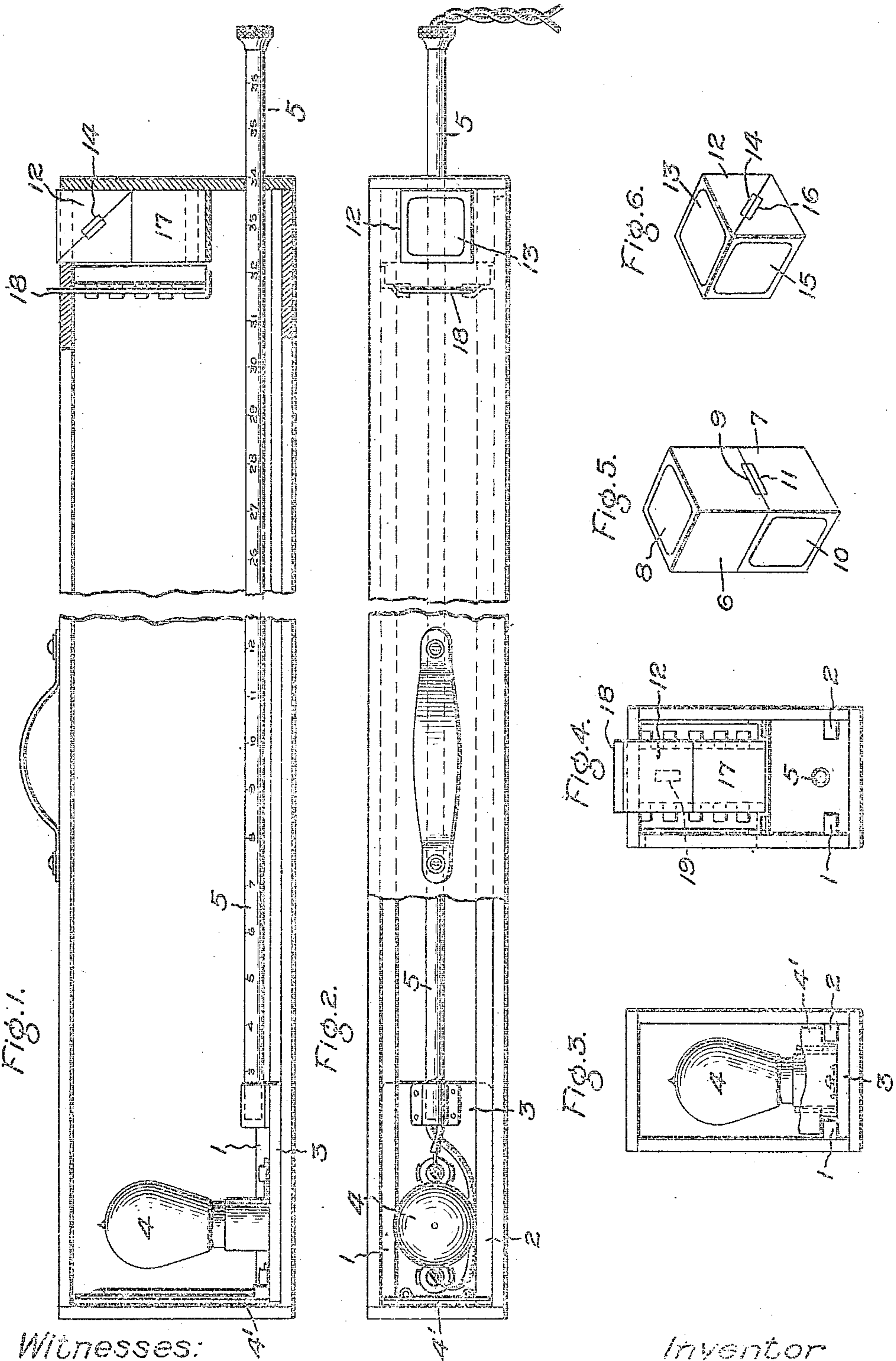


W. D'A. RYAN.
CANDLE FOOT PHOTOMETER.
APPLICATION FILED JAN. 25, 1907.

953,765.

Patented Apr. 5, 1910.



Witnesses:
Marcus L. Ryan,
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UNITED STATES PATENT OFFICE.

WALTER D'A. RYAN, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

CANDLE-FOOT PHOTOMETER.

953,765.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed January 25, 1907. Serial No. 354,112.

To all whom it may concern:

Be it known that I, WALTER D'A. RYAN, a subject of the King of Great Britain, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Candle-Foot Photometers, of which the following is a specification.

My present invention relates to a device for measuring light intensity.

The apparatus is portable and has the advantage of giving the readings directly.

The details of my invention will be better understood by reference to the accompanying drawings forming a part of this specification.

Figure 1 is an elevation of the photometer with one side removed and with certain portions broken away; Fig. 2 is a plan view of the photometer with a portion of the top broken away; Fig. 3 is an end elevation from the lamp end; Fig. 4 is an elevation from the opposite direction with the end of the box removed; Fig. 5 shows one form of light comparing means; and Fig. 6 shows a modification of the same.

The photometer consists of a rectangular, light-proof box with a movable standard lamp at one end and a light comparing means at the other. The side walls of the box are provided with two strips 1 and 2 forming a guide way in which a platform 3 is movable lengthwise of the box. This platform carries the calibrated or standard lamp 4 by which comparisons are made, and also a shield 4' arranged directly behind the lamp and practically filling the entire cross-section of the box. This shield tends to maintain constant reflection. Movement of the platform is effected by means of a tube 5 projecting through the front of the box. The tube serves as a conduit for the lamp circuit and also carries on its outer surface a series of figures properly arranged to give direct reading in candle feet. To insure proper comparison between the standard lamp 4 and the light under measurement, the front of the photometer is provided with light comparing means of the form shown in Fig. 5, or of the modified form shown in Fig. 6.

The device shown in Fig. 5 comprises two rectangular blocks 6 and 7 of paraffin, opalized glass or similar diffusing material.

Each block is covered with an opaque coating, except for one side, and a small rectangular slot near one of the edges. In Fig. 5 the surfaces which are not opaque are indicated by the reference numerals 8 and 9 for block 6 and 10 and 11 for block 7. When these blocks are arranged for use in the photometer, the light-transmitting surface 10 faces the standard lamp 4, while the light-transmitting surface 8 faces upward or in the direction of the light to be measured. Light from the standard lamp passes into paraffin block 7 and illuminates the slot 11 with an intensity depending on the position of the standard lamp. Similarly, the illumination of slot 9 depends on the intensity of the light entering block 6 by way of the light-transmitting surface 8. If the illumination of slot 9 is not the same as that of slot 11, the standard lamp may be moved toward or away from the blocks until a balance is obtained. The reading on the bar 5 gives directly the numerical value of the illumination.

The modified form of light comparing block shown in Fig. 6 comprises two prismatic blocks separated by an opaque surface. The uppermost body or prism 12 is provided with a light transmitting surface 13 and a slot 14, while the other prism is provided with a light transmitting surface 15 and a slot 16. This comparing means may be mounted in the photometer as shown in Fig. 1 by supporting it on a suitable rectangular block 17. A diaphragm 18 may be inserted between the paraffin blocks and the standard lamp and may have a restricted opening 19 as indicated in Fig. 4. This diaphragm serves to cut down the light transmitted from the standard lamp to the paraffin blocks.

When the light comparing blocks are made of opalized glass I prefer to have the exposed surface, which receives the light in the room, finely ground so as to obviate errors which might be introduced because of the angularity of the light.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a portable photometer, light comparing means comprising blocks of diffusing material, opaque coverings for said blocks with light transmitting openings through which light may be received from separate

sources, and smaller openings permitting comparison of the relative intensity of illumination by said sources.

2. In a portable photometer, light comparing means comprising blocks of diffusing material, opaque covering for portions of said blocks, light transmitting surfaces at right angles to each other and a third surface at right angles to both and containing light transmitting slots illuminated respectively through said light transmitting surfaces.

3. In a portable photometer, the combination of a box, a standard lamp movably mounted therein, a shield arranged directly behind said lamp in fixed relation thereto, and means for comparing the illumination

from said standard lamp with the general illumination of the space surrounding said box.

4. In a portable photometer, light comparing means comprising adjacent prismatic blocks of diffusing material, opaque and light transmitting surfaces therefor, and slots in said opaque surfaces permitting comparison of the illumination of the light transmitting surfaces.

In witness whereof, I have hereunto set my hand this twenty-second day of January, 1907.

WALTER D'A. RYAN.

Witnesses:

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PHILIP F. HARRINGTON.