

EMAIL for WOLF'S PLUMB BOB NEWS 2009-01

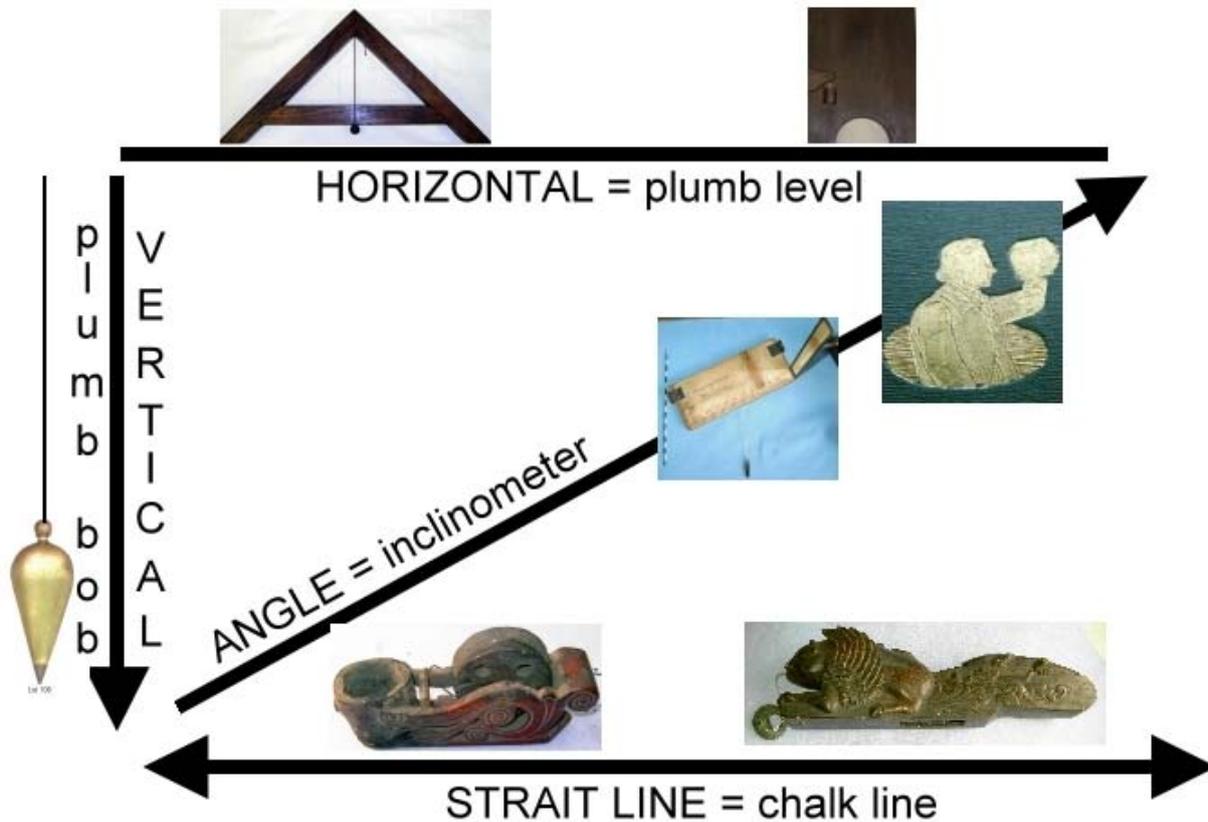
Dear Fellow Collectors,

I hope you've had a great start to the New Year 2009. My best wishes to you and your families.

1) This is the first issue of the WOLF'S PLUMB BOB NEWS, 2009.

It's subject **PLUMB LEVEL**, is the story of the father of today's "spirit levels".

My own collection I have specialized in 4 groups that are related to the plumb bob.



2) Upcoming **2009**, I have the following themes on my "to-do-list"; inspiration will determine their order of appearance. ☺

- PLUMB LEVELS (father of the "spirit level").
- German and American MINING plumb bobs, PLUMMETS.
- Diverse subjects: KNOTS, HOOKS, PLUMB BOB in SPACE on the flight to the moon. BRAIDED LINES etc.)
- INCLINOMETERS, angle measuring instruments.
- EGYPT BALANCE, with plumb bob on 3 lines.
- HISTORY of our International Plumb Bob Collectors Association. "**IPCA**"
- SUGGESTIONS ON THE MANAGEMENT OF YOUR COLLECTION? Marking the tools, keeping a written and photographic inventory. (Thanks for the response.)
- PLUMB BOB EXHIBITIONS
- MECHANICAL PLUMB BOBS OF THE UNITED STATES.
- OTTOMAN PLUMB BOBS
- ANSWERS TO THE 20 MOST FREQUENTLY ASKED QUESTIONS ABOUT PLUMB BOBS.
- „MARKED“ PLUMB BOBS OF THE UNITED STATES
- Rubric „WHAT'S IT“ (new).
- 100TH ANIVERSARY PLUMB BOB PATENTS.
- NEWS OF THE INSTALLATION OF A PLUMB BOB WEB-SITE
- HISTORY AND DEVELOPEMENT OF THE PLUMB BOB. (a subject for several issues!)
- **ANY OTHER TOPIC SUGGESTIONS OR COMMENTS WOULD BE MUCH APPRECIATED!**

Please remember I am a collector and not a professional publisher or editor in chief. These NEWS are my hobby and not my livelihood.

Don't forget:

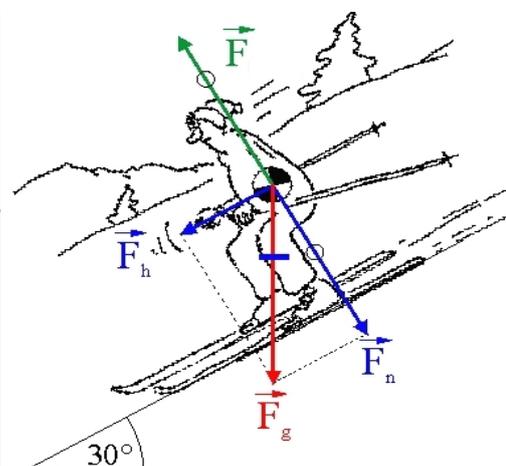
YOUR FEEDBACK and REMARKS are the INPUT for future articles about plumb bobs!

- 8 -

- In 2009 I will add a „WHAT’S IT?,“ column to the newsletter, supported I hope, by my trusted readers . ***If you have any questions about special plumb bobs in your collection, please send me a photo and the question.*** We will try to get an answer.
- My monthly email will become a part of the newsletter itself in the future. Fewer pieces to file would benefit us all.
- In the next weeks I will be able to offer all 50 issues of the WOLF’S plumb bob PATENT NEWS 2007 (250 + pages) as a ring bound book in English (black/white).
- In order to organize the email newsletter to adapt to hard copy, book format, I had to change the page numbering system. That is the reason why I start 2009 pages numbered sequentially and continued throughout the year.
 - Because of the success of my ads in the „THE GRISTMILL“ of the MWTCA , „THE SHAVINGS“ of the EAIA and my auctions on EBAY, the number of new readers is heartening. The “International Family” grows!
 - I did delete some readers from my list who did not respond to my request to renew subscriptions for the 2009 Newsletters. ☹
 - Actually we have the following „**VOLUMES**“ with information about plumb bobs.
Please ask for Prices and conditions.
- **Volume 1:** 2007 WOLF’S PATENT NEWS in English as **CD** or **BOOK** b/w
the CD contents also „THE PLUMB LINE CONTINUUM“ by Bruce Cynar/Nelson Denny
- **Volume 2:** 2008 WOLF’S PLUMB BOB NEWS in English and German as **CD** and **BOOK** (color)
- **Volume 3:** **BOOK** „FRENCH PLUMB BOBS“ by Riccardo Chetoni in FRENCH. (English edition in preparation)
- **Volume 4:** „Presentations about plumb bobs from the collectors meeting in Istanbul/Turkey 2006 and Paris/France 2008 as **CD** (for the most part in English, sometimes multilingual, but always with a lot of pictures.
- **Diverse Subjects:** Some publication as i.e. „HOW DO 20+ PLUMB BOB COLLECTORS DISPLAY their collections?“ are available FREE as email attachment, .pdf files. Just email a request for this information.
- **FREE AND WITHOUT CONDITION!**: You can subscribe to all 2009 issues of WOLF’S PLUMB BOB NEWS as email attachments. Requests for new subscriptions should be submitted by email to plumbbobwolf@t-online.de

- **LAST BUT NOT LEAST!**: For winter sports fans who would like to look sexy on the slopes, this idea might improve your form. Which image is yours?
Readers don’t get any ideas; I’m applying for the patent! ☺:

Wolfgang Rucker



Don't forget:

YOUR FEEDBACK and REMARKS are the INPUT for future articles about plumb bobs!

THE PLUMB LEVELS

Today's subject, my readers, is Plumb Levels. These tools are the precursors of "spirit levels" simply referred to as "levels" as we know them today. Whereas the "plumb level" employs a plumb bob to function, the "level", replaces the plumb bob with sealed, bent, spirit filled vials drawn out of glass. The subtle development improvement, and final emergence of "spirit level" as the tool of preference occurred over a long period of time, close to a century. The details of this evolution is a well documented subject taken up by another species of specialized collector. They have spots; my fur is striped.



1. GENERAL

The PLUMB BOB and LINE on its own is a tool to verify the VERTICAL. Constructing buildings, however, frequently requires verification of the HORIZONTAL and various means have been employed to turn the plumb line into a horizontal reading device.

Early in the history of the development of the plumb bob, workers learned to construct wood or metal frames, attachments to the plumb bob and line that enhances their use to verify the Vertical and others that convert them into "leveling" instruments that verify Horizontality. The plumb bob and line are hung from a very specific point on the geometry of the frame. The plumb line and sometimes the point of the bob are made to align to another predetermined reference mark on another part of the frame. Because of the careful construction and geometry of these frames, as the tool is moved to align the plumb line with the reference mark, one side of the frame becomes "level" (horizontal).

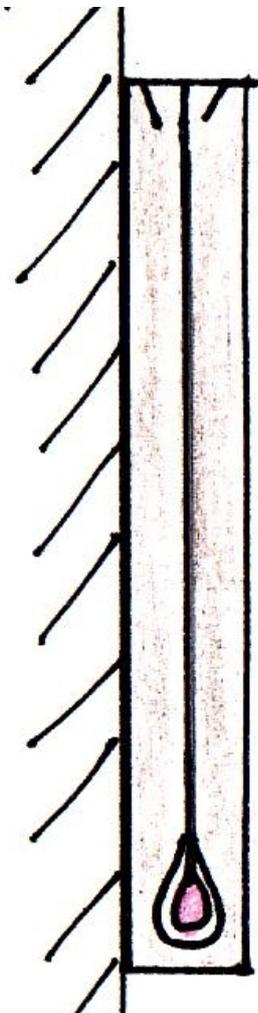
The construction of the plumb level frame must be geometrically correct for the tool to have any efficacy. The simplest are formed from one piece of material. But, because the plumb level wants to be easy to move around and store when not in use, they are frequently constructed out of many small pieces of wood or metal that must be joined together in a strong and durable fashion. It is essential that the plumb level frame maintains a consistent shape for it to be accurate for the life of the tool. In many examples you will note their simplicity to be deceptive.

2. SHAPES



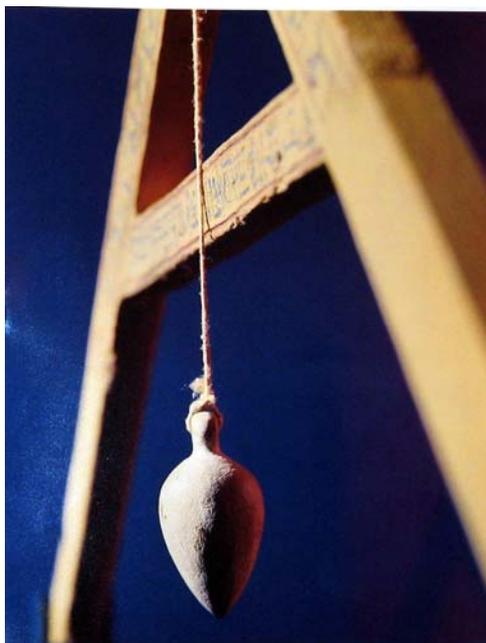
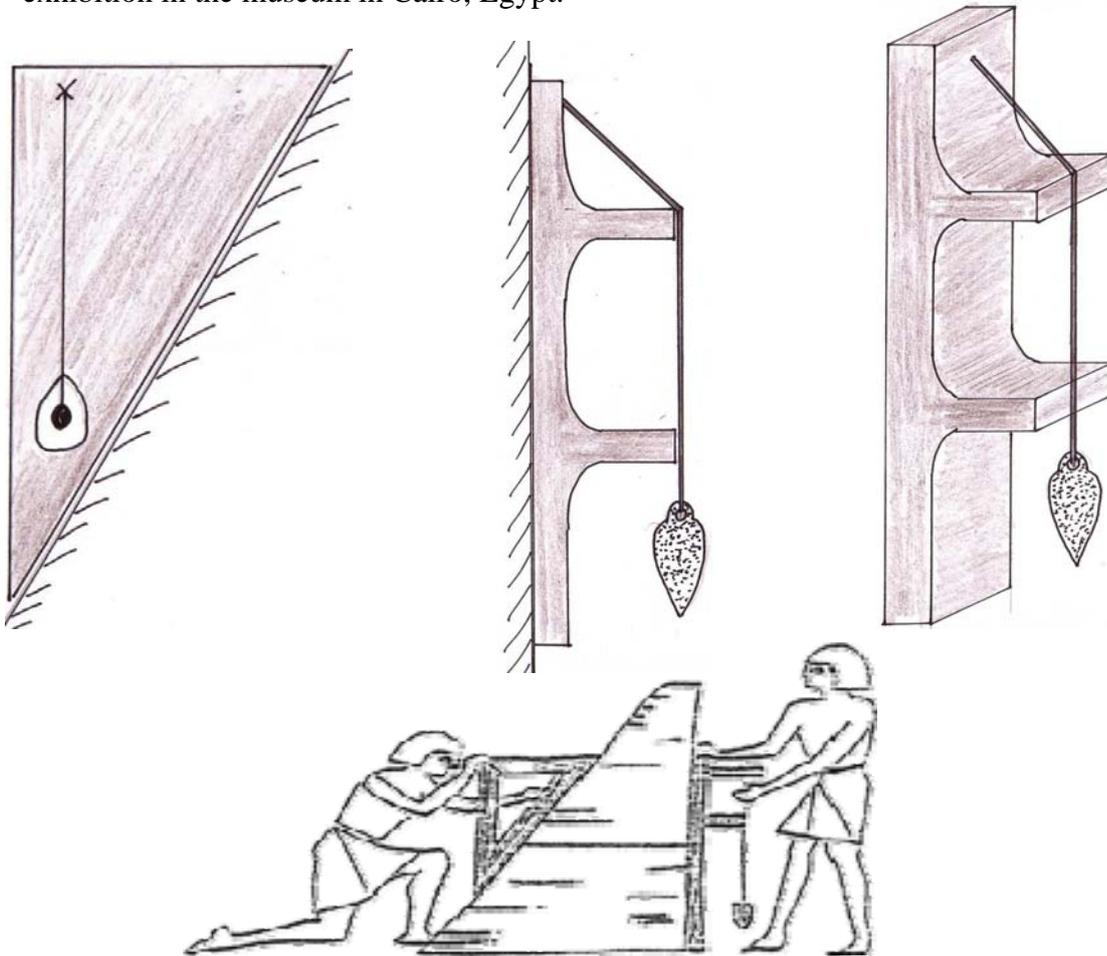
In order to create a vocabulary to talk about the **variety of shapes** plumb levels can take, I propose that the shape of certain letters of the alphabet, "T", "H", "A", and "L", are useful.

- a) Shaped like the letter "T": This shape is frequently referred to as a "plumb board." Relatively immutable because it is in one piece, this example has three very simple but well conceived notches that allow for the attachment of the plumb line. At the end of the line hangs a plumb bob which, in this case, acts a simple weigh to put tension on the line. In the board there is a hole made so that the bob can swing free of contact with the board when the board is placed on a surface (wall) that is close to being vertical. Just above the hole is another notch or line scribed into the surface of the board.

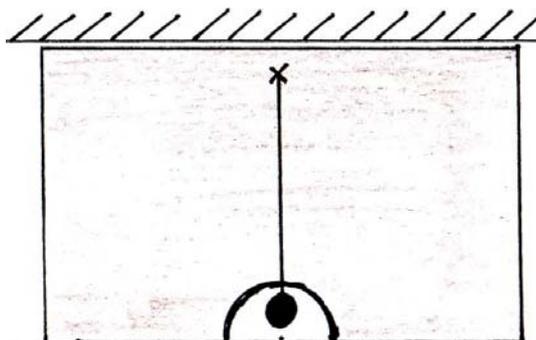
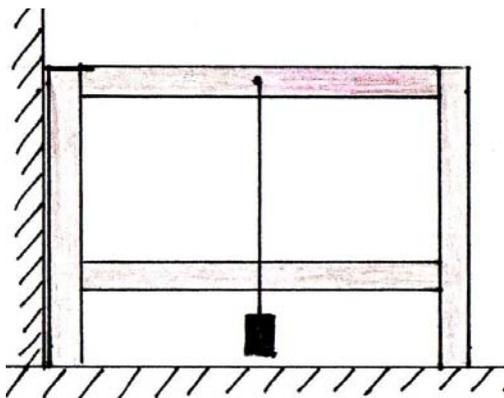


For this tool to be accurate, the two edges of the board must be made to be parallel. Additionally, the notch used to tie the plumb line at the top must be the same distance from the edge as the scribed line above the hole. Sometimes there are additional marks scribed between the first two. They too must be equidistant from the edges and are added to more accurately “eyeball” the plumb line’s alignment with the mark. The board, in effect, acts as a spacer and makes the plumb bob much more manageable than the plumb bob and line used alone. Note: this “I” shape verifies the vertical only. (See: Wolf’s PLUMB BOB NEWS 2008-02, 08 and 10 including “wood and iron spacers”).

- b) The ancient builder of the pyramids in Egypt used several varieties of plumb levels, illustrated in an exhibition in the museum in Cairo, Egypt.

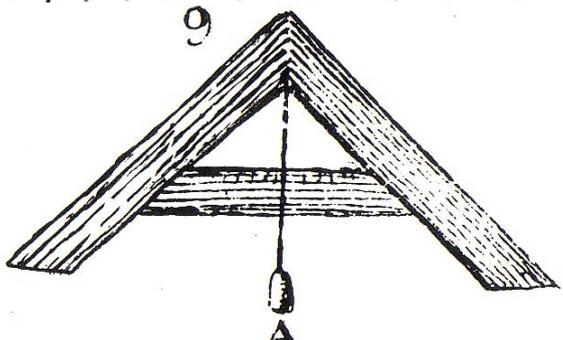
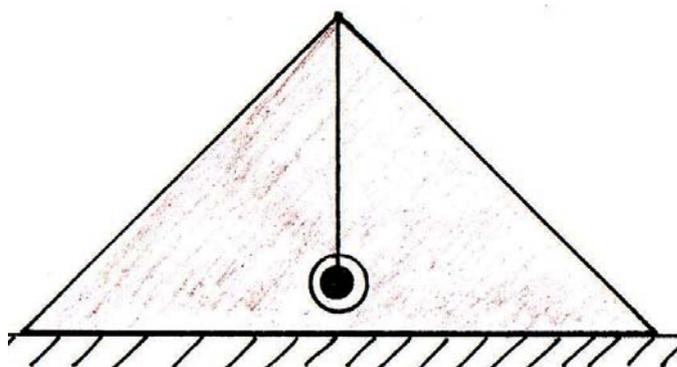
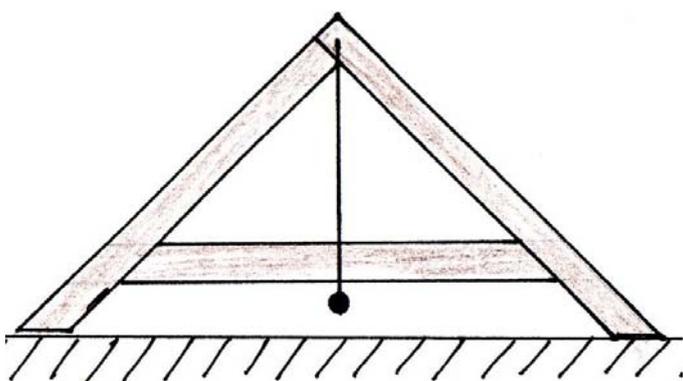


- c) To verify both Vertical and Horizontal the “H” rectangular frame is another quite common shape. Solid boards with adjacent sides at 90 are the simplest. However, the frames are frequently joined from relatively light weight strips of wood and lacking any diagonal element to keep them from deforming into parallelograms, doweled, mortise and tendon joints must be employed. The sides of these plumb levels verify Vertical, the top and bottom, Horizontal, that is of course, when the plumb line is aligned with a **prescribed mark** near the bottom of the “H” frame.



- d) The most common and useful shape is the “A” frame, triangular in shape. Like the “H”, both solid board and three legged versions can be found. By the nature of the triangle at least two legs must be equal in length and the line must be hung from the point between the two equal legs; the alignment mark would be the center between the ends of the third side. Due to the intrinsic stability of the triangle as a shape, the joinery at the corners of the multipart frames needs to be far less complex than the joints on “H” frames.

“A” frames are perhaps most useful when two of the three legs are made to form a **right angle**. In this form, and without reference to the plumb bob, the frame takes on another dimension of usefulness, a device to verify 90 degree angles, called a “square”.



Plumb level Spain 1827 already with angle indicator in the middle

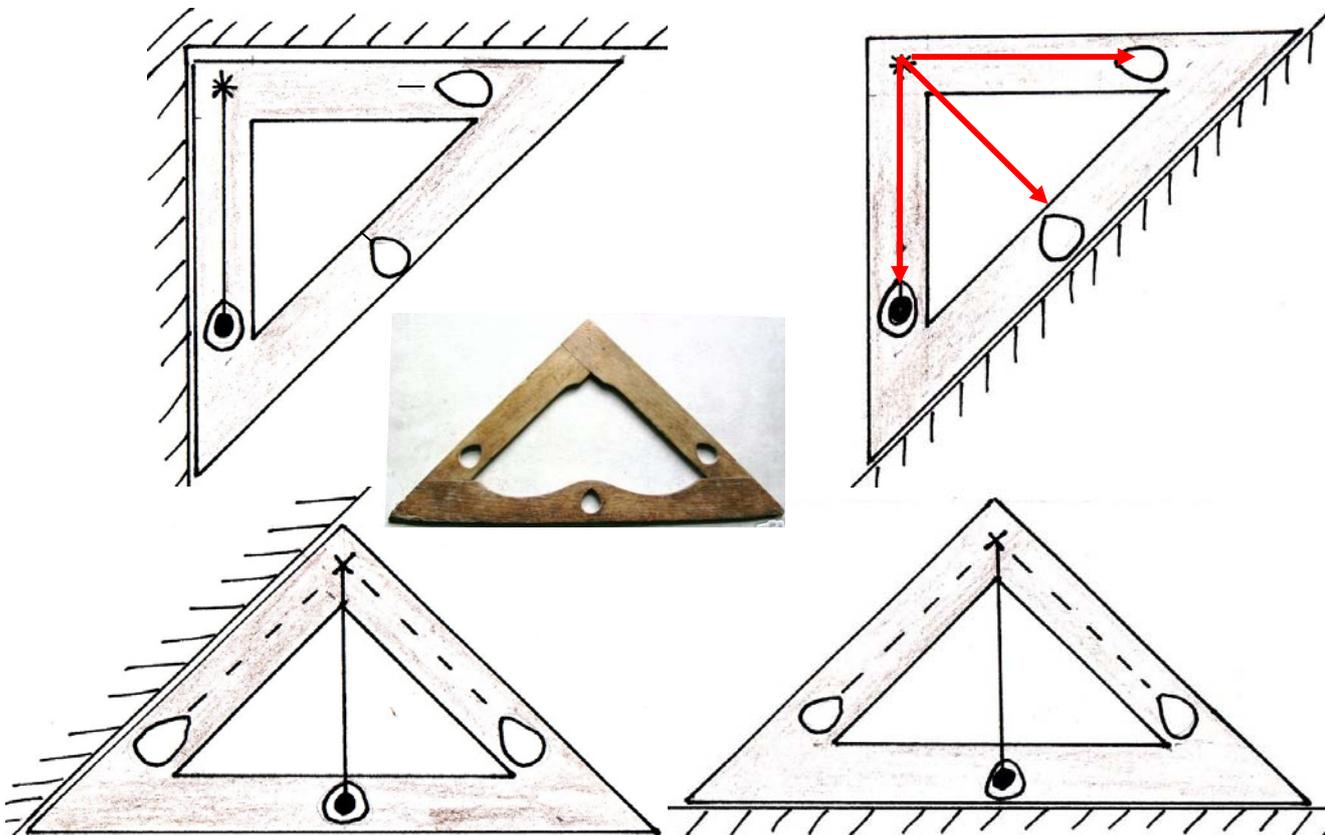


Plumb level AUSTRIA

There are a lot of different types of this “A” shape. Shown are some samples from my collection and ebay. As buyers, be cautious of the dates carved into plumb levels. It is almost impossible to determine if they are original to the tool or embellishments added by unscrupulous sellers.



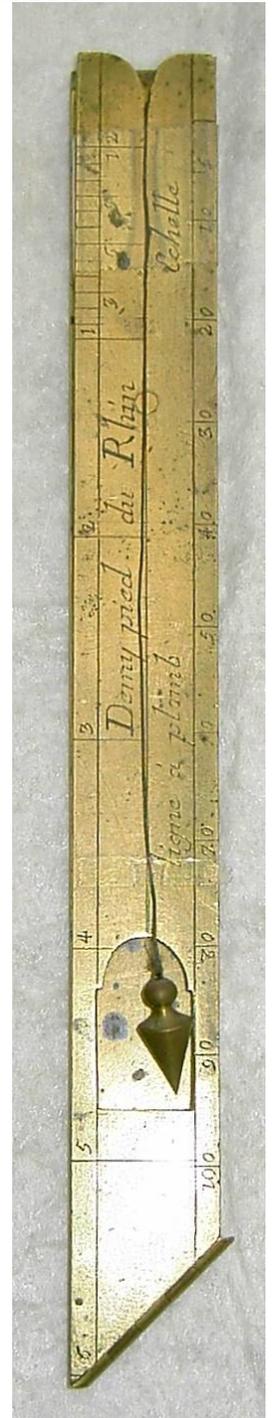
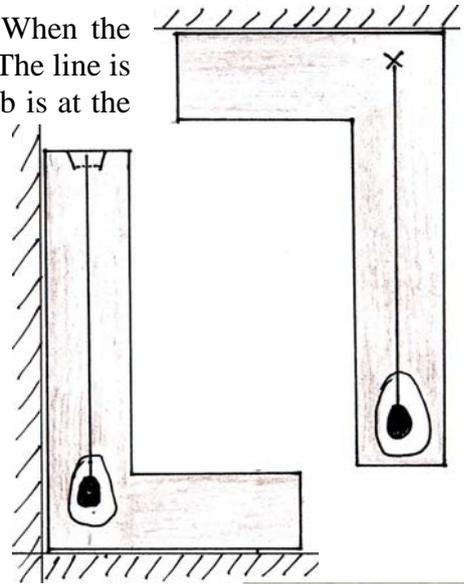
- e) A further development is to add verification of **45 degree angles** to the 0 degree and 90 degree measuring tools. This feature is added with the advent of **three holes in the “A” shape**. The legs form an angle of 90 degrees on the top and 45 degrees left and right. The holes for the weights are **all equidistant** from the point of attachment of the plumb line and each clearance hole has its own reference mark scribe above it.



f) Also to verify 0 and 90 degrees, the “L” shape is useful. When the frame is constructed, two legs are made to be at a right angle. The line is fixed in the upper end of a leg and the hole for the plumb bob is at the other end of the same leg; both are equidistant from the edge of the same leg.

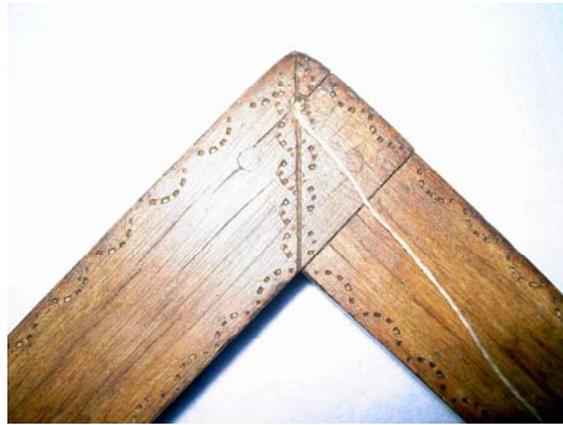
Sometimes the string attachment point and the bob clearance hole are inverted. This setup allows the worker to verify Horizontal of a beam or ceiling above the worker.

For special use and an easier transport, note this folding ”L” shape. (LASNIER, PARIS, in brass)

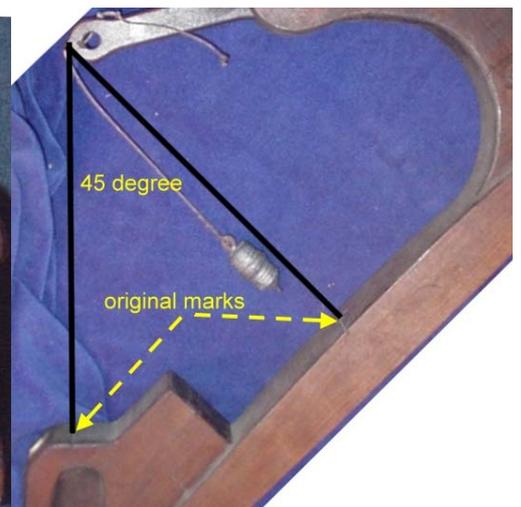
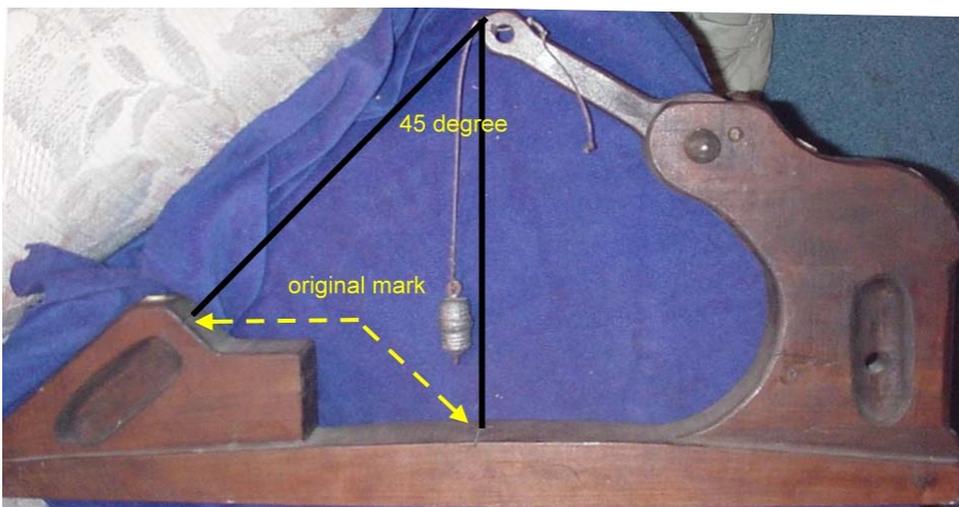


3. MATERIAL

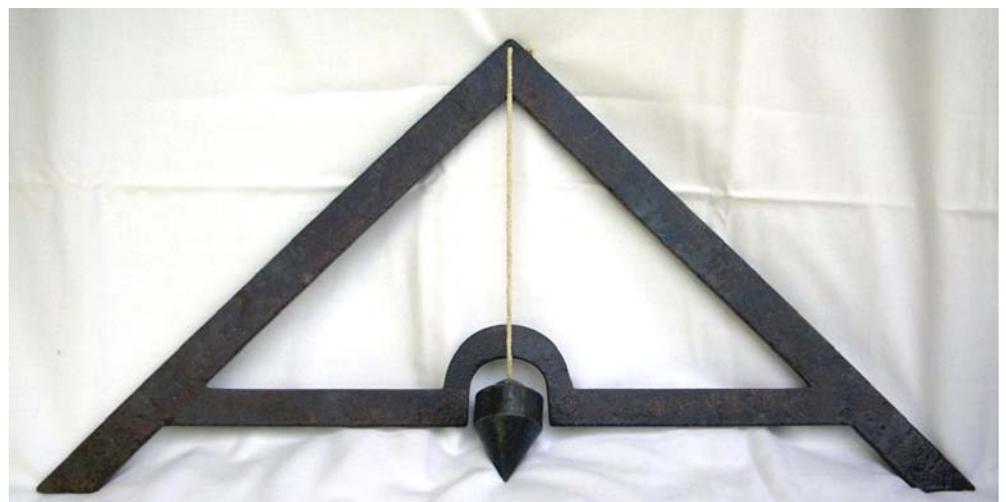
WOOD is the most common material used to make plumb level frames. They were most commonly made by a worker for his own use out of common and easily accessible materials. These tools predate any modern notion of buying tools from tool makers. The construction of a workers own tool was very likely an early step in an apprenticeship to learn a construction trade. The lessons learned would have had to do with the selection of well seasoned material, the accurate measuring and cutting of the parts and the construction of craftsman-like joints. As already mentioned, these “instruments” had to be very solid and stable, had to be accurate to be useful and to last a lifetime, if not more, as they were passed down from one generation to the next.



Recently I purchased this unusual plumb level from one of my readers, a tool dealer who was not entirely clear of its purpose since at first glance it is shaped similarly to a wood plane. On close first hand examination it appears to be “homemade” and intended for the purpose of measuring 0 and 45 degree surfaces.



All shapes of plumb levels can found welded together from flat IRON pieces.
BRASS was used for small plumb levels, wood or iron for the larger instruments use on large construction tasks.



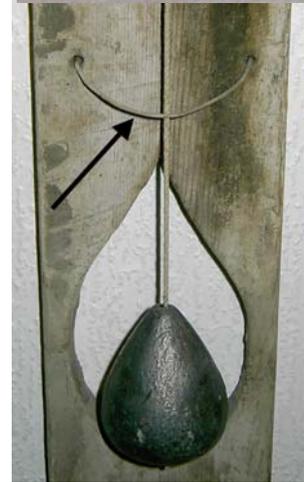
Today levels are made from TEAK, ALUMINIUM, STEEL and CAST IRON.

4. ADVANTAGES and DISADVANTAGES of the PLUMB LEVEL

The plumb level with a plumb bob was used in Germany up to 1930, although spirit vials came into use in the mid 19th century in primitive forms. Some examples of spirit vial levels were sold with a hole to attach a plumb bob and line, an accommodation I presume, to lack of faith in the durability of glass. Note 1906 patented Stanley plumb level picture at right.

The disadvantages of plumb levels with plumb bobs compared to modern spirit levels with vials:

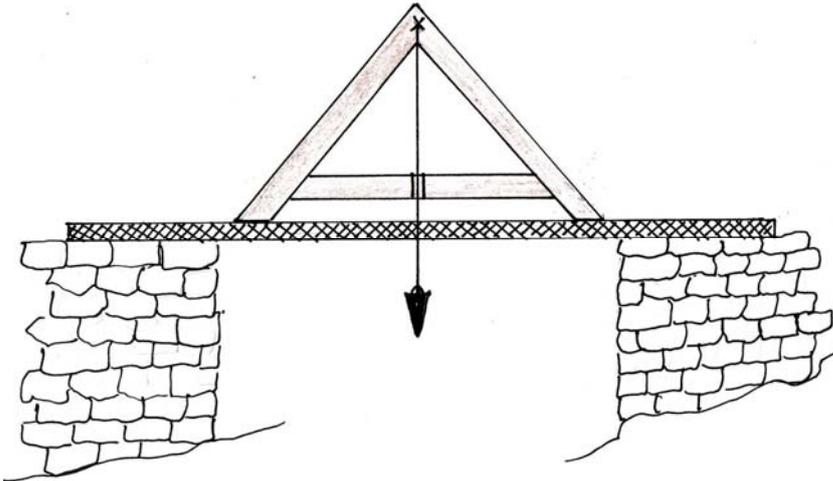
- The larger the plumb level the more accurate the result. The corollary, the longer the plumb line the harder it is to use and transport.
- The plumb bob and the line are sensitive to damage and can be “lethal weapons” if not used carefully. Holders to contain the bobs when not in use and stirrups and guides to restrict the plumb line made plumb levels more user friendly. At best, however, plumb levels are cumbersome to use.
- The early vials of spirit levels damaged easily and were not uniform from one to the next. Thus, until major improvements were made in the formation and economy of the vials, the plumb level remained the tool of preference. Today we have vials with an extremely high accuracy now that the difficulties in the production of curved tubes have been resolved.
- In the transition period, there were a lot of instruments, with a plumb line, as well as vials. For example the Instruments of MDS England and Stanley USA shown above.



5. THE USE

The plumb levels are used by setting them on, alongside or under a construction element.

To check long distances masons used a long board which in effect made the frame larger. Such a setup would have been useful in building columns or abutments at equal height. In this illustration the plumb bob could hang under the instrument.

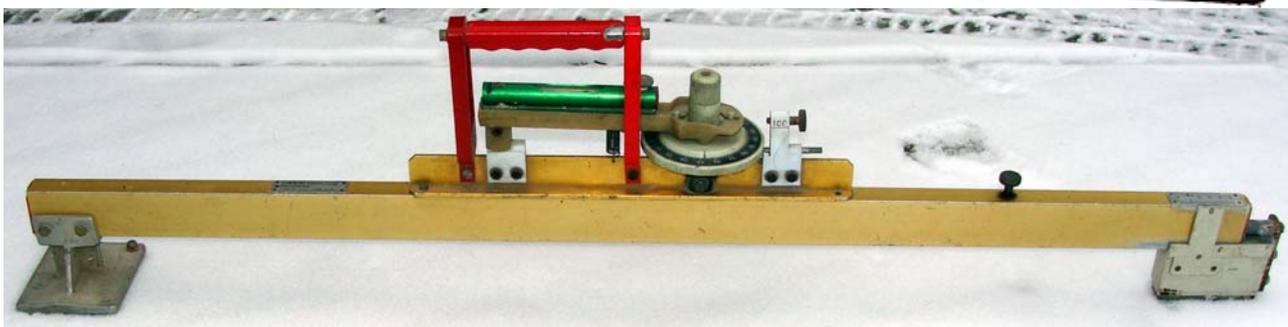
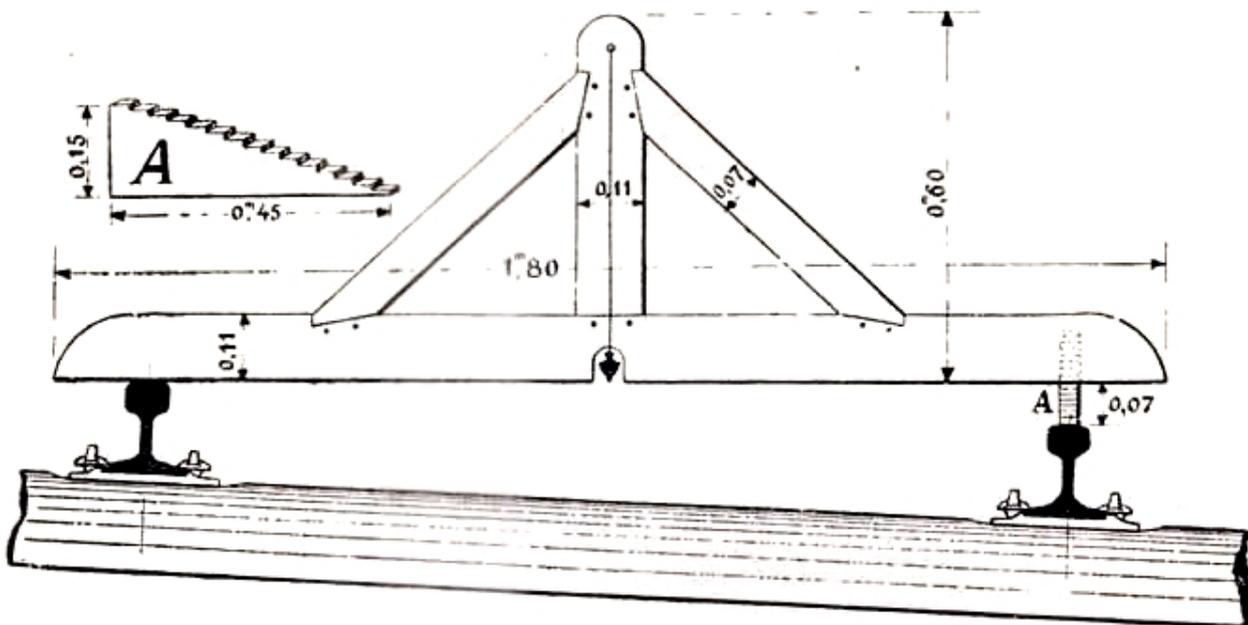


Picture: Two monks building a chapel. Wood carving 1496.

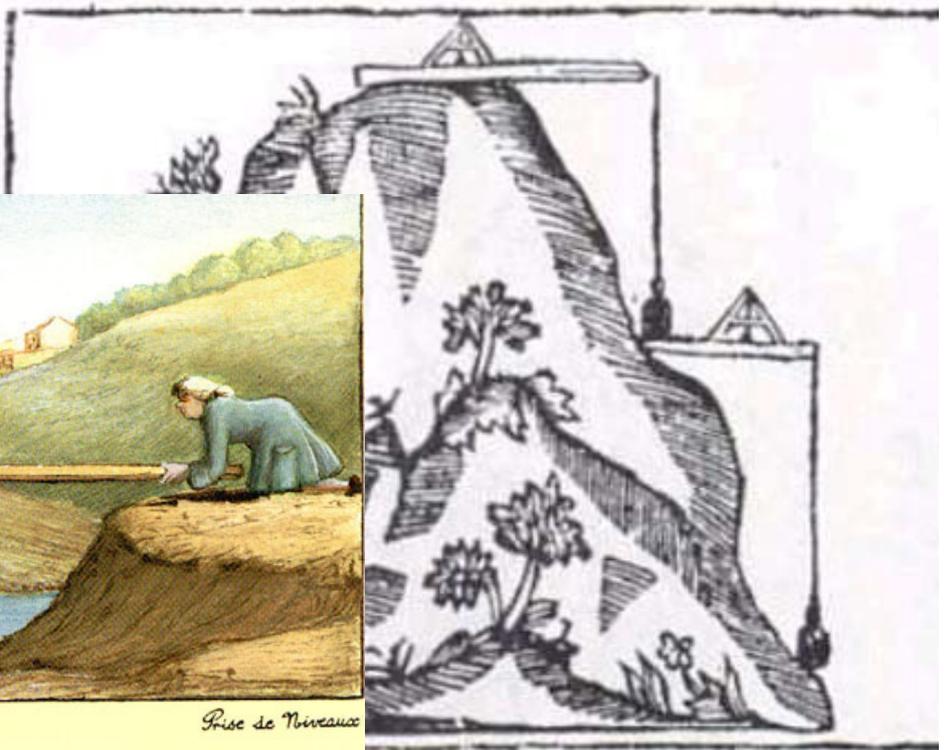
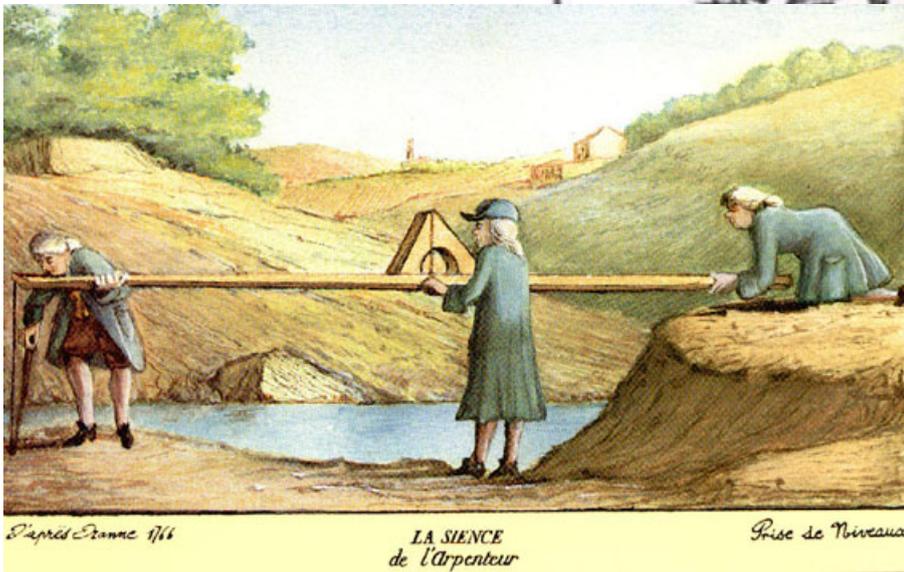
More pictures from old books about these tools you will find in *WOLF'S PLUMB BOB NEWS* 2008-02

Not only masons and carpenters use plumb levels, but also railway engineers. They check the incline of rails going around a curve, as a drawing from Belgium shows (with indication of width, high etc.):

The picture below shows a railway-level from my collection for narrow gauge railroads and electric tramways (1 meter= 39 inch; the standard for railroads is in Germany 1,43m=57 inch)



SURVEYORS used it to „level“ the countryside:



For the reconstruction of an old castle in GUELDELON, France the masons used historic tools. Here you can see the scale of this large mason's plumb level.



6. PATENTS

Although the plumb level has been known for thousands of years, certain improvements have appeared in patents from before 1900:

(Original patents you can search under: http://www.google.com/advanced_patent_search)

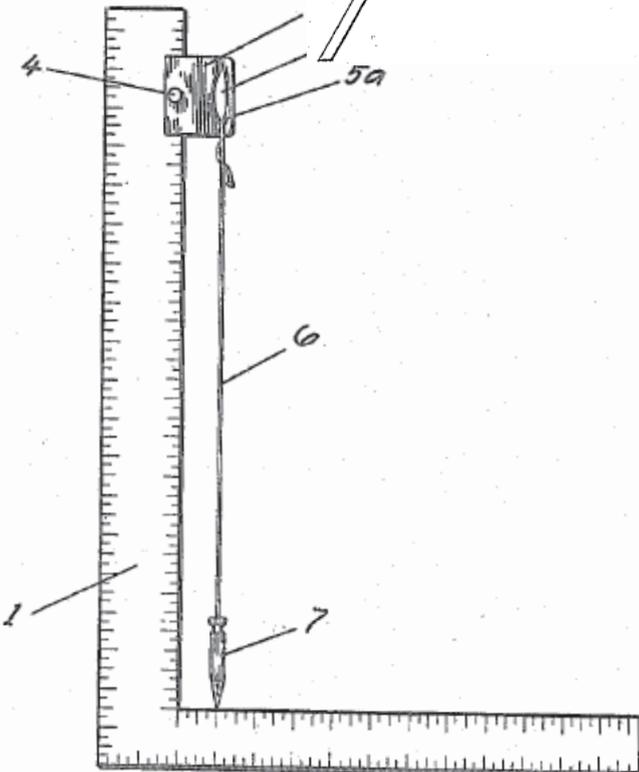
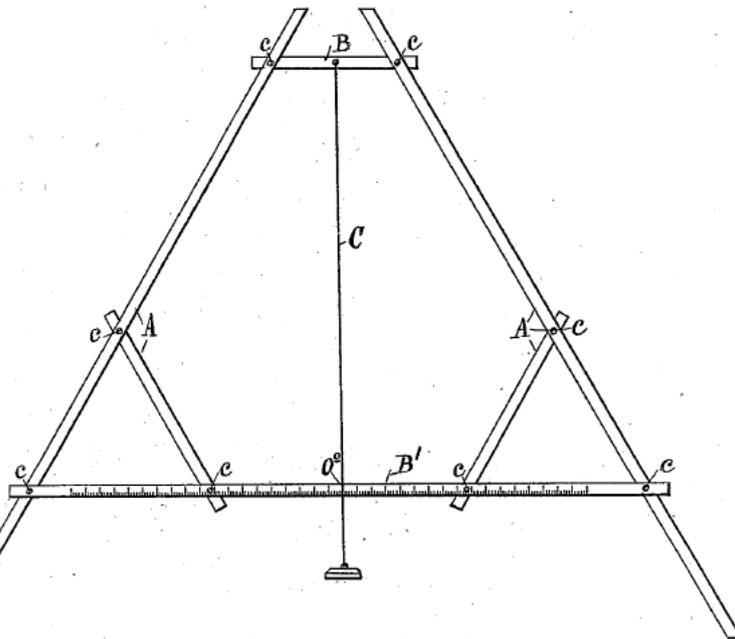
Louis Jean Jacques AUBERT from France, 1896, USA a patent for a plumb level: “.... and capable of being readily transported from place to place, in which the form and dimensions of the instrument are such that the inclination of the strait line is immediately shown by a simple reading of a graduated scale on the lower rod...”.

(No Model.)

L. J. J. AUBERT. PLUMB LEVEL.

No. 555,489.

Patented Mar. 3, 1896.

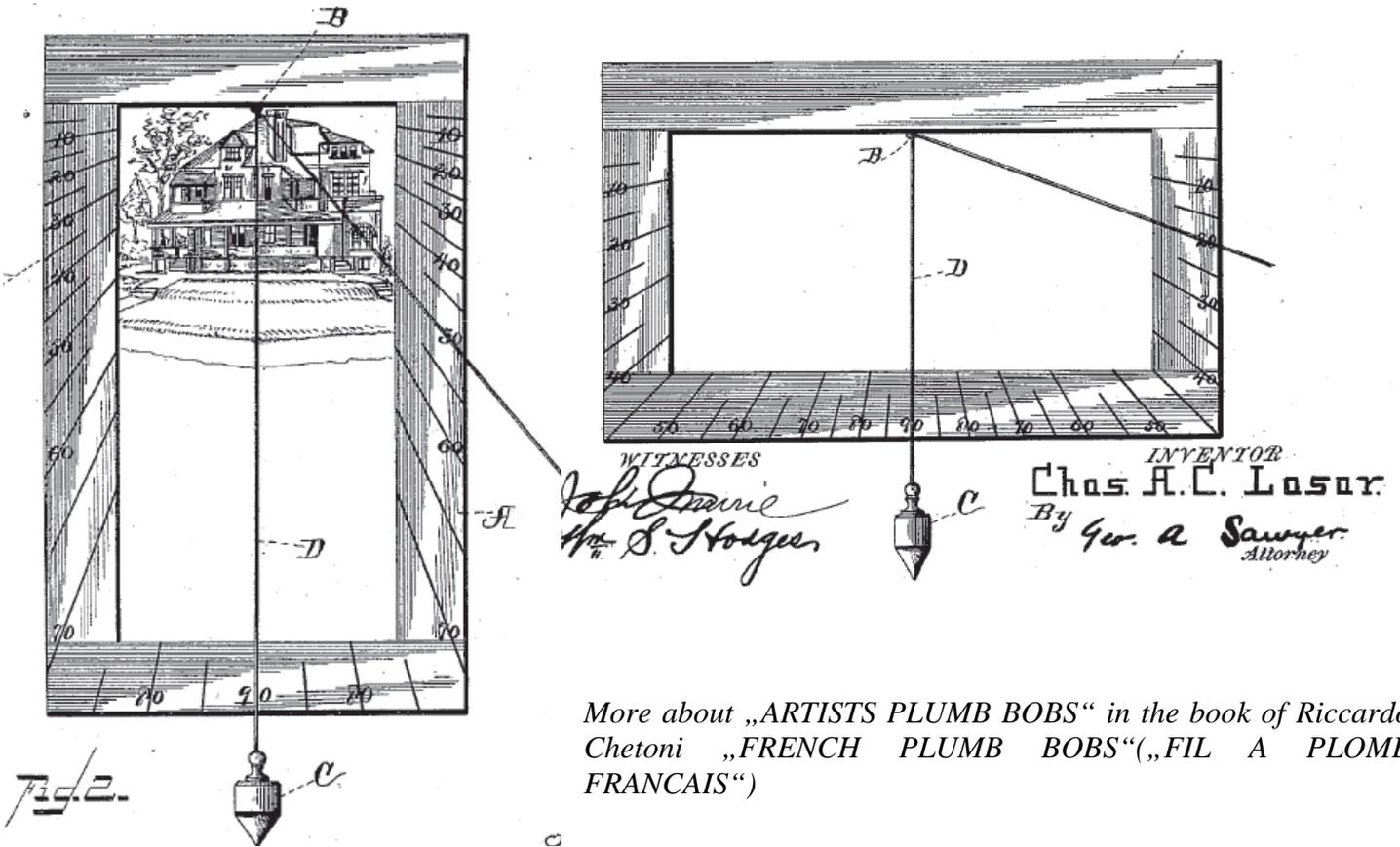


C. BRIZENDINE. PLUMB AND LEVEL GAGE. APPLICATION FILED AUG. 20, 1917.

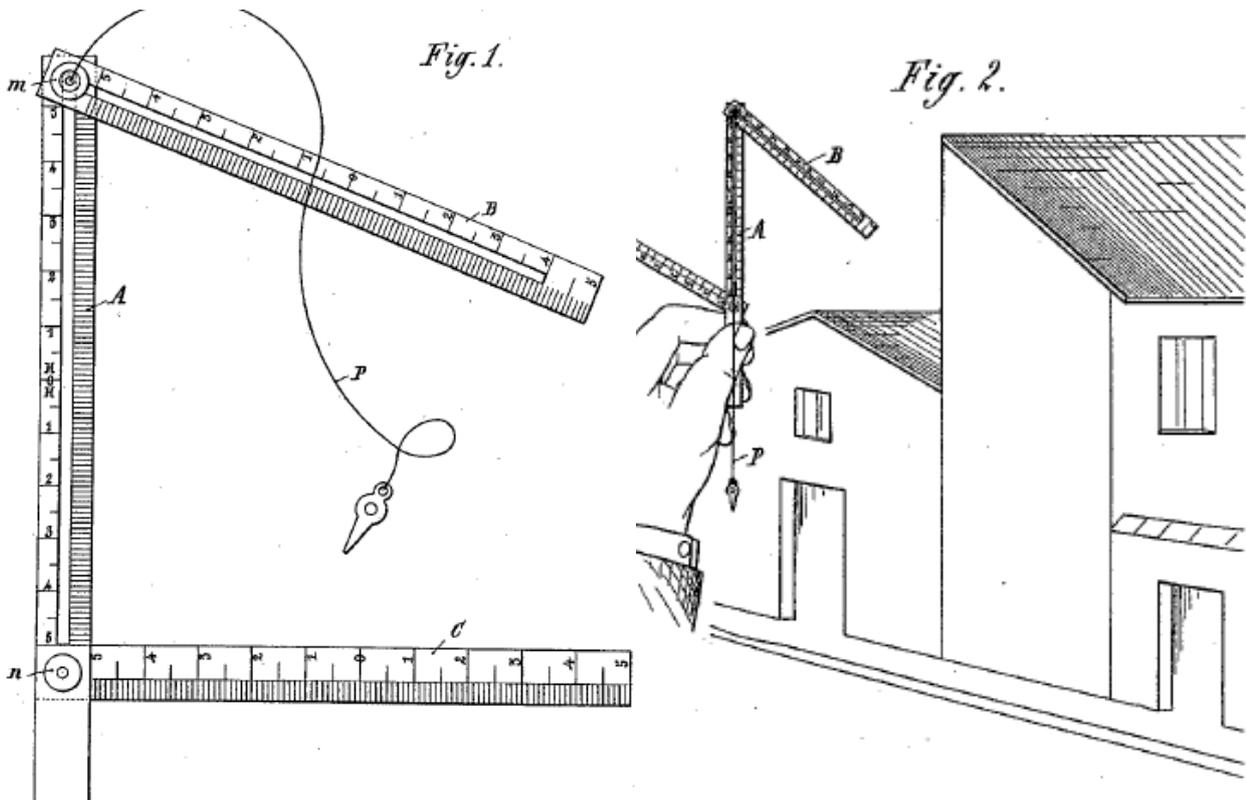
Charles Brizenine from Stockton, San Joaquin USA got the patent US1271128 for a PLUMB AND LEVEL GAGE.

I found two patents for :

- 1891 US449681 to Charles A. C. LASAR from St. Louis for an **Artists' Plumb-Square**. It helps to transfer the perspective from the reality to the paper. ☺

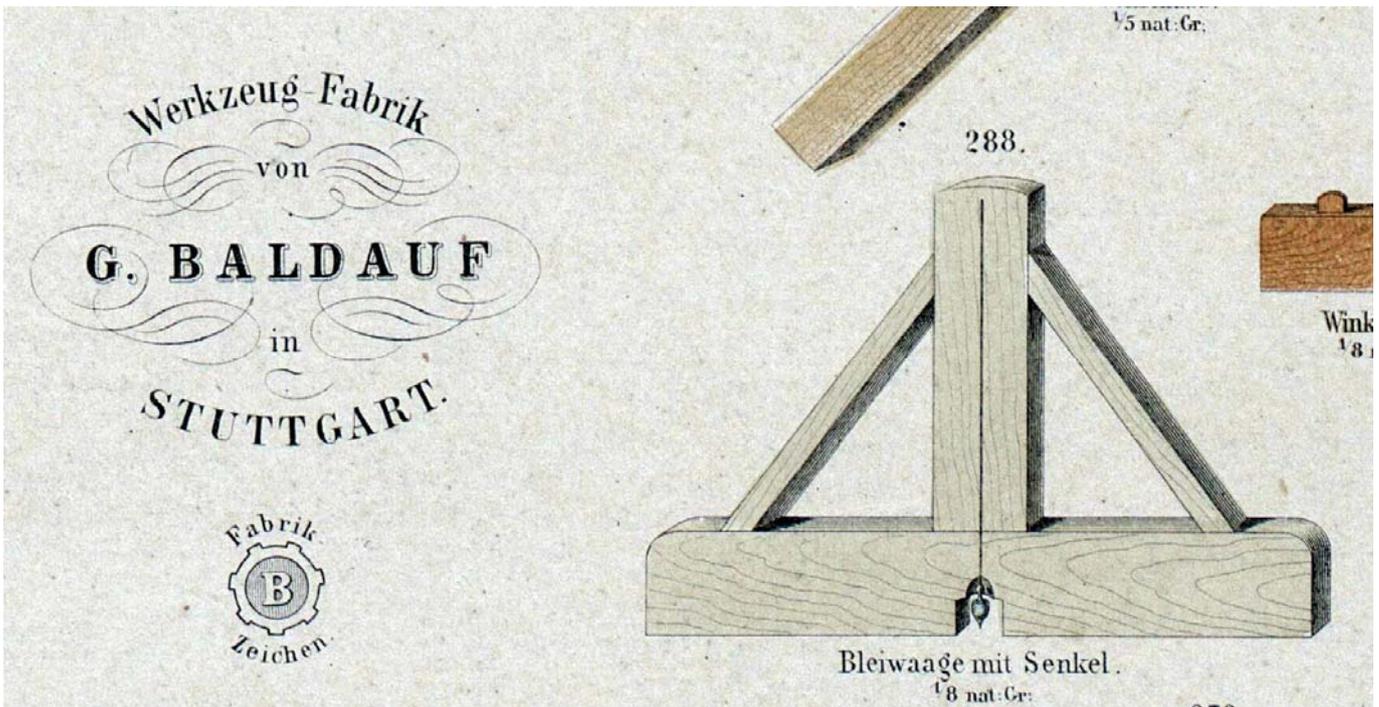


- 1894 DE79634 and US 559041 to the French Ludovic PICARD for a DRAWING INSTRUMENT

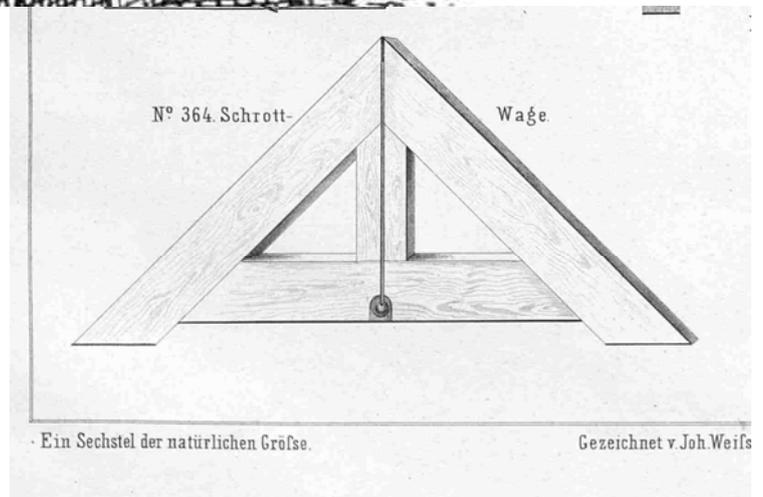
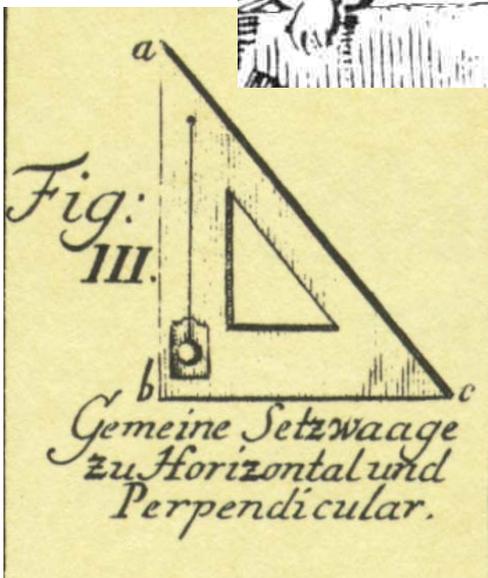


7. PLUMB LEVELS IN CATALOGUES

Drawings from Austrian and German catalogues (1866 to 1881) and Diderot et d'Alembert 1770

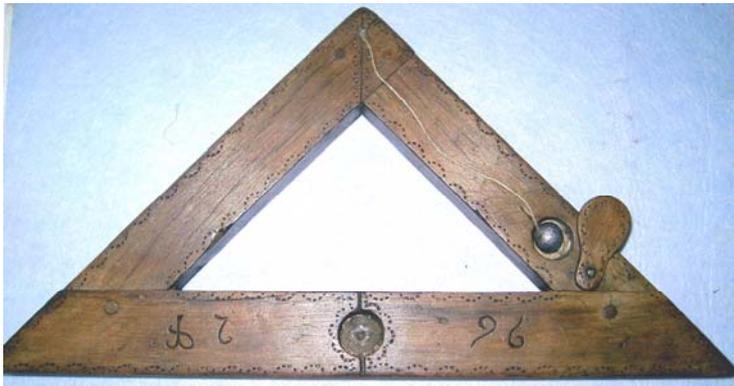


DIDEROT et d'ALEMBERT ca. 1770

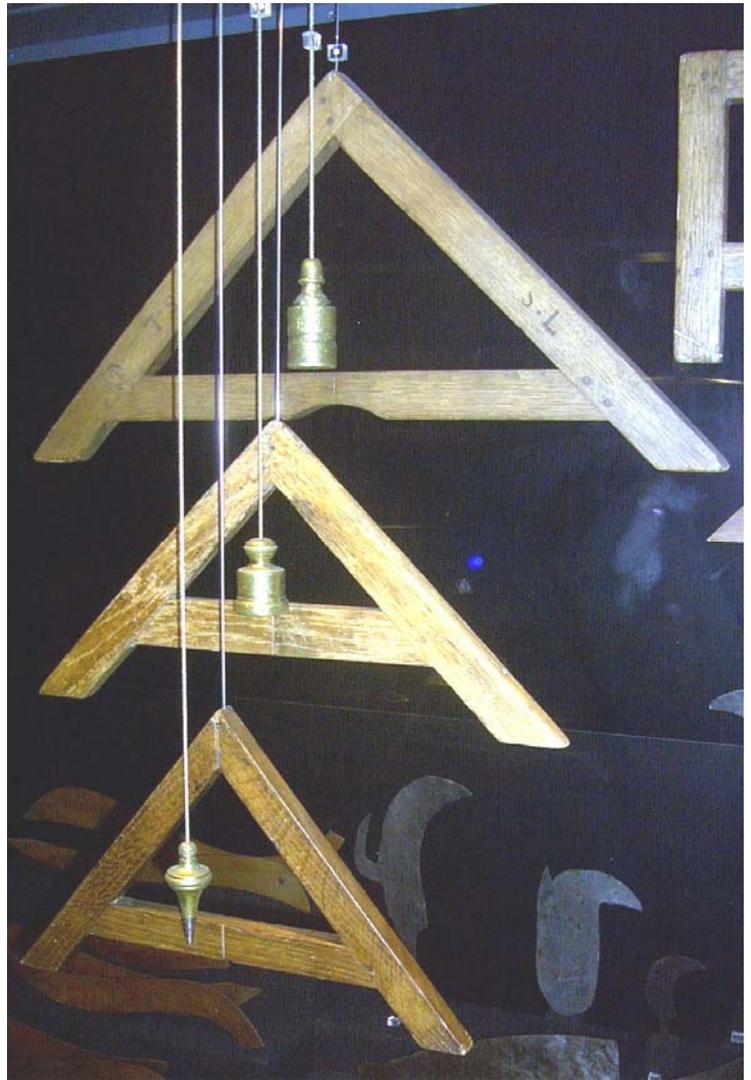


8. PICTURES FROM COLLECTIONS

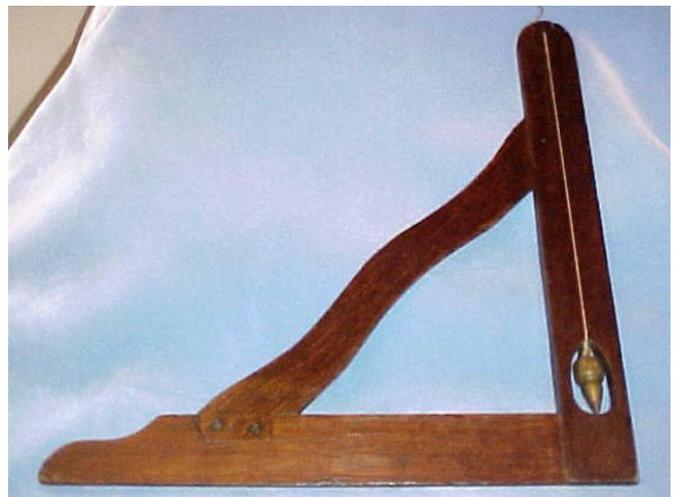
At last some plumb levels from the museum „MAISON DE L'OUTIL“, Troyes, France, the PLANE MUSEUM of Gerhard Schmitz, Langenfeld and the collection of Steve Dice , Federal Way, WA U.S.A.:

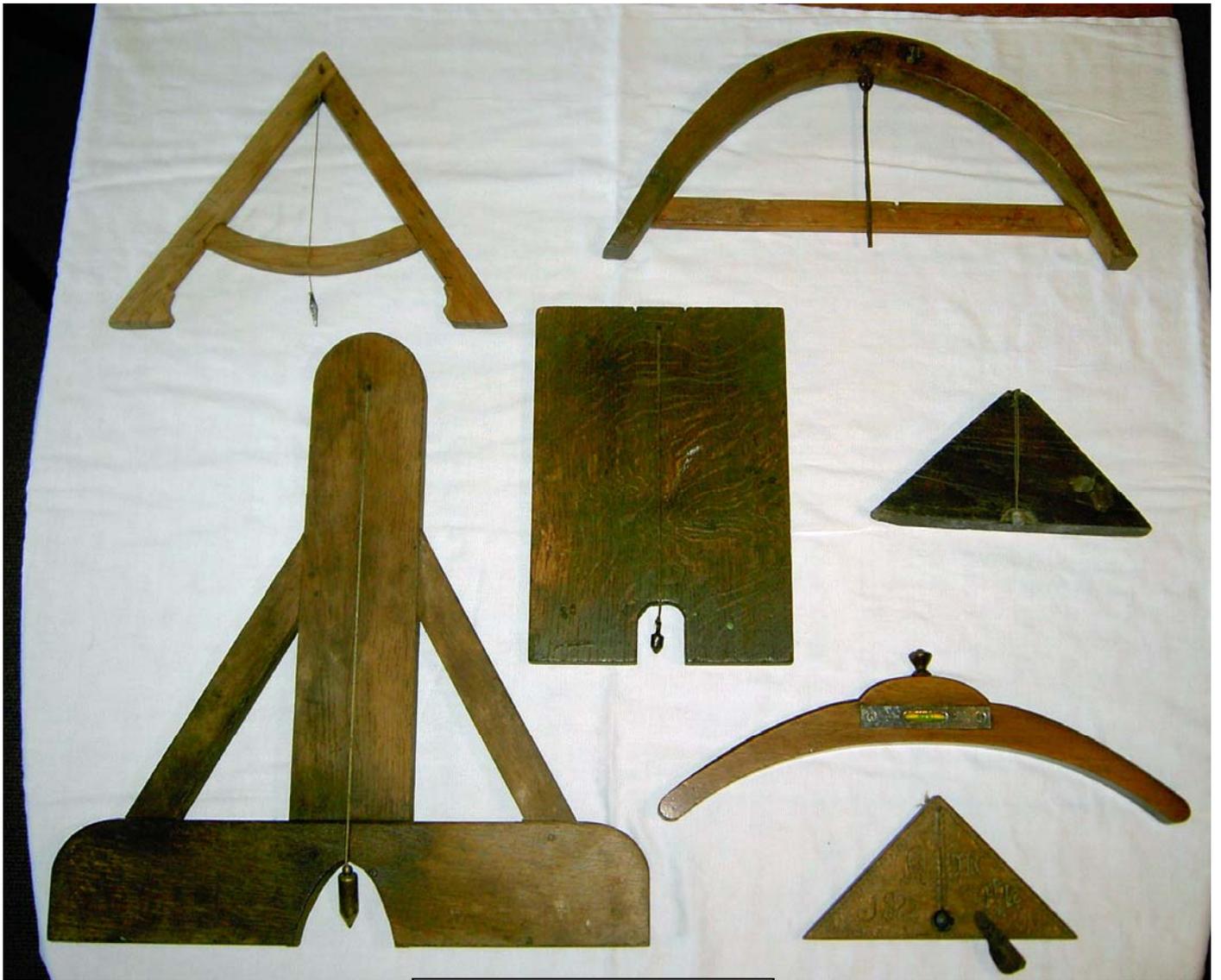


Coll. Wolfgang

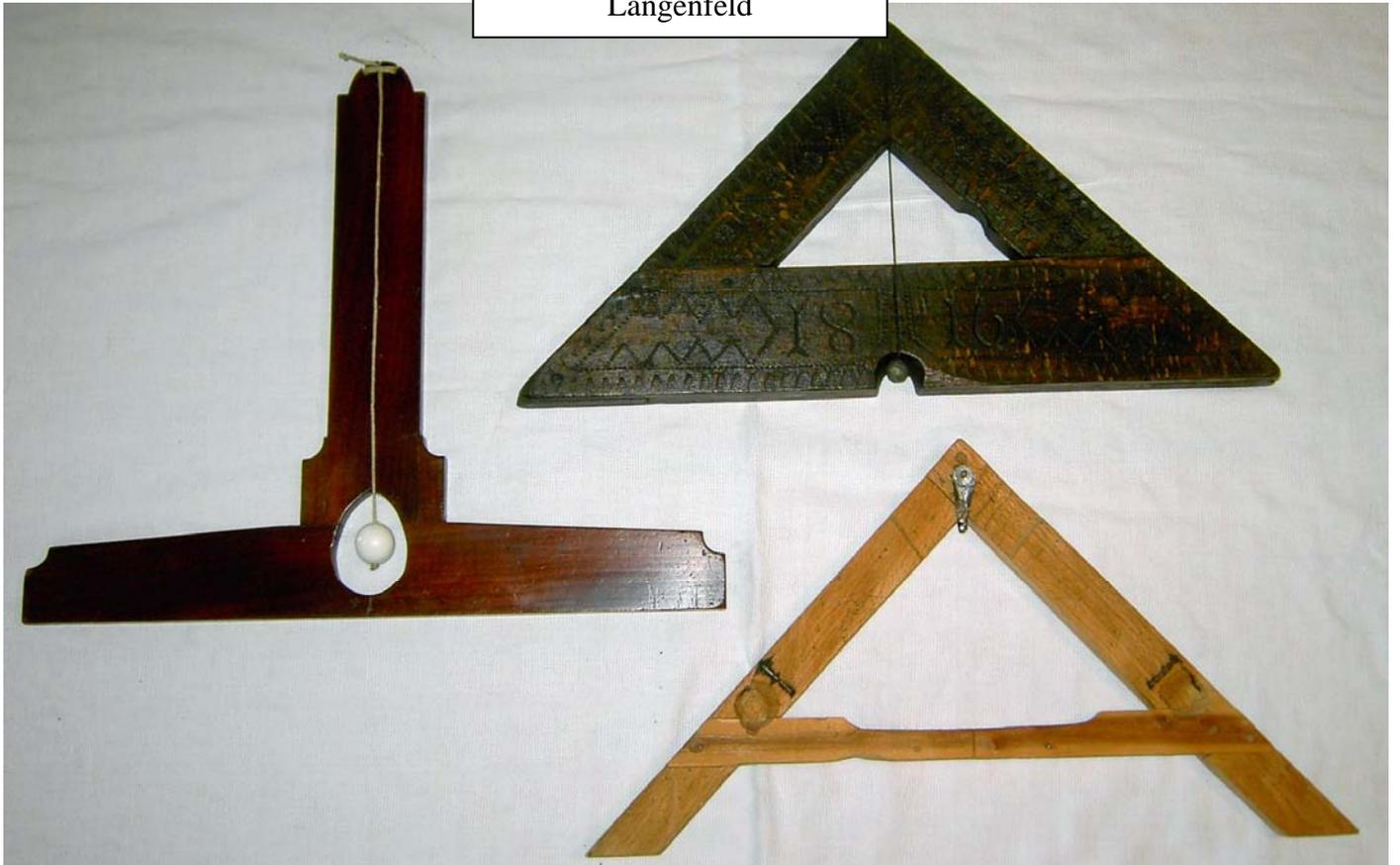


MAISON DE L'OUTIL
TROYES FRANCE





Collection Gerhard Schmitz,
Langenfeld



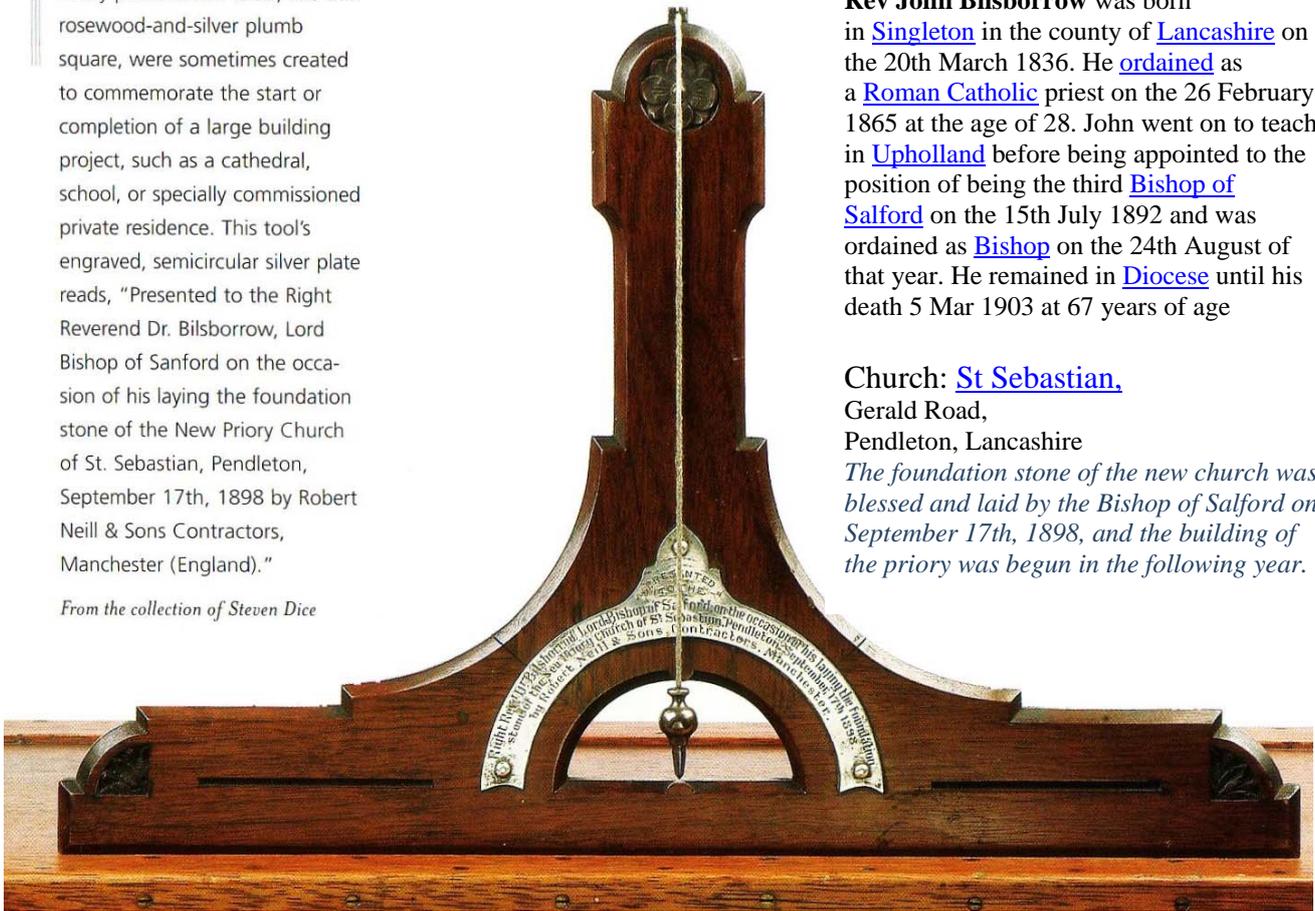
Just in time I got from Steve Dice the permission to use a photo from his „presentation-level“, pictured in the book from Sandor Nagyszalanczy „Tools Rare and Ingenious“ (Taunton Press). A really fascinating book with excellent photos of old tools. Thank you Steve.

Although this tool never saw a building plot (except during the ceremony of laying the foundation stone) it is really nice and has a history. (searched in the wvw). It shows that a plumb level was worth to represent all the tools of the workers.

Plumb Square

Fancy presentation tools, like this rosewood-and-silver plumb square, were sometimes created to commemorate the start or completion of a large building project, such as a cathedral, school, or specially commissioned private residence. This tool's engraved, semicircular silver plate reads, "Presented to the Right Reverend Dr. Bilsborrow, Lord Bishop of Sanford on the occasion of his laying the foundation stone of the New Priory Church of St. Sebastian, Pendleton, September 17th, 1898 by Robert Neill & Sons Contractors, Manchester (England)."

From the collection of Steven Dice



History (from wvw)

Rev John Bilsborrow was born in [Singleton](#) in the county of [Lancashire](#) on the 20th March 1836. He [ordained](#) as a [Roman Catholic](#) priest on the 26 February 1865 at the age of 28. John went on to teach in [Upholland](#) before being appointed to the position of being the third [Bishop of Salford](#) on the 15th July 1892 and was ordained as [Bishop](#) on the 24th August of that year. He remained in [Diocese](#) until his death 5 Mar 1903 at 67 years of age

Church: [St Sebastian](#),

Gerald Road,
Pendleton, Lancashire

The foundation stone of the new church was blessed and laid by the Bishop of Salford on September 17th, 1898, and the building of the priory was begun in the following year.

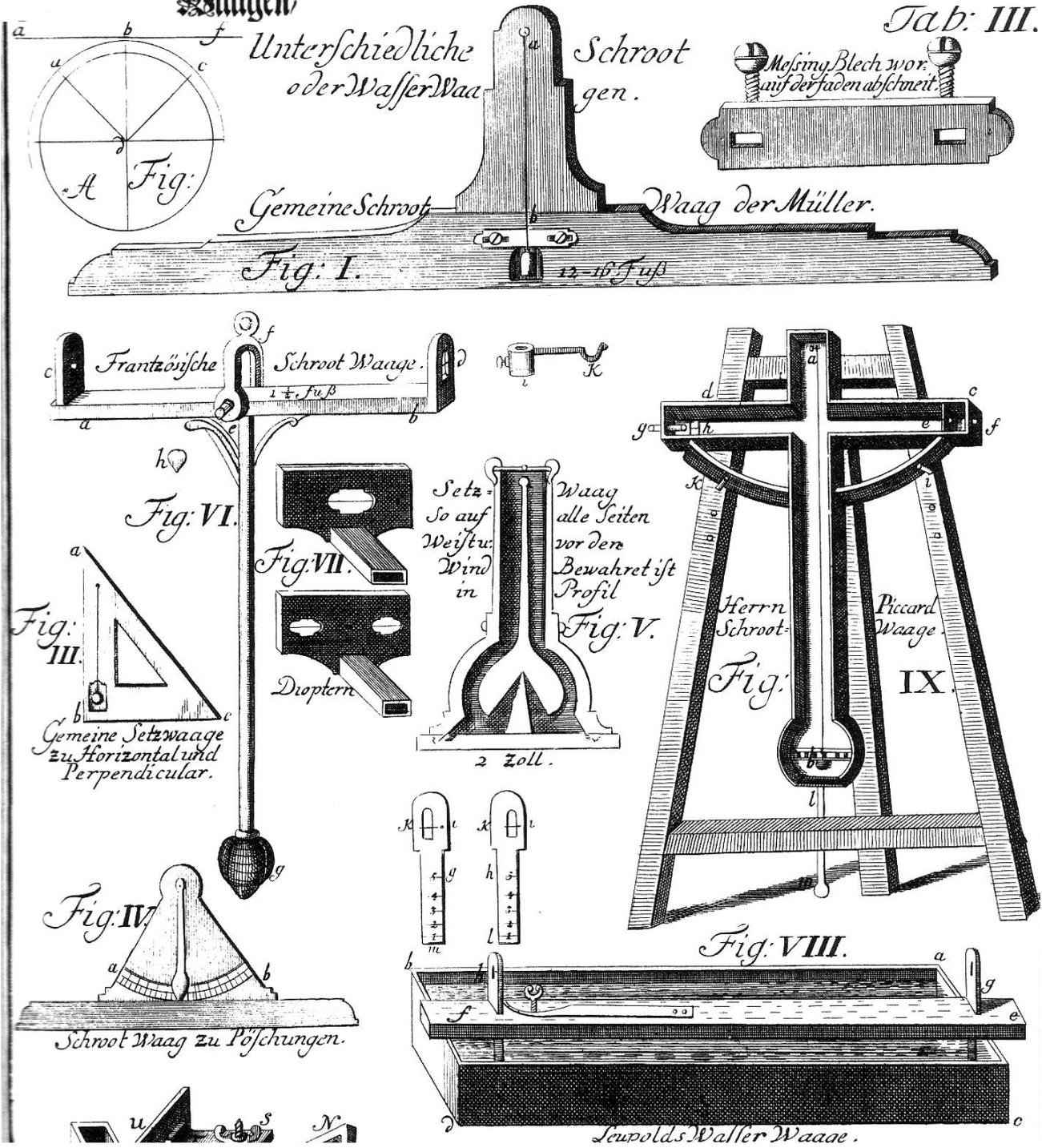
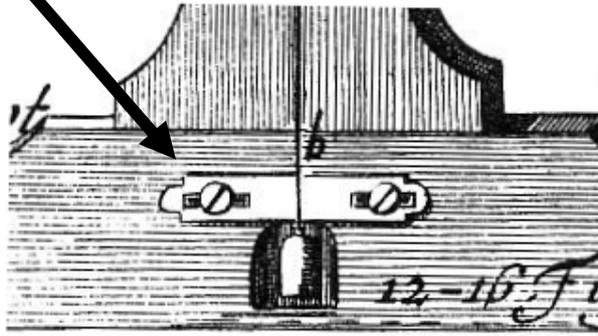


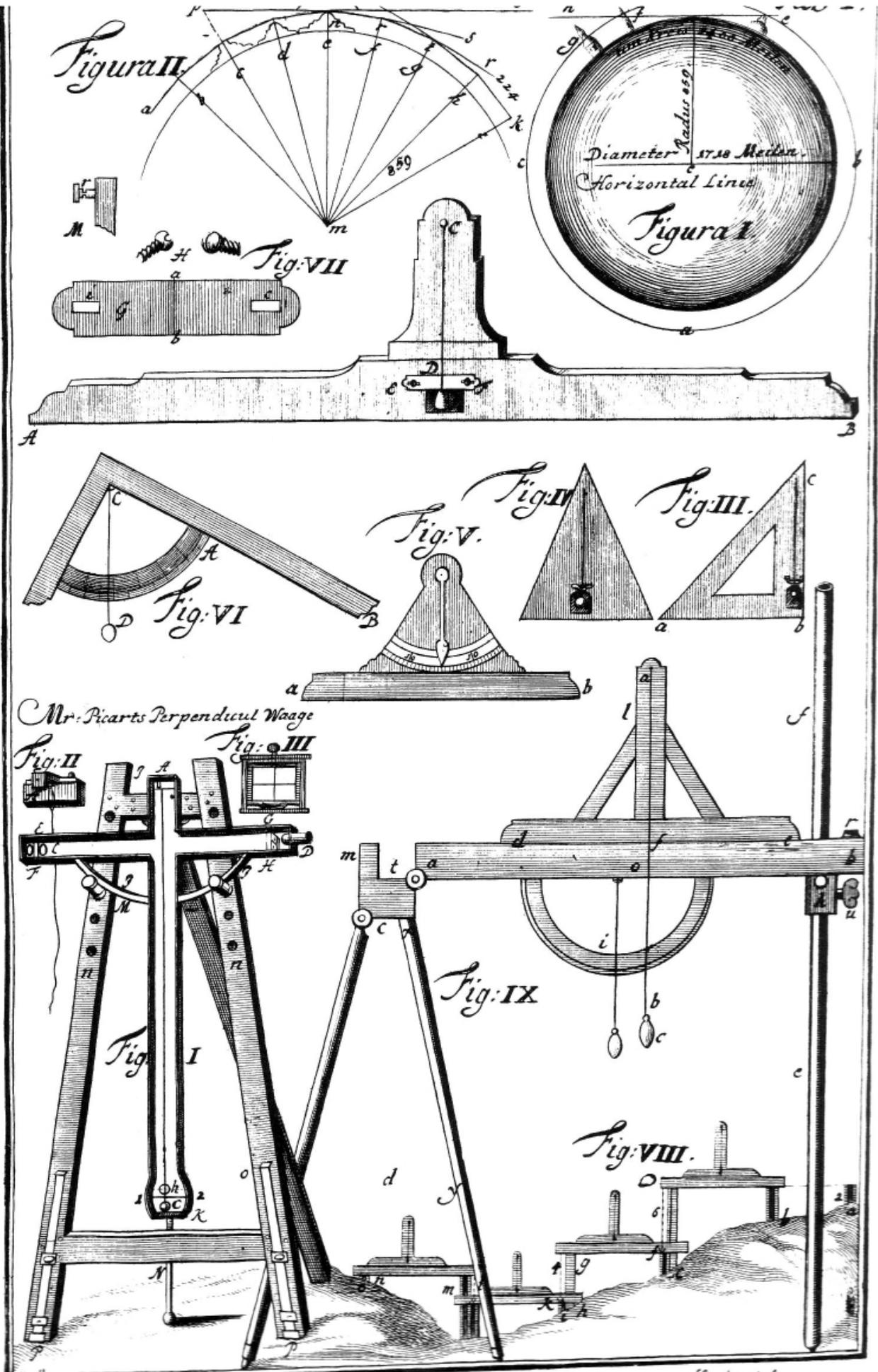
In my own collection I have a French plumb level used by STAIRBUILDERS.



Two pages of the book from LEUPOLD Germany 1724 and 1726.
See the adjustment of the marking.

PARS IV.
Theatri Statici Universalis
Sive
Theatrum Horizontostaticum
sive Libellationis,
Oder:
Schau-Platz
Von Wasser- oder Horizontal-
Waagen,





Some spirit levels from my collection to show the variation in size and shape.



Collection Wolfgang Ruecker