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BY A. P. C.

A. D'ARBELA
INTERRUPTER OR ELECTRIC CURRENT INTERRUPTER
AUXILIARY DEVICE WITH A COUNTER
ELECTROMOTIVE FORCE GENERATOR
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Fig. 1

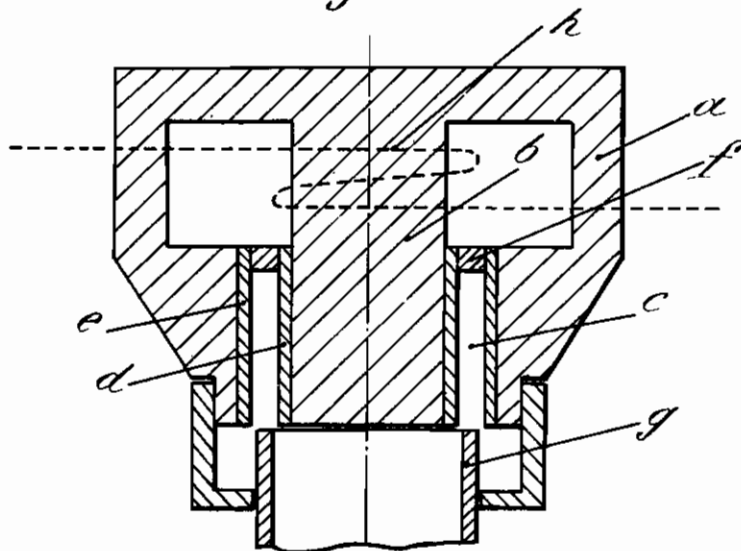
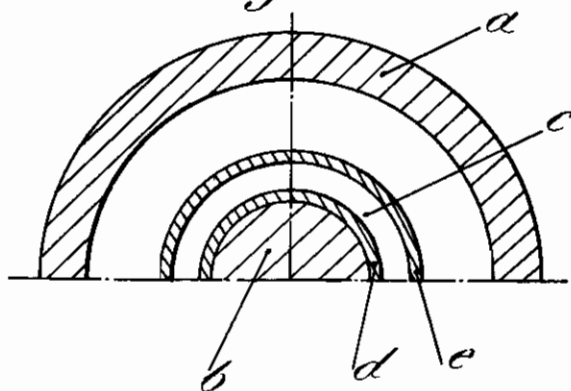


Fig. 2



Inventor.
Alfredo d'Arbela
by Linger, Ehler, Stou
Carlberg
Attorneys

ALIEN PROPERTY CUSTODIAN

INTERRUPTER OR ELECTRIC CURRENT INTERRUPTER AUXILIARY DEVICE WITH A COUNTER ELECTROMOTIVE FORCE GENERATOR

Alfredo D'Arbela, Firenze, Italy; vested in the Allen Property Custodian

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The aim of the present invention is the instantaneous obtainment in a circuit traversed by a continuous, alternating or pulsating electric current, the generation of a counter electromotive force adapted to give rise or facilitate the reduction or interruption of the current circulating through same, in such a manner as to enable the securing, according to the system of interrupters of relatively reduced dimensions, such as to completely insulate the breaking process from its surroundings.

The invention essentially concerns:

1. The fact that the metallic continuity of the circuit may, in a determined section thereof, be replaced by an arc at break, this arc being located within an empty intermediate space being plane, annular (circular or otherwise) in cross section, within which a magnetic field is created, whose direction is approximately normal to the side walls of the said intermediate space. Due to the effect of the said field, the arc is urged to move rapidly in a tangential direction, shifting points of contact with the electrodes, while, on its repeatedly re-traversing the annular space above alluded to, it imparts a continuous motion to the gaseous stratum contained within the intermediate space;

2. The fact that, due to the effect of the said movement within the magnetic field, there is generated in the column of electrically conducting gaseous substance constituting the arc, a counter electromotive force, proportional to the arc displacement velocity and to the intensity of field, which tend to impede the passage of the current, there by gradually limiting the value of same, and increasing to the point of occasioning the extinction of the arc, or else of greatly facilitating the interruption of the current at some other point of the circuit.

The entire process as described above takes place within an electrically insulated space, separated from the exterior.

The invention will be best understood from the following specification, together with the accompanying drawing, which shows, schematically and solely by way of example, one form of application of the said invention.

In the said drawing

Fig. 1 shows an electric current interrupter as embodied according to the system in longitudinal section;

Fig. 2 is a horizontal section of the same interrupter.

It is apparent from the drawing that a bell or petticoat *a* carries, centrally, a core *b*. Between the core and the internal walls of the cup or petticoat there is formed an empty intermediate space *c* being completely coated with insulating

material, viz: the core *b* is coated with refractory material *d*, or the like, and the inner walls of the bell or petticoat with refractory material *e* or some other suitable material.

At the upper part of the intermediate space, and comprised between the coalings or linings *c* and *d* there is located a ring *f*, in function of a contact. A tube-shaped element *g* of conductive material is destined to enter the intermediate space *c* in order to proceed to contact with the ring *f*.

Upon the iron core *b* and precisely about the upper portion of same, there are wound the turns *h* in function of a coil, supplied either independently or in series or in shunt on the circuit to be broken. It may be convenient to form the intermediate space *c* in the shape of a truncated cone, rather than in a cylindrical shape, when the device is intended to interrupt the current by extinguishing the arc generated in same with a view to promoting the secondary action of driving up the gaseous current, whose formation is due either to thermic effect, or to centrifugal force owing to rapid rotation.

Within the intermediate space *c* there is located on the detachment of the fixed and movable contacts *f* and *g* respectively, the break arc which remains between the said contacts, spaced apart due to the effect of a controlling device of any description (mechanical, electromagnetic, electro-pneumatic etc.). The radial magnetic field is originated due to the effect of the current traversing the exciting turns *h* wound about the iron core *b* whose annular intermediate space *c* represents the air-gap.

The thicknesses *e*, *d* protect the apparatus from the destructive action of the arc.

The said arc, located within the annular intermediate space, moves rapidly—in virtue of the magnetic field whose direction is approximately normal to the side walls of the above intermediate space—in a tangential direction shifting its points of contact with the electrodes, and re-traversing repeatedly the said annular space, while continuous motion is imparted to the stratum of gas in the intermediate space, so that, due to the said movement, and to the generation of the counter electromotive force, the value of the arc itself is limited to the point of the extinction of same.

It is understood that the drawing constituted but a schematic form of example, given solely by way of a practical showing of the invention, it being possible for said invention to be varied as to its forms and arrangements, without thereby departing from the informative concept upon which it is based.

ALFREDO D'ARBELA.