(No Model.)

H. S. S. WATKIN.

ROTARY INDICATOR AND DIAL SCALE FOR ANEROID BAROMETERS.

No. 364,692. Patented June 14, 1887.

FIG. I.

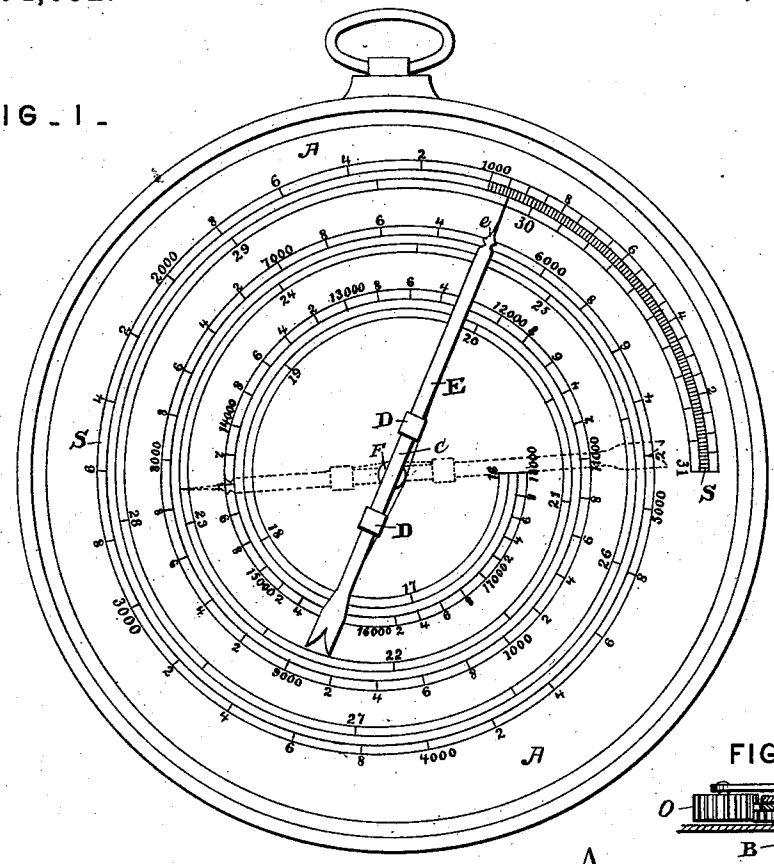


FIG. V.

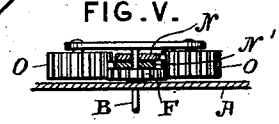


FIG. II.

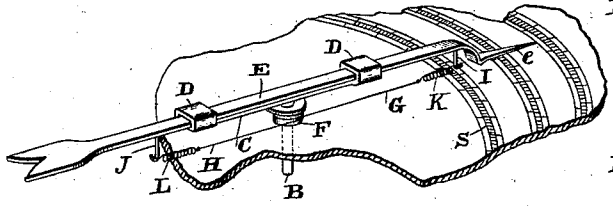


FIG. III.

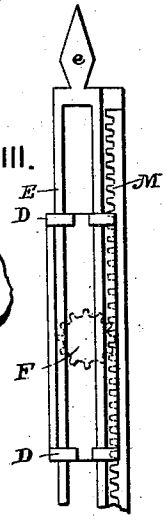
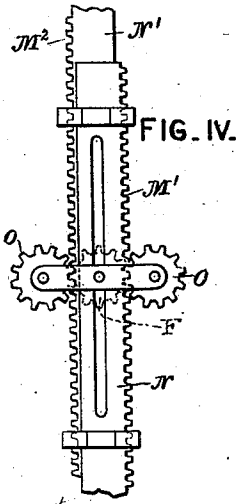


FIG. IV.



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UNITED STATES PATENT OFFICE.

HENRY S. S. WATKIN, OF THE WILDERNESS, CANTWELL ROAD, WOOLWICH, COUNTY OF KENT, ENGLAND.

ROTARY INDICATOR AND DIAL-SCALE FOR ANEROID BAROMETERS.

SPECIFICATION forming part of Letters Patent No. 364,692, dated June 14, 1887.

Application filed October 8, 1886. Serial No. 215,711. (No model.) Patented in England March 11, 1886, No. 3,425.

To all whom it may concern:

Be it known that I, HENRY SAMUEL SPILLER WATKIN, Major Royal Artillery, a subject of the Queen of Great Britain, residing at The Wilderness, Cantwell Road, Woolwich, in the county of Kent, England, have invented certain new and useful Improvements in Rotary Indicators and Dial-Scales for Aneroid Barometers, (for which I have obtained Letters Patent in Great Britain, No. 3,425, bearing date March 11, 1886,) of which the following is a specification.

My invention relates to an aneroid barometer having a dial-scale which is formed eccentrically to the pivot of the index-finger of the instrument, the said index-finger being arranged in a sleeve or auxiliary finger or cross-piece, so that when the finger or index is revolved it slides in or out, the pointed end advancing or receding from the center, thus following a spiral or other form of eccentric scale. The dial of the instrument may thus have a scale consisting of several convolutions, one inside the other, which arrangement will afford means for greatly decreasing the size and consequent weight of the instrument.

My invention consists in the application of the above devices for aneroid barometers and kindred instruments; and it consists more particularly in the means of connecting the index or finger to the pivot of the barometer for the purpose of operating the former in connection with the spiral or eccentric scale, as hereinafter claimed.

Referring to the accompanying drawings, which form a part of this specification, Figure I is a plan view showing the eccentric scale and the index or finger mounted above it. Fig. II is a detail perspective view showing the finger with the means for operating it. Figs. III and IV are detail views of modifications. Fig. V is a transverse section of the device shown in Fig. IV.

In the drawings, A represents the face or dial plate of an aneroid barometer, which may be of usual or any suitable internal construction; and B, a spindle or pivot which protrudes through said dial-plate, and to which the index or finger is ordinarily attached. In this instance, however, it serves to support a cross-piece, C, which is attached to the spindle B, and is rotated by it. Within a sleeve or socket, D, on the cross-piece C is arranged the index or pointer E, which is adapted to slide within the said sleeve in the direction of its length.

F is a drum fixed to the dial-plate A, and having wound around it flexible chains or cords G H, made of suitable material, depending on the nature of the apparatus to which the invention is applied, the ends of said chains or cords being fastened to projecting pins I J, depending from and riveted to the index or pointer E. It follows from this construction that if the spindle B, with the cross-piece C and sleeve D attached to it, is revolved, one portion of the chain or cord unwraps off the drum, the other being wound thereon to the same extent. The index is thus caused to slide through the cross-piece C D, the direction of motion being controlled by the direction in which the spindle is revolved.

The dial-plate A is provided with a spiral or other eccentric scale, S, so formed that the point *e* of the index will follow it in its rotation.

Fig. I shows two positions of the index or pointer when applied to a spiral scale consisting of three complete turns. The spindle B, to which the index is attached, being turned in a direction reverse to that of the hands of a watch, the point *e* of the index is gradually drawn toward the center of the dial, so that the said point continuously follows the trace of the spiral. In order to obtain the necessary delicacy of action for this instrument, the index E must be made as light as possible and the cord must be of a most flexible material. The best results hitherto have been obtained by employing human hair. The addition of light springs, as shown at K and L, Fig. II, has been found advantageous. In order to prevent any slip of the cord on the drum, it is advisable to fasten the inner ends of the respective cords or threads to the drum. It has also been found advantageous to employ a spiral spring with connecting chain or cord wound on a drum instead of the form of spring usually employed to control the movement of the spindle. There are various other means by which the movement of the index or finger may be accomplished.

Fig. III shows another method. Instead of using a chain or cord, the index may be provided with a rack, M, arranged so as to engage with teeth cut on the drum F, fixed to the dial-plate, the finger being supported and sliding in a cross-piece or sleeve, as before described. On the spindle B revolving, the index is made to slide in one direction or the other, according to the motion of said spindle. Fig. IV shows a similar arrangement, in which there are two slides, N N′, with racks M′ M², which are impelled in opposite directions by means of connecting-pinions O O on the spindle being revolved. By varying the size or shape of the drum a different rate of motion may be imparted to the index.

The invention has been applied to various apparatus with a view to increasing the length and distinctness of their scales.

The important application of the invention has been the extension of the scale of an aneroid barometer, the index traveling over a spiral consisting of three complete turns.

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

1. An aneroid barometer having a spiral scale and an index carried by the spindle of the barometer, sliding radially in said spindle, and connected, by suitable cords, threads, or fibers, with a fixed drum, so as to impart radial movement to the sliding index in one or the other direction by the rotation of said index, substantially as set forth.

2. The combination, with the spiral scale S, spindle B, and cross-piece C, of the sliding index E, cords or filaments G H, and fixed drum F, as and for the purposes herein set forth.

3. The combination, with the spiral scale S, spindle B, and cross-piece C, of the sliding index D, cords or filaments G H, tension-springs K L, and fixed drum F.

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