R. R. SHAY & M. C. STOELTING.

GALVANOMETER.

APPLICATION FILED SEPT. 9, 1912.

1,085,637.

Patented Feb. 3, 1914.

Fig. 1.

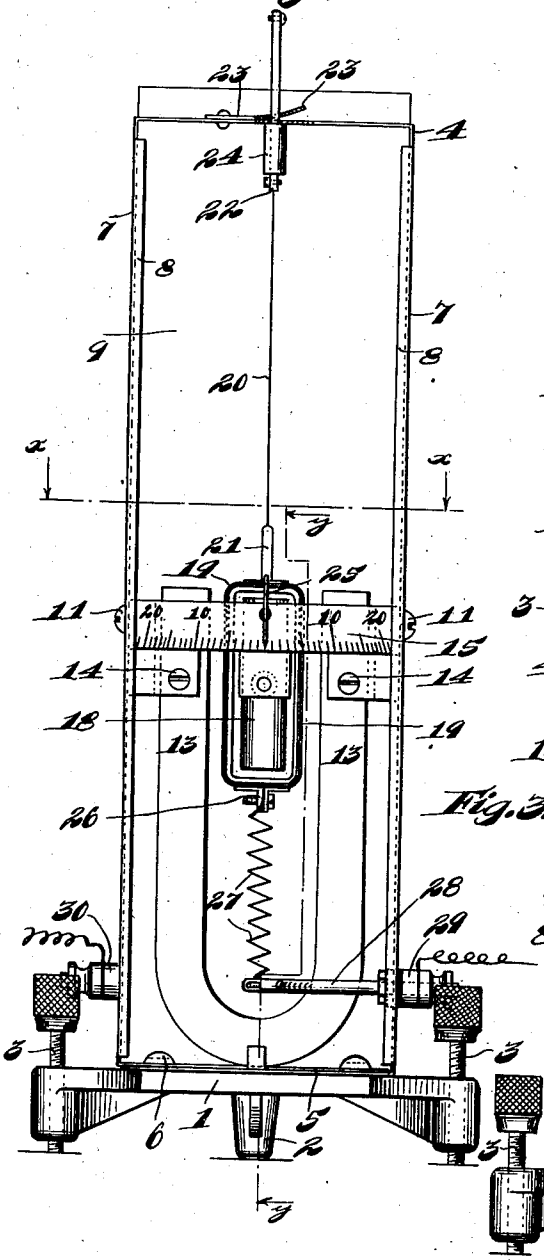


Fig. 2.

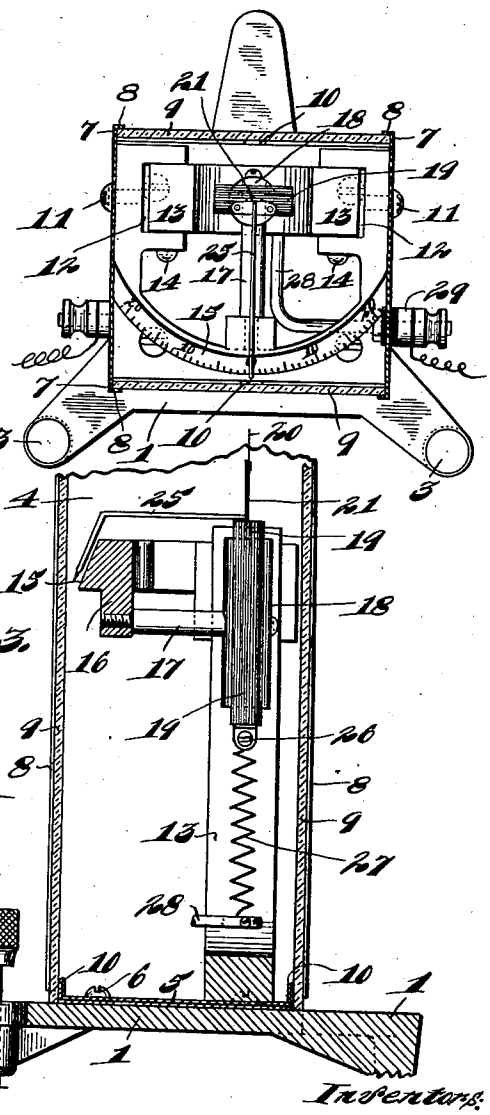


Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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GALVANOMETER.

1,085,637. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed September 9, 1912. Serial No. 719,381.

To all whom it may concern:

Be it known that we, RALPH R. SHAY and MAX C. STOELTING, citizens of the United States, and residents of Park Ridge and the city of Chicago, county of Cook, and State of Illinois, respectively, have invented certain new and useful Improvements in Galvanometers, of which the following is a specification.

Our invention relates to improvements in galvanometers and has for its object the provision of an improved galvanometer which is capable of economical construction and is efficient in use.

The invention consists in the combinations and arrangements of parts hereinafter fully described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a front elevation of a galvanometer embodying our invention shown with the front glass removed, Fig. 2 is a horizontal section taken on line *x—x* of Fig. 1, and Fig. 3 is a vertical section taken on line *y—y* of Fig. 1.

The preferred form of construction as illustrated in the drawings, comprises a suitable base 1 supported by means of a permanent lug 2 and leveling screws 3 as shown. An inclosure is arranged upon base 1, the top, two sides and bottom of said inclosure being formed of a single strip of sheet metal 4 bent into rectangular form as shown, the ends 5 of said sheet being overlapped to form the bottom of said inclosure. The overlapped ends 5 are secured in position on base 1 by means of screws 6 as shown. The side portions of strip 4 are extended outwardly at each edge, as indicated at 7, and the edges of these outwardly extended portions are turned inwardly to form retaining flanges 8 as shown in Fig. 2. Glass plates 9 are inserted between corresponding portions 7 and behind corresponding flanges 8 as shown in Fig. 2. Retaining lips 10 are formed on the bottom portions 5 and are positioned to rest within the lower portions of the glass plates 10 to retain said plates in position behind flanges 8, the upper portions of said glass plates being held in position by contact with the edges of the top forming portion of strip 4. Each of the glass plates 10 is extended somewhat above the top of the inclosure so as to facilitate removal thereof. It will be observed, that when glass plates 10 are inserted in position, they serve to stiffen and reinforce the strip 4 as well as constitute a transparent front and rear for the inclosure permitting ready inspection of the interior thereof. The inclosure thus formed may be economically manufactured, is attractive in appearance and has sufficient strength and stiffness for the purpose intended.

A substantially U-shaped support is arranged horizontally in the inclosure above described, being secured in position therein by means of screws 11 passed through the sides of said inclosure. The limb portions of said support are provided with sockets 12 adapted to receive the poles 13 of an ordinary permanent horseshoe magnet, said poles being detachably secured in position by means of set screws 14. The bend 15 of said support may be circular in form and is provided with a scale as indicated. The support is also provided with depending lug 16 to which a rearwardly extending rod 17 is secured and a soft iron core 18 is secured to the rear end of rod 17 between the magnet poles 13. An ordinary galvanometer coil 19 is suspended in the inclosure by means of a wire 20 in position to embrace core 18 as shown. Wire 20 is attached at its end to a metallic strip 21 which in turn is secured to one terminal of coil 19, said coil being made of insulated wire wound upon a suitable frame. At its upper end wire 20 is attached to the lower end of supporting rod 22 which in turn passes through a perforation in the top of the inclosure. An upwardly turned leaf spring 23 is secured to the top of the inclosure and is perforated to embrace rod 22 and serves as a clamping means for holding said rod in adjusted positions. Rod 22 also carries a stop 24 which is adapted to contact with the top of the inclosure to limit the upward movement of rod 22. By this arrangement it will be observed, that coil 19 will be readily adjusted to proper relation with respect to core 18 for use, or may be lowered to rest upon said core when not in use. Coil 19 also carries a forwardly extending indicator finger 25 having its forward end bent downwardly over the scale 15 to coöperate with said scale so as to indicate deflections of the coil due to the passage of a current therethrough, as will be readily understood by those skilled in the art.

Coil 19 carries at its lower end a clamping

member 26 which is in electric connection with the other end of said coil and serves as a means for securing the same to the end of a connecting wire 27, which leads to a bent conductor rod 28 secured to a binding post 29 as shown. Binding post 29 is insulated from the inclosure and another binding post 30 is secured to the other side of said inclosure and in electric connection therewith. Said binding posts serve as a means for connecting the galvanometer in an electric circuit for testing in the usual manner. By this arrangement it will be observed, that one end of the coil 19 is placed in electric connection with binding post 30 through strip 4, rod 22, wire 20 and strip 21, the other end of coil 19 being in electric connection with the binding post 29, thus permitting the passage of a current which it is desired to test through said coil. The galvanometer operates in the usual manner and the operation thereof needs no further description here.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the exact details set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

1. An apparatus of the class described comprising a casing; a substantially U-shaped support secured in said casing, each of the limbs of said support being provided with sockets adapted to receive the poles of a magnet and the bend of said support being provided with a scale; a magnet having its poles secured in said socket; a coil suspended between said poles; and an indicator finger carried by said coil and coöperating with said scale.

2. An apparatus of the class described comprising a casing; a substantially U-shaped support secured in said casing, each of the limbs of said support being provided with sockets adapted to receive the poles of a magnet and the bend of said support being provided with a scale; a magnet having its poles secured in said sockets; a coil suspended between said poles; a core attached to said support and arranged within said coil; and an indicator finger carried by said coil and coöperating with said scale.

3. An apparatus of the class described comprising a casing; a substantially U-shaped support secured in said casing, each of the limbs of said support being provided with sockets adapted to receive the poles of a magnet and the bend of said support being provided with a scale; a magnet having its poles secured in said sockets; a coil adjustably suspended between said poles; and an indicator finger carried by said coil and cooperating with said scale.

4. An apparatus of the class described comprising a casing; a substantially U-shaped support secured in said casing, each of the limbs of said support being provided with sockets adapted to receive the poles of a magnet and the bend of said support being provided with a scale; a magnet having its poles secured in said sockets; a coil adjustably suspended between said poles; a core attached to said support and arranged within said coil; and an indicator finger carried by said coil and coöperating with said scale.

5. A casing comprising a base; a single strip of sheet metal bent to form the top, sides and bottom of an inclosure, the ends of said strip being overlapped to constitute said bottom; screws securing said overlapped ends to said base; inwardly turned flanges at the edges of the side portions of said strip; and glass plates inserted behind said flanges to form the front and rear of said inclosure.

6. A casing comprising a base; a single strip of sheet metal bent to form the top, sides and bottom of an inclosure, the ends of said strip being overlapped to constitute said bottom; screws securing said overlapped ends to said base; inwardly turned flanges at the edges of the side portions of said strip; glass plates inserted behind said flanges to form the front and rear of said inclosure; and lips on the bottom portion of said closure resting inside said glass plates.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

RALPH R. SHAY.
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Witnesses:
JOSHUA R. H. POTTS,
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