May 8, 1928. 1,669,258

M. LUOMA

ANGLE INDICATOR

Filed Sept. 30. 1926

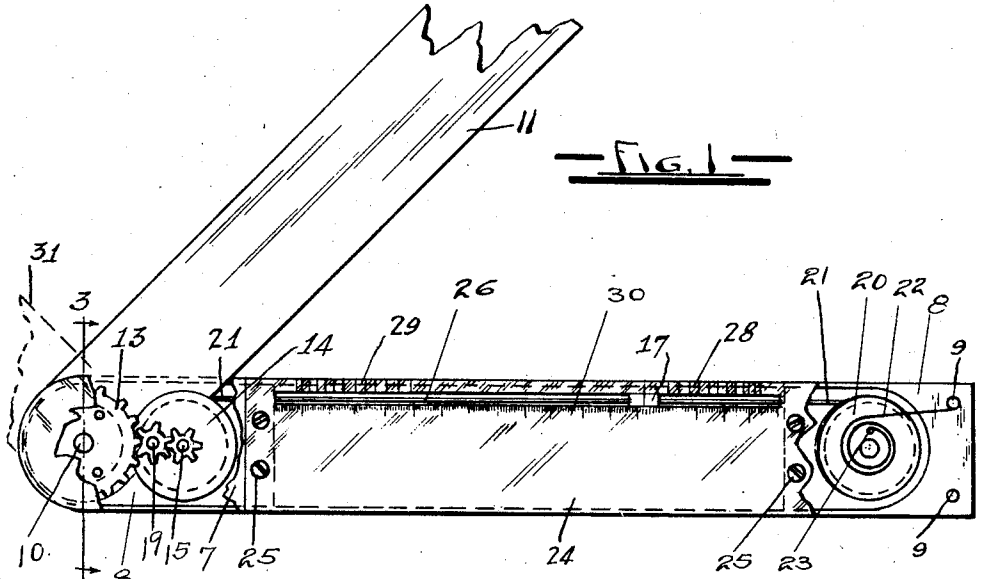


FIG. 1

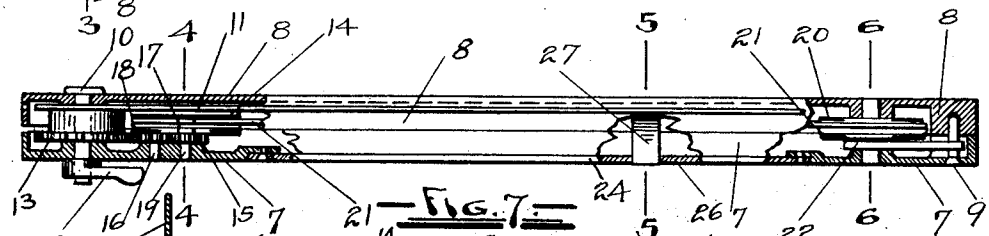


FIG. 7

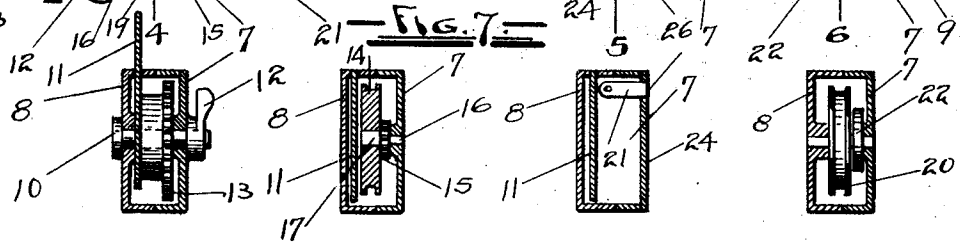


FIG. 3 FIG. 4 FIG. 5 FIG. 6

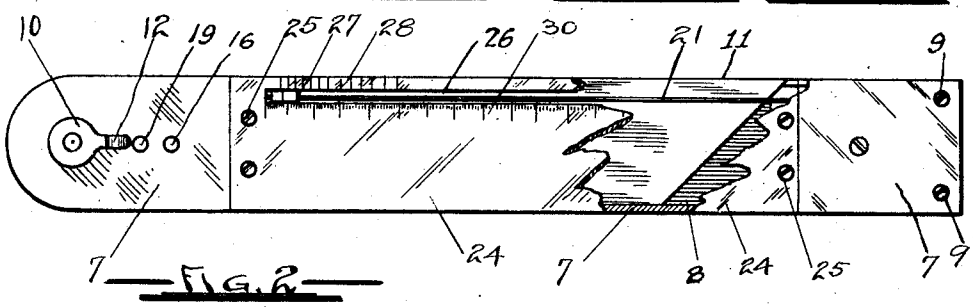


FIG. 2

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UNITED STATES PATENT OFFICE.

MATT LUOMA, OF PORTLAND, OREGON.

ANGLE INDICATOR.

Application filed September 30, 1926. Serial No. 138,766.

My invention relates to angle indicators in general, and particularly to such indicators as are used by carpenters and builders, the object being to provide a device in the nature of a bevel square in which the angular movement of the blade is indicated on suitable scales upon the body of the device, to provide means whereby such scales are enlarged relatively to the movement of the blade to render them easily read. I accomplish this object by means of the construction illustrated in the accompanying drawing, which is a part of this application for Letters Patent, like characters of reference indicating like parts throughout the several views thereof, and in which:—

Fig. 1 is a side elevation of my device with the blade opened, parts being broken away to illustrate the construction.

Fig. 2 is a similar view with the blade closed.

Fig. 3 is a section upon line 3—3 of Fig. 1.

Fig. 4 is a section upon line 4—4 of Fig. 3.

Fig. 5 is a section upon line 5—5 of Fig. 3.

Fig. 6 is a section upon line 6—6 of Fig. 3.

Fig. 7 is a plan view with parts broken away.

In general my device consists of a hollow body slotted at one end thereof to receive a pivoted blade; a traveling flexible member stretched between supporting sheaves at each end of said body and operated from said blade; and an indicator attached to said member and cooperating with scales upon said body.

The body of my device is conveniently constructed of two parts, 7 and 8, joined by screws 9 at one end thereof and by a clamping bolt 10 at the other end. That end upon which the clamping bolt is mounted is slotted at the plane of contact between said parts 7 and 8 and a blade 11 is positioned within said slot pivotally mounted upon said bolt 10. Thereby the blade 11 may be rotated to any desired angle with the body and secured thereat by tightening the bolt 10 by means of the thumb nut 12 thereupon.

Secured to said blade 11 is a gear 13, and adjacent said gear is disposed a sheave 14 and a pinion 15. Said sheave and pinion are mounted upon a stud 16 in the body part 7, and are caused to rotate together by a squared hub 17 upon the pinion which enters a squared orifice in the sheave. An idler pinion 18 which meshes with said gear 13 and said pinion 15 is mounted upon a stud 19 in the body part 7. Thus the sheave 14 is caused to rotate in the same direction as that of the blade 11, and because of the ratio between said gear and said pinion the sheave rotates much faster than the blade.

A sheave 20 is mounted within the body at the end thereof opposite that at which said blade is mounted, and mounted upon said sheaves tightly stretched therebetween is a flexible member 21. This member is given two complete wraps around each of said sheaves, and the ends thereof secured to their respective sheaves in any convenient manner, such methods of securing sheave mounted flexible members being well known to the art they are not illustrated in the drawing. To keep said flexible member tightly stretched between the sheaves I provide a spring 22, one end of which is secured to a pin 23 upon sheave 20 and the other end secured to one of the screws 9, as shown in Fig. 1.

A cover 24 is provided to close the hollow body, and is secured to the body part 7 by screws 25. Said cover is longitudinally slotted as at 26 to receive a slidable indicator 27 attached to the flexible member 21, and cooperating with scales 28, 29 and 30 upon the cover 24. Said scales may be constructed to indicate various positions of the blade 11 in various units of measurement, as desired for the differing uses to which a device of this character may be put. In the drawing the scale 28 indicates inches per foot rise of the blade from the 45° position shown in Fig. 1, and the corresponding scale 29 indicates the same for the opposite position of the blade shown in dotted lines at 31 in Fig. 1. The scale 30 indicates degrees of angularity of the blade. It is obvious that many other scales adapting my device to specific uses may be employed, and such scales are contemplated, and lie within the spirit of my invention.

My invention may be made of any size, and constructed of any material deemed convenient and suitable for a device of this character, and while I have illustrated and described a form of construction and arrangement of parts found desirable in materializing my invention, I wish to include in this application all mechanical equivalents and substitutes that may fairly be considered to come within the scope and pur-

view of my invention as defined in the appended claims.

Having disclosed my invention so that others may be enabled to construct and to use the same, what I claim as new, and desire to secure by Letters Patent is:—

1. In an angle indicator: a hollow body; a blade pivoted upon said body; sheaves mounted within said body; a flexible member mounted upon said sheaves; an indicator secured to said flexible member; scales cooperating with said indicator; and means to operate said sheaves from said blade.

2. In an angle indicator: a hollow body; a blade pivoted upon said body; a flexible member mounted within said body; gears connecting said blade and said member to operate the latter from the former; an indicator attached to said flexible member; and scales cooperating with said indicator.

3. In an angle indicator: a hollow body; a blade pivoted upon said body; sheaves within said body; gear connections between said blade and one of said sheaves; a flexible member mounted upon said sheaves; an indicator attached to said flexible member; and scales cooperating with said member.

4. In an angle indicator: a body; a blade pivoted upon said body; sheaves upon said body; a flexible member mounted upon said sheaves; a driving gear secured upon said blade; a driven gear connected to one of said sheaves; and an indicator secured to said flexible member.

In witness whereof I claim the foregoing as my own I hereunto affix my signature at Portland, county of Multnomah, State of Oregon, this 1st day of April, 1926.

MATT LUOMA.