

PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in or relating to Instruments for Measuring the Load in Consumer Circuits.

I, FRANCIS ZIPERNOVSZKY, of 12, Nádor utca, Budapest V., Hungary, of Hungarian nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an instrument for measuring the load in a consumer circuit fed through a watt-hour meter. It allows direct reading of the load in watts off the scale of a portable instrument which has a small weight and size and need not have any connection whatever with the consumer circuit or its accessories.

The invention resides on the conception that from the constant C (number of revolutions per kilowatt-hour) of a watt-hour meter and the time t during which the rotor of the meter makes one revolution, the load in watts may be determined by means of the formula

$$W = \frac{1}{Ct}$$

In case of a definite constant C , each time t of one revolution corresponds to a definite load W . If, therefore, a timing mechanism with a releasing and stopping device has its pointer associated with a scale graduated for loads in accordance with the relationship between W and t , and this timing mechanism is run during one revolution of the rotor of the watt-hour meter, the load may be read directly in watts at the deflected position of the pointer. The load measuring instrument as made in accordance with the invention consists, therefore, in its simplest form of a timing mechanism provided with releasing and stopping means and the pointer of which cooperates with a scale so graduated as to allow direct reading in watts of the load corresponding to each deflected position of the pointer.

Such simplest form of the load measuring instrument, however, allows direct reading in watts of loads only which flow through watt-hour meters having a predetermined constant. To render direct reading of the load in watts possible by

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the aid of watt-hour meters having any constant whatever, the load measuring instrument is provided according to the invention with two additional scales which are relatively rotatable against each other so as form a sort of calculating stick adapted to take account of the different constants of current counters. Such a constructional form of the invention is shown in the accompanying drawing.

Referring to the constructional form shown in the drawing, the timing mechanism is located in a casing 4 provided with a handle 3, and may be released and stopped, in the known manner, by a pressure on the knob 5 in order to run it during a complete revolution of the rotor of a watt-hour meter. The usual equiangular graduation for time is not shown and may be omitted, if desired. The dial of the timing mechanism has two scales 6 and 6¹, the inner 6¹ of which is a continuation of the outer 6 and is taken in consideration only when a complete revolution of the rotor of the watt-hour meter takes more time than that of a round of the pointer. The scales 6 and 6¹ are watt scales plotted in accordance with the formula $W = \frac{1}{Ct}$,

the value $C=1000$ being substituted for the constant. If, therefore, the watt-hour meter through which the load to be measured flows has a constant $C=1000$, the load may be read directly in watts at the point of the scale 6, 6¹ at which the pointer 7 has been stopped after a complete revolution of the rotor of the meter. For instance, the deflected position of the pointer as shown in the drawing shows a load of 90 watts against the scale 6.

The dial of the timing mechanism is encircled by two additional scales 8 and 9 which are individually rotatable and have logarithmical graduations so as to form a sort of calculating stick adapted to correct the watt figure shown by the pointer against the scale 6, 6¹ according to the difference of the constant C_1 of the watt-hour meter in use from the constant $C=1000$ taken as a basis in plotting the

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scale 6, 6'. For making this correction, the scales 8 and 9 are so rotated as to bring on scale 8 the same figure ("90" in the example shown) to which the pointer 7 points on scale 6, 6' and on scale 9 the figure corresponding to the constant C_1 of the watt-hour meter ($C_1=900$ in the example shown) beneath the pointer 7. The correct value ($W_1=100$ in the example shown) may then be read directly at the division or marking "1000" of scale 9 against scale 8. The final result is thus directly obtained by setting two scales.

It will be understood that the same final result may also be obtained, when only one of the scales is rotatable, but by using the point as a gauge for setting both scales 8 and 9, errors are avoided.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An instrument for measuring the load in consumer circuits, characterised by a timing mechanism with releasing and stopping means having its pointer

or hand arranged to rotate at a pre-determined speed and associated with a scale so graduated that at each deflected position of the pointer or hand corresponding to the complete revolution of the rotating member of a watt-hour meter with a certain constant a figure in watts is indicated corresponding to the load flowing through the watt-hour meter.

2. An instrument as claimed in claim 1, characterised by two additional scales which are relatively rotatable against each other so as to form a sort of calculating stick adapted to take account of any constant of watt-hour meters.

3. Instruments for measuring the load in consumer circuits, substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 24th day of April, 1933.
 HASELTINE, LAKE & Co.,
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 England, and
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 U. S. A.
 Agents for the Applicant.

[This Drawing is a full-size reproduction of the Original.]

