

WOLF'S PLUMB BOB NEWS 2010

Issue 01 January 01, 2010

LINE ADJUSTERS

Editor: Wolfgang Ruecker

www.plumbbob.de

Dear Reader of the News,
Dear Fellow Collector,

As promised, I'll continue to write also in 2010 monthly the WOLF'S PLUMB BOB NEWS

Solutions to adjust the line of the plumb bob

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1) INTRODUCTION

A plumb bob can't work alone; it needs a plumb line to be connected to the structure that is being "plumbed". In order to make the plumb bob applicable to many applications this line or string is often longer than it needs to be, so another device may be an advantage, a "string adjuster", to regulate the length of the line in small increments.

This function of adjustability can be achieved in different ways, the simplest of which is to tie a "slip knot" around the plumb line. The friction of the knot on the plumb line allows the plumb bob to be raised or lowered in miniscule degrees to align the tip of the bob close to but not in contact with the work surface.

Why we have to adjust the line?

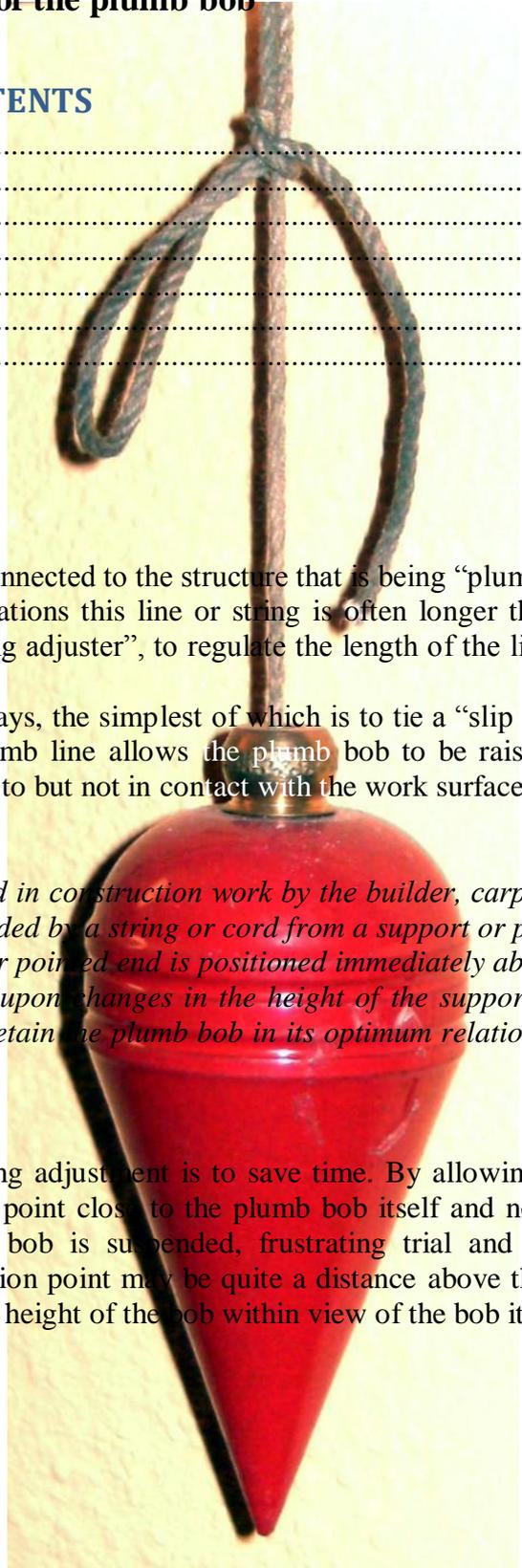
From a patent, in other words: *"Plumb bobs are widely used in construction work by the builder, carpenter and by the surveyor. Conventionally the plumb bob is suspended by a string or cord from a support or plumb line above a selected point and at a height such that its lower pointed end is positioned immediately above a point. Upon being moved from one position to another, or upon changes in the height of the support, the length of the supporting cord must be changed in order to retain the plumb bob in its optimum relationship with respect to the point"*

Why is a "string adjuster" used?

The principle advantage in employing some method of string adjustment is to save time. By allowing the regulation of the plumb line length to be controlled from a point close to the plumb bob itself and not far away from the bob at the point from which the plumb bob is suspended, frustrating trial and error adjustments are eliminated. More often than not the suspension point may be quite a distance above the tip of the bob so there is an extreme advantage in controlling the height of the bob within view of the bob itself.

Related theme:

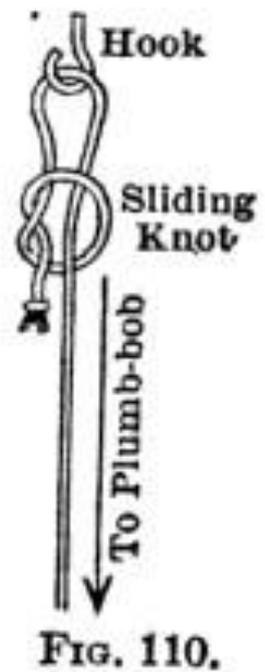
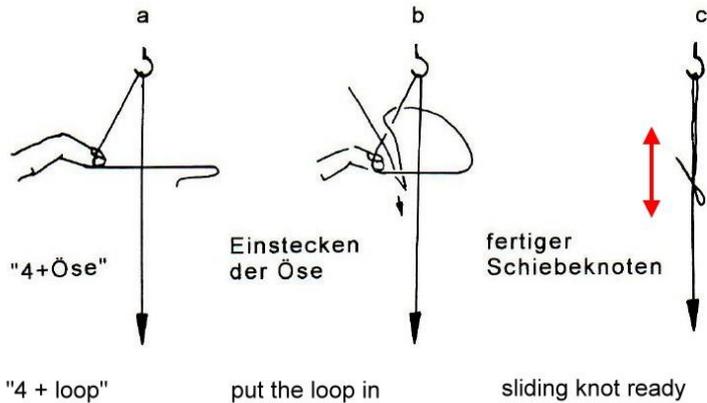
1. See WOLF'S PLUMB BOB NEWS 2008-03 CAPS AND TIPS.



2) TIE A SLIDING-KNOT

From the beginning of the use of the optical surveying instruments, every surveyor has hung a bob beneath the instrument. They know the advantage of the basic “slip knot”.

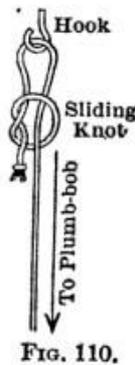
I found in a German book a good instruction drawing:



In „USA Surveying Paul Cook 1911” I found:

110. Plumb-bob. Do not begin the day’s work by leaving the plumb-bob behind. The string to the bob is looped over a hook under the center of the transit, and has a sliding knot by which to adjust its length. The figure shows the sliding knot before it is drawn tight. But instead of putting the end of the string through the loop as shown in the figure, double it back upon itself so that the knot may be untied at any time by simply pulling the free end, as in the case of a bow-knot. Avoid any other knot in the string, even one at the end.

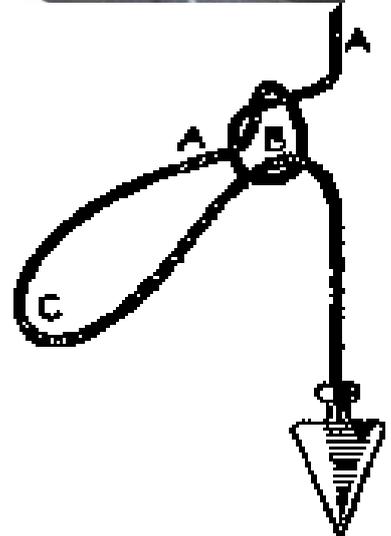
Another device is to fasten one end of the string to a piece of wood containing two holes, while the other end of the loop passes through the holes and down to the plumb-bob. Friction and the crook in the string hold the device in any position as it slides up or down the plumb-line. Bone or leather may be used in place of the wood.* If the wind is blowing, shield the bob with something (a hat will do) to keep it from swinging.



So it looks in (my) reality☺ (picture right)

Adjusting A Plumb-Bob Line

“When plumbing a piece of work, if there is no help at hand to hold the overhead line, it is common practice to fasten the plumb line to a nail or other suitable projection. On coming down to the lower floor it is often found that the bob has been secured either too high or too low. When fastening the line give it plenty of slack and when the lower floor is reached make a double loop in the line, as shown in the sketch. Tightening up on the parts AA will bind the loop tight B, and an adjustable friction-held loop, C, will be had for adjusting the bob accurately either up or down. --Contributed by Chas. Herrman, New York City” (unknown source)



3) PATENTED ADJUSTERS

C. B. ALEXANDER.
SLACK ADJUSTER.

APPLICATION FILED FEB. 23, 1916.

1,229,855.

Patented June 12, 1917.

This invention relates to adjusters and has especial relation to means for adjusting the string of plumb bobs and the like.

The primary object is to provide an adjuster for this purpose by which the plumb bob can be shifted with one hand, leaving the other hand entirely free.

Aug. 27, 1929.

C. B. ALEXANDER
SLACK ADJUSTER
Filed Oct. 5, 1928

1,725,748

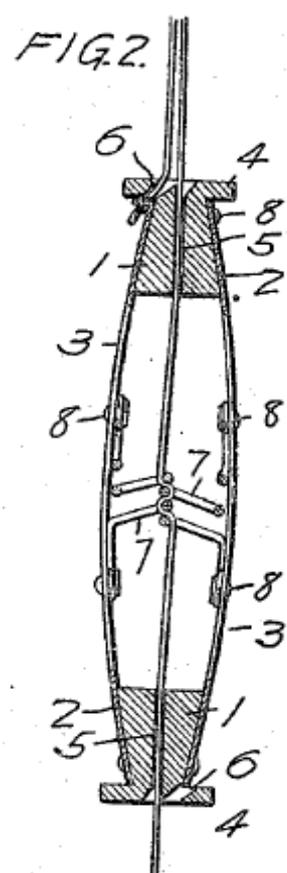
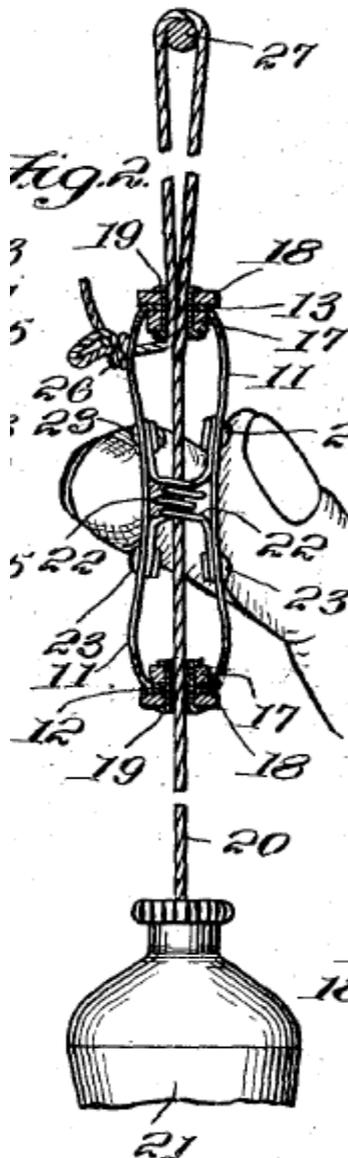
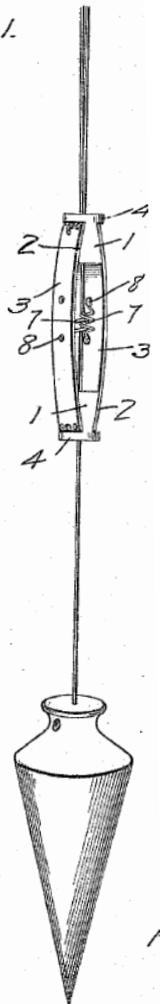


FIG. 1.



This invention relates to slack adjusters and is an improvement upon the adjuster disclosed in Patent #1,229,855, granted to me June 12, 1917.

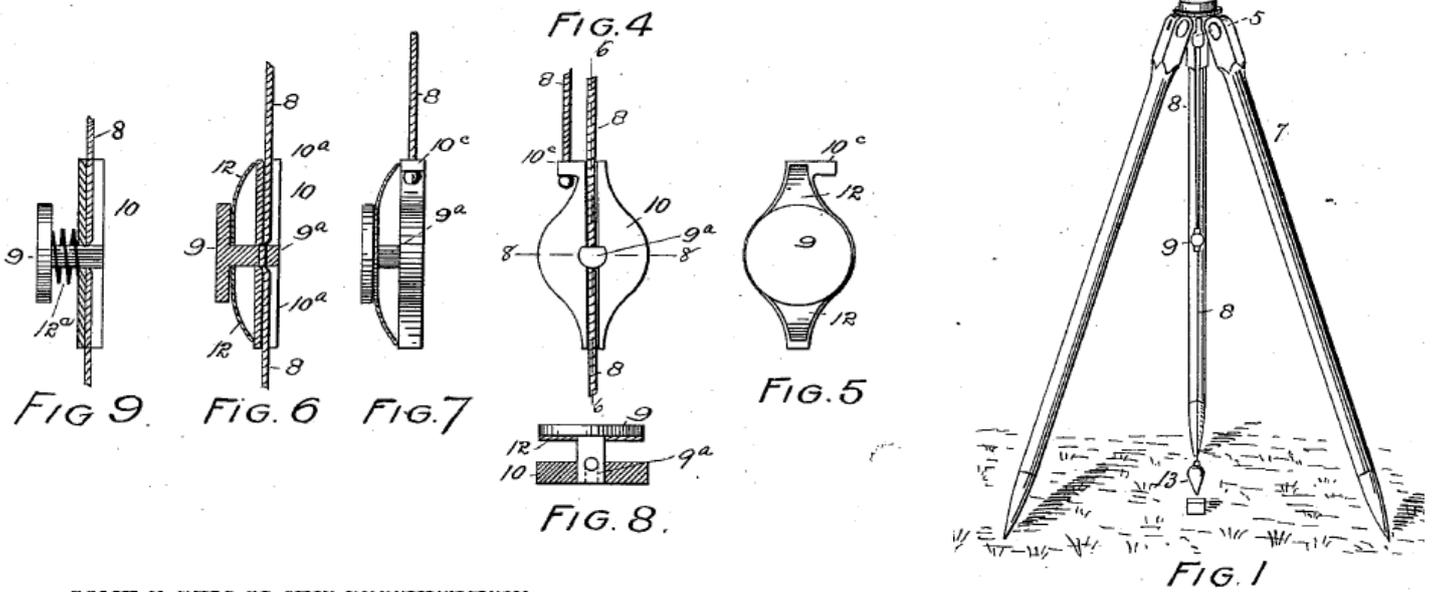
Like the patent above mentioned, an object of the invention is to provide means for adjusting lines of various characters, such as the lines of plumb bobs and the like, although the invention may be made of a proper size for use with guy ropes, ropes of sailing vessels, or in any connection where quick adjustment and positive grip are important factors.

The primary object of the present invention is to improve and simplify the construction disclosed in the patent referred to, so that the device may be cheaply sold, the construction materially reducing the cost of manufacture without sacrificing any of its advantageous features.

A. B. SMITH.
PLUMB BOB ADJUSTING DEVICE.

No. 564,316.

Patented July 21, 1896.



15 My invention relates to improvements in plumb-bob attachments specially designed for use by surveyors and others who use a plumb-bob in connection with the tripod. By means of my attachment the plumb-bob
20 is readily adjustable.

It will be observed that when the button 9 95 is released from pressure the cord is locked in the adjusting-clasp, since the action of the spring forms a bend in the cord and will not allow the latter to slip through the clasp until it is released by pressing the button, 100 when the gravity of the plumb-bob will draw the cord through the clasp as desired. The plumb-bob is easily raised by pressing on the button and pulling upward on the cord.

July 28, 1925.

1,547,677

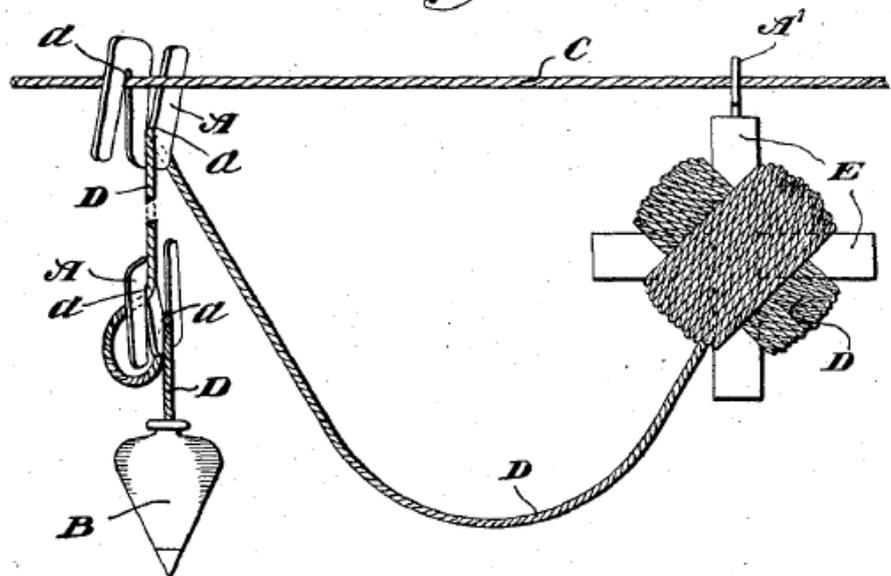
A. OUELLET

CORD GRIPPING DEVICE

Filed Aug. 18, 1924

This invention relates to means for suspending articles such as plumb bobs and electric lamps in desired locations without requiring the tying of any knots in the suspending cord.

Fig. 1.



July 20, 1954

R. E. CRISWELL

2,683,937

PLUMB BOB ADJUSTER

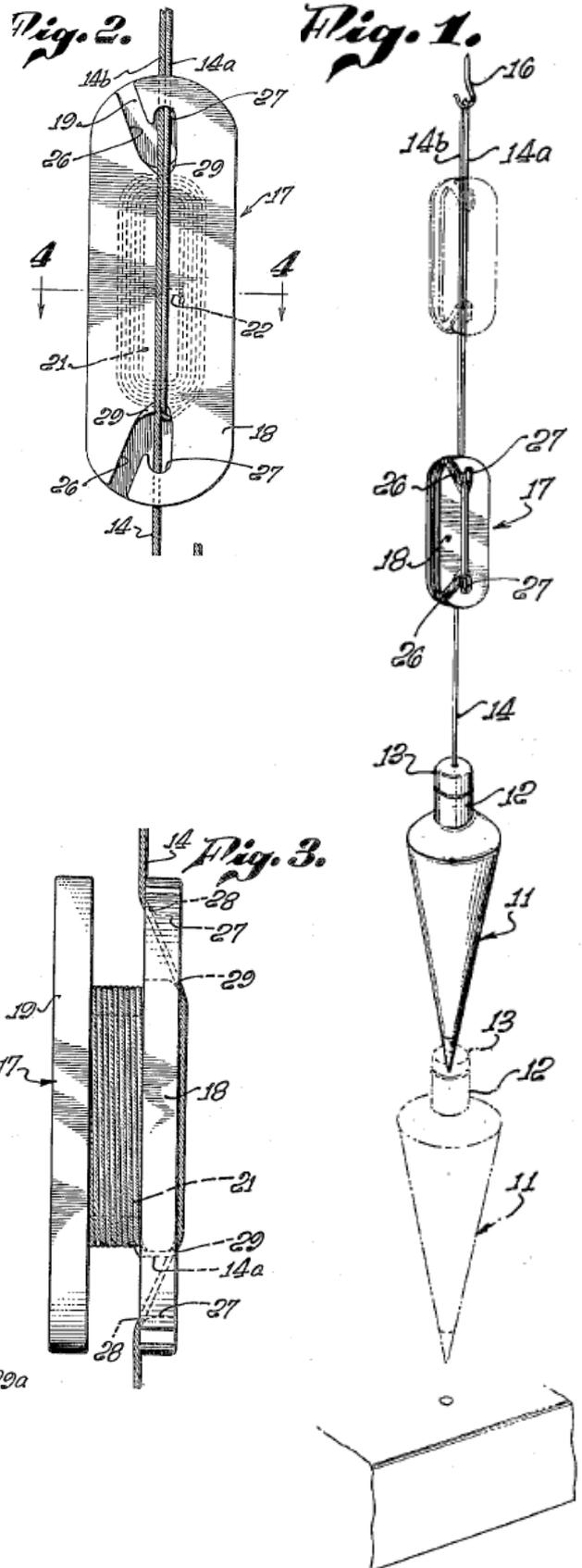
Filed July 15, 1952

The present invention relates to line length adjusters in general and particularly to an adjuster for varying the effective length of a supporting cord or string for a plumb bob.

Plumb bobs are widely used in construction work by the builder, carpenter and by the surveyor. Conventionally the plumb bob is suspended by a string or cord from a support or plumb line above a selected point and at a height such that its lower pointed end is positioned immediately above that point. Upon being moved from one position to another, or upon changes in the height of the support, the length of the supporting cord must be changed in order to retain the plumb bob in its optimum relationship with respect to the point. Conventionally this is done by providing a suitable slip knot, which the worker ties after looping the cord over the supporting member. Such slip knots, however, have the undesirable characteristic of slipping and again of becoming so tight that a readjustment can be made only with difficulty. The delay following such developments is undesirable.

The adjuster constructed in accordance with the present invention is adapted to eliminate the undesirable factors characterizing the conventional slip knot adjustment. It comprises basically a reel upon which the cord or string can be wound and about which the unused length of string remains wound when the plumb bob is in use. Additionally it incorporates friction seating means through which the cord extends to the end that with the plumb bob supported above its point the effective length of the supporting cord can be readily varied simply by lifting the plumb bob and sliding the adjuster along the run of cord which passes through it. Upon the plumb bob again being released its weight causes the effective cord length to be fixed until a readjustment is made.

With an appreciation of the problems which characterize the use of plumb bobs it is an object of the present invention to provide a new and improved adjuster for readily effecting changes in the length of cord or string supporting a plumb bob. It is another object of the invention to provide a new and improved cord reel and adjuster for plumb bobs which is economically manufactured and which can serve as a storage unit for the cord when not in use. These and other more specific objects will appear upon reading the following specifications and claims and upon considering in connection therewith the attached drawing to which they relate.



4) COMMON ADJUSTERS



Some "line adjusters" on a wall in my "museum"



Simple plastic „button“ adjuster



Brass adjuster with hook (under a tripod)



Cheep plastic adjuster with surveyors plumb bob



Adjusters from Dale Riedesel (left: sighting view, not an adjuster, even when it is fixed on the line).



VERITAS ADJUSTER is described in WOLF'S PLUMB BOB NEWS 2007-39 "LEE VALLEY and VERITAS" and patent US 5,974,676 from 1999



GURLEY adjuster

5) INTEGRATED ADJUSTER (REELS etc.)

BRASS PLUMMETS. Adjustable.

These Plummetts have a concealed reel, R, around which the string is wound by turning the milled head, K, on top. The friction upon the reel will hold the Plummett at any desired point of the line.

465. Adjustable Plummett, 10 oz... \$2.50 \$0.20
 469. Adjustable Plummett, 30 oz... 5.00 .45

In a catalogue "1893 BAKER Surveying Instruments" I found three methods of adjusting length of the plumb line. Here we see adjusters separate from the bobs themselves, and also one of many technical modifications made internal to certain types of bobs that contain an adjusting mechanism within the bob itself.

If we see back to WOLF'S PATENT NEWS 2007 we find a lot of plumb bobs with internal and external mechanisms on the bobs themselves to adjust the length of the plumb line.

I think it is fair to say that the vast majority of plumb bob patents have to do with a method of regulating the length of the plumb line.

I will only show some of them today. (You can see the others on www.plumbbob.de on page "patents" or "publications download". This illustration (picture above right), a plumb bob manufactured by GURLEY in 1905 was not patented. Several other manufactures employed almost identical solutions to provide plumb bobs to go along with their surveying instruments.

Another patented solution:

2,906,033

ADJUSTABLE PLUMB BOB

Oscar Johnson, Springfield Gardens, N.Y.

Application March 25, 1958, Serial No. 723,861

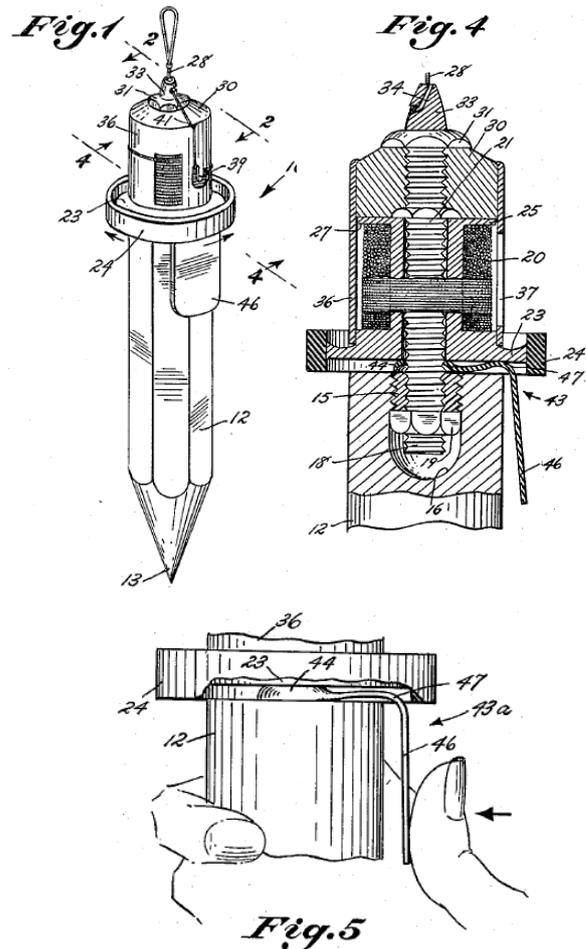
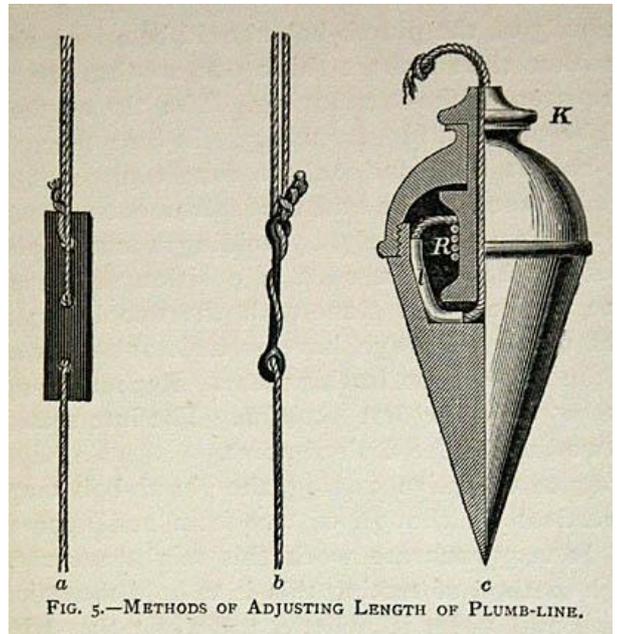
2 Claims. (Cl. 33-217)

This invention relates to plumb bobs and, more particularly, to a weighted plumb bob having support means of adjustable length.

A considerable amount of time is frequently wasted in winding up the string ordinarily used to support a plumb bob in actual use. In many cases, the string often becomes entangled during use and while being stored, thus further inconveniencing and hampering the particular operation. It is therefore an object of the present invention to provide an adjustable plumb bob having self contained means for controlling the length of the support string extending outwardly therefrom, which plumb bob is extremely simple in construction, efficient in operation, and which will overcome the aforementioned difficulties.

Another object of the present invention is to provide a compact adjustable plumb bob having a self contained reel or drum upon which the supporting string is wound until ready for use, a manually operated brake or clutch mechanism being provided to enable the string to be unwound from such drum.

Still a further object of the present invention is to provide an adjustable plumb bob of the type described having associated winding apparatus for frictionally rewinding the string upon the drum.



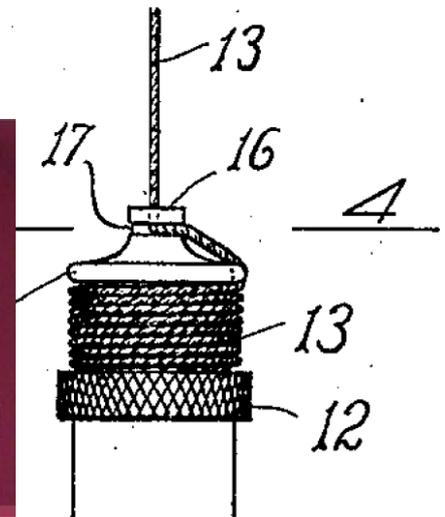
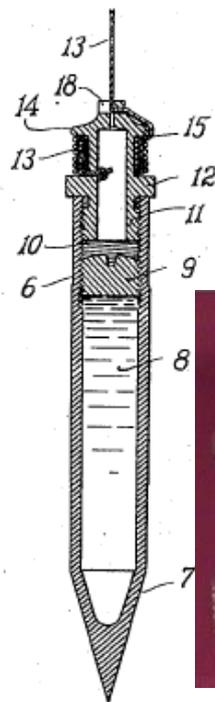
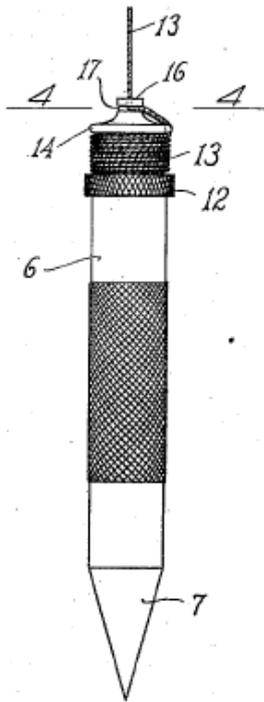
ONE OF THE BEST INTEGRATED ADJUSTER is the **STARRETT** patent:
 (more see WOLF'S PATENT NEWS 2007-16 on www.plumbbob.de)

US833699 STARRETT.1906. You know the plumb bobs from STARRETT (#87 as mercury filled).

No. 833,699.

PATENTED OCT. 16, 1906.

L. S. STARRETT.
 PLUMB BOB.
 APPLICATION FILED FEB. 7, 1906.



One special part of this patent is the invention for fixing the line:
 The drawings are not very clear, but **THIS INVENTION WORKS VERY WELL!**



Picture right:
 From the collection Riccardo Chetoni Pisa Italy a homemade brass adjuster from France. It can also be used as a spacer (red arrows)



Picture left:
 A plumb bob under a tripod near to the marking point in my "museum".

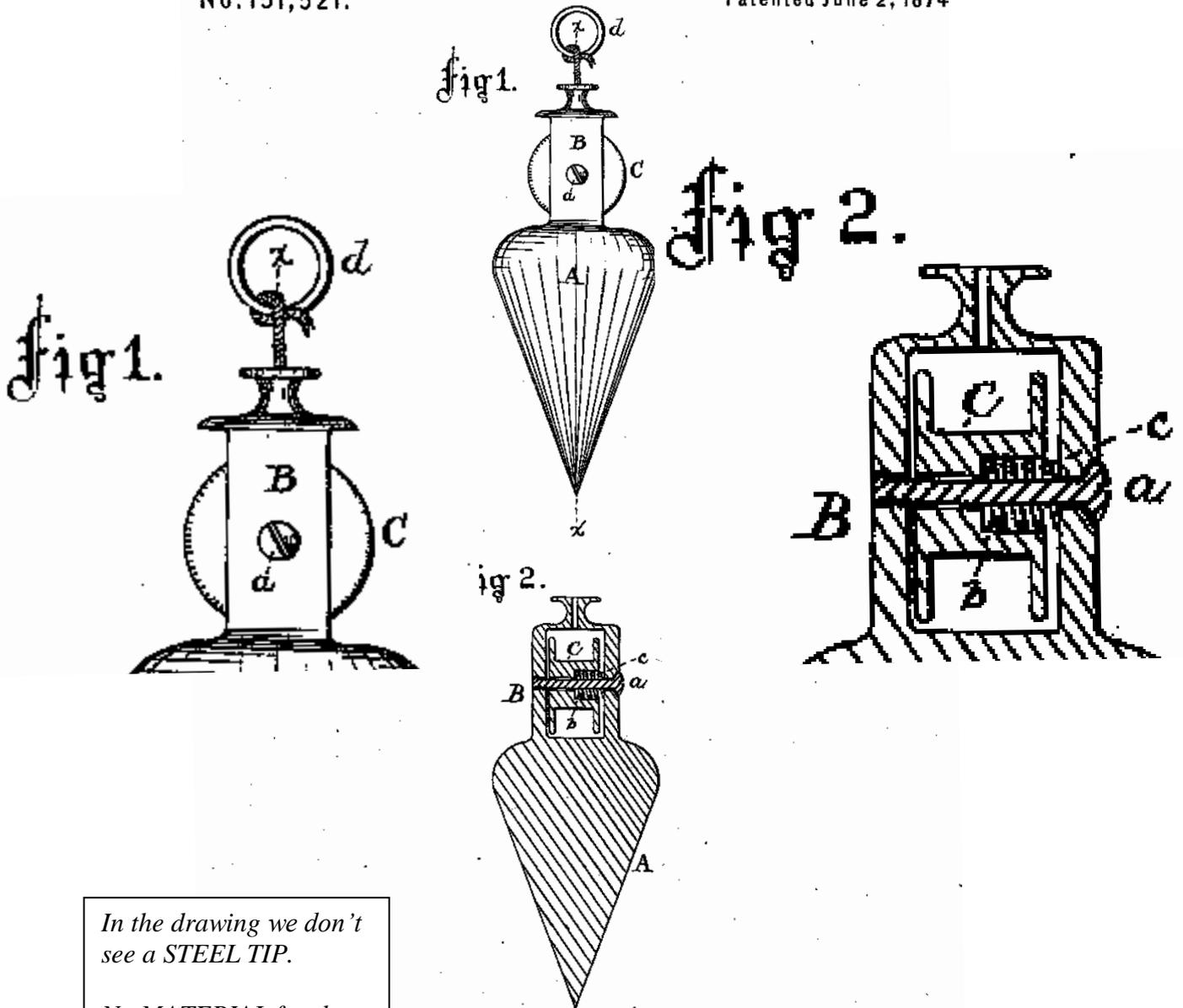
Another internal adjuster is the well known STANLEY, invented by TRAUT:

US151521 TRAUT 1874 PLUMB-BOBS (This one is so excellent, that it works still in our times and it was imitated by a lot of factories.)

**J. A. TRAUT.
Plumb-Bobs.**

No. 151,521.

Patented June 2, 1874



In the drawing we don't see a STEEL TIP.

No MATERIAL for the BODY and the FRAME is mentioned in the patent.



The full article about the STANLEY plumb bobs, see WOLF'S PATENT NEWS 2007-32 on www.plumbbob.de

6) OFF THE SUBJECT...

Off the subject, but included in this Newsletter for lack of a better place to include it in my archive of plumb bob documentation, this most whimsical use of the plumb bob.
I wonder if this was the origin of "New Balance" footwear: ☺

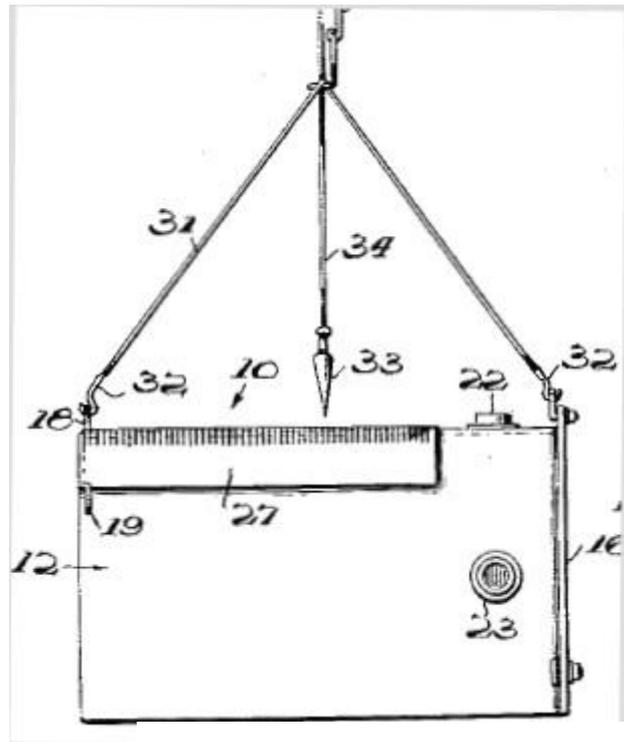
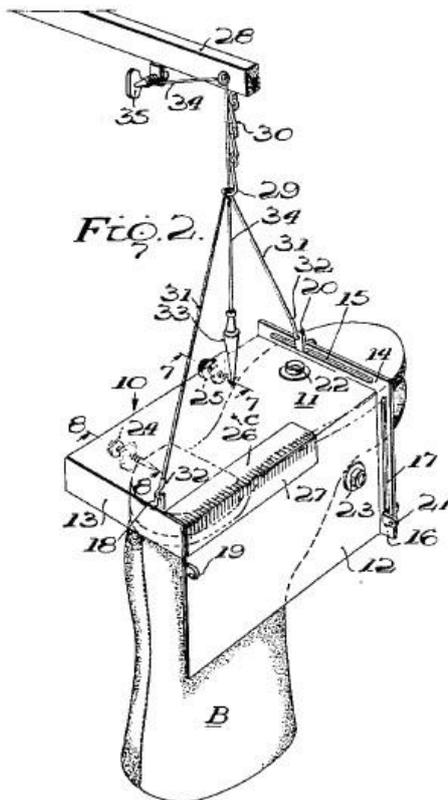
Aug. 15, 1961

P. V. KARPOVICH

2,995,924

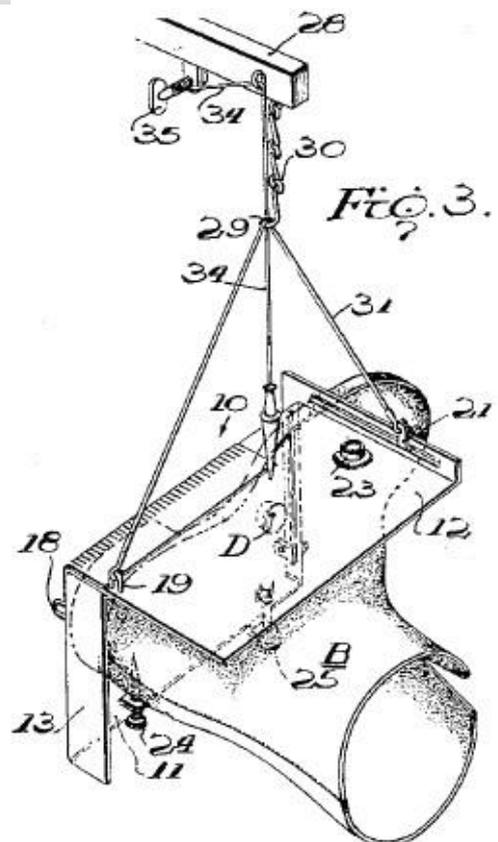
DEVICE FOR LOCATING THE CENTER OF GRAVITY OF FOOTGEAR

Filed June 16, 1958



This invention relates to a device for locating the center of gravity of footgear for use primarily, although not exclusively, by members of the Armed Services.

It is the aim of the modern designers of military footgear to provide maximum protection for the feet and to raise the efficiency of locomotion without causing discomfort so, from time to time, shoe designers recommend changes in the construction of military footgear in order to make them more comfortable and efficient. Before the adoption of any such newly-designed footgear, it is desirable and expedient to test its effectiveness. Known methods of testing are to obtain subjective reports of the wearers of the footgear and by field testing them. In lieu of these old methods, it was decided to explore the possibility of developing more objective methods of testing footgear which, among others, was to determine the effect of various types of military footgear upon the energy cost of walking. In making this determination, it became necessary to equalize the weight of lighter boots with that of the heavier ones by attaching additional weights to the boots. It was obvious that additional weight should be placed in such a manner that the location of the center of gravity in the lighter boot with the added weight would be the same as in the heavier one. Therefore, it became necessary to determine the location of the center of gravity of various types and sizes of footgear.



7) CONCLUSION

Most trades that employ plumb bobs in their work benefit from some method of adjusting the height of the plumb bob above a specific point. This specifically relates to plumb bobs with pointed tips that need to be aligned to or to mark a specific point on a work surface. A great deal of mental energy has been expended both in patented and unpatented ideas to regulate the length of the plumb line. Many of these ideas also have a subsidiary function, that is, a method to contain excess plumb line on a winder, bobbin or reel. Untangling a string can be a time consuming and frustrating task!

The plumb bob and plumb line combine to make a rather unruly device, an idea that you may sympathize with if you have ever had the occasion to use one to accomplish some real work.

“String Adjusters” both apart and attached to the plumb bob are a very major theme in the improvements made to the plumb bob.

Last, but not least, two other solutions for line adjustment:



Remark:

The original patents you can find in the **GOOGLE PATENT SEARCH** with the link:
http://www.google.com/advanced_patent_search

This is an article of the monthly published WOLF'S PLUMB BOB NEWS that is sent on demand as PDF-file attachment by email.

You can see all former publications on the website www.plumbbob.de

Remarks and contact by email: plumbbobwolf@t-online.de



COLOGNE CATHEDRAL

**Do we meet us on the
3rd PLUMB BOB COLLECTORS MEETING
2010 October 1st to 3rd in Cologne /Germany?**

Stay-plumb
Wolf