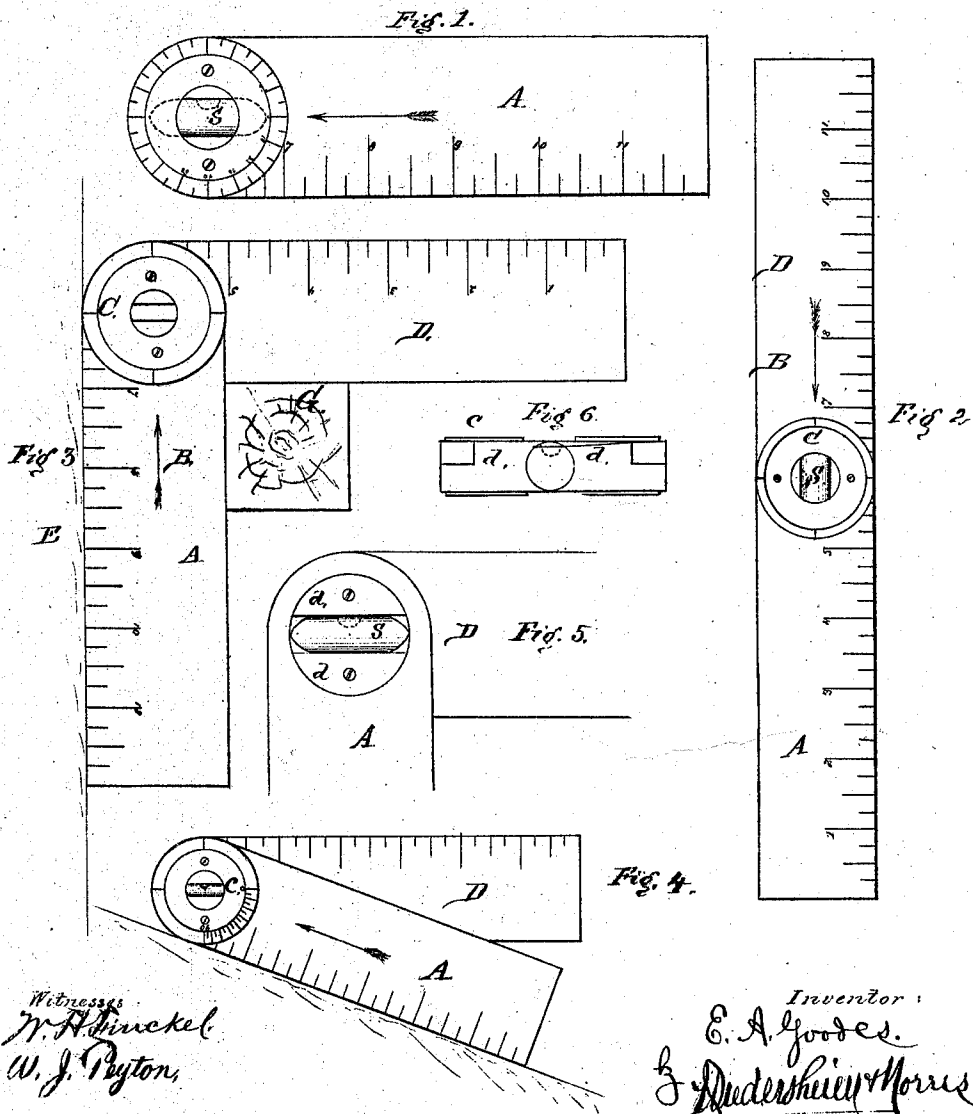


E. A. Goodes,

Combined Rule &c.

No. 104,577.

Patented June 21, 1870.



Witnesses
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EBENEZER A. GOODES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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Letters Patent No. 104,577, dated June 21, 1870.

IMPROVEMENT IN COMBINED RULE, LEVEL, CLINOMETER, &c.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, EBENEZER A. GOODES, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Implement; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing making part of this specification, in which—

Figures 1, 2, 3, and 4 are views illustrating the application of my invention.

Figures 5 and 6 are detached views.

Similar letters of reference indicate corresponding parts in the several figures.

My invention is an implement or instrument combining a rule, level, plumb, square, clinometer, &c., and consists in locating a spirit bulb in or on the joint of a rule, and covering it with a cap, on which is inscribed the degree scale.

In the drawing—

A represents one section of a jointed rule, and D, the other section.

The section D is formed at one end with projections *d d*, which enter a circular opening in the section A, and thereby form the joint of the rule.

A spirit bulb, S, is located between the projections *d d*, and arranged in the longitudinal direction of the section D.

C represents a cap or disk, which is secured to the projections *d* of section D, and overlaps the circular opening of the section A, whereby the bulb is held in place, and the joint of the rule prevented from disengaging.

The face of this cap is graduated with the degrees of a circle, and on the section A is marked or affixed an index-hand, B, which points toward the degrees on the cap C.

In fig. 1 the rule is closed, in which position it may be used as a level by standing it on its edge or lay-

ing it flat. If it is open, as in fig. 2, it may be used as a level for a long bearing-surface.

Fig. 3 represents its application as a plumb and square, the line E, illustrating a wall, and G, a square block.

Fig. 4 shows its use as a clinometer. The section A is placed on the incline, while the section D has been raised, and with it the degree-cap or plate C, until the bulb shows the level. The index-hand B will now indicate the exact degree of inclination.

The spirit bulb might be arranged on the outside of the joint of the rule, but its exposed condition would render it an undesirable location; yet, if made to move with the section D, the operation will be the same as that previously described.

The screws which hold the cap C on the projection *d d*, may pass directly into the section D along the sides of the bulb, and thus serve to hold the latter in place without the assistance of the projection *d*, but these are desirable, in view of the perfect joint they produce, and the protection of the bulb they afford.

Occasion may present other applications of this implement.

It will be seen that the rule is, in all respects, similar to ordinary rules, excepting the construction of the joint and the location therein of the spirit bulb, and that its operation is simple and efficient.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

A rule-joint, which allows the arms to play around the circle, the outer portion of the joint having a graduated scale, and the interior a spirit bulb upon it, substantially as herein shown and described.

To the above I have signed my name this 21st day of April, 1870.

Witnesses:

EBENEZER A. GOODES.

J. RANKINTON,
A. GOSSMAN.