

No. 879,008.

PATENTED FEB. 11, 1908.

G. N. SAEGMULLER.
ADJUSTABLE VERNIER.
APPLICATION FILED JUNE 14, 1907.

Fig. 1.

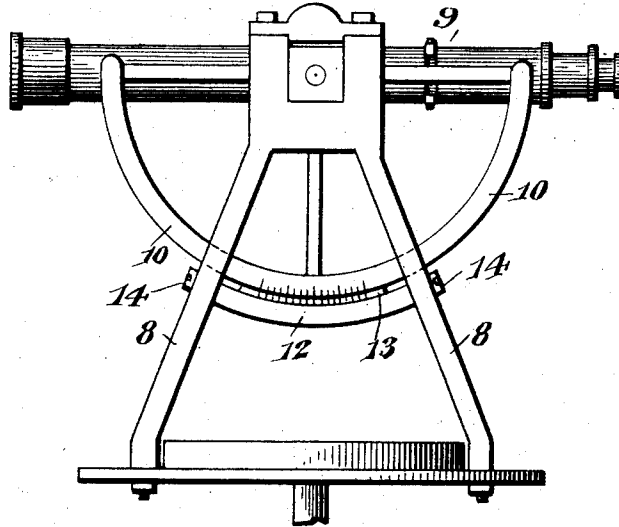


Fig. 2.

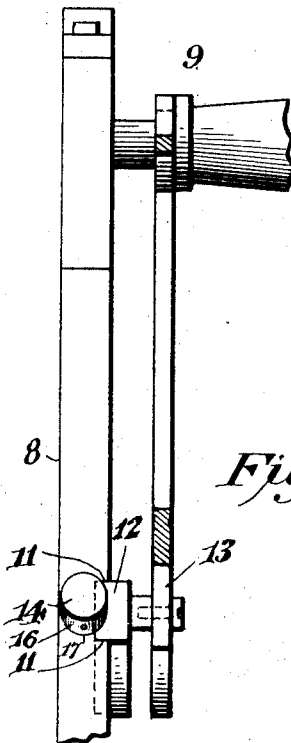


Fig. 3.

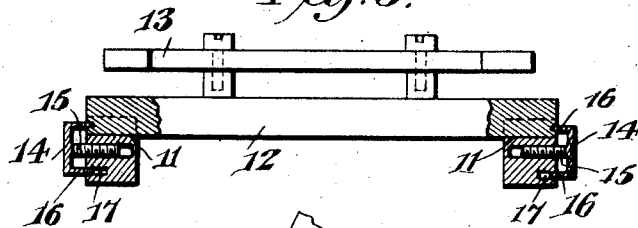


Fig. 4.

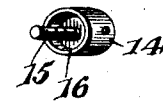


Fig. 5.

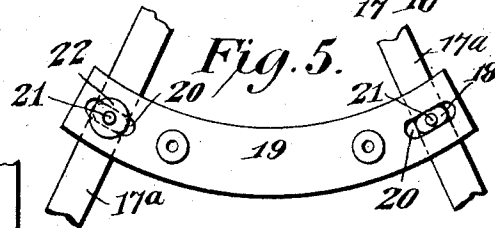


Fig. 6.

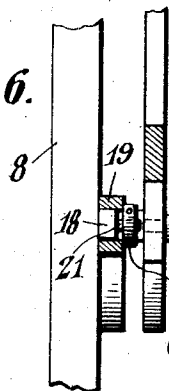
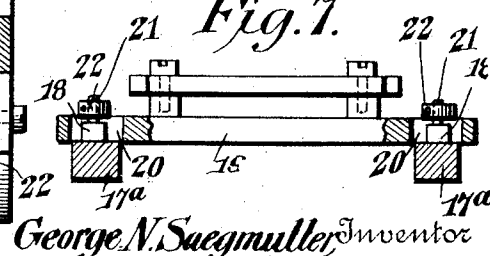


Fig. 7.



Witnesses

Jas. K. McLaughlin
Wm. E. Julian

George N. Saegmuller, Inventor

By

E. J. Siggers
B. J. Foster Attorneys

UNITED STATES PATENT OFFICE.

GEORGE N. SAEGMULLER, OF ROCHESTER, NEW YORK, ASSIGNOR TO BAUSCH, LOMB,
SAEGMULLER CO., OF ROCHESTER, NEW YORK.

ADJUSTABLE VERNIER.

No. 879,008.

Specification of Letters Patent.

Patented Feb. 11, 1908.

Application filed June 14, 1907. Serial No. 379,005.

To all whom it may concern:

Be it known that I, GEORGE N. SAEGMULLER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Adjustable Verniers, of which the following is a specification.

This invention relates to relatively adjustable scales, one of which is a vernier, and is more particularly applicable to engineers' transits, though not necessarily limited to this particular use.

Considerable difficulty is ordinarily experienced in the use of verniers coacting with swinging or rotatable scales, inasmuch as they have to be positioned with the greatest accuracy and any variation that brings the vernier into the path of movement of the scale causes the parts to bind and raises a bur upon the coacting edges that practically destroys the usefulness of the vernier.

The present invention provides means which will effectively maintain the vernier in a fixed relation with respect to the path of movement of the coacting scale, and yet will permit the adjustment of said vernier concentric to said path of movement.

In the accompanying drawings: Figure 1 is a side elevation of a transit showing the vernier and the novel mounting therefor. Fig. 2 is a cross sectional view through the same. Fig. 3 is a horizontal sectional view. Fig. 4 is a detail perspective view of one of the adjusting and holding screws. Fig. 5 is a side elevation of a modification. Fig. 6 is a cross sectional view through the same. Fig. 7 is a horizontal sectional view.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed in Figs. 1-4 inclusive, spaced standards 8 are employed that are connected at their upper ends to form a bearing for the instrument 9 and the swinging or rotatable scale 10 that is carried thereby. The inner sides of the standards 8 are provided with transverse slots 11 disposed concentric to the axis of movement of the scale 10. A curved bar 12, which carries the vernier plate 13, has its ends slidably mounted in the slots, and thus is longitudinally movable, but is prohibited from any lateral movement toward or from the axis of movement of the scale 10. The bar 12 is

held against detachment, and is adjusted by means of screws 14, which are threaded into the outer sides of the standards, and have threads 15 provided with annular flanges 16. These flanges engage in slots 17 formed in the outer sides of the standards and in the ends of the bar 12, as shown particularly in Fig. 3. With this construction, it will be evident that the vernier can be accurately positioned with respect to the scale, and is effectively held against any lateral displacement, thus avoiding the objections common to this type of device. At the same time a longitudinal adjustment of the vernier concentrically to the axis of movement of the scale can be readily secured, for by turning the screws in opposite directions, the bar 12 can be moved longitudinally, and at the same time, will be held against detachment by the flanges of the heads.

A modified form of construction is illustrated in Figs. 5, 6 and 7. In this embodiment, standards 17^a are provided with outstanding portions or posts 18, which are preferably elliptical in form or elongated. The vernier carrying bar 19, which bridges the space between the standards is provided with slots 20 that are concentric to the axis of movement of the coacting scale. These slots receive the posts 18, said posts being furthermore provided with outstanding threaded stems 21, on which are screwed holding nuts 22. It will be observed that this form of structure has the same advantages as that already described, in that the vernier will be held positively against any lateral displacement while a longitudinal adjustment can be secured.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In an instrument of the character set forth, the combination with a support, of a scale rotatably mounted on the support, and a vernier adjustably mounted on the sup-

port separately from the scale mounting, said support and vernier being provided one with a curved slot concentric to the axis of rotation of the scale, the other with a guiding
5 portion engaged in the slot and maintaining the vernier in a path of movement concentric to the axis of rotation of the scale, and means for securing the vernier against movement and in different adjusted relations.

10 2. In an instrument of the character set forth, the combination with spaced supporting standards, of a rotatable scale journaled on the upper ends of and movable alongside the standards, a curved vernier carrying
15 device adjustably mounted on the standards below and independently of the rotatable scale, said device having a longitudinal movement on the standards, said standards and support being provided one with curved
20 slots concentric to the axis of rotation of the scale, the other with guiding portions engaged in the slots and maintaining the vernier in a path of movement concentric to the axis of rotation of the scale, and means for
25 securing the vernier against movement and in different adjusted relations.

3. In an instrument of the character set forth, the combination with a support, of a
30 swinging scale associated therewith, a vernier carrying device adjustably mounted on the support, and screws threaded into the sup-

port and having heads rotatably engaged with the ends of the vernier carrying device.

4. In an instrument of the character set forth, the combination with a support, of a
35 movable scale associated therewith, a vernier carrying device adjustably mounted on the support and associated with the scale, said support having curved slots in its ends, and adjusting and retaining screws threaded into
40 the support and having flanged heads, the flanges of said heads engaging in the slots of the vernier carrying device.

5. In an instrument of the character set forth, the combination with spaced stand-
45 ards, of a swinging scale mounted thereon, said standards having curved slots that are concentric to the axis of movement of the scale, a curved vernier carrying bar having its ends engaged in the slots, and adjusting
50 and holding screws threaded into the standards and having heads rotatably engaged with the ends of the vernier carrying bar and constituting means for retaining the bar
55 on the standards.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE N. SÆGMULLER.

Witnesses:

JOHN H. SIGGERS,
BLANCHE J. KALDENBACK.