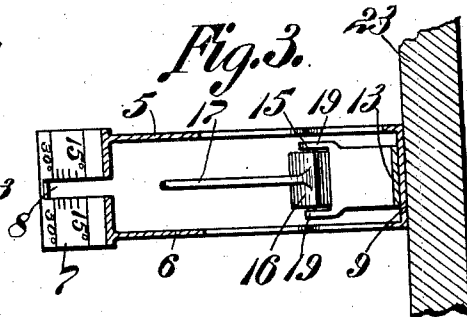
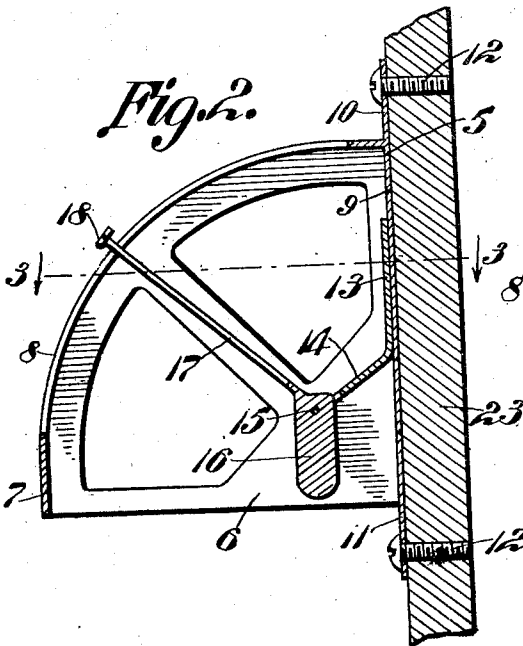
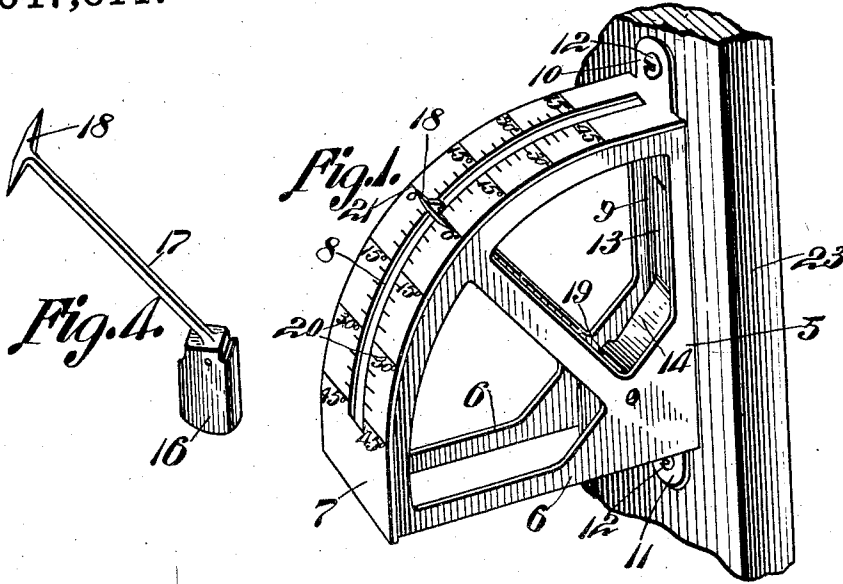


F. A. BRADLEY.
GRADOMETER.
APPLICATION FILED FEB. 7, 1912.

Patented Dec. 17, 1912

1,047,611.



Witnesses

J. T. Taylor
L. H. Kistow

Frank A. Bradley
Inventor

by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

FRANK A. BRADLEY, OF WASHINGTON, MISSOURI.

GRADOMETER.

1,047,611.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK A. BRADLEY, a citizen of the United States, residing at Washington, in the county of Franklin and State of Missouri, have invented a new and useful Gradometer, of which the following is a specification.

This invention relates to gradometers, and has for its object to provide an instrument of this character applicable to vehicles, preferably automobiles, and which shall indicate the inclination or declination of the road over which the vehicle is traveling, whereby the grade of the road being traversed may be noted by the occupant or occupants of the vehicle.

A further object of the present invention is to provide a device of this character which is simple, inexpensive, durable and substantial in construction, and which is convenient and efficient.

To the above and other ends, this invention is embodied in the combination and construction of parts elicited in the following description, reference being had to the accompanying drawings, wherein the preferred embodiment of the invention is illustrated, and wherein—

Figure 1 is a perspective view of the instrument as applied to the dash board of a vehicle. Fig. 2 is a vertical central section thereof. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of the pendulum and accompanying parts.

Referring in detail to the drawings, wherein similar reference characters indicate similar parts, the numeral 5 designates generally the frame of the gradometer, which embodies a vertical back plate 9 which has the respective perforated ears 10 and 11 at the upper and lower ends, segmental sides 6 secured to the back plate, and an arcuate plate 7 secured to the curved edges of the sides 6, the plate 7 having a longitudinal slot 8 therein and having degree graduations 20 along the edges of the slot commencing with zero at the central portion, designated by the numeral 21, of the arcuate plate and extending upward and downward therefrom. This frame is preferably constructed of sheet metal of suitable character and gage, the frame being adapted to be secured to the dash board 23 or any other upright of the vehicle by means of bolts, screws or other securing members 12 passed through the ears 10 and 11 to engage the dash board

or other upright, whereby the back plate is brought against the dash board or other upright.

A plate 13 is secured to the back plate 9 of the frame and has the lower end thereof deflected or bent forwardly to provide a resilient tongue 14 projecting forwardly and downwardly from the back plate, this tongue having spaced ears 19 at its free end. A pin 15 projects transversely through the ears 19 and a weighted pendulum 16 is hung upon the pin 15, whereby the pendulum is pivoted within the frame. To the upper end of the pendulum 16 is secured an arm 17 which projects at an angle approximately 45 degrees therefrom to pass through the slot 8 at the central portion thereof, this arm being normally held in a stationary position by the pendulum. A double pointer 18 is secured to and carried by the free end of the arm 17 and coöperates with the graduations 20, the said pointer being normally held at the zero point of the graduations.

In use, the back plate 9 of the frame 5 is secured to the dash board or other upright of the vehicle, designated by the numeral 23, and when the vehicle is traversing a level road, the dash board or other upright will remain in a vertical position and the frame 5 will also be held in normal position whereby the zero point 21 of the graduations will coincide with the pointer 18. When the vehicle traverses roads which are unlevel, the dash board or other upright will be accordingly tilted from the vertical, whereby the frame 5 will be tilted therewith, and in which event the angle of inclination or declination will be indicated upon the graduations 20 above or below the zero point, respectively, in order to designate the grade of the road. The pendulum 16 being supported by the resilient tongue 14 relieves the pendulum from jarring or jolting actions as the vehicle traverses rough roads. In this manner, the occupant or occupants of the vehicle may observe the degree or grade of the road being traveled over.

This instrument is compact, simple, inexpensive, durable and substantial in construction, and in use is both convenient and efficient, forming a desirable instrument of this kind.

Having described the invention, what is claimed as new is:—

1. A gradometer for vehicles comprising a frame embodying a back plate adapted to

be secured to an upright, segmental sides secured to the back plate, and an arcuate plate secured to the curved edges of the sides and having a longitudinal slot therein 5 and degree graduations along the edge of the slot commencing with zero at the central portion of the plate and extending upward and downward therefrom; a pendulum pivoted in the frame; an arm secured to the upper end of the pendulum and projecting at 10 an angle of approximately 45 degrees therefrom to pass through the central portion of the slot and normally held stationary by the pendulum; and a pointer carried by the free 15 end of said arm cooperating with the graduations to designate the angle of inclination or declination of the frame as the frame is tilted.

2. A gradometer for vehicles comprising 20 a frame embodying a back plate adapted to be secured to an upright, segmental sides secured to the back plate, and an arcuate plate secured to the curved edges of the sides and having a longitudinal slot therein, 25 and degree graduations along the edges of

the slot commencing with zero at the central portion of the plate and extending upward and downward therefrom; a resilient tongue projecting forwardly and downwardly from the back plate of the frame and having ears 30 at its free end; a pin passing through the said ears; a pendulum hung on the said pin; an arm secured to the upper end of the pendulum and projecting at an angle of approximately 45 degrees therefrom to pass 35 through the central portion of the slot and which is normally held stationary by the pendulum; and a double pointer carried by the free end of the said arm cooperating with the graduations along the edges of the 40 slot to designate the angle of inclination or declination of the frame as the frame is tilted.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 45 in the presence of two witnesses.

FRANK A. BRADLEY.

Witnesses:

H. A. KROG.

CHAS. A. BRADLEY.