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LIQUID-FILLED COMPASS WITH CASE OF ELECTRICALLY
NON-CONDUCTIVE MATERIAL
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Fig. 1.

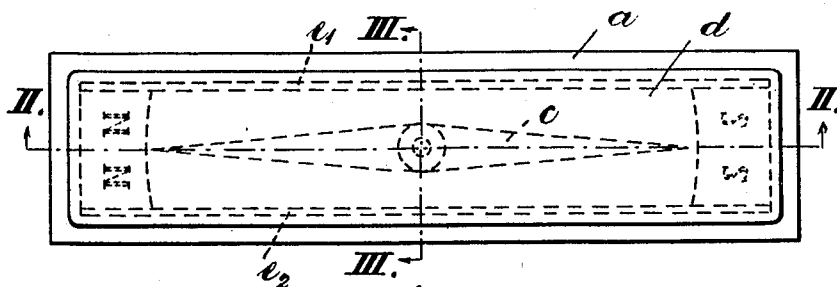


Fig. 2.

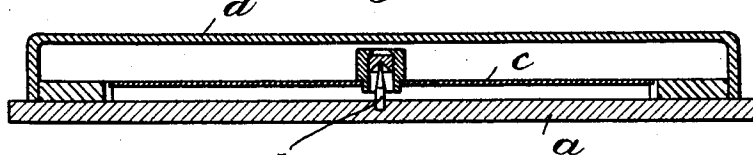
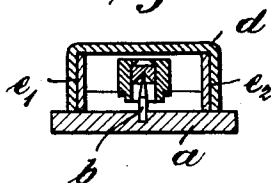


Fig. 3.



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LIQUID-FILLED COMPASS WITH CAPE OF
ELECTRICALLY NONCONDUCTIVE MATERIAL

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Application September 27, 1940, Serial No. 358,716
In Sweden June 13, 1939

1 Claim. (Cl. 33—223)

In compasses, which are provided with a cape or case of electrically non-conductive material and containing a light compass-needle responsible to small directive forces there often occurs a disadvantage consisting in that locally restricted charges of static electricity are generated in the cape and attract or repel the compass-needle in such a way that the correct settling of the needle is imperilled. According to the present invention which is intended to be applied in instruments having a symmetrically arranged pointer device which is mounted at its midpoint, especially compasses, this disadvantage can be eliminated or considerably reduced through providing the cape or cover of the instrument on its inner side with suitably shaped plates or strips of electrically conductive, non-magnetic material, or with a layer of such material, for instance copper. By this means it is obtained that such static charges to the extent to which they occur are distributed over the whole surface of the plates or strips so that their disturbing effects are reduced. Further, in compasses these effects can be practically eliminated, if the shape of the cape is so chosen and the electrically conductive layers are so shaped and directed that their charges, when the needle is correctly set to the north-south direction, operate on both arms of the needle with forces of equal strength and directions, so that the resulting momentum of these forces with respect to the bearing point of the needle is equal to zero from symmetrical reasons.

This result is obtained in the simplest way by providing the side walls of the cape with protective plates which are symmetrically placed with respect to a line through the bearing point of the compass-needle perpendicular to the north-south line marked on the compass. For instance, the said plates may be placed parallel to this north-south line.

The invention is especially suitable for structural arrangements of liquid-filled compasses which when used also are to be placed on a map, a protractor or the like and which from this reason must be manufactured with their upper as well as their under side transparent. In such cases the invention allows the whole of the cape and, thus, also the side walls to be made of Cellon, Celluloid or the like, so that joints between the cover and the side walls can be avoided. The cape can be given oblong, rectangular, cylindrical or other shape. The protective plates can be arranged mutually insulated or connected, for instance in the form of a closed strip covering

the inner side walls of the cape with or without metallic connection to the compass-needle.

The invention is clearly illustrated in the accompanying drawing, in which

Figure 1 is a top plan view thereof;

Figure 2 is a longitudinal sectional view taken on line II—II in the direction in which the arrows point; and

Figure 3 is a transverse sectional view taken on line III—III in the direction in which the arrows point.

The embodiment of the compass cape according to the invention, which is shown on the accompanying drawing, is especially intended for the setting of artillery-compasses or geodetic or similar compasses in the north-south direction only or at desired angles in relation to this direction. In a base plate *a* of suitable transparent material a pin *b* is drilled which carries a compass-needle *c* of the usual form. The north-south direction is marked in the longitudinal direction of and in the symmetry line of the compass, although not in the base plate but in projections or brackets immediately outside the needle-points and level with the needle, so as to facilitate a setting without parallax. The cape *d* of transparent material is made in one piece and along its inside walls parallel to the north-south line there are mounted two protective plates *e*₁ and *e*₂ of non-magnetic, electrically conductive material, for instance copper. In this embodiment the plates are not conductively connected to each other.

The invention is valuable also in usual compasses and especially in compasses for orientation purposes, as it has been found that a compass cape of Celluloid or the like when carried in a pocket or otherwise handled easily obtains charges of static electricity.

Having now particularly described the nature of my invention and the manner of its operation what I claim is:

A liquid-damped compass comprising a casing of oblong prismatic configuration, said casing consisting of electrically non-conductive and transparent material and being composed of a base plate and a cape, said cape being made in one piece to form the top and long and short side walls of said casing, said long side walls extending parallel to the north-south line of the compass scale, said long side walls being lined on the inside with non-magnetic, electrically conductive material.

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