

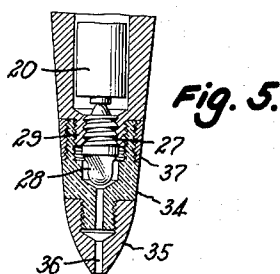
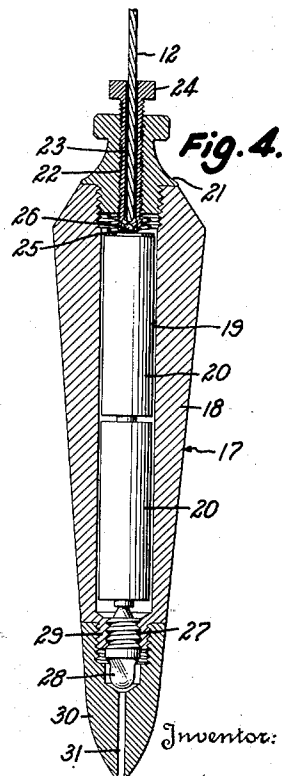
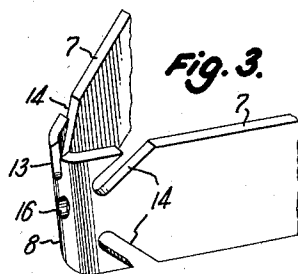
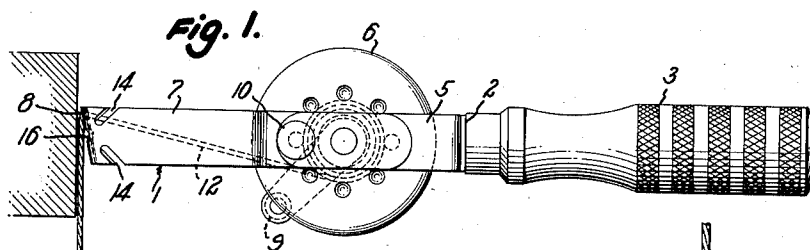
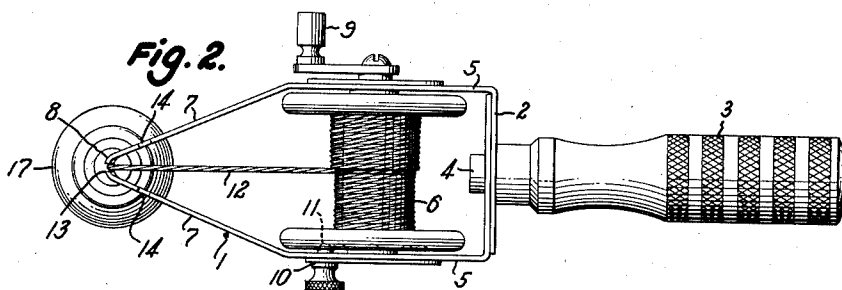
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PLUMB BOB DEVICE

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UNITED STATES PATENT OFFICE

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PLUMB BOB DEVICE

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3 Claims. (Cl. 33-216)

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The present invention relates to a plumb bob device including a novel bob and means for suspending the same when plumbing from one point to another.

An object of the invention is to facilitate and improve the accuracy of the plumbing operation by providing an improved plumb bob incorporating illuminating means to indicate the point of plumbing with a spot of light.

Another object of the invention is to provide an improved plumb bob incorporating illuminating means effective to illuminate an area adjacent the point of plumbing and to indicate the precise plumb point by a spot of light centered in a non-illuminated circle.

A further object of the invention is to provide a plumb bob and holder therefor including a convenient means for storing and paying out the plumb line and positioning the upper end thereof at the precise plumbing point.

A still further object of the invention is to provide a plumb bob and line holder including a polygonal frame between the sides of which a plumb line reel is journaled and in which the sides converge to an apex having an aperture for the passage of the plumb line and a nose for correctly positioning the same at a plumbing point, the frame carrying a handle for holding the same in position.

Other objects and advantages of the invention will become apparent during the course of the following detailed description of the invention and reference to the accompanying drawings forming a part hereof, in which:

Fig. 1 is a side elevation of a supporting frame and plumb bob embodying the invention and illustrating the manner of plumbing a point on a vertical surface,

Fig. 2 is a plan view of the supporting frame,

Fig. 3 is a partial perspective view of the nose of the frame,

Fig. 4 is an axial section through the plumb bob, and

Fig. 5 is a partial axial section through a modified form of illuminating tip for the plumb bob.

Referring more particularly to the details of the drawings, 1 indicates a frame in the form of an irregular pentagon made of suitable strap metal, such as brass, and including a base portion 2, to which a handle 3 is attached by a stud bolt 4. From the base 2 parallel sides 5 extend perpendicular thereto and a reel 6 is journaled between the sides 5. Beyond the reel 6 the sides converge inwardly as indicated at 7 to a nose or point 8.

The reel shaft is provided with a crank handle 9

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for winding the reel and a spring pressed bearing detent 10 is mounted in one of the walls 5 with the detent engaging a row of depressions 11 in the end face of the reel to retain it against unwinding under the weight of the bob suspended from the line wound on the reel as will appear hereafter.

The plumb line 12 has one end fastened to the reel and is wound thereon and the other end extends from the reel to the nose or point 8 from which the plumb bob attached thereto is suspended when the device is in use.

The nose 8 of the frame 1, as will be seen more clearly by reference to Figs. 1 and 3, is provided with a vertical slot 13 in the upper edge at the tip thereof and with diagonal slots 14 extending inwardly toward the tip from both the upper and lower edges spaced a short distance from the tip. The purpose of the side notches is to engage the plumb line to positively prevent the same from unwinding when this is desirable, such as when plumbing a specified distance from a plurality of points. The line is secured with the requisite length depending from the nose by winding it around the nose seated in the slots 14 and passing it from the upper slot on one side over the center slot or notch 13 from which it will depend straight and true from the point of the nose. The forward surface of the nose is cut back or slanted inwardly from the upper edge thereof as indicated at 15 so that with the upper edge of the tip bearing against a plumb point the line depending from the notch 13 will hang in true vertical alinement with the point. A hole 16 is also provided in the nose just below the notch 13 through which the line may be threaded if desired.

The novel plumb bob 17 according to the invention is formed of brass or other suitable material and comprises a tapered body portion 18 formed with an axial bore 19 of a diameter to receive a small dry cell battery or batteries 20 which are inserted from the upper or larger end thereof. The upper end of the body is provided with a screw plug closure 21, also preferably of brass, and the latter is formed with an axial threaded bore 22 through which is threaded a hollow screw 23 provided with a knurled head 24. The plumb line 12 is threaded through the bore of the screw 23 and is knotted at the end, the knot seating in an enlarged socket at the inner end of the bore. The screw 23 serves the dual purpose of anchoring the plumb line and as a switch for the battery circuit. In order to prevent accidental completion of the circuit by contact of the end of the battery with the plug 21, an insulating disc 25 having a central aperture to pass the end of the

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screw 23 and a coil spring 26 may be inserted between the plug 21 and the end of the battery 20.

The bore 19 in the plumb body 18 terminates adjacent the smaller end of the body in a reduced threaded socket 27 which receives a small electric lamp bulb 28 which, when screwed into the socket, makes contact with the center terminal of the battery 20 as will be clearly seen in Fig. 4.

The body 18 is truncated at its smaller end and formed with a threaded stud 29 on which a removable tip 30 is threaded. The tip 30 is sized and shaped externally to conform to the taper of the body 18 and is hollowed out to accommodate the light bulb 28 and formed with an axial bore 31 opening at the tip end thereof so that light from the lamp bulb 28 will pass through the bore 31 and illuminate a spot axially in advance thereof.

It will be apparent from the above description that by turning the knurled head 24, the screw 23 will feed inwardly and outwardly and the inner end thereof will be caused to make or break contact with the end of the battery 20 to light or extinguish the lamp bulb 28, the circuit being completed through the metal plumb body 18. It will of course be understood that if it is desired to make the plumb body of non-conducting material, a suitable conductor will be provided between the switch screw 23 and the lamp socket.

It is often desirable to provide illumination of the area around a plumbing point, particularly when working in dark corners and for effecting this, the modified form of tip 32, as shown in Fig. 5, is provided. The tip 32 which is hollow and threaded at 33 to screw on the stud 23 is formed with an intermediate section 34 of transparent material and terminates in a metal tip end 35 formed with an axial bore opening through the end thereof. The base 37 of the tip 32 is preferably made of metal and the transparent portion 34 which preferably is of molded plastic is positioned and dimensioned so that when the tip is applied to the plumb body and the lamp 28 is illuminated, the light rays will be projected both laterally and forwardly through the same. The metal tip end 35 is of course opaque so that the result when using this tip and energizing the lamp is an area of general illumination around the plumb bob with a spot of bright light in the middle of the shadow cast by the tip end.

In using the invention, for instance in plumbing from an elevated surface to a lower point, the screw 23 is turned down to light the lamp 23, the tip of the nose 8 is placed on the point to be plumbed from and sufficient line is unreeled to suspend the bob with the point thereof within about half an inch of the lower surface with the line passed over the notch 13 in the nose of the frame. The bright point of light projected onto the lower surface through the axial bore in the tip of the bob then indicates the desired point which may be marked easily without disturbing the bob. When this is accomplished, the reel may be operated to wind in the line and the screw 23 is of course backed off to break the lamp circuit when the bob is not in use. As indicated previously, the spring pressed detent 10 will hold the reel from turning and paying out additional line under the weight of the bob, however, when a fixed length of line is desired the line may be passed through the notches 14 before threading over the notch 13 to provide a positive tie.

While preferred embodiments of the invention

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have been shown and described by way of illustration, it will be understood that various modifications and variations in the details of construction thereof may be resorted to without departing from the spirit of the invention within the scope of the appended claims.

I claim:

1. A plumb bob comprising a tapered body having an axial bore for the reception of a dry cell battery, an end closure for the bore threaded on the upper end of the body, an axially disposed line anchoring screw switch threaded through said end closure and adapted to engage the terminal end of a battery disposed in said bore, said line anchoring screw switch being formed with an exposed knurled head and having an axial bore for the passage of the end of a plumb line therethrough and a socket in the inner end thereof for seating an anchoring knot on the end of the plumb line, said body having a lamp socket at the other end of said bore, and a removable tip on the other end of the body chambered to accommodate a lamp disposed in said socket and having an axial bore from said chamber opening through the tip end.

2. A plumb bob comprising a tapered body having an axial bore for the reception of a dry cell battery, an end closure for the bore at the upper end of the body, an axially disposed line anchoring screw switch threaded through said end closure having an axial bore for the passage of the end of a plumb line therethrough and an exposed head for manual adjustment thereof to engage the inner end thereof with the terminal end of a battery disposed in said bore, said body having a lamp socket at the other end of said bore, and a removable tip on the other end of the body chambered to accommodate a lamp disposed in said socket and comprising a transparent portion for the passage of light rays from the lamp laterally therethrough and an opaque tip end having an axial bore for the passage of an axial point-indicating light beam therethrough, whereby the body of said opaque tip end serves to cast a shadow around the point of light emitted through the axial bore therein in the center of an area illuminated by light from the lamp emitted through said transparent material.

3. A plumb bob comprising a tapered body having an axial bore for the reception of a dry cell battery, an end closure for the bore at the upper end of the body, an axially disposed line anchoring screw switch threaded through said end closure having an axial bore for the passage of the end of a plumb line therethrough and an exposed head for manual adjustment thereof to engage the inner end thereof with the terminal end of a battery disposed in said bore, said body having a lamp socket at the other end of said bore, and a removable tip threaded on the end of said body conforming to the taper thereof and comprising a metal ferrule an intermediate chambered section of transparent material to accommodate a lamp disposed in said socket and an opaque tip end having an axial bore opening through the end thereof, whereby the body of said opaque tip end serves to cast a shadow around the point of light emitted through the axial bore therein in the center of an area illuminated by light from the lamp emitted through said transparent material.

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