

G. HONOLD.
CONTACT TERMINAL FOR INTERRUPTING ELECTRIC CIRCUITS.
APPLICATION FILED FEB. 1, 1911.

1,047,524.

Patented Dec. 17, 1912.

Fig. 1

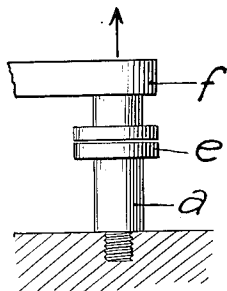


Fig. 2

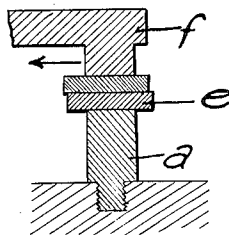


Fig. 3

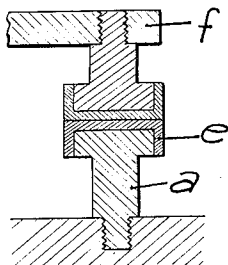


Fig. 4

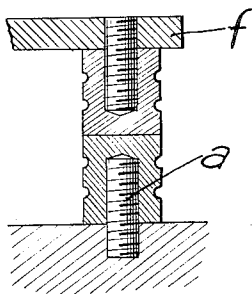


Fig. 5

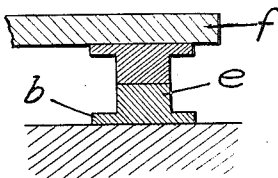
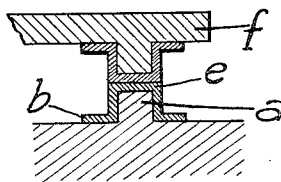


Fig. 6



WITNESSES:

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UNITED STATES PATENT OFFICE.

GOTTLÖB HONOLD, OF STUTTGART, GERMANY, ASSIGNOR TO THE FIRM OF ROBERT BOSCH, OF STUTTGART, GERMANY.

CONTACT-TERMINAL FOR INTERRUPTING ELECTRIC CIRCUITS.

1,047,524.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, GOTTLÖB HONOLD, a subject of the Emperor of Germany, residing at Stuttgart, Germany, have invented certain new and useful Improvements in Contact-Terminals for Interrupting Electric Circuits; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to contact terminals for interrupting electric circuits, and more particularly to one employed in devices for ignition of the gas mixture in combustion engines.

Upon interrupting an electric circuit there is produced at the place of interruption a spark having the nature of an arc, in consequence of which, in cases wherein the electrical energy stored in the circuit is to be utilized at a point other than the place of interruption, a large proportion of the energy is lost. This is especially true in the ordinary devices for the ignition of the gas mixture in combustion engines wherein the interruption of a circuit for the production of a high inductive effect at the place of ignition is employed. In fact, this difficulty is of such marked degree that the formation of the spark at the place of ignition in the engine cylinder is greatly interfered with or the spark greatly reduced in intensity.

As tests have shown, the formation of the arc at the place of interruption, is due to the fact that the arc travels along the interrupter contacts and burns the neighboring metal parts, whereby metallic vapors are produced and deposited upon the contact surfaces of the interrupter, so that these surfaces become coated with the oxidized metal until the formation and propagation of an arc is facilitated to an extraordinary degree.

The invention consists in forming the interrupter contacts from some metal that strongly resists oxidation, such as platinum or the like, and giving them such shape that the path along the platinum surface from the place of interruption to the supporting metal of more easily oxidizable nature is as long as possible, and is preferably interrupted by one or more sharp edges. In this manner the spark or arc forming at the

place of interruption is prevented from reaching the more easily oxidizable metal. In the devices of this kind heretofore used, the arc due to an interruption formed between the edge of the contact member and the closely adjacent support of brass or other easily oxidizable metal, in consequence of which the brass or other metal was heated until it generated a vapor which coated the contact surfaces.

In the accompanying drawings forming a part of this specification, Figures 1 to 6, show various modifications of contact terminals constructed in accordance with my invention.

In Figs. 1, 2 and 3, the contact member or head portion *e* of platinum or other metal strongly resisting oxidation is wider than the body portion *a* of brass or other metal of more easily oxidizable nature, in order to produce the desired result. In this way, the body portion is set back from the edge of the head portion, so that an arc must considerably lengthen in order to travel from the edge of the top portion to the body portion, which action is prevented by the fact that the distance between the head portions of the cooperating electrodes at the place of interruption is materially less than the arcing distance from either head portion to the support of the cooperating electrode.

The entire contact terminal may be made of platinum as in Fig. 1. Or it may consist of a head portion *e* of platinum extending outwardly of the body portion *a* of brass or the like and fastened thereto by solder or any other suitable means, as in Fig. 2. In the construction shown in Fig. 3, the platinum plate *e* covers the top and side of the head of the body portion *a* of brass. According to Fig. 4, the construction is changed in such a way that the brass body portion *a* is inclosed by a platinum sleeve in which grooves are turned for the purpose of further lengthening the platinum path and preventing the passage of the arc to the support. In Figs. 5 and 6, the desired result is secured by providing the platinum collar *b* for the raised portion of the contact surface *e*. In this case the entire raised portion comprising the contact member *e* and the collar *b* can be made of a solid piece of platinum as in Fig. 5; or, a properly shaped body portion *a* of cheap metal like

brass can be covered with a thin layer of platinum, shaped so as to form a contact member and a protecting plate, as shown in Fig. 6. The same idea may be used
5 whether the support *f* recedes from the contact member *e* as indicated in Fig. 1, or whether it slides along the surface of the contact member as indicated in Fig. 2, to
10 interrupt the electric circuit. In all cases the body portion *a* of each of the cooperating electrodes extends materially away from the support so that neither the body portion *a* nor the supports *f* of either electrode is
ever traversed by the arc.

15 Having thus described my invention, what I claim is:

A circuit interrupting device for ignition systems for internal combustion engines comprising relatively movable cooperating
20 electrodes of substantially the same shape and supports therefor of more easily oxidiz-

able metal, each electrode having a body portion extending materially away from its support, and a flat head portion of metal
25 strongly resisting oxidation extending outwardly from the body portion and clear of the support and shaped so that it includes a sharp edge in the path of an arc from the place of interruption of the circuit to
30 the support along the surface of the electrode and so that the distance between the head portions of the cooperating electrodes at the place of interruption is materially
35 less than the arcing distance from either head portion to the support of the cooperating electrode.

In testimony whereof I affix my signature, in presence of two witnesses.

GOTTLOB HONOLD.

Witnesses:

MAX ANSCHÜTZ,
REINHOLD ELWERT.