Aug. 6, 1935. B. I. SHERIDAN 2,010,737

SURVEYOR'S TARGET

Filed April 7, 1934

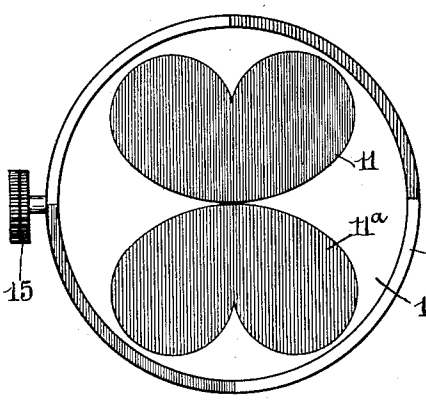


Fig.1.

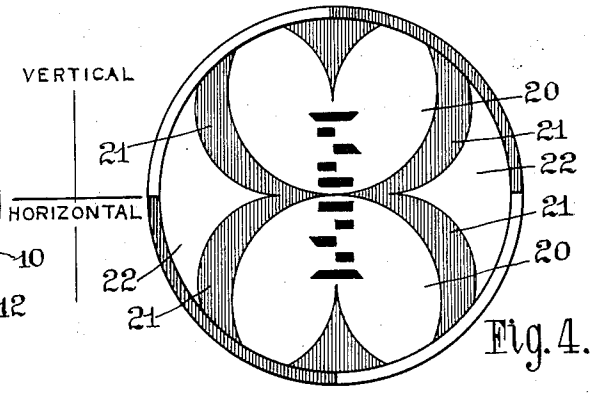


Fig.4.

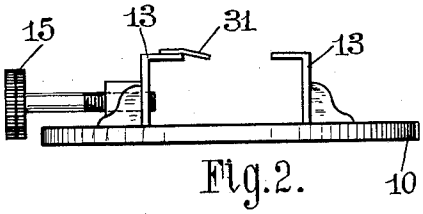


Fig.2.

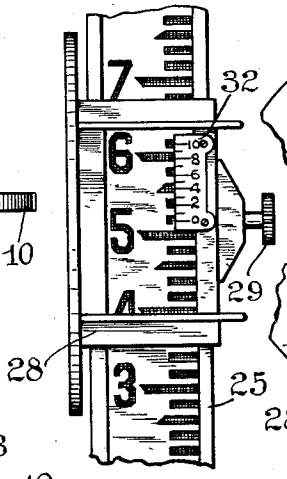


Fig.7.

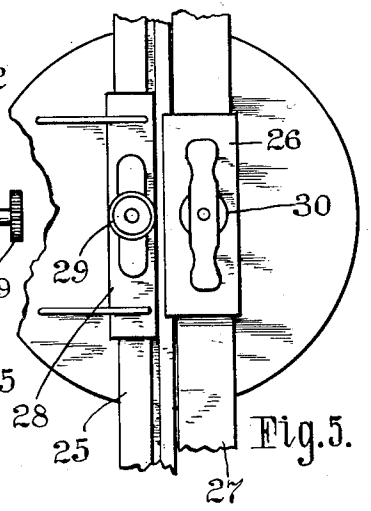


Fig.5.

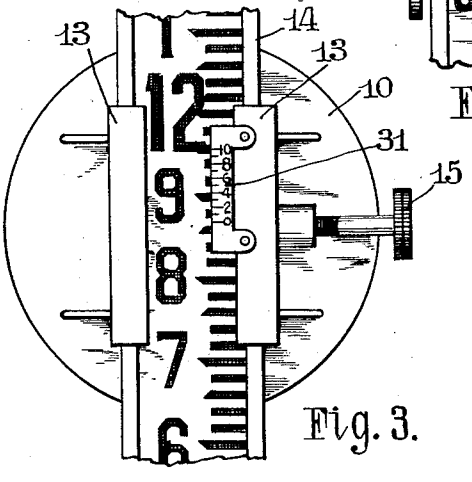


Fig. 3.

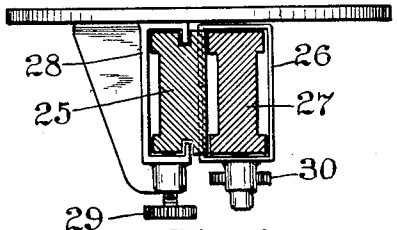


Fig. 6.

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SURVEYOR'S TARGET

Beecher I. Sheridan, Columbus, Ohio

Application April 7, 1934, Serial No. 719,517

3 Claims. (Cl. 33—74)

This invention relates to targets for a surveyor's rod, and the principal object of the invention is to provide a target by means of which greater accuracy in placing and setting the same on the rod under the direction of the instrument man can be obtained.

As is well known a surveyor's telescopic leveling instrument contains a horizontal wire and a vertical wire, the two wires optically crossing each other at right angles at the axis of the tube of the instrument. These wires, of course, have some diameter and in sighting it has been difficult or impossible to be certain that the axis of the wire coincides with the axis of the line on the target. The axis line of the wire may be considerably off from the axis line of the target while appearing to coincide.

By test I have discovered that in this art it is easier to judge the equality or inequality of small regular areas when optically divided by a line than to be sure that the axis of one line exactly coincides with the axis of another, hence I propose to utilize the postulate in the construction of the target; and to this end the invention is embodied in the examples herein set forth.

In the accompanying drawing—

Figure 1 is a front elevation of the preferred form of target according to my invention.

Fig. 2 is an edge view looking at the upper end of Fig. 1.

Fig. 3 is a rear elevation of the target showing it attached to a portion of the rod.

Fig. 4 is a front elevation of another form of the target according to my invention.

Fig. 5 is a rear elevation showing the target attached to what is called the "Philadelphia" rod.

Fig. 6 is an edge view looking at the top of Fig. 5 with the parts of the rod in section.

Fig. 7 is an elevation of the left hand edge of the target on the parts of the rod showing the method of reading the final setting of the target.

Referring first to the construction shown in Figs. 1–3 the character **10** designates the target body which, generally, is of the usual circular form of metal but in the present instance has painted on its face two reversely arranged substantially identical kidney-shaped areas **11** and **11a** of red in a field of white **12**. These kidney-like areas in said instance have their arcs of large radii tangent to the middle of the horizontal diameter of the target to form inwardly tapered angular figures of the white field; and said arcs of larger radii are in each instance extended as arcs of smaller radii that meet at a common point in the vertical diameter to form an angular or tapered inward projection of the white field.

At its rear the target body **10** is provided with the usual brackets **13**, **13**, for slidably engaging the rodman's rod **14**, and a clamping screw **15** in one of said brackets for pinching the rod to bind the target on the rod at the point to which it may be raised or lowered by the rodman under the direction of the surveyor.

In practice, therefore, when the surveyor, in taking a level and the target gradually raised or lowered observes that the white tapered field between the curves tangential to the horizontal, or either of them, is optically equally divided by the horizontal wire of his telescopic instrument he concludes that the axis of said horizontal wire coincides with the axis of the tapered field portions and the tangent line of the two curves. In practice the vertical line of the target is not much used except, perhaps, as an aid in optically centering the vertical axis of the leveling instrument on the target.

Referring now to Figs. 4–7 the kidney-like figures **20** are white, being defined by the arcuate inner edges of red areas **21**, said white edges being tangent in their large arcs to the horizontal diameter of the target and by their smaller areas tangent to a common point on the vertical diameter of the target. In practice the white areas **22**, being equally pointed or tapered between the red areas **21** on the horizontal diameter, function in aiding the optical determination of the coincidence of the horizontal and vertical cross wires of the leveling instrument in the same way as described in reference to Fig. 1. The optical coincidence of the vertical cross wire of the leveling instrument with the vertical line of the target is obtained by rotating the instrument until the verical wire optically coincides with those ends of the black scale markings shown on the target that coincide with the vertical diameter of the target.

The rod shown in connection with Figs. 5–7 is of the "Philadelphia" variety. It is of extensible construction having one part **25** provided with a fixed sleeve **26** engaging the other rod part **27** and adjustable and fixable by screw **30** on said rod part **25**. The target of Fig. 5 is provided at its rear with a bracket **28** that slidably engages said rod part **25**, said bracket being clamped by screw **29** to the rod part **25** after adjustment up or down on said rod part **25**.

The rods are usually supplied with a vernier such as shown at **31** in Fig. 3 and **32** in Fig. 7 for indicating fractions of the units of measurement.

The colors on the face of the target are indicated in the drawing as red and white, but in carrying out the invention other colors may be employed provided they are sufficiently contrasting for practical purposes. The designs and forms of the parts used may also be varied without departing from the gist of the invention as claimed.

What I claim is:

1. In the art of land surveying, an instrumentality for determining the coincidence of horizontals and verticals, a rodman's target having a field and symmetrically colored figures thereon having arcuate defining lines substantially tangential respectively to the horizontal and vertical lines of the target, said field and the figures contrasting in their respective colors.

2. In the art of land surveying, a rodman's target having a face thereof provided with substantially identical colored figures, said figures having substantially arcuate edges tangential to a common point on a horizontal line of the target and bounding tapering figures between them, the color of said tapering figures contrasting with the color of said bounding figures.

3. In the art of land surveying, a rodman's target having a face thereof provided with substantially identical figures colored contrastingly with the color of the adjacent parts of the face, and said figures having substantially arcuate edges terminating at a common point on a horizontal line of the target, and each of said figures also having substantially arcuate edges terminating at a common point on a vertical line of the target.

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