

W. L. TAYLOR & R. G. NEWTON.
GRADE INDICATOR.
APPLICATION FILED MAR. 21, 1914.

1,166,019.

Patented Dec. 28, 1915.

Fig. 1.

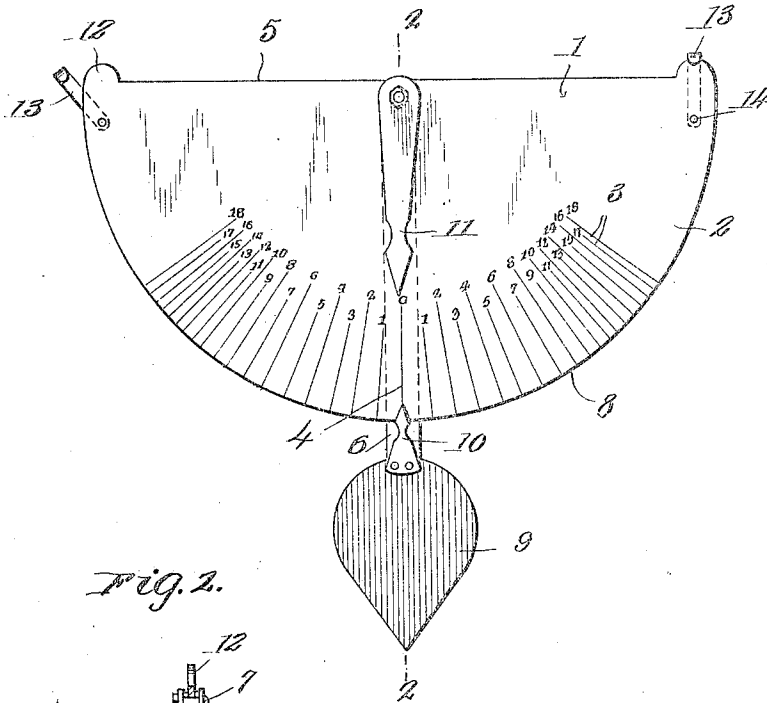


Fig. 2.

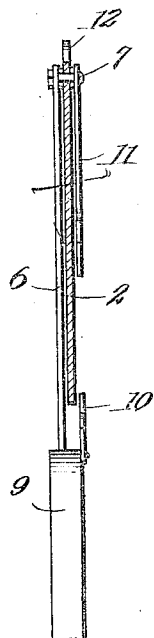
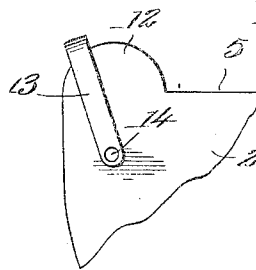


Fig. 3.



Witnesses
Guy M. Spring.
W. E. Walker.

Inventors
Walter L. Taylor
Robert E. Newton

By

Richard Bowen,
their Attorney

UNITED STATES PATENT OFFICE.

WALTER L. TAYLOR, OF BOYD, OKLAHOMA, AND ROBERT G. NEWTON, OF BURLINGAME, KANSAS.

GRADE-INDICATOR.

1,166,019.

Specification of Letters Patent.

Patented Dec. 23, 1915.

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To all whom it may concern:

Be it known that we, WALTER L. TAYLOR, of Boyd, Beaver county, Oklahoma, and ROBERT G. NEWTON, of Burlingame, Osage county, Kansas, citizens of the United States, have invented certain new and useful Improvements in Grade-Indicators, of which the following is a specification.

Our invention relates to an improved device or indicator to be used in connection with a line extending in a plane intermediate the horizontal and vertical to determine, in inches, the rise or fall of a grade, to the foot.

As its primary object, the invention contemplates a simple, efficient and exacting device to be used not only as a means for determining or finding the pitch of a grade, but also as a bob for use in connection with plumb lines and the like.

The above and additional objects are accomplished by such means as are illustrated in their preferred embodiment in the accompanying drawings, described in the following specification and then more particularly pointed out in the claim which is appended hereto and forms a part of this application.

In describing our invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation of an indicating device constructed in accordance with the present invention; Fig. 2 is a section on the line 2—2 of Fig. 1; and Fig. 3 is a fragmentary rear elevation of the device illustrating in detail the manner in which the attaching elements are connected thereto.

Referring now to the drawings by numerals, 1 designates, as an entirety, the device, the same comprising a semi-circular plate-like body portion 2, one face of which is provided with indicating marks 3 disposed in radial relation and to extend in predetermined relation with respect to each other and with respect to a line 4 extending at a 90° angle to the straight edge 5 of the dial.

An arm 6 rigid with a pivot pin 7, the latter extending through the body 2 at a point concentric to the arcuate edge or periphery 6 of the dial, is arranged to traverse the back face of the said body, said arm at its free end being provided with a plumb bob 9

which, in the practical application of the invention, is oscillatable from the pivot point 7 to indicate, through the medium of a suitable indicating element 10, upon the dial, the pitch in inches to the foot of the grade under observation. A second indicating element or hand 11 is provided, said element traversing the front face of the dial and being rigid with the pivot pin 7 and parallel with the arm 6.

An enlargement or projection 12 is formed at each end of the straight edge 5, which enlargements or projections form, with members 13 pivoted as at 14 to the body 2, fastening means whereby the device may be suspended from a line or the like extending in a plane intermediate the vertical and horizontal. Said members 13 are substantially hook-shaped, the hooked portion extending over the respective projections 12 to clamp or fasten the line thereto.

In actual practice, the device may be used as follows: When it is desired, that the pitch of a grade be ascertained, the device is suspended from a line or the like suitably supported thereupon, such suspension of the device being readily effected by the arrangement of the members 13 over the line. When thus suspended, the plumb bob 9 will, by its weight, traverse the periphery of the dial to indicate thereupon, through the medium of the elements 10 and 11, the number of inches to the foot the grade under observation either rises or falls.

From the above, taken in connection with the accompanying drawings, it is apparent that the entire device may be suspended at the end of a plumb line for an obvious purpose; that the extent of rise or fall of grades varying in pitch may be readily determined; and that both indicating elements move in unison, one operating over the periphery of the dial and the other traversing the front face thereof in a manner apparent upon reference to Fig. 1 of the drawings.

In reduction to practice, we have found that the form of our invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of our device will necessarily vary, we desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may

be resorted to, when required, without sacrificing any of the advantages of our invention, as defined in the appended claim.

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

10 In a device of the character described, a semi-circular body portion having graduations on the circular periphery thereof, the opposite edge being straight and terminating in raised portions, hook members pivoted to the body and having their hooked extremities extending over and engaging with the raised portions to hold a line passed between the hooks and body, intermediate the raised portions a pivoted arm, a bob con-

nected to the free end of said arm, a pointer mounted on the bob and parallel with the pivoted arm, and a pointer connected to the point of pivot of the said arm and in parallelism with the pivoted arm and pointer carried by the bob. 20

In testimony whereof we affix our signatures in presence of witnesses.

WALTER L. TAYLOR.
ROBERT G. NEWTON.

Witnesses:

CORA FEE GRAY,
LU SHALLENBERGER,
ROOP C. STANDIFORD,
W. C. SMITH.