June 8, 1954 E. VAUCHER 2,680,297

POCKET COMPASS

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Fig. 1.

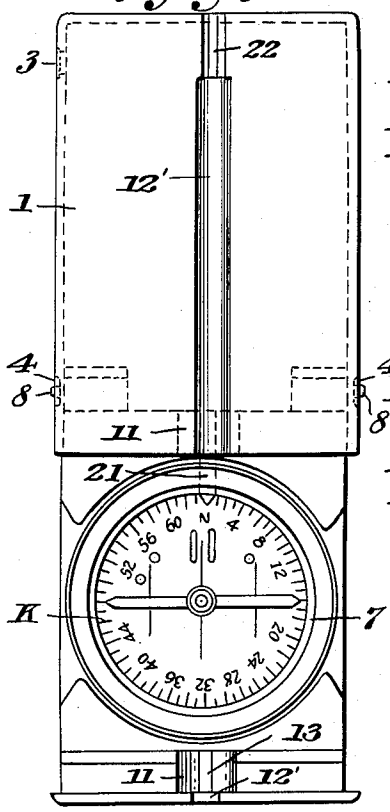


Fig. 2.

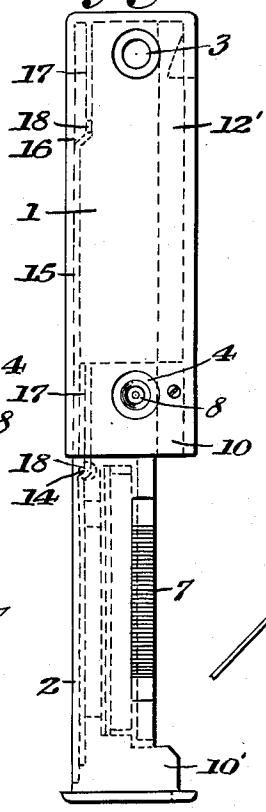


Fig. 3.

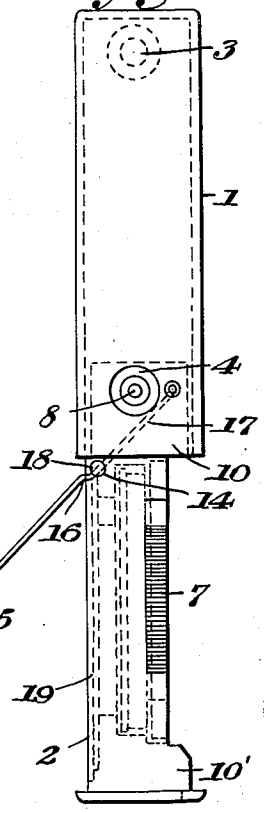
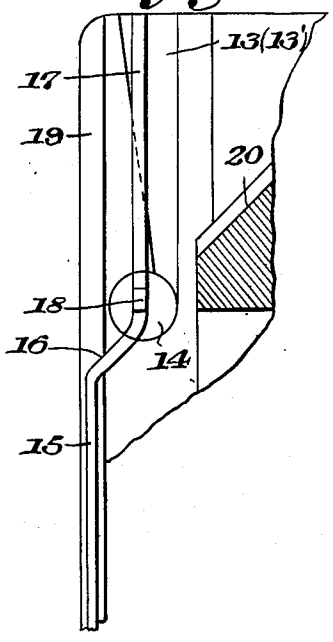


Fig. 4.



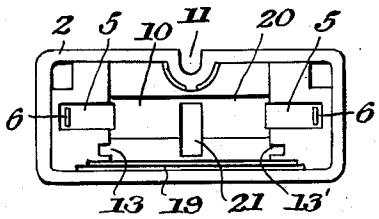


Fig. 5.

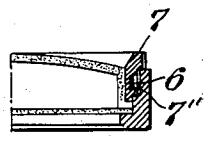


Fig. 5a.

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Fig. 6.

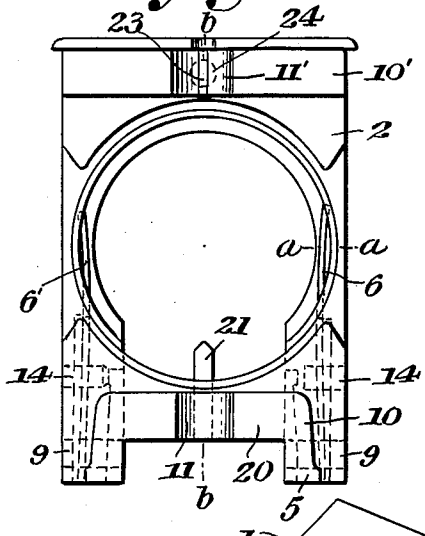
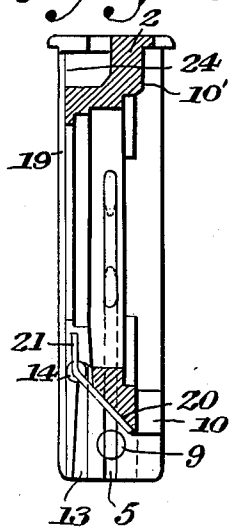


Fig. 7.



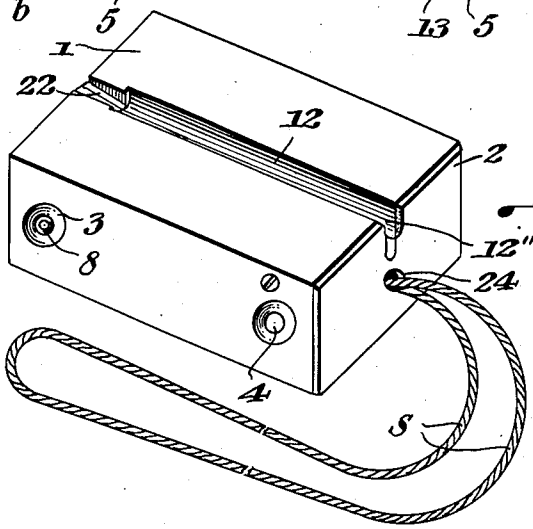


Fig. 8.

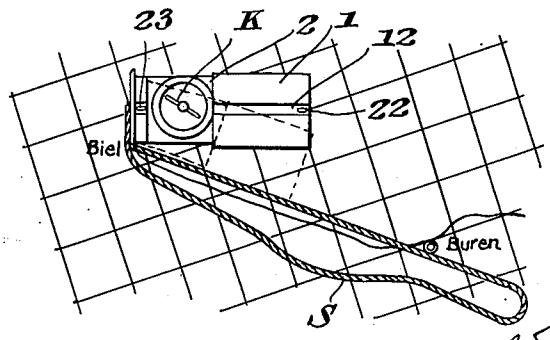


Fig. 9.

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POCKET COMPASS

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Patent expires July 24, 1961

9 Claims. (Cl. 33—72)

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My present invention relates to a pocket compass.

The accompanying drawing shows by way of example a preferred embodiment of the invention.

Fig. 1 represents a plan view of the pocket compass in drawn-out condition;

Fig. 2 a side view thereof;

Fig. 3 shows likewise a side view of the same, the mirror being illustrated in position of use;

Fig. 4 is a detail section on a larger scale;

Fig. 5 a back view of the compass carrier drawn out of the casing;

Fig. 5*a* is a detail section taken on line *a*—*a* of Fig. 6;

Fig. 6 shows a plan of the compass carrier drawn out of the casing, the compass being omitted for the sake of simplicity;

Fig. 7 is a section taken on the line *b*—*b* of Fig. 6;

Fig. 8 shows a perspective view of the pocket compass in closed condition, and

Fig. 9 a diagrammatic representation showing a particular manner of use of the pocket compass.

In the form of embodiment illustrated, 1 denotes the casing (Figs. 1, 2, 3 and 8) in which is slidably accommodated the carrier 2 for the compass K which may consist of a liquid compass with transparent base and lid. The casing 1 has near its closed end on one narrow side a round aperture 3 extending through the side of the casing (Figs. 1, 2, 3 and 8) and near its front open end, on both narrow sides and opposed to each other, two similar apertures 4 (Figs. 1 and 8). The compass carrier 2 has at a certain distance from the two longitudinal sides and extending parallel thereto, longitudinal recesses 5 (Figs. 5 and 6) which are open inwardly and accommodate leaf springs 6. The leaf springs 6 are, as shown in Fig. 6, slightly bent and rest in a circumferential groove 7'' (Fig. 5*a*) of ring 7 embracing the compass (Figs. 1, 2 and 3). The springs by coacting with the groove 7'' hold the compass against falling out and by friction prevent undesired turning of the compass in an exceedingly simple and reliable manner. Lock bolts 8 (Figs. 1, 2, 3 and 8) consisting of pins are slidably arranged in recesses 9 (Figs. 6 and 7) of the compass carrier 2 and extending into the longitudinal recesses 5 so that the lock bolts 8, acted upon and under the influence of the springs 6, can engage the apertures 3 or 4 of the casing 1 when they reach the locality of the apertures provided in the narrow sides

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of the casing 1. The lock bolts 8 are so shaped or provided with pins or the like as to be prevented from falling out.

The compass carrier 2 is on its upper side, at both ends, provided with two crosswise arranged guide elements 10 and 10' (Figs. 1, 2, 3, 4, 5 and 7) extending upwardly. The guide elements 10 and 10' each have semi-circular grooves 11 and 11' which correspond with a guide rib 12' made in the casing, so that a reliable guiding of the compass carrier 2 in the casing is ensured.

The hollow groove 12' formed in the upper cover of the casing by the depression of the rib 12, serves, in the drawn-out condition of the instrument, in conjunction with a semicircular notch 12'' made in the front wall of the compass carrier, as an aiming arrangement.

The compass carrier 2 has on its end which faces the casing 1 two guide grooves 13, 13' which are V-shaped with respect to the horizontal plane of the carrier (Figs. 4 and 5) placed opposite each other, whose reduced ends, as apparent from Fig. 4, end in enlarged circular recesses 14 (Figs. 2, 3, 4, 6 and 7). In the guide grooves 13, 13' of the compass carrier 2, a metal mirror 15 is guided. This mirror, as shown in Figs. 2, 3 and 4, has a bend 16 and an extension 17 which, near the bend 16, has two oppositely arranged outwardly extending guide tongues 18, 18' which are engaged in and pivot the mirror in the guide grooves 13, 13'. The compass carrier has on its underside an inwardly extending groove 19 (Figs. 3, 4, 5, 6 and 7) whose depth and width correspond to the depth and width of metal mirror 15 so that the latter in the retracted position shown in Figs. 2 and 4 of the drawing is substantially flush with the adjacent guide edges.

The compass carrier 2 has on its underside, near its rear end, as shown in Figs. 4, 5, 6 and 7, an oblique abutting surface 20 with which the elongation 17 of the mirror 15 coacts when the mirror pivots into the dropped position shown in Fig. 3, when the compass carrier is in the operative open position with respect to the casing. Connected to the abutting surface 20 by any desired means is one end of the pointer 21, (Figs. 1, 5, 6 and 7) whose other end, provided with a point, acts in conjunction with the scale of the compass casing.

Numeral 22 in Fig. 1 designates an indicating mark disposed at the rear end of the casing which mark can be formed, for instance, of luminous substance. This indicating mark corresponds with an indicating mark 23 which may likewise

be formed of a luminous substance and arranged at the front end of the upper part of the compass carrier.

The front end of the compass carrier 2 has an aperture 24 (Figs. 6, 7 and 8) adapted to receive the ends of a looped cord S.

The modus operandi and use of the described pocket compass is as follows:

Assume the various parts of the pocket compass to be in the position shown in Fig. 8 and that the compass is to be used, then the casing 1 is taken in one hand, the free end of the lock bolt 8 (Fig. 8) is pressed with the thumb which moves inwardly against the action of spring 6 and thereby clears opening 3 so that when the cord S is gripped the compass carrier 2 can be pulled out in the position shown in Figs. 1, 2, 3 in which the compass K is fully exposed. In this forward end position of the compass carrier 2 the lock bolts 8 enter, under action of the blade springs 6, the apertures 4 made in both longitudinal sides of the casing 1 and thereby secure the compass casing 2 in the forward end position against unintentional displacement. In the forward end position of the compass carrier, the circular recesses 14 provided therein and serving as pivot bearings for the metal mirror 15, are located outside the casing 1, as a result of which the mirror 15 will by its own gravity automatically swing into the position shown in Fig. 3. The inclination of the mirror 15 will be determined by the slant of the abutting surface 20 with which the extension 17 of the mirror cooperates. The inclination of the mirror 15 is preferably so chosen that the best possible effect of the mirror in relation to the compass is obtained.

If, however, it is desired to place the compass upon a map, the mirror 15 is turned towards the compass carrier 2 whereupon by reason of the guide grooves 13, 13' (Figs. 4, 5 and 7) it can be pushed back into the casing 1 in the position shown in broken lines in Fig. 2. Although the mirror 15 has thereby to traverse a longer distance than the guide grooves 13, 13', due to the groove 19 in the underside of the compass carrier (Figs. 3 and 5) the mirror 15 receives a reliable guidance.

By turning the compass rim 7 which has a knurled edge, the scale, provided on the transparent bottom of the compass, can be adjusted relative to the stationary pointer 21 (Figs. 1, 5, 6 and 7) or relative to the compass needle. The two leaf springs 6 acting on the rim 7 exert such lateral pressure on it as to prevent any undesired turning of the same and consequently of the compass casing. If it is necessary to operate the compass on a map, the drawing of auxiliary lines between two given points is obviated in that, as indicated in Fig. 9, the two points are connected with each other by the tautly drawn cord S, and the one longitudinal side of the drawn out compass is placed along the taut cord S, as indicated by broken lines. The cord S makes it possible to use the pocket compass as a plumb line which is of advantage, for instance, in determining a station.

The bottom of the compass casing is provided in known manner with a scale and with indicia which may be formed by the application of any luminous substance.

The chief advantages of the pocket compass described above are as follows:

The compass requires but very little space and can therefore be conveniently kept in the pocket; during non-use the sensitive parts are well-protected; by drawing the compass from the casing the aiming line is extended and the precision thereby enhanced; the vision elements are simultaneously used as guide elements; the mirror may, according to desire, be placed within or out of the vicinity of the compass; it automatically assumes a suitable slanting position in relation to the compass when the compass carrier is drawn out, and is adjustable within certain limits with respect to the compass. The described pocket compass is of extremely simple design, it can be disassembled and re-assembled without the aid of special tools and without the use of screws. The described pocket compass makes possible convenient and reliable operation and is particularly suitable for military purposes and tourists.

What I claim and desire to secure by Letters Patent is:

1. A pocket compass comprising a casing, a compass carrier slidably mounted in said casing so that it may be withdrawn from said casing, a compass mounted in said carrier, means for locking said carrier with respect to said casing in its inserted position and in its withdrawn position, said casing having a longitudinal inwardly extending groove, guiding elements upon said carrier cooperating with said groove for guiding said carrier in its movement with respect to said casing, a notch in the front wall of said carrier, said groove, guiding elements and notch serving for sighting when said carrier is in withdrawn position.

2. A pocket compass comprising a casing, a compass carrier slidably mounted in said casing so that it may be withdrawn from said casing, a compass mounted in said carrier, means for locking said carrier with respect to said casing in its inserted position and in its withdrawn position, and a mirror slidably mounted in said carrier relative to said compass.

3. A pocket compass comprising a casing, a compass carrier slidably mounted in said casing so that it may be withdrawn from said casing, a compass mounted in said carrier, means for locking said carrier with respect to said casing in its inserted position and in its withdrawn position, a mirror slidably mounted in said carrier relative to said compass and means for pivoting said mirror with relation to said compass.

4. A pocket compass comprising a casing, a compass carrier slidably mounted in said casing so that it may be withdrawn from said casing, a compass mounted in said carrier, means for locking said carrier with respect to said casing in its inserted position and in its withdrawn position, a mirror pivotally and slidably mounted in said carrier and abutment means on said carrier for limiting the pivoting of said mirror when said mirror pivots under the force of gravity when said carrier is withdrawn from said casing.

5. A pocket compass comprising a casing, a compass carrier slidably mounted in said casing so that it may be withdrawn from said casing, a compass mounted in said carrier, means for locking said carrier with respect to said casing in its inserted position and in its withdrawn position and a mirror pivotally mounted in said carrier to swing automatically under the force of gravity to a predetermined angular position with respect to said compass when said carrier is withdrawn from said casing.

6. A pocket compass as set forth in claim 5 wherein means are provided in said casing and

carrier to receive said mirror in said casing when said carrier is in withdrawn position.

7. A pocket compass as set forth in claim 5 wherein said mirror is provided with an extension joined to said mirror by a bent portion and lateral projections upon said extension and said carrier is provided with parallel guiding grooves in which said projections may slide.

8. A pocket compass as set forth in claim 7 wherein said carrier is provided at its rear end with an inclined surface to cooperate with said extension for limiting the pivoting action of said mirror when said carrier is withdrawn from said casing.

9. A pocket compass as set forth in claim 2 wherein said casing is provided with aligned recesses at the front and rear thereof and said carrier is provided with resilient means cooperating with said recesses to lock said carrier in its inserted position or its fully withdrawn position.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
380,080	Bouton et al.	Mar. 27, 1888
994,901	Barbow	June 13, 1911
1,230,660	Brice	June 19, 1917
1,474,394	Warburg	Nov. 20, 1923
1,944,104	Niedermann	Jan. 16, 1934
2,396,202	Reitzer	Mar. 5, 1946

FOREIGN PATENTS

Number	Country	Date
19,600	Great Britain	Sept. 4, 1896
304,765	Germany	Apr. 6, 1918
199,512	Switzerland	Nov. 1, 1938
220,782	Switzerland	Oct. 16, 1942