-conical in shape so as to receive the frusto-conical portion 22 of the base of the pivot pin. This portion of the opening, however, is slightly larger than the frusto-conical portion 22 of the base so as to give the latter slight play.

Below the frusto-conical portion 23, the opening in the bottom 16 is of circular shape to receive the part 23 of the base, and is provided with a flat upper surface 26 against which the flat circular surface 24 of the base bears, so that the supporting base of the pivot pin will be seated accurately against the surface 26 with the pivot pin in an upright position, the base being centered by the flaring walls 25 of the opening in the bottom 16 of the case.

The lower surface of the base of the pivot is in the form of a flat cone terminating in a point or apex 28, the angle of this cone being substantially 5°. The apex 28 of the base rests upon the upper surface of a flat spring member 29, this member being secured to the bottom 16 of the case by the screw 30.

It will be obvious that owing to the above construction, the base 21 and pivot pin 20 will be held in an upright position, shown in Fig. 3, by the spring 29. This spring has one point bearing against the lower surface of the pivot pin and, therefore, the latter is free to rock or oscillate in any direction about this point. The upper flat surface 24 of the portion 23 of the base will rest solidly against the lower surface 26 of the seat in the case, and the base member of the pivot will be centered by the wall of the frusto-conical portion 22 and the wall 25 of the frusto-conical portion of the opening in the bottom 16 of the case.

When the compass is subjected to the shock of the recoil of the gun, the base member will rock about the edge of the flat circular portion 23, as shown in Fig. 4. The free end of the spring-supporting member 29 will be moved downwardly, thus allowing the base member 21 to move downwardly and thus roll with the shock of the recoil. The base member, together with the pivot pin, will be at once returned by the spring 29 to its proper, erect and central position, as shown in Fig. 3.

When the ordinary compass was subjected to a test simulating the shock of the recoil of a gun, it was found that its sensitivity was destroyed after 2,000 blows. When the device of the pres-

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ent application was placed in the same testing machine, it functioned perfectly after being subjected to 75,000 blows, thus evidencing the ability of the present structure to withstand the use for which it is intended.

While we have shown and described a preferred embodiment of our invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What we claim is:

1. A gun compass comprising a substantially cup-shaped case, a needle in the case, a pivot pin upon which said needle is supported for free swinging movements, a support for said pivot pin projecting through the bottom of the case, a leaf spring secured at the bottom of the case and engaging the lower surface of said support and urging it upwardly, the bottom of said case being provided with an opening therethrough including a downwardly flaring recess and having a flat lower surface surrounding and extending outwardly from the periphery of said recess, and said support having a substantially cone-shaped portion complementary to the flaring recess and disposed therein, and a laterally extending portion surrounding said cone-shaped portion and said laterally extending portion of the support having a flat upper surface resting against the flat lower surface of said case.

2. A gun compass comprising a substantially cup-shaped case, a needle in the case, a pivot pin upon which said needle is supported for free swinging movements, a support for said pivot pin projecting through the bottom of the case, a leaf spring secured at the bottom of the case and engaging the lower surface of said support and urging it upwardly, the bottom of said case being provided with an opening therethrough including a downwardly flaring recess and having a flat lower surface surrounding and extending outwardly from the periphery of said recess, said support having an upwardly tapering cone-shaped portion adjacent its lower end and a portion having a flat upper surface extending laterally from the base of said cone-shaped portion on all sides thereof, said cone-shaped portion being disposed in said downwardly flaring recess of the case, and said flat upper surface of the support being urged upwardly against the flat lower surface of the case by said spring.

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