(No Model.)

H. M. RICH.

INCLINOMETER.

No. 306,429. Patented Oct. 14, 1884.

Fig. 1.

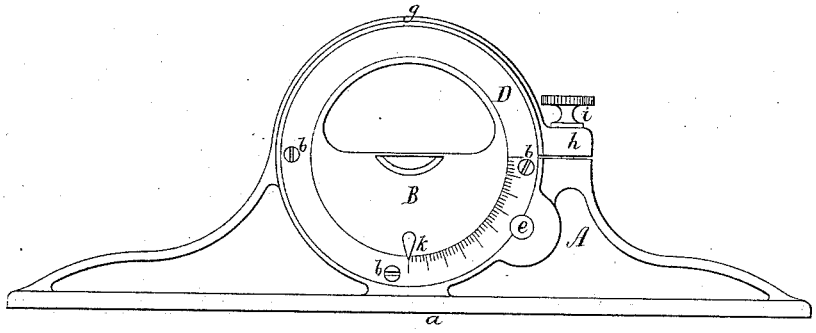


Fig. 3.

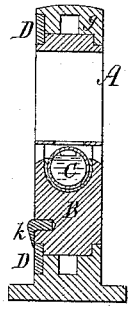


Fig. 2.

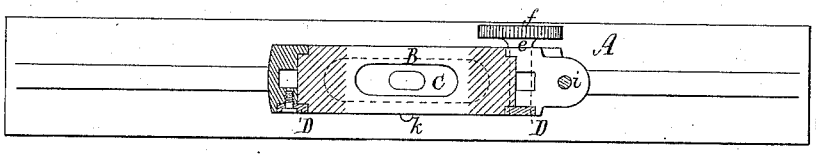


Fig. 4.

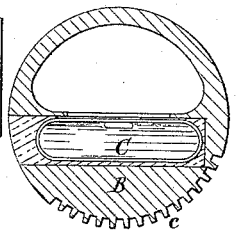


Fig. 5.

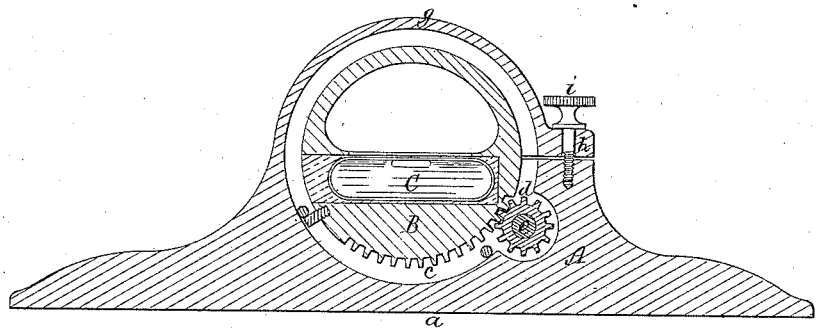


Fig. 6.

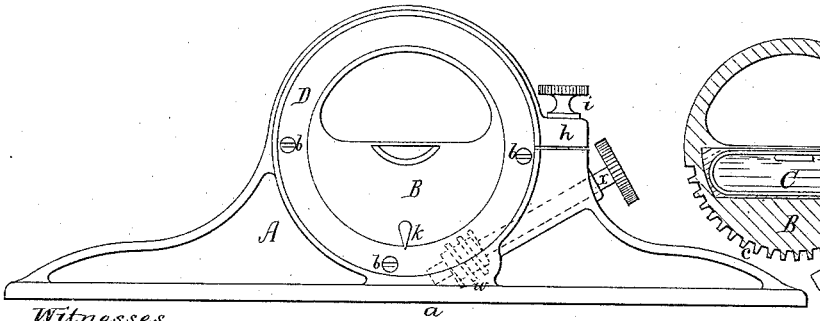
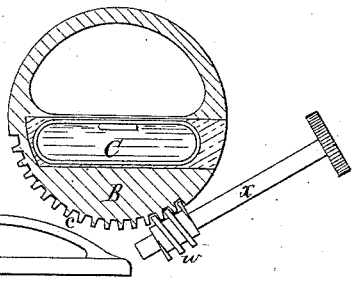


Fig. 7.



Witnesses.
S. N. Piper.
E. C. Pratt.

Inventor
Henry Murdock Rich.
by R. H. Eddy atty.

UNITED STATES PATENT OFFICE.

HENRY MURDOCK RICH, OF ATHOL, MASSACHUSETTS, ASSIGNOR TO CHARLES F. RICHARDSON, OF SAME PLACE.

INCLINOMETER.

SPECIFICATION forming part of Letters Patent No. 306,429, dated October 14, 1884.

Application filed May 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY MURDOCK RICH, of Athol, in the county of Worcester, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Inclinometers; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, Fig. 2 a horizontal section, and Fig. 3 a transverse section, of an inclinometer of my invention, the nature of which is defined in the claims hereinafter presented. Fig. 4 is a vertical section of its rotary spirit-level carrier. Fig. 5 is a longitudinal section showing the pinion and arc of teeth for partially revolving the said carrier or turning it ninety degrees of a circle within the supporting-frame.

This instrument is of the class of that shown in the United States Patent No. 68,961.

In the drawings, A denotes the frame or body of the article, whose base is straight, as shown at *a*. This frame is socketed to receive and support a rotary carrier, B, formed as shown, and provided with a spirit-level, C, such carrier being held in its socket by means of a flat ring, D, and by screws *b*, going through it and screwed into the frame, the ring and screws being arranged as represented. The said ring has formed on its face or through an arc of ninety degrees divisions corresponding to such arc, and there projects from the periphery of the carrier B an arc, *c*, of teeth, to engage with a pinion, *d*, fixed on a spindle, *e*, furnished with a milled head, *f*, and arranged as represented in the frame A. By turning the said spindle the carrier B may be revolved ninety degrees of a circle within its socket, so as to carry the level into parallelism to or an acute or right angle with the lower or straight edge of the frame. That part, *g*, of the frame which encompasses the upper half of the carrier B is, near one end of it, separated from the rest of the frame, and has an extension, *h*, through which a clamp-screw, *i*, passes and is screwed into the frame. This screw, with the part *g*, constitutes a brake for holding the carrier B from revolving in its socket, or such carrier having been turned in such socket so as to bring the pointer *k* against any one of the divisions of the ring.

Instead of a pinion, as described, to work in the teeth of the ring, a worm or screw may be substituted, in which case it would be arranged as shown at *w* in Figs. 6 and 7, and fixed on a spindle, *x*, to extend into and out of the frame A, in manner as represented in such figures.

The brake is of great advantage not only in holding the level-carrier fast in position, but in supporting in the frame and guiding it in its rotary movement, and saves the necessity of having more than one clamping-screw for such carrier.

By means of the said inclinometer, surfaces may be leveled or their angles of inclination relatively to the horizon be readily obtained, as will be well understood by artificers or persons skilled in the art of instruments of the class to which it appertains.

I do not claim an inclinometer composed of a straight-edged frame and a rotary spirit-level carrier arranged with and adapted to such frame, as set forth in the aforesaid patent; but

I claim—

1. The rotary carrier provided, as described, with the spirit-level and the arc of teeth, in combination with the supporting straight-edged frame, socketed to receive the said carrier and provided with the clamping arch or brake and screw, the spindle and pinion or worm, and the divided ring, applied as explained, all being arranged substantially in manner to operate as set forth.

2. The rotary carrier provided, as described, with the spirit-level and the arc of teeth, arranged as set forth, in combination with the supporting straight-edged frame, socketed to receive the said carrier, and provided with a holding ring or device therefor, and with a spindle and pinion or worm, such pinion or worm being in engagement with the said arc of teeth, and all being substantially as represented.

HENRY MURDOCK RICH.

Witnesses:

OSCAR A. SCOTT,

ANDREW J. HAMILTON.