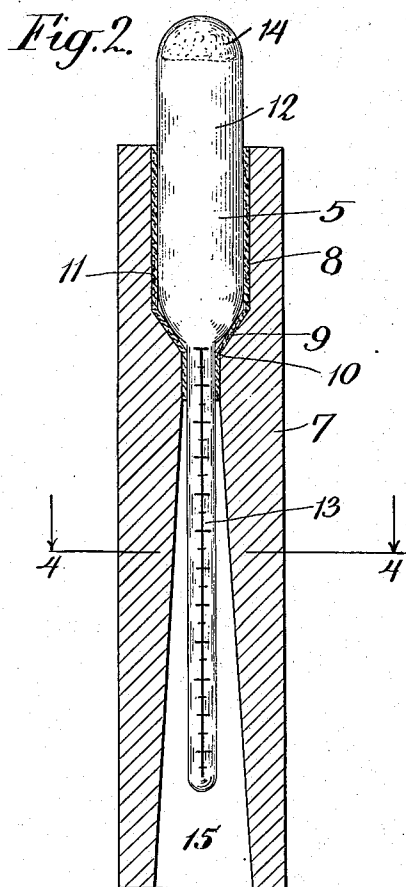
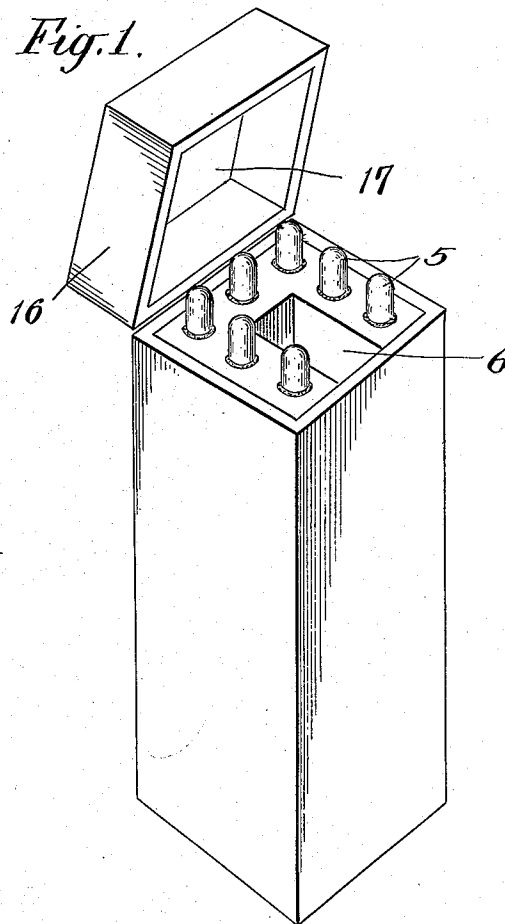
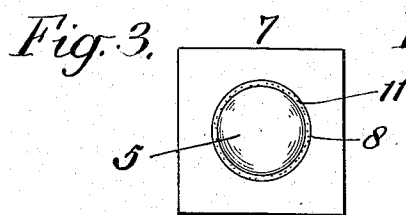
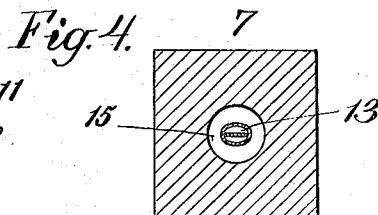


H. Y. NORWOOD.
CASE OR SUPPORT FOR FRAGILE INSTRUMENTS.
APPLICATION FILED MAY 26, 1908.

921,149.

Patented May 11, 1909.



WITNESSES:

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CASE OR SUPPORT FOR FRAGILE INSTRUMENTS.

No. 921,149.

Specification of Letters Patent.

Patented May 11, 1909.

Application filed May 26, 1908. Serial No. 435,070.

To all whom it may concern:

Be it known that I, HARRY Y. NORWOOD, a citizen of the United States of America, and a resident of Rochester, in the county of Monroe, State of New York, have invented certain new and useful Improvements in Cases or Supports for Fragile Instruments, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to an improved case or support for scientific instruments, and particularly to a case or support for hydrometers. Hydrometers and similar instruments are usually very fragile indeed, being made of thin glass, of irregular shape and unequally weighted at different parts. The result is that in transporting them from place to place they readily become broken. In the past, various forms of cases or supporting means have been devised for the purpose of protecting them and similar instruments against such breakage, but generally with little success.

My present invention comprises a case or support, which is especially designed with a view to protecting such instruments against injury due to sudden shock, etc. and consists in a padded support for one portion of the instrument, and a guard or shield for the other portion, which, however, is arranged to be out of contact at all times with such other portion.

In the drawings: Figure 1 is a view in perspective of a case embodying my invention. Fig. 2 is a detail view in longitudinal section through a portion thereof, showing a single support for a hydrometer, and with such hydrometer therein supported. Fig. 3 is a top view of the part shown in Fig. 2. Fig. 4 is a view in transverse section thereof, the plane of section being upon the line 4—4 of Fig. 2.

As is shown in Fig. 1, the case may conveniently be constructed so as to support and carry a number of hydrometers or similar instruments, such hydrometers being designated in the drawings by the reference character 5; and an open portion 6 may be conveniently left for receiving any other instruments of a less fragile nature such as may be desired to be carried therewith.

The element shown in Fig. 2 comprises a unit for supporting a single hydrometer,

and may be considered typical of the means by which all of the hydrometers are supported in the case shown in Fig. 1. This support has a cylindrical opening 8 in the upper part which extends for a short distance downward from the top thereof forming a pocket which terminates in a shouldered portion 9. In the center of the shouldered portion 9 is an orifice 10, below which is a chamber 15 of conical form, or in other words, of a diameter which gradually increases down to the foot of the support 7.

The recess or pocket 8 is lined with felt or other soft material as is shown at 11, as is also the shouldered portion 9 and the opening 10 and the opening 10.

The hydrometer comprises a fragile glass body 12, a portion of which fits accurately within the padded pocket 8, and a stem 13 which is received within the chamber 15. That part of the hydrometer where the stem 13 joins into the body portion 12 thereof, rests upon the padded shoulder 9, while the stem 13 at the base thereof preferably fits snugly into the padded opening 10; at points below the opening 10 the walls of the chamber 15 are arranged to be free and clear of the stem 13, being of such size and so disposed that under no circumstances may there ever be contact between the said walls and the said stem.

In practice, I have found that a case or support of this description will hold the hydrometer steady and prevent it from moving about in the case and so will protect it from shocks due to rough handling of the case, while at the same time there is no danger of the hydrometer becoming broken while being inserted and removed as might readily occur if the instrument were arranged to be in contact with the case or support at all points. The weighted portion 14 of a hydrometer is arranged uppermost and is thoroughly and properly supported while the fragile stem is thoroughly protected. In instruments of this kind it is rather common for the stems to be slightly out of line with the body portion of the instrument. Such inaccuracy is entirely immaterial so far as the use of the instrument is concerned, but such inaccuracy readily results in a breaking of the instrument when it is attempted to support the instrument at all points throughout its length.

It may be noted that it is not essential that the padded opening 10 be of such size as to accurately fit the base of the stem 13,— it may be larger if desired so that no part of the stem is in contact with the supporting case at any point; and further it may be noted that it is not essential that the walls of the chamber 15 be conical.

The case or support is so designed as to properly and completely support the larger body portion of the instrument, including the weighted part 14, while the fragile stem is thoroughly protected by the walls of the chamber in which it is received, yet is prevented from coming in contact therewith.

If desired, the inside of the cap or cover 16 of the case shown in Fig. 1 may be lined with felt or otherwise padded, so that the instruments will be protected in traveling should the case be inverted.

What I claim is:

1. A hydrometer support provided with a cylindrical pocket for receiving the enlarged body portion of the hydrometer, a shouldered

portion beneath the same upon which the shouldered lowered portion of the body of the hydrometer is adapted to rest, a reduced opening in the shouldered portion for the passage of the stem, and a chamber beneath the said opening for receiving the stem of the hydrometer, said chamber being of greater diameter than the stem to prevent contact between the stem and the walls of the chamber.

2. A support for hydrometers provided with a cylindrical pocket 8 at the upper end thereof, a shouldered portion 9 at the base of the said cylindrical pocket 8, a central orifice 10 therethrough and a chamber 15 having divergent walls beneath the said shouldered portion, the said pocket 8, and shoulder 9 and the orifice 10 being provided with a soft lining 11, substantially as set forth.

HARRY Y. NORWOOD.

Witnesses:

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