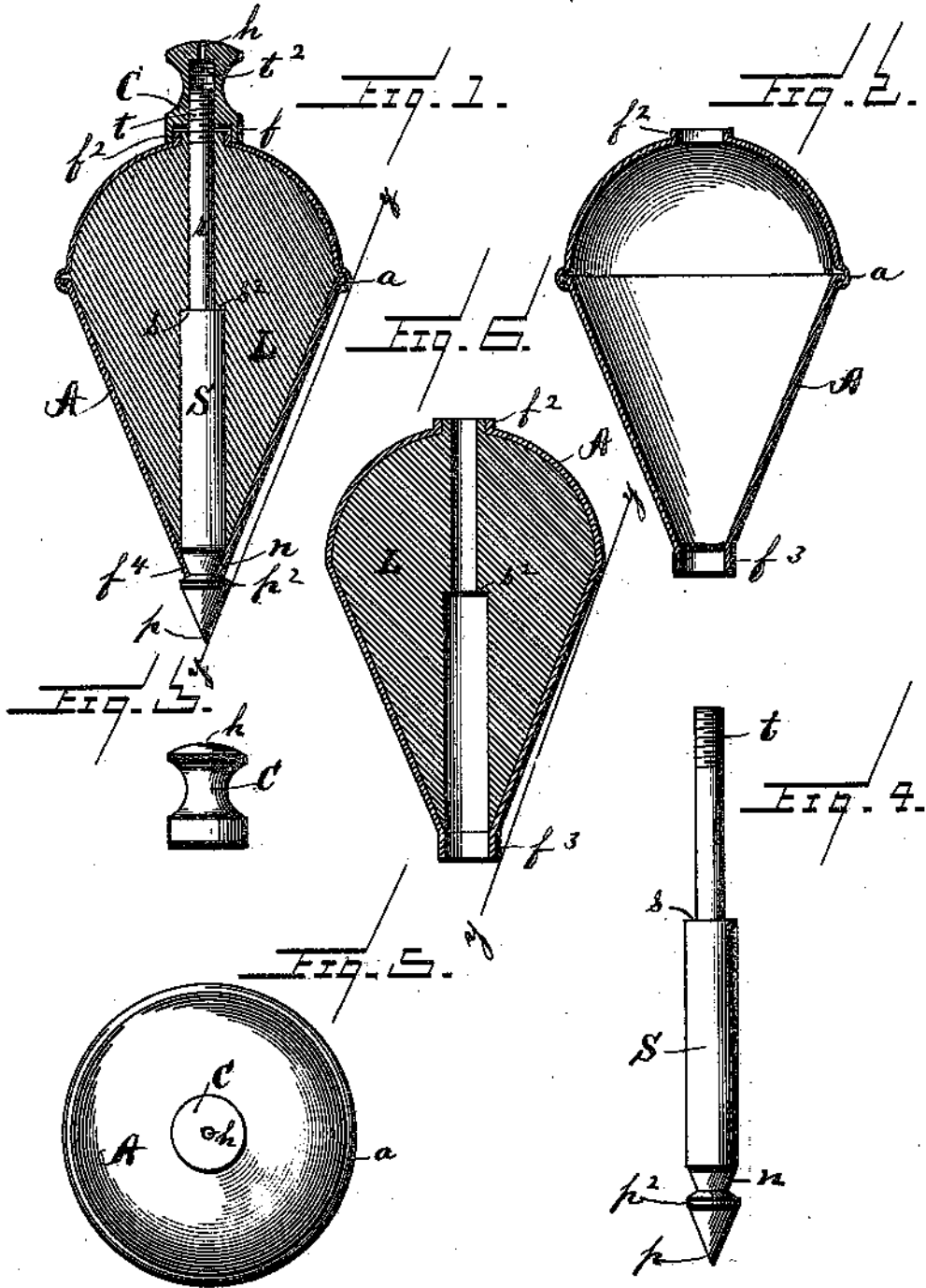


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M. D. CONVERSE.  
PLUMB BOB.

APPLICATION FILED DEC. 9, 1903.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

MASCHIL D. CONVERSE, OF NEWARK, NEW JERSEY.

## PLUMB-BOB.

SPECIFICATION forming part of Letters Patent No. 787,896, dated April 25, 1905.

Application filed December 9, 1903. Serial No. 184,450.

*To all whom it may concern:*

Be it known that I, MASCHIL D. CONVERSE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Plumb-Bobs, of which the following is a specification.

My invention relates to plumb-bobs, and particularly to those types that have been made with an interior chamber filled with lead or other metal of great specific gravity.

My invention is comprised in certain novel forms of parts and details of construction and in their combination; and the objects of my invention are to overcome certain difficulties heretofore experienced in the manufacture of plumb-bobs, to cheapen the cost of manufacture, to insure greater perfection in such implements, and to render them more efficient and less liable to injury or derangement in use, all which will be hereinafter fully described and distinctly claimed.

In the drawings, Figure 1 is a vertical sectional view of my improved plumb-bob assembled; Fig. 2, a similar section of the shell or case only in one form before the same has been filled with lead. Fig. 3 is the screw-cap, and Fig. 4 the stem, carrying a point at one end and a screw-threaded reduced portion at the opposite end upon which the cap, Fig. 3, is secured. Fig. 5 is a plan view. Fig. 6 is a section similar to Fig. 1, but of a modified form of shell or case filled with lead, with the stem and cap removed.

Like letters indicate corresponding parts throughout the several figures.

A is the shell or case, which I make of a uniform gage of metal, usually sheet-brass, by spinning or stamping, and which may be made in two or more parts and joined by a seam forming a bead or otherwise, as at *a*, (see Figs. 1, 2, and 5,) or may be made seamless, as in Fig. 6.

L is the filling for giving it weight, usually of lead, but may be of other heavy metal.

S is a stem, preferably of steel, finished with a point *p* at its lower end and made with a shoulder *s*, removed from and preferably midway of its ends, so as to be located within the filling L of the body portion with the re-

duced part *r* at the upper end, the latter being screw-threaded at *t*, upon which a cap C, correspondingly threaded, is screwed. This cap C is provided with a hole *h* centrally through its top by which to fasten a cord for suspending the plumb-bob, and the hole *h* therein is of sufficient depth to freely accommodate a knot at the end of said cord to prevent its coming out. This cap I prefer to make with an annular flange *f'* to fit over an annular flange *f* around the central opening at the upper end of the shell C.

In Figs. 2 and 6 the lower end of the shell at *f*<sup>3</sup> is straight or terminated like a tube, while in Fig. 1 at *f*<sup>4</sup> this straight or tubular termination has been spun or crimped into a neck *n* in the stem S, situated just at the base of its conical point *p*.

Heretofore in making plumb-bobs with hollow interiors to be filled with lead or other weighty metal the shells have been molded or cast, usually of brass, and the chambered interior formed by means of a sand core. In this process the cores usually sag or "wash," with the result that the plumb-bob shells have unequal thickness of wall, one side being thin and the opposite thick, and but rarely, if ever, can be cast with a perfectly uniform thickness of shell throughout, so that when shells thus defective are filled with lead a preponderating quantity of the latter runs to the larger side of the chamber, which of course is on the side where the shell is thinnest, and hence the center of gravity is not, as it should be, through the vertical longitudinal axis, and consequently the point of the plumb-bob will when suspended for use gyrate and fail to come to rest promptly. Furthermore, shells so made are troublesome and expensive to turn up, machine, and finish. These difficulties my present invention wholly overcome, as will be seen, because the shell being of uniform thickness in any given zone and equidistant from the longitudinal axis causes equal distribution of lead when filling, and having already a smooth exterior surface my improved plumb-bobs do not require to be turned at all, but may be polished and finished with facility.

I prefer to construct my plumb-bob with the annular boad *a* at the broadest diameter

(see Fig. 1) and to make the conical point so that at  $p^2$  the base of its cone will extend beyond the exterior surface of the shell in order that when the plumb-bob is placed upon its side on a level surface (see line  $y y$  in Figs. 1 and 6) it may contact at two points only, and thus be afforded some protection against marring or bruising of the body of the same.

In filling the shells of my improved plumb-bobs I prefer to arrange them upon false or temporary stems having the same diametral dimensions as the permanent ones and also formed with a like suitably-located shoulder  $s$ , then withdraw the former to insert the latter. It will be seen and understood that in so doing the shoulder  $s$  of the stem abuts the shoulder  $s^2$ , formed in the lead filling, and that the latter is arranged to be at about where the greatest volume of filling and consequent greatest resistance against displacement occurs, so that when the cap C is screwed down the whole is securely assembled, and then by crowding the shell at  $f^3$  into the neck, as at  $f^4$ , all parts are further made firm.

Other forms of stem than that I have shown may be used in connection with my improved shell without departing from the spirit of this part of my invention, and other forms of shell likewise may be used in connection with my improved plumb-bob stem without departing from the spirit of this part of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a stem, shouldered midway of its ends, and having a conical point with a neck at the base of the cone, and provided with screw-threads at the opposite upper reduced end, in combination with a correspondingly-screw-threaded cap.

2. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a stem, shouldered midway of its ends, having a conical point and provided with screw-threads at the opposite upper reduced end, in combination with a correspondingly-screw-threaded cap.

3. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, and open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

4. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by

a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

5. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof said base extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

6. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with the base thereof extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

7. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof and said base extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

8. In a plumb-bob a filled shell, having an annularly-flanged opening at its top, mounted upon a shouldered conical-pointed stem, with screw-threaded upper end, in combination with a flanged screw-cap.

9. In a plumb-bob a shell terminated by a tubular opening at its lower end, in combination with a conical-pointed stem entered there-through provided with a neck into which the end of said tubular termination is compressed.

10. A plumb-bob comprising a body portion, a bead at the greatest diameter of said body portion, mounted upon a shouldered conical-pointed stem, having screw-threads at its upper reduced end, and having the base of said cone extended annularly beyond the exterior surface of said body portion, in combination with a screw-cap.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MASCHIL D. CONVERSE.

Witnesses:

W. E. WRIGHT,

R. W. ROWE.