

W. E. SOARE.

Apparatus for Setting out Slope-Stakes.

No. 223,253.

Patented Jan. 6, 1880.

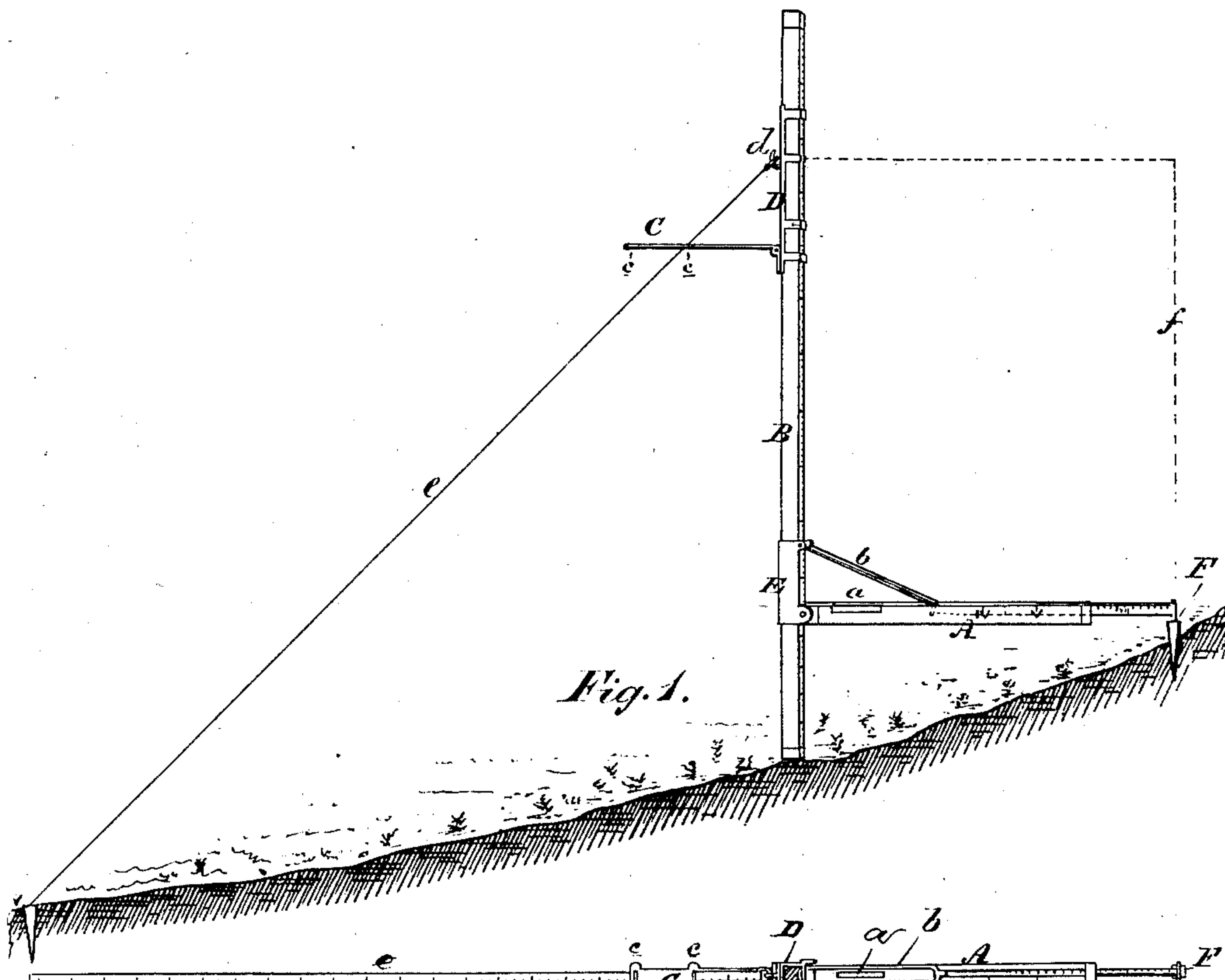


Fig. 1.

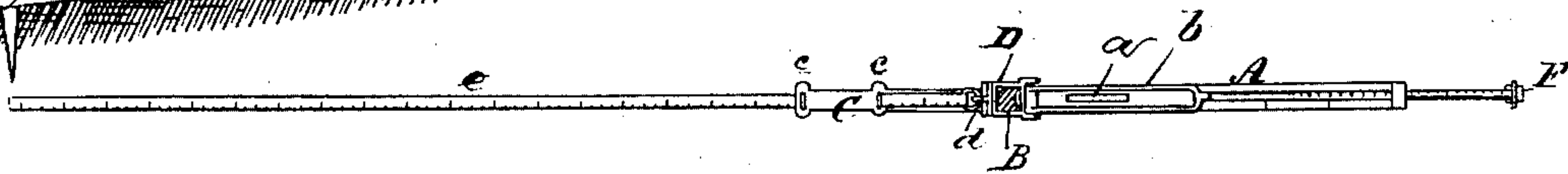


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM E. SOARE, OF OTTAWA, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO GEORGE JOSEPH O'DOHERTY, OF SAME PLACE.

APPARATUS FOR SETTING OUT SLOPE-STAKES.

SPECIFICATION forming part of Letters Patent No. 223,253, dated January 6, 1880.

Application filed June 2, 1879.

To all whom it may concern :

Be it known that I, WILLIAM EDWARD SOARE, of the city of Ottawa, in the county of Carleton, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Sectors; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to an instrument for setting out slope-stakes in railroad construction and other engineering works with facility and accuracy by a person not skilled in surveying.

The instrument consists of a horizontal scale-rod and a vertical scale-rod placed at a right angle, the horizontal rod slidingly adjustable on the vertical rod, which has a movable slide having an arm extending horizontally in alignment with the horizontal rod, whereby said rod and arm are movably adjustable on the vertical rod. By the aid of a line attachment to the slide, and passing through its arm at the angle of slope, the straight continuation of said line indicates the position at the ground for setting the slope-stake.

Figure 1 represents an elevation of my instrument set to ascertain the position of a slope-stake at a filling-in station. Fig. 2 is a top view of the same.

A is a rod, hinged at one end to a metallic frame, E, sliding on the rod B, said rod, when in use, being set at a right angle thereto by a brace, b, hinged to the frame E, the other end of the brace engaging with the rod A by a hook or other suitable contrivance, whereby both rods are kept at a right angle to each other when in use.

The rod A is provided with a spirit-level, a, whereby the rod A is leveled, thus bringing the rod B to a perpendicular position.

D is a frame sliding on the rod B, which frame has an arm, C, hinged to fall at a right angle thereto when in use. Said frame is provided with a hook, d, on which to attach a ring on a cord or tape, e.

The arm C has loops c c, through one of which the line or tape is run and attached to the hook d, and such cord continued in a straight line to the ground gives the position of the slope-stake when the frame D is adjusted to the proper height, as hereinafter described.

For a slope of one foot to one foot, the hook d and loops c should be at the same distance from the intersection of the rod and arm. For a slope of one to one and a half, the loop half a distance farther should be used, the arm having loops to suit any designated slope.

The rods A and B are marked with scales for readily setting off lineal measurement.

The rods may be made extensible in any well-known manner, and the various parts hinged so as to fold compactly together.

The operation of the instrument is as follows: F represents one of the series of station-stakes set out by the surveyor, vertical with the middle line of the proposed road-bed, which is represented by the dotted line f, the height of which from the ground at the stake is ascertained from the profile of the survey previously made, which, for illustration, may be named, say, ten feet, the width of the proposed road-bed being, say, sixteen feet. The vertical rod B is then set up at a distance of eight feet horizontally from the stake F, which distance is ascertained by the scale-measurements on horizontal rod A, the rod B being at a right angle thereto. The slide D is then slid up the rod B until the hook d of the slide is ten feet from the rod A. A line, e, is then attached to the hook d and passed through a loop, c, in the arm C, which is at a right angle to rod B, and the continuation of said line straight to the ground will give the position of the slope-stake.

To set out the slope-stake for a cutting, the same mode of procedure is adopted as for an embankment, herein described, the depth of the cutting being taken as the height of an embankment.

I claim as my invention—

The instrument described, consisting of the rods A and B, adjustably connected by slide E and slide D, having an arm, C, and a hook, d, or other device for the attachment of a cord or tape measure, e, for setting out slope-stakes in railway construction and other engineering works, in the manner set forth.

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Witnesses:

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