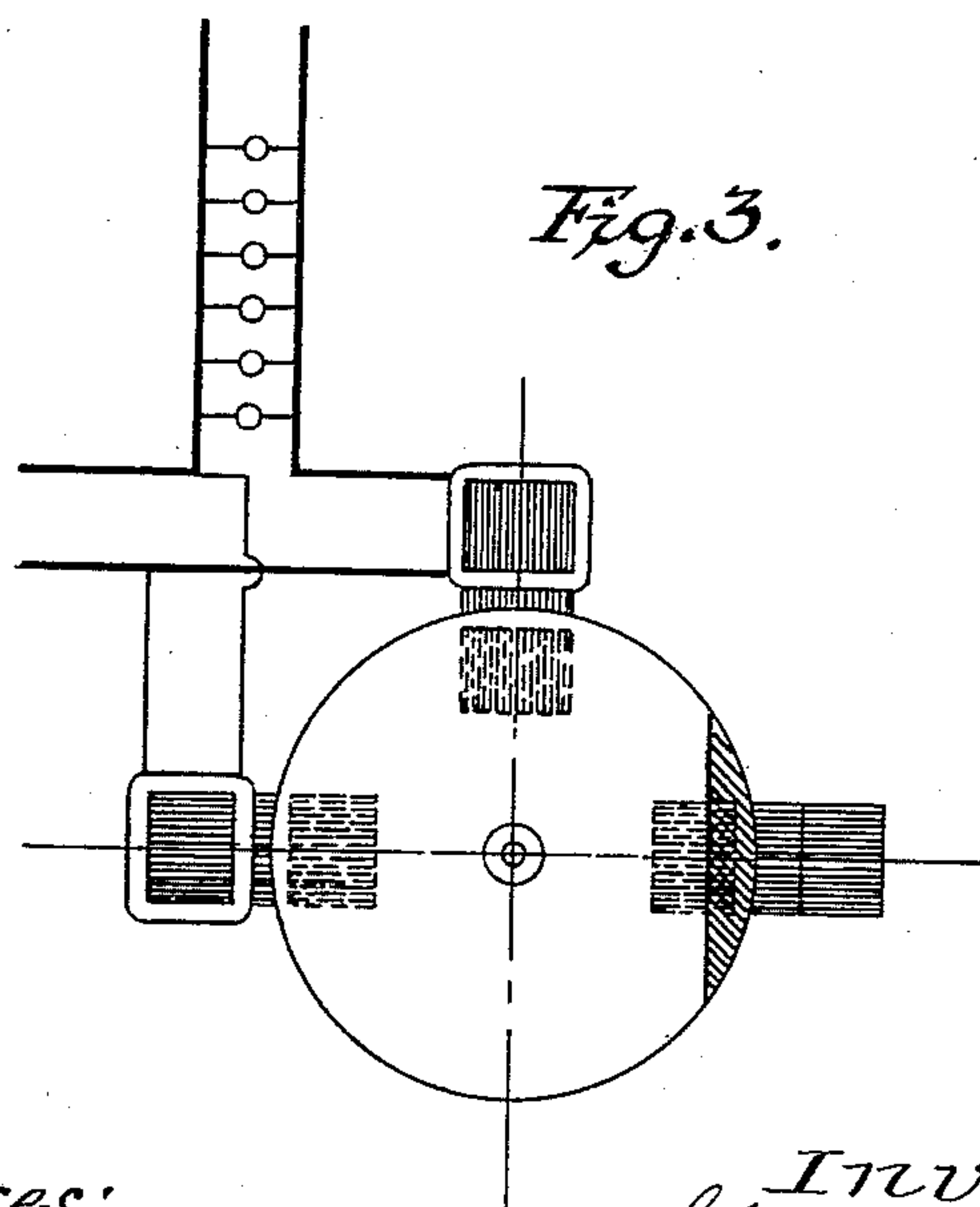
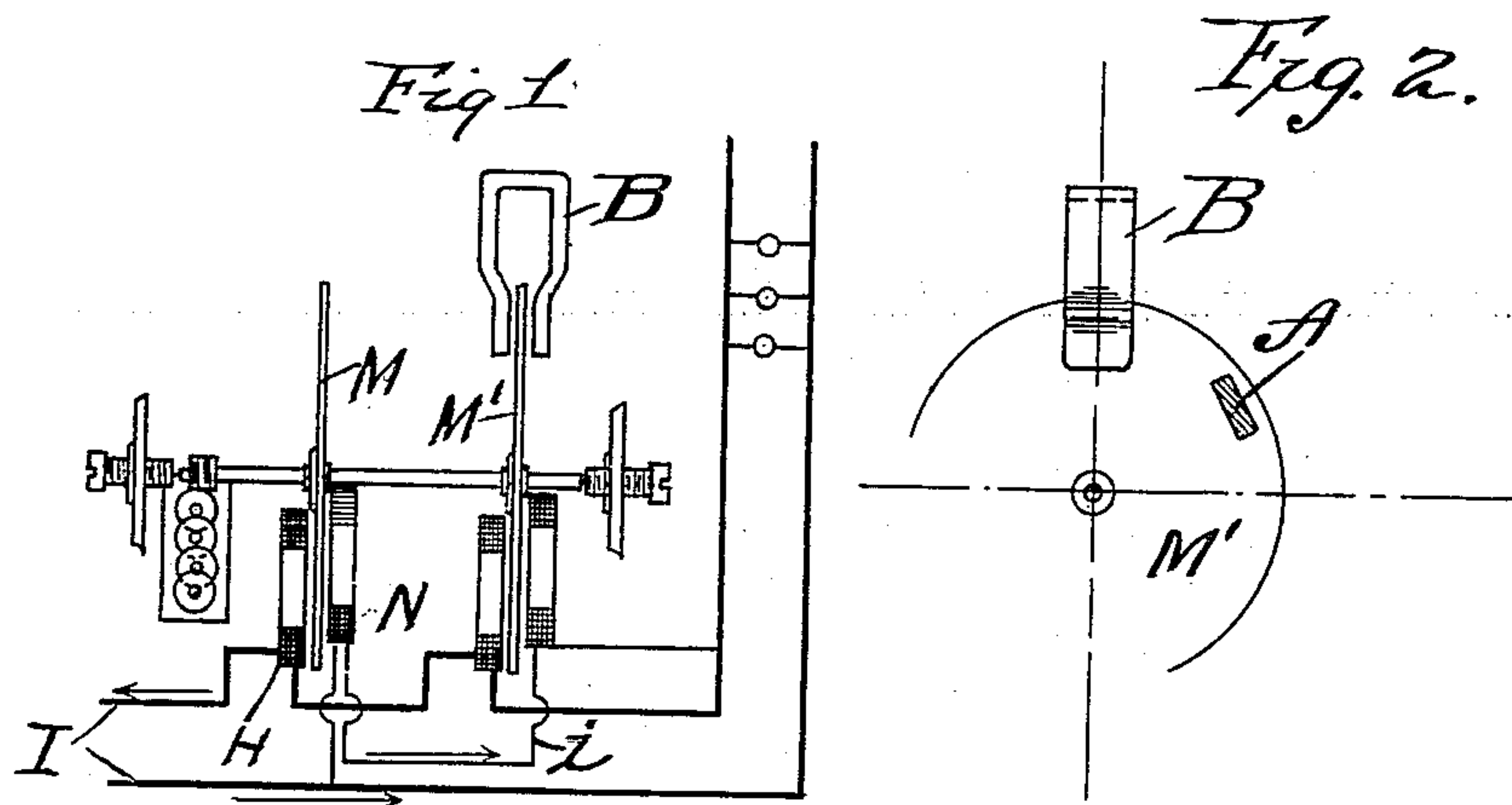


(No Model.)

C. P. FELDMANN.
ALTERNATE CURRENT METER.

No. 602,557.

Patented Apr. 19, 1898.



Witnesses:

E. R. Bolton
C. P. Feldmann

Inventor:

Clarence Paul Feldmann

By

Richard R.

his Attorneys.

UNITED STATES PATENT OFFICE.

CLARENCE PAUL FELDMANN, OF COLOGNE, GERMANY, ASSIGNOR TO THE
HELIOS ELECTRICITÄTS ACTIEN-GESELLSCHAFT, OF SAME PLACE.

ALTERNATE-CURRENT METER.

SPECIFICATION forming part of Letters Patent No. 602,557, dated April 19, 1898.

Application filed December 21, 1897. Serial No. 662,858. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE PAUL FELDMANN, engineer, a citizen of the United States of America, residing in the city of Cologne-on-the-Rhine, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Alternate-Current Meters, of which the following is a specification.

Figure 1 is a diagrammatic view of one form of my invention. Fig. 2 is a detail view thereof, and Fig. 3 is a view of a modification.

The present invention relates to a zero adjustment for alternate-current meters. In all meters for single or poly phase alternate currents in which there are provided a main-current magnet H and a shunt-magnet N, Fig. 1, or generally in which two or more fields H, which are excited from the main current I or a portion thereof, or are induced, together with two or more fields N, which are induced or excited by a branch current i , having its phase displaced with regard to the main current I, thereby effecting the rotation of a revolving body or a disk M, there may easily occur also undesirable rotary motion of the revolving body or of the disk M, which motions are caused by a slight want of symmetry in the geometrical or magnetic arrangement. These revolutions occur especially when the fields H are not excited, while the shunt-fields N are excited, and they then cause a to-and-fro motion of the meter in spite of the stoppage of the main current. Several methods have been tried in order to obviate this difficulty. Thus, for instance, the protective influence of a copper plate partially covering the whole of the fields N or the arrangement of a hole or slot in the disk M may effect the zero position—that is to say, the disk will be held fast in a given position—when the fields N are excited and the fields H are without current, notwithstanding little defects of symmetry in the mounting or other arrangements.

The object of the present invention consists of a new method of adjusting the zero-point in the above-defined sense.

The invention consists in the application of a suitably-formed and extremely thin mag-

netic layer A under the influence of a permanent magnet B, which apparatus can be attached to the revolving body M of the meter itself or to a special brake-disk M'. As a rule meters of this kind possess already for the checking and regulating of their motion one or more permanent brake-magnets B, which act either upon the meter-body M itself or upon a brake-disk M' or the like connected with the said meter-body. It is therefore only necessary to cover a thin zone or a small sector or other suitably-shaped piece of the itself unmagnetic body M or M', standing under the influence of the brake-magnet B, with so thin a layer of magnetic material by mechanical or galvanic means that the resulting magnetic unsymmetrical checking suffices exactly for the producing of a fixed zero position without, on the other hand, taking off the quickened action of the fields displaced in phase. There consequently occurs in a meter provided with this new arrangement for the creation of the zero position a differential effect between the quickening powers of the field groups displaced in phase and the delaying power of the magnetic and completely-closed brake-magnets, which, for instance, can be so controlled by the galvanic production of the spot or strips A that the meter in spite of having a very sharply-defined zero position loses nothing of its sensitiveness, even with regard to relatively weak currents, because even when the delaying spot or strip is brought upon the body of the meter-disk M the dimensions of the said strip or spot can be so finely adjusted that the revolving currents in the meter-disk M, which really effect the motion required to be registered, will not be perceptibly disturbed in their course.

It is obvious that the invention can also be applied in a number of small modifications. Thus, for instance, several slots or strips might be used, so that several fixed zero positions will be created, &c.

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—

In alternate-current meters having no direct supply of current to the movable arma-

ture, the combination of a thin layer of mag-
netic material with the armature of the brake-
body connected to the same for the purpose
of creating a differential effect of such di-
5 mensions that a fixed zero position is produced
the sensitiveness of the meter remaining prac-
tically unaltered.

In witness whereof I have hereunto set my
hand in presence of two witnesses.

CLARENCE PAUL FELDMANN.

Witnesses:

CARL SCHALLER,
MAX LUHN.