

E. P. GARNER.
PLUMB BOB.
APPLICATION FILED JULY 18, 1911.

1 026,669.

Patented May 21, 1912.

Fig. 1.

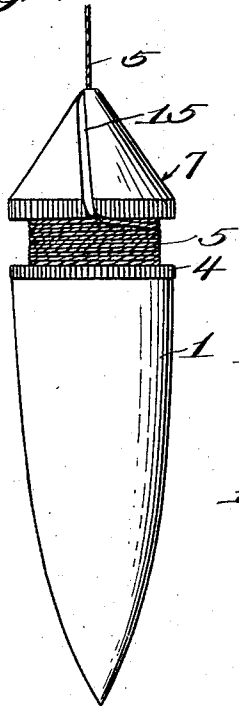


Fig. 3.

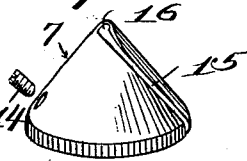


Fig. 4.

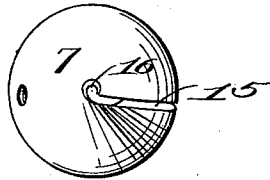


Fig. 5.

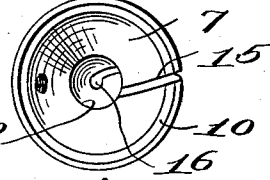


Fig. 6.

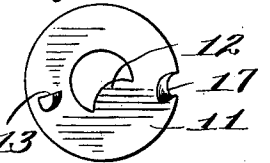


Fig. 7.

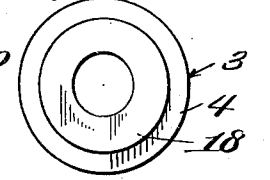


Fig. 8.

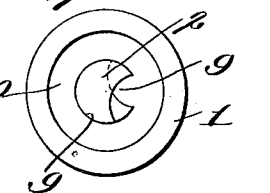
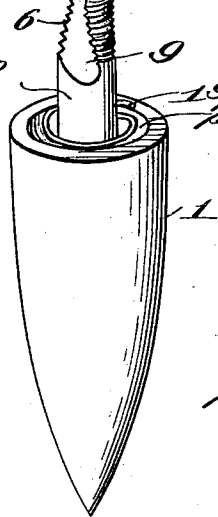
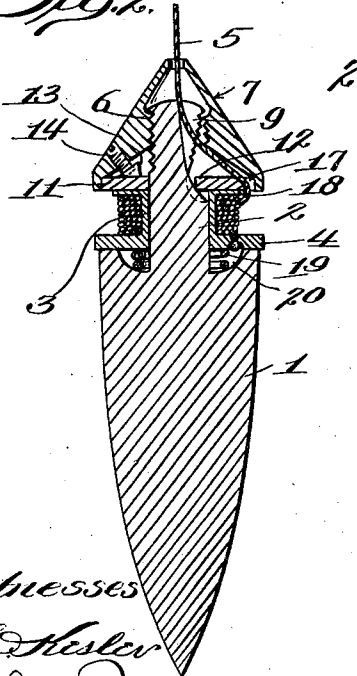


Fig. 2.



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UNITED STATES PATENT OFFICE.

ERNEST P. GARNER, OF DRAPERSVILLE, VIRGINIA.

PLUMB-BOB.

1,026,669.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST P. GARNER, a citizen of the United States, residing at Drapersville, in the county of Mecklenburg and State of Virginia, have invented new and useful Improvements in Plumb-Bobs; of which the following is a specification.

This invention relates to improvements in plumb bobs of that general type which embody the combination of a spool upon which the cord is wound whereby the efficient length of the cord may be regulated as desired, and a device for securing the plumb bob at any point on the cord in accordance with the adjustment of the latter, whereby accidental movement of the plumb bob with relation to the cord is impossible.

The primary object of the invention is to provide a plumb bob of the type referred to wherein the spool and the cord guiding means have a new and advantageous relation.

A further object of the invention is to provide a combination and relation of parts which is adapted for two distinct cord adjusting operations, one operation being employed when a relatively short length of cord, *e. g.*, ten or twelve inches, is to be taken up or let out and the other operation being employed when a relatively long length of cord, *e. g.*, over a foot is to be taken up or let out; whereby the operations referred to may be readily and quickly carried out with equal facility in both instances; and which is of simple, compact and inexpensive nature.

An embodiment of the invention is illustrated, by way of example, in the accompanying drawings, wherein:

Figure 1 is an elevation of the improved plumb bob. Fig. 2 is a longitudinal sectional view with the parts disposed as in use. Fig. 3 is a perspective view showing the several parts of the plumb bob in dissociated relation, but in the order of their assemblage. Fig. 4 is a plan view of a cap to be hereafter referred to and which constitutes an element of the device or means for securing the plumb bob, against movement, on the cord. Fig. 5 is a bottom plan view of the same. Fig. 6 is a plan view of a plate which cooperates with the cap and also with the spool in a manner to be explained. Fig. 7 is a plan view of the spool, and Fig. 8 is a plan view of the body of the plumb bob.

Similar characters of reference designate corresponding parts throughout the several views.

The body of the plumb bob is shown at 1 and is provided at its upper end with an axially projecting post 2, which serves as a bearing for the cord spool 3, the latter being coaxial with the plumb bob and seating against the upper face of the latter. The lower flange 4 of the spool 3 has an opening (Fig. 2), in which a knotted end of the cord 5 is secured. It is obvious that a rotation of the spool provides for a lengthening or shortening, as the case may be, of the efficient length of the cord.

The means for securing the plumb bob at any desired point on the cord, in accordance with the adjustment of the latter, and the appurtenances of said means, are preferably constructed and related as will now be set forth.

The post 2 has its upper portion threaded as at 6, and upon said threaded portion 6, a cap 7, preferably of conical form, is mounted, the cap 7 having an internal threaded shoulder 8 for engagement with said threaded portion 6. The upper portion of the post 2 has at one side thereof a comparatively wide, inclined, longitudinal slot 9. The cap 7 has adjacent its lower edge an annular shoulder 10, against which is fitted a plate 11. The plate 11 surrounds the post 2, and is provided with a lip 12, which projects into the central opening of said plate and engages in the slot 9, whereby said plate and the post 2 are locked against relative rotation. The cap 7 is rotatable upon the post 2, and in order to prevent such rotation beyond a certain point, the plate 11 has on its upper face a projection 13 and the cap 7 is provided with a stop pin 14 for engagement with said projection to thereby limit the movement of said plate.

In order to center the cord with relation to the plumb bob and to facilitate the adjustments referred to, the cap 7 is provided with a slot 15, which is inclined both as to its longitudinal and its transverse extent, and which extends to the apex of the cap, the upper end of said slot terminating slightly eccentric to said apex, as at 16, in order to compensate for the loss of metal occasioned by the cutting of the slot. The plate 11 has at a suitable point on its edge a recess 17, which is formed to correspond to the slot 15 and which registers with the

latter when the cap 7 is positioned for this purpose. When the slot 15 and the recess 17 are in registry, the cord may be led through said slot and through the slot 9 or it may be withdrawn from the cap.

The plate 11 rests upon and bears against the upper flange 18 of the spool 3. The said flange 18 is relatively thin and flexible and when the plumb bob is in use has a braking action to prevent an accidental turning movement of the spool 3 on the post 2 which might otherwise result from the weight of the plumb bob. In such braking action the flange 18 bears comfortably and with relatively strong frictional contact against the slightly concave underside of the plate 11. The braking action referred to is produced by an expansive coil spring 19 which is seated in an annular recess 20 in the upper face of the body 1, and which bears against the flange 4 of the spool 3. The edge face of the flange 4 and the lower portion of the outer face of the cap 7 are knurled whereby, said flange or said cap, as the case may be, may be rotated when necessary.

The parts having been assembled as described and as shown in Fig. 2, the cap 7 is capable of turning movement through a suitable small angle, *e. g.*, an angle of ninety degrees, its movement in one direction being limited by the stop pin aforesaid, and in the other direction by the body of the plumb bob through the intermediary of the spool, which is held by said cap and the plate 11 against said body. The cord 5 having been wound on the spool, the cap 7 is turned until its slot 15 registers with the recess 17, at which time the cord is passed through said slot and said recess and through the slot 9 in the post 2. Thereupon the cap 7 is turned in the opposite direction until its movement is arrested in the manner explained and at such time the slot 15 is not in registry with the recess 17, and consequently it is not possible for the cord to slip through said slot. When the cord is thus secured the parts are held against accidental rotation by the braking action of the flange 18, such braking action preventing not only a rotation of the spool 3 but a rotation of the cap 7 as well, being transmitted to the latter through the plate 11 which, for this purpose, has a slight degree of slidable play on the post 2 as is obvious. The plumb bob is now ready for use. In case the conditions of use require the lengthening or shortening of the efficient extent of the cord, this is effected by simply turning the spool 3, to let the cord out or to take it up the required length. The spool is turned manually, the fingers gripping the flange 4 and sufficient force being used to overcome the braking action aforesaid. In case, however, it is necessary to take up or

let out any considerable extent of the cord, such as would involve a comparatively large number of revolutions of the spool 3, instead of employing the operation above described it is quicker and more convenient to turn the cap 7 against the tension of the spring 19, to bring the slot 15 and the recess 17 into registry, and to withdraw the cord from said slot in the manner explained and wind or unwind the required length of cord directly upon or from the spool. When the cap 7 has been turned to enable the cord to be withdrawn from the slot 15 the braking action of the flange 18 is not so great as the braking action which is produced when the cap is in its normal position but it is sufficient to prevent a too free or accidental rotation of the spool, yet without interfering with such turning movement when the cord is pulled, as in unwinding. When the required length of cord has been wound or unwound, the cord is again engaged through the slot 17 and the cap 7 turned until its movement is arrested by the spool 3 and the braking action of the flange 18 is restored.

As above stated the cap 7 has a turning movement of ninety degrees, and when said cap is being turned to its normal position a movement through approximately eighty degrees is required to cause the flange 4 to seat against the upper face of the body 1. The rest of the movement of the cap, *i. e.*, through approximately the last ten degrees, causes the flange 18 to flex, whereby said flange conforms to the under face of the plate 11, and the contact of said under face with said flange is throughout the area of the latter. In this manner the braking action of the flange is materially increased to the degree necessary for the efficient use of the device.

Having fully described my invention, I claim:

1. A plumb bob comprising a body having an axially projecting post, a spool mounted on the post, a cap mounted above the spool, a plate cooperating with the cap, the plate and the cap being relatively rotatable and the cap having a slot extending from its lower edge to its apex and the plate having an edge recess with which the slot may be brought into registry and means for putting a tension on the spool, and on the plate and the cap, to prevent an accidental rotation of said spool and an accidental relative rotation of the plate and the cap.

2. A plumb bob comprising a body, a spool disposed coaxially of the body, a cap also disposed coaxially of the body above the spool, and a plate cooperating with the cap, the plate and the cap being relatively rotatable and the cap having a slot extending from its lower edge to its apex and the

plate having an edge recess with which the slot may be brought into registry.

3. A plumb bob comprising a body having an axially projecting post, the post having a threaded and slotted portion, a spool surrounding the post, a plate also surrounding the post and having a lip which projects into the slot of the post, a cap threaded upon the post and having a shoulder against which the plate bears, the cap having a slot extending from its edge to its apex and the plate having an edge recess with which the slot in the cap may register, and a spring acting against the lower flange of the spool to force the latter against the plate.

4. A plumb bob comprising a body having an axially projecting post, the post having a threaded and slotted portion, a spool surrounding the post, a plate also surrounding the post and having a lip which projects into the slot of the post, a cap threaded upon the post and having a shoulder against which the plate bears, the cap having a slot extending from its edge to its apex and the plate having an edge recess with which the slot in the cap may register, and a spring acting against the lower flange of the spool to force the latter against the plate, the plate having a concave under face and the spool having a relatively thin flexible flange arranged to bear against said concave face.

5. A plumb bob comprising a body having

an axially projecting post, a cap mounted on the post and spaced from the body, a spool also mounted on the post between the body and the cap and having a knurled flange whereby it may be turned manually, the cap being constructed to serve as a cord guide whereby the cord passing from the spool may leave the cap at the apex thereof, and means for putting a tension on the spool to prevent an accidental turning movement thereof.

6. A plumb bob comprising a body having an axially projecting post, a cap mounted on the post for turning movement and being spaced from the body, a spool also mounted on the post between the body and the cap, the cap being constructed to serve as a cord guide whereby the cord passing from the spool may leave the cap at the apex thereof, and means for putting a tension on the spool which varies increasingly or decreasingly in accordance with the direction in which the cap is turned the cap having an element associated therewith to which the said tension is transmitted.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ERNEST P. GARNER.

Witnesses:

H. W. JONES,

W. S. THIRRELL.