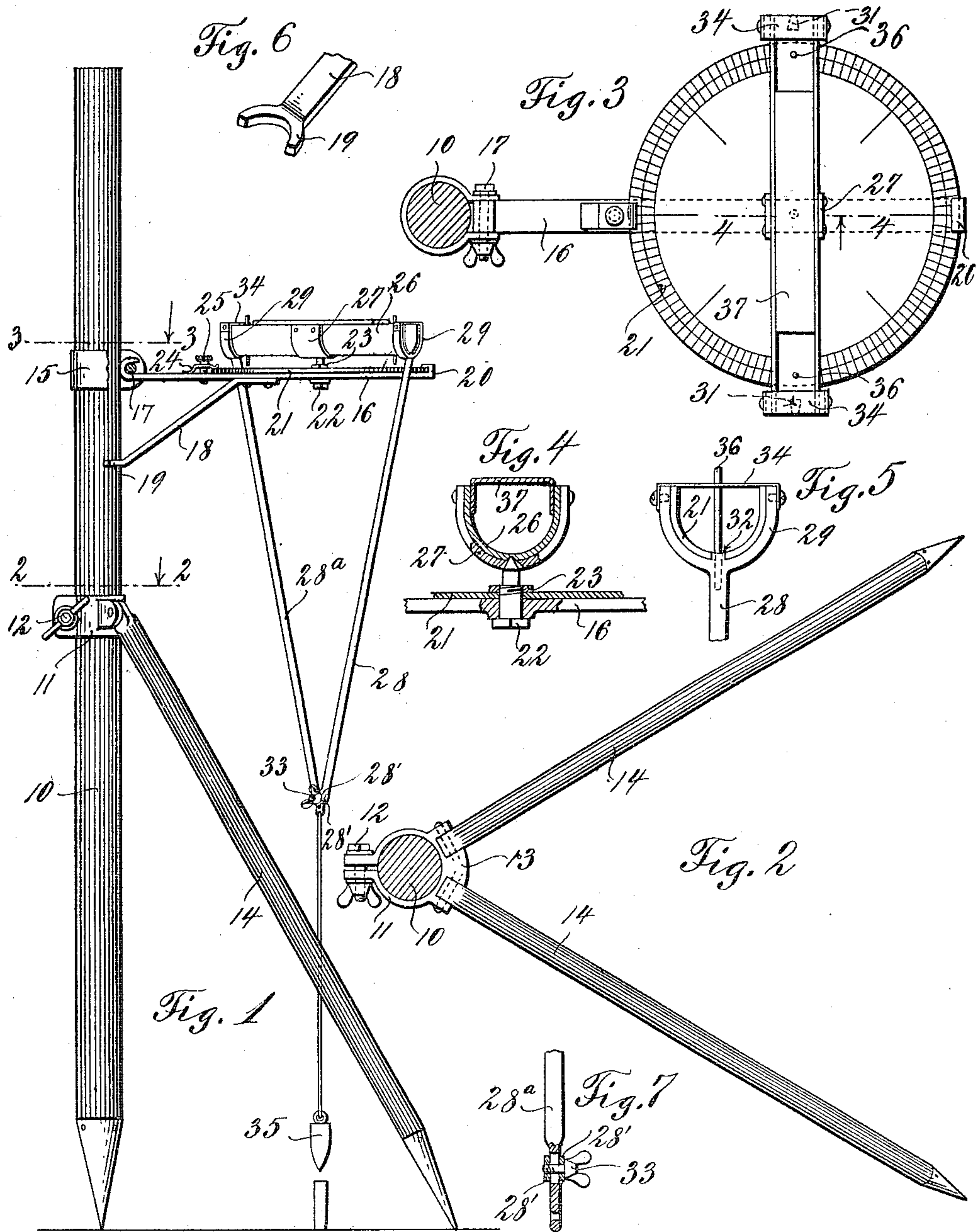


A. M. WEIMER.
SURVEYING INSTRUMENT.
APPLICATION FILED NOV. 5, 1910.

994,665.

Patented June 6, 1911.



WITNESSES:

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SURVEYING INSTRUMENT.

994,665.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANDREW M. WEIMER, a citizen of the United States, residing at North Mankato, in the county of Nicollet and State of Minnesota, have invented certain new and useful Improvements in Surveying Instruments, of which the following is a specification.

This invention relates to surveyors' instruments, and the intention is to construct a level which will be simple in its construction and readily adjustable at various positions.

It is also designed to construct an instrument of this nature which will automatically seek a level position.

With the above and other objects in view, this invention consists in the construction, combination, and arrangement of parts as hereinafter more fully described, claimed, and illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the device constructed in accordance with the present invention; Fig. 2 is a section taken along the line 2—2 of Fig. 1; Fig. 3 is a section taken along the line 3—3 of Fig. 1; Fig. 4 is a vertical section taken along the line 4—4 of Fig. 3; Fig. 5 is an end elevation of the sight tube; Fig. 6 is a perspective view of the dial bracket brace; Fig. 7 is a fragmentary elevation partly in section of one of the plumb rods.

Referring more particularly to the drawings, 10 indicates a main supporting post or pole having the base thereof tapered and surrounded by a metal cone. A split sleeve 11 is adjustably mounted on the pole 10, and is retained in various positions thereon by the set-screw 12 piercing the arms of said sleeve. This sleeve is provided with the bracket 13, said bracket having pivotally mounted thereon the divergent bracing legs or supports 14 which are constructed similarly to the main pole 10. A split sleeve 15 is adjustably mounted on the pole 10 above the sleeve 11 and has a bracket or support 16 pivotally mounted between the terminals thereof through the instrumentality of the bolt 17 passing through said sleeve. This bar forms a substitute bracket or support for the degree plate or dial 21. A brace 18 is interposed between the under surface of the bracket 16 and the pole 10, said brace having a semicircular bearing

surface 19 which spans and engages the pole 10.

The free terminal of the bracket 16 is provided with an inwardly formed U-shaped flange 20 which retains the outer edge of the dial or degree plate 21, pivoted centrally on the bracket 16. A central bolt 22 passes through the bracket 16, and the dial or degree plate 21, and is retained therein by a nut 23 which is threaded thereon adjacent to the upper terminal, said upper terminal being pointed or tapered to form a universal pivot. A spring clamp 24 operates on the bracket 16 opposite to the U-shaped flange 20 and engages the opposite edge of the dial or degree plate 21, to hold same at any desired angle, the tension of said spring clamp being regulated by the screw 25 passing through said spring clamp and the bracket 16.

A semicircular sight tube 26 is pivotally mounted on the upper tapered terminal of the bolt 22 through the instrumentality of a collar 27 centrally secured on said sight tube, said collar being provided with a central depression or recess adapted to receive the tapered terminal of the bolt 22. The sight tube 26 has secured thereto at each terminal thereof a plumb rod 28 and 28^a, the said plumb rods having formed at the upper terminals thereof the semicircular members 29. The terminals of the tube 26 are provided with the dove-tailed openings 31 in which are received the projections 32 centrally carried by the semicircular members 29 formed on the plumb rods. The lower terminals of the plumb rods 28 and 28^a are secured together, the lower terminal of the plumb rod 28^a being received between the forked ends 28' of the opposite plumb rod 28 and retained therein by the set screw 33. The plumb rod 28^a is also provided with an opening 34 in the terminal thereof to which the plumb bob 35 is secured. Each of the semicircular members 29 of the plumb rods carries a sight plate 34 which coöperates with the member 29 to secure said plumb rods to the sight tube. A sight point 36 projects through the base of the sight tube at each terminal thereof, and in combination with each sight plate 34 forms a cross, said points coöperating with the dial plate by indicating the desired angle thereon. A cover 37 is centrally secured to the sight tube.

In the actual use of the invention, it will

be apparent that the leveling means comprising the sight tube 26 and cooperating plumb device may be secured at any predetermined elevation, by longitudinal adjustment of the sleeve 15 and fastening means 17 therefor. The sight tube 26 will be seen to be adjustable in angular direction in a horizontal plane, by reason of its movable mounting with respect to the dial or degree plate 21. Furthermore, under certain conditions it may be desired to rotate the dial or degree plate 21 to secure a most convenient adjustment of the indicia thereon, with respect to the sight tube, for reading purposes. The various parts of the leveling device are collapsible and adjustable with respect to the pole 10 and the adjustable connection at 33 is especially advantageous in order to accurately position the plumb rods 28 and 28^a with respect to one another whereby the sight tube 26 may be adjusted accurately in a horizontal position. When the tube 26 is operatively positioned, it will be apparent that distant points may be sighted along the tube in a manner obvious to those versed in surveying operations. Furthermore, under certain conditions the cover 37 may be detached and a telescope may be placed in the concave portion of the sight tube.

Having thus fully described my invention, what is claimed as new is:—

1. In a device of the class described, the combination with a support, of a bracket adjustably carried thereby, a degree plate pivotally mounted on said bracket, said bracket

having at its outer end a flange for retaining said degree plate and at the opposite side of the degree plate a spring clamp adapted to engage the degree plate, a sight tube universally pivoted above said degree plate, and a plumb bob pendent from said sight tube.

2. In a device of the class described, the combination with a support, of a bracket adjustably carried thereby, a degree plate carried by said bracket, a sight tube universally pivoted over said degree plate, converging plumb rods carried by the terminals of said sight tube, a plumb bob carried by the terminals of the plumb rods, sight plates carried by the upper terminals of said plumb rods, and needles carried by said tube cooperating with said sight plates.

3. In a device of the class described, the combination with a support, of a bracket adjustably carried thereby, a degree plate carried by said bracket, a sight tube universally pivoted over said degree plate, plumb rods having semicircular members at their upper terminals secured to said sight tube, sight plates carried by the semicircular members of said plumb rods, needles carried by said sight tube and cooperating with said plates, and a plumb bob carried by the lower terminals of said plumb rods.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW M. WEIMER.

Witnesses:

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