G. DURST.

GRAVITY LEVELING AND PLUMBING ATTACHMENT.

APPLICATION FILED JULY 17, 1906.

898,853. Patented Sept. 15, 1908.

Fig. 2.

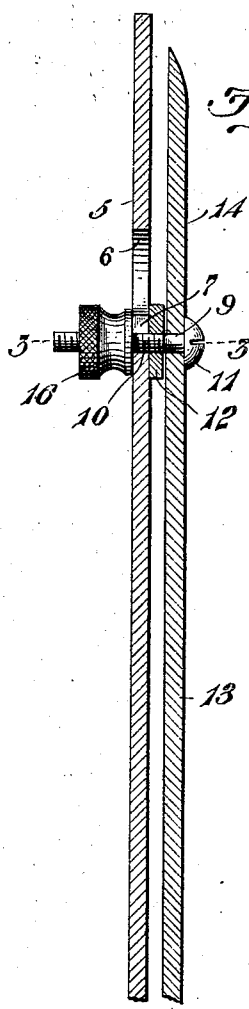
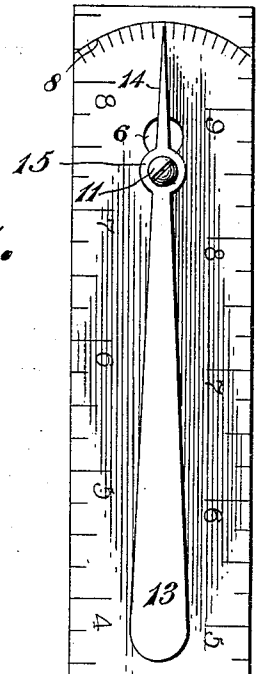


Fig. 1.



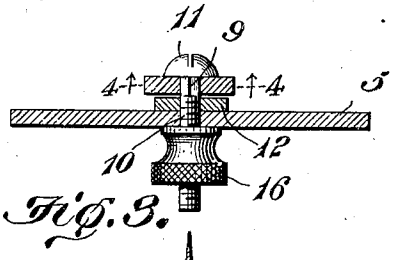
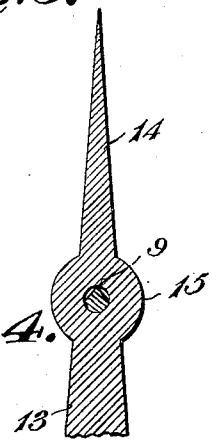
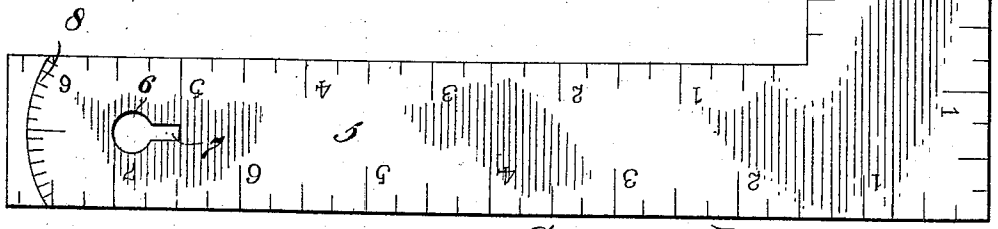


Fig. 3.

Fig. 4.





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GRAVITY LEVELING AND PLUMBING ATTACHMENT.

No. 898,853. Specification of Letters Patent. Patented Sept. 15, 1908.

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To all whom it may concern:

Be it known that I, GEORGE DURST, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Gravity Leveling and Plumbing Attachment, of which the following is a specification.

This invention relates to means for leveling, plumbing or ascertaining the inclination of an article.

One of the principal objects of the invention is to provide an exceedingly simple article of manufacture that can be applied to an ordinary straight edge, square or the like, and will coöperate therewith, when the same is applied to an article, to indicate the position of such article with respect to the perpendicular.

The preferred form of construction is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of a square having the indicating device applied thereto. Fig. 2 is a detail vertical sectional view through the same. Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2. Fig. 4 is a detail sectional view on the line 4—4 of Fig. 3.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, the support for the indicator is in the form of a square, having angularly disposed blades 5. The square may be of any desired construction, and the blades thereof are provided in their outer terminal portions with key-hole slots having the larger portions 6 and the smaller portions 7. A curved scale 8 extends across the end of each blade, and is disposed concentric to the smaller portion of the adjacent key-hole slot.

The attachment consists of a pivot shank having one portion provided with a knife edge 9, the remaining portion being threaded as shown at 10. A head 11 is carried by one end of the shank, and is disposed outside the knife edge portion 9. An abutment 12 is located on an intermediate portion of the shank at the inner end of the knife edge, said abutment comprising a washer that is screwed on the threaded portion.

An indicator is journaled on the knife edge portion, and is in the form of a weighted pointer member having a long and comparatively heavy arm 13, and a short pointed arm 14. These two arms are joined by an enlarged circular portion 15, having an opening that receives the knife edge portion of the shank. This indicator or pointer member is of less length and width than the blades of the square, and is arranged to be placed along one side of either blade and between the side and end edges thereof. A clamping nut 16 is screwed upon the threaded portion 10 of the shank and is thus adjustable toward and from the abutment 12. The nut 16 is small enough to pass freely through the enlarged portions 6 of the key hole slots, but is too large to pass through the smaller portions 7 of said slots.

In assembling the device, the shank of the pivot is passed through the opening in the indicator, after which the abutment collar 12 is screwed upon said shank, so that the indicator is thus confined between the abutment collar and the head. The clamping nut 16 is then screwed upon the threaded portion of the shank. To apply the device to the square or other article, the head, applied to the shank, is passed through the enlarged portion 6 of one of the key hole slots, after which the shank is moved laterally into the smaller portion 7 of said slot, and the nut is screwed so that the blade is clamped between the same and the abutment collar, thus holding said shank rigidly in position. Thus these devices constitute means, carried by an intermediate portion of the pointer member, and detachably engaging with either blade for pivotally mounting said pointer member thereon and permitting the free swinging movement of the pointer member. This means it will be observed is bodily detachable with the pointer member when removed so that the square can be used in the ordinary manner. When in said position, the pointer arm 14, as shown in Fig. 1 coöperates with the adjacent scale 8. If for instance, it is desired to use the structure as

a plumb, the arm carrying the indicator is arranged in an upright position, and one of its straight edges applied to the article. Inasmuch as the indicator can swing freely, the relation of the article to the perpendicular will be indicated by the pointer arm 14 upon the scale 8. The device may also be employed for leveling by placing the other arm upon the article to be leveled. It will be evident that the structure is exceedingly simple, that it can be readily applied to different instruments, and will constitute convenient means for the purposes set forth.

One of the principal features of my invention resides in the fact that the means for pivotally attaching the pointer to the blade is carried by the pointer and removable therewith, so that the pointer may be instantly applied to either blade of the square, and when removed from either blade, the latter can be used in the ordinary way. There are no projecting parts to interfere with the free use of the blade when the pointer is removed.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention, will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. As an article of manufacture, a plumbing or leveling attachment comprising a pivot having a head at one end, a clamping element adjustably mounted on the other end, an abutment disposed between the head and clamping element and fixed thereon against movement by the clamping element, and a freely swinging weighted indicator journaled on the pivot between the abutment and head.

2. As an article of manufacture, a plumbing or leveling attachment comprising a pivot shank having a threaded portion, another portion provided with a knife edge, a head located at one end of the knife edge, a clamp nut screwed on the threaded portion, an abutment located on the shank between the threaded and knife edge portions, and a freely swinging weighted pointer journaled on the knife edge portion of the shank and located between the abutment and head.

3. The combination with a support having a keyhole slot, of a stem that detachably engages in the smaller portion of the slot, an indicator pivoted on one portion of the stem, and a clamping device adjustably mounted on another portion of the stem, said clamping device being movable through the larger portion of the key hole slot and being of too great a size to pass through the smaller portion thereof.

4. The combination with a supporting plate having a key hole slot, of a pivot shank that detachably engages in the smaller portion of the slot, a head carried by one end of the shank, an abutment mounted on an intermediate portion of the stem in spaced relation to the head and arranged to engage one side of the blade, a weighted indicator mounted on the stem between the head and abutment, and a clamp nut threaded on the opposite end of the shank to that carrying the head, said nut being movable through the larger portion of the key hole slot and being of too great a size to pass through the smaller portion.

5. The combination with a support comprising angularly disposed blades, each blade having a key hole slot in its outer end, and a curved scale concentric to the smaller portion of said slot, of a pivot shank having a threaded portion, and another portion provided with a knife edge, said threaded portion being arranged to engage in the smaller portion of either key hole slot, a head carried by one end of the shank, an abutment screwed on an intermediate portion of the shank, a weighted pointer journaled on the knife edge portion of the shank and arranged to coact with the scale of either blade accordingly as the pivot shank is placed in either slot thereof, and a clamping nut screwed upon the threaded portion of the shank, said clamping nut being small enough to pass through the larger portion of either key hole slot and being of too great a size to pass through the smaller portion thereof.

6. In combination with a square comprising angularly disposed blades, a pointer member of less width and length than the blades arranged to be placed along one side of either blade and between the side and end edges thereof, said pointer member having a pointed upper end and a weighted lower end, and means carried by an intermediate portion of the pointer member and detachably engaging with either blade for pivotally mounting the pointer member thereon between its said edges and permitting the free swinging movement of the pointer member, said means being bodily detachable with the pointer member.

7. In combination with a square, comprising angularly disposed blades, one of which has a scale on one face contiguous to one end, a pointer member located alongside said blade having the scale and of less width and length than the same, said pointer member being located wholly between the side

and end edges of the blade and having a pointed upper end that coöperates with the scale, and a weighted lower end, and means carried by an intermediate portion of the pointer member and detachably engaging with the blade for pivotally mounting the pointer member thereon and permitting its free swinging movement, said means being bodily detachable with the pointer member to permit the square to be used in the ordinary manner.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE DURST.

Witnesses:

WILLIAM E. CANADY,

TIMOTHY S. HINELY.