Feb. 4, 1930. A. CALLSEN 1,745,842

INDUCTION METER STRUCTURE

Filed Jan. 6, 1927

Fig. 1.

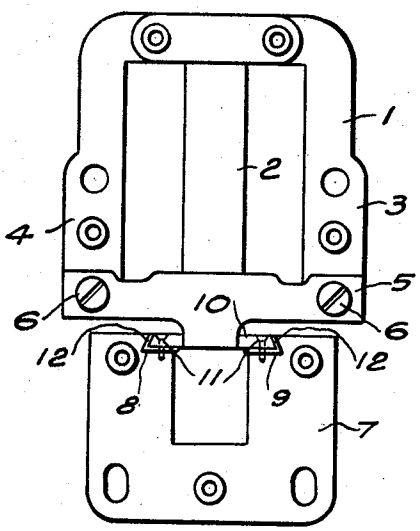


Fig. 2.

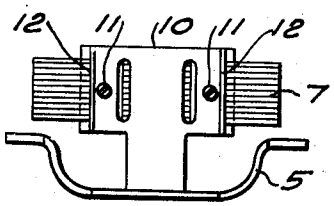


Fig. 3.



WITNESSES:

E. A. McCloskey.

B. R. King

INVENTOR

Albert Callsen.

BY

Wesley G. Carr

ATTORNEY

Patented Feb. 4, 1930 1,745,842

UNITED STATES PATENT OFFICE

ALBERT CALLSEN, OF NUREMBERG, GERMANY, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA

INDUCTION-METER STRUCTURE

Application filed January 6, 1927, Serial No. 159,456, and in Germany March 29, 1926.

My invention relates to induction watt-hour meters and more particularly to core structures for such meters.

My invention has for its object to provide a core structure for watt-hour meters that shall be characterized by mechanical rigidity.

A further object of my invention is to provide an induction meter that shall be free from frequency noises.

In present meter practice, it is common to provide a magnetic shunt for the series core for correcting the upper part of the registration-load curve. The principle on which this shunt operates is well known to those skilled in the art.

In practicing my invention, I employ a structure comprising a magnetic shunt that is an extension of the tongue of the voltage-core return-path member. The series-core of substantially U-shape has its inner extremities so that the series core-shunt is adapted to dove-tail therein and secure the series-core laminations firmly together.

In order to comprehend my invention more thoroughly, reference may be had to the accompanying drawing, in which,

Fig. 1 is a side elevational view of a meter structure embodying my invention;

Fig. 2 is a top plan view of the series-core shunt and series-core shown in Fig. 1; and

Fig. 3 is a top plan view of a modified series-core structure.

A voltage-core 1, having a central leg 2 and side members 3 and 4, has a return-path member 5 mounted thereon by means of screws 6. A series-core 7 of U-shape, located under the voltage-core member 1, has recesses 8 and 9 in its inside extremities. A tongue 10 of the voltage-core return-path member 5 is adapted to fit into the recesses 8 and 9 to form a magnetic shunt for the series-core 7. Screws 11 secure the extension of the tongue 10 to the series-core magnet 7. Non-magnetic members 12 separate the magnetic shunt from the series-core magnet 7.

The extension of the tongue 10 is forced into the recesses 8 and 9 in such manner that the laminations of the core 7 are held firmly in place. Noises due to frequency variations are thus substantially avoided. The separating members 12, in a preferred form of my invention, are made of a relatively soft material, such as brass, into which the laminations will fit snugly.

In Fig. 3, non-magnetic laminations 13, having inwardly projecting portions in the recesses 8 and 9, are provided in the middle portions of the laminated core 7; thus providing an air gap between the laminated members of the core 7 and the tongue 10, when the latter is in position.

The laminations 13 are of the same shape as the laminated core 7, with the exception of the recessed portions 8 and 9. These portions of the laminations 13 are extended to fasten the tongue 10 rigidly to the core structure 7. With such combination, the laminations of the core 7 are not short-circuited by the member 10, because an air gap is between it and the core. Eddy-current losses are, in this manner, substantially reduced. The laminations 13 may be of magnetic material but I prefer to construct them of a non-magnetic material, in order to reduce losses by even eliminating eddy-currents in these members.

The structure shown in Fig. 3 is a refined embodiment of my invention and may be necessary only where an extremely accurate meter is to be manufactured.

The mass of the member 1 being different from the mass of the member 7, their frequencies of vibration will be different. Fastening the two rigidly together in the manner shown causes their individual vibrations to be damped. The combined structure vibrates with a considerably lower frequency than either of the separate members if uncombined, a condition that reduces bearing deterioration and frequency noises.

It will be understood that the magnetic shunt shown may be of any one of various shapes and may be secured to the series core in various ways other than those shown without departing from the spirit of my invention, all modifications of which I desire to include in the scope of the appended claims.

I claim as my invention:

1. In combination, in an induction meter, a voltage core comprising three projecting

portions, a current core of substantially U-shape having slots provided in the end portions thereof, and a magnetizable member secured to the outer projecting portions of said voltage core and to the end portions of said current core in said slots, said magnetizable member between the end portions of said current core constituting a shunt for improving the overload characteristic of the meter.

2. In combination, in an induction meter, a current core comprising magnetic and non-magnetic laminations, and a shunt disposed between projecting portions of said core, said non-magnetic laminations constituting means for securing said shunt in position.

In testimony whereof, I have hereunto subscribed my name at Nuremberg this 16 day of November, 1926.

ALBERT CALLSEN.