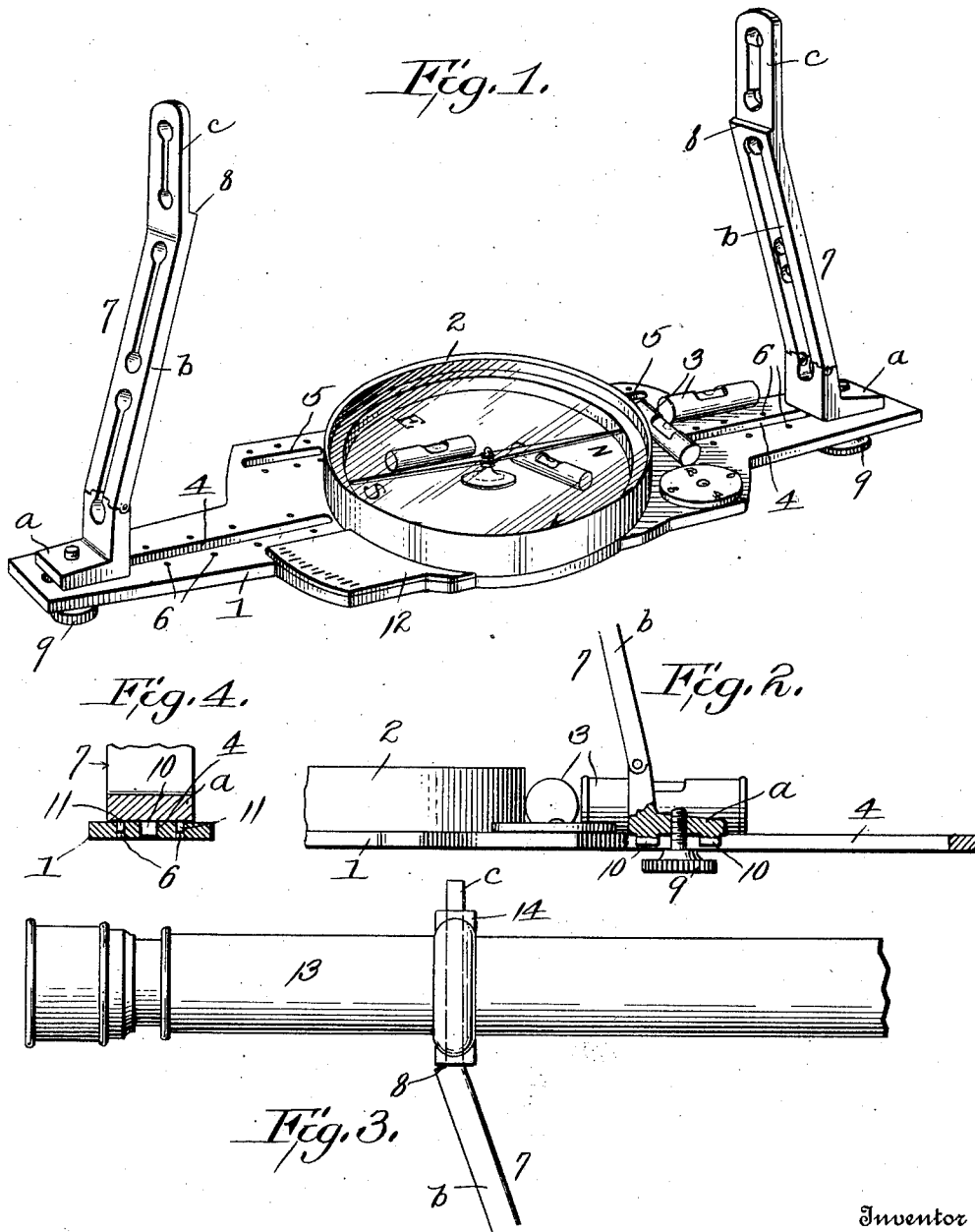


J. WAINWRIGHT.
SURVEYING INSTRUMENT.
APPLICATION FILED NOV. 14, 1910.

997,222.

Patented July 4, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN WAINWRIGHT, OF BENEZETTE, PENNSYLVANIA.

SURVEYING INSTRUMENT.

997,222.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed November 14, 1910. Serial No. 592,311.

To all whom it may concern:

Be it known that I, JOHN WAINWRIGHT, a citizen of the United States, residing at Benezette, in the county of Elk and State of Pennsylvania, have invented a new and useful Improvement in Surveying Instruments, of which the following is a specification.

This invention relates to improvements in a vernier compass, a type of which is shown in Patent 205,742 granted to W. and L. E. Gurley.

The object of the invention is to adapt an ordinary compass of this form to use in rough hilly country, and to facilitate the running of lines up and down steep banks frequently met with in crossing streams.

A further object of the invention is the mounting of the telescope in such a manner that the device will be balanced without the use of additional weights, and also in such manner that the telescope will not interfere with the reading of the compass.

The invention consists in the novel features of construction hereinafter described, pointed out in the claims, and shown in the accompanying drawings, in which:

Figure 1 is a perspective view illustrating my improvements. Fig. 2 is a detail view partly in section. Fig. 3 is a side elevation showing the manner of mounting the telescope, parts being broken off. Fig. 4 is a transverse section through a sight foot.

In the drawings 1 is the plate upon which is mounted a compass 2, and this plate also carries the usual levels 3. The plate 1 differs from the ordinary compass plate in that it is widened and is longitudinally slotted as shown at 4 and 5, the slots 4 being radial with respect to the compass. Parallel with said slots are dowel pin openings 6 the use of which will appear hereafter. Sights 7 are each formed in two sections, hinged together, and consisting of a foot portion *a*, a leaning portion *b* and a perpendicular upper portion *c*. The sections *a* and *b* are hinged to fold inwardly, and the sections *b* terminate at their upper ends in shoulders 8, formed on the inner faces of the sights, and which form supports for the telescope. A set screw 9 works through the slot 4 and a foot *a* and clamps the sight to the plate 1, a screw being provided for each sight 7. The feet are also provided with guide lugs 10 adapted to slide along the slots. To steady the sights dowel pins 11 are carried

by the foot portions *a* and are adapted to enter the openings 6. The vernier 12 is placed far enough to one side of the central longitudinal line of the plate 1 so as not to interfere with the slot 4, and reads to thirty minutes or more.

The vernier is placed on the right hand side, and when the telescope is to be used the sight carrying the same is shifted to one of the slots 5, on the left or west side. This brings the telescope which is carried to one side of the sight directly over the center of the compass. The sights can be shifted along the slots, or folded down, and in running up a steep hill the operator can sight from below up through the plate 1, or in running down a bank or hillside he can sight downwardly through one of the sights and through the slot 4. The usual telescope 13 is employed provided with a sleeve 14 which fits over the portion *c* of the sight and rests on the shoulder 8.

With perpendicular sights the instrument has to be moved many times in running up or down the side of a mountain. But by constructing the sights so that they lean inwardly this objection is overcome. By sliding the north sight inwardly along its slot and sighting up through the other slot 4 from the south end a line can be run up a very steep hill. Or by sliding the south sight toward the compass and sighting through the top of the same and down through the slot 4 at the north end there is the same advantage in running a line down a steep grade. With the ordinary vertical sight the weight of the telescope overbalances the device and it is necessary to place an equal weight upon the opposite end or side in order to balance the instrument, and I have found that when the telescope is so placed constantly upon one side without such additional weights the lack of balance will in time injure the needle. By having the sights lean inwardly the telescope is thrown into such position that it is practically over the compass and the device retains its balance without making it necessary to attach additional weights. This construction is especially advantageous for surveyors who in working in a rough country do not carry a tripod but employ a Jacob's staff. It will also be seen that when the telescope is carried by a perpendicular sight it is between the eye of the observer and the compass needle, but by throwing the

telescope over the center of the device it is moved out of such line thus facilitating the reading of the compass while using the telescope.

5 What I claim is:

1. In a surveying instrument, a compass plate having longitudinal slots, and sights mounted to move along said slots, as and for the purpose set forth.
- 10 2. In a surveying instrument, a compass plate, said plate being longitudinally slotted, and sights movable along said slots, said sights having inwardly leaning portions.
- 15 3. A compass plate longitudinally slotted on opposite sides of the compass, said slots being in alinement with the north and south poles of the compass, removable sights slidably held in said slots, shoulders being formed on said sights, the plate having a
20 slot parallel to those first mentioned and

adapted to receive one of the sights, a telescope carried by a sight, said telescope being on a radial line of the compass when the sight engages the second mentioned slot.

4. The combination with a compass plate, 25 said plate having parallel slots, a portion of said slots being upon the central longitudinal line of the plate, inwardly leaning sights adapted to engage and move along said slots, and means for supporting a tele- 30 scope upon and to one side of either of said sights, said telescope when in use being brought into a position substantially above the compass and in the vertical plane of the longitudinal length of the plate.

JOHN WAINWRIGHT.

Witnesses:

T. H. DAUGHERTY,
W. W. HEWETT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
