No. 782,779. PATENTED FEB. 14, 1905.

T. F. DECK.

GRAVITY LEVEL.

APPLICATION FILED DEC. 17, 1901. RENEWED JULY 6, 1904.

Fig. 1.

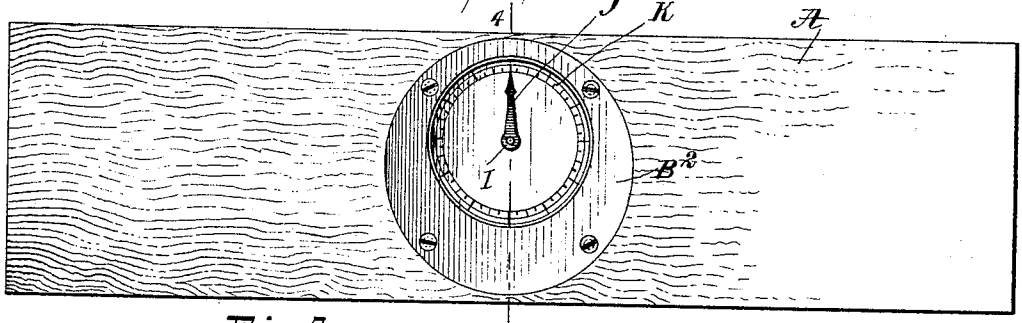


Fig. 2.

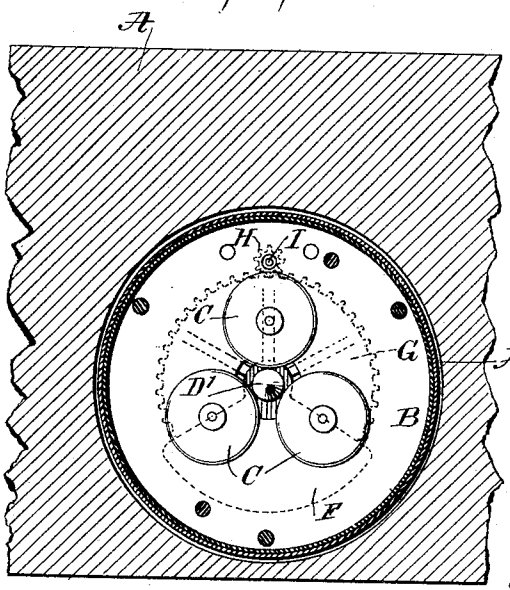


Fig. 3.

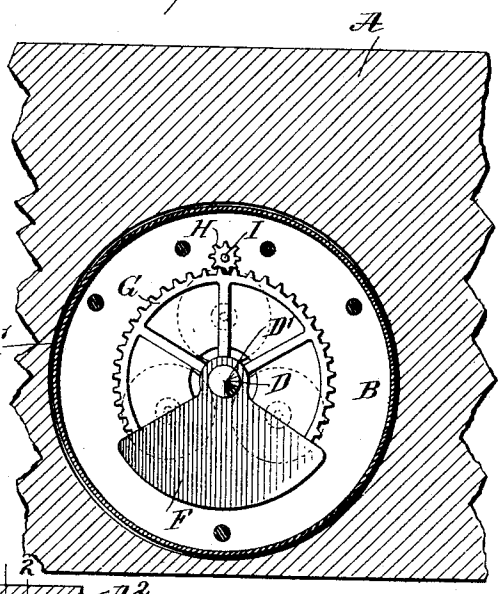


Fig. 5.

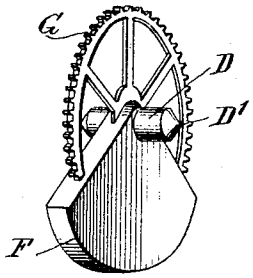


Fig. 4.

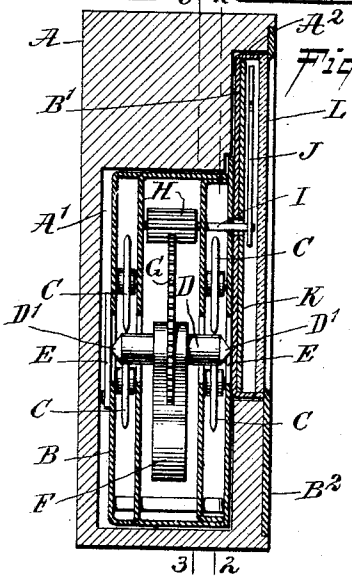
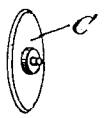


Fig. 6.



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No. 782,779. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

THOMAS F. DECK, OF TOLEDO, OHIO.

GRAVITY-LEVEL.

SPECIFICATION forming part of Letters Patent No. 782,779, dated February 14, 1905.

Application filed December 17, 1901. Renewed July 6, 1904. Serial No. 215,531.

To all whom it may concern:

Be it known that I, THOMAS F. DECK, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a new and Improved Gravity-Level, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved gravity-level which is exceedingly sensitive and arranged to automatically and accurately indicate horizontal and vertical positions and the angle of deviation when placed out of horizontal position.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is an enlarged sectional side elevation of the same on the line 2 2 of Fig. 4. Fig. 3 is a similar view of the same on the line 3 3 of Fig. 4. Fig. 4 is a transverse section of the same on the line 4 4 of Fig. 1. Fig. 5 is a perspective view of the main shaft carrying the fixed weight and the gear-wheel, and Fig. 6 is a like view of one of the rollers for the main shaft-bearing.

The improved gravity-level is provided with a stock A, made of wood or other suitable material and formed at or near its middle with eccentric recesses A′ and A^2, of which the recess A′ is adapted to receive a casing B and the recess A^2 is adapted to receive a dial-casing B′, secured to the front of the casing B. In the latter are journaled sets of rollers C, having peripheral knife-edges and forming a bearing for a main shaft D, extending transversely and having its ends D′ pointed and abutting against parts E of the main casing A, so as to hold the main shaft against transverse movement. On the main shaft D is secured a depending weight F and a segmental gear-wheel G, of which the latter is in mesh with a pinion H, secured on a pointer-shaft I, journaled in suitable bearings in the casing B and projecting into the dial-casing B′. On the forward end of this pointer-shaft I is secured a pointer J, indicating on a dial K held in the dial-casing B′ and having a graduation representing degrees, so that the pointer J indicates the angles of deviation of the stock A when the latter is placed out of a horizontal position.

From the foregoing it will be seen that the weight F on the main shaft D swings out of position as soon as the stock A is placed out of a horizontal position, whereby the shaft D is turned, and the gear-wheel G turns the pinion H and pointer-shaft I to turn the pointer J to indicate the angle of deviation on the graduation on the dial K.

The relation between the gear-wheel G and the pinion H is such that when the stock A is in a horizontal position or in a vertical position the pointer J stands at zero on the graduation on the dial K. By having the shaft D mounted in knife-edged roller-bearings it is evident that the shaft D readily turns when the stock A is moved the slightest degree out of a horizontal or vertical position, thus rendering the gravity-level exceedingly sensitive. The front face of the dial-casing B′ is closed by the usual glass disk I, and the latter, as well as the casings B′ and B, are held in position in the stock A by a covering-plate B^2.

The graduation on the dial K may be in inches and the stock A made of such length relative to the sizes of the gear-wheel G and pinion H that when the stock is raised at one end a certain distance then the pointer indicates this distance in inches and subdivisions on the graduation of the dial K.

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

A level, comprising a stock provided with recesses, a main casing and a dial-casing in said recesses, a main shaft extending transversely in the main casing and having its ends pointed and abutting against parts of the main casing to hold the main shaft against transverse movement, a depending weight carried by the shaft, a segmental gear-wheel rigidly

connected at its ends with the upper edge of the weight at opposite sides of the shaft, a pointer-shaft journaled in the main casing and projecting into the dial-casing, the said pointer-shaft carrying a pinion in mesh with said gear-wheel, a pointer on the said pointer-shaft, a fixed dial in the dial-casing and on which the pointer indicates, and a roller-bearing for the said main shaft and consisting of sets of rollers between which the main shaft is mounted, the rollers having peripheral knife-edges, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS F. DECK.

Witnesses:
FREDERICK B. WILLARD,
MABEL M. MAUL.