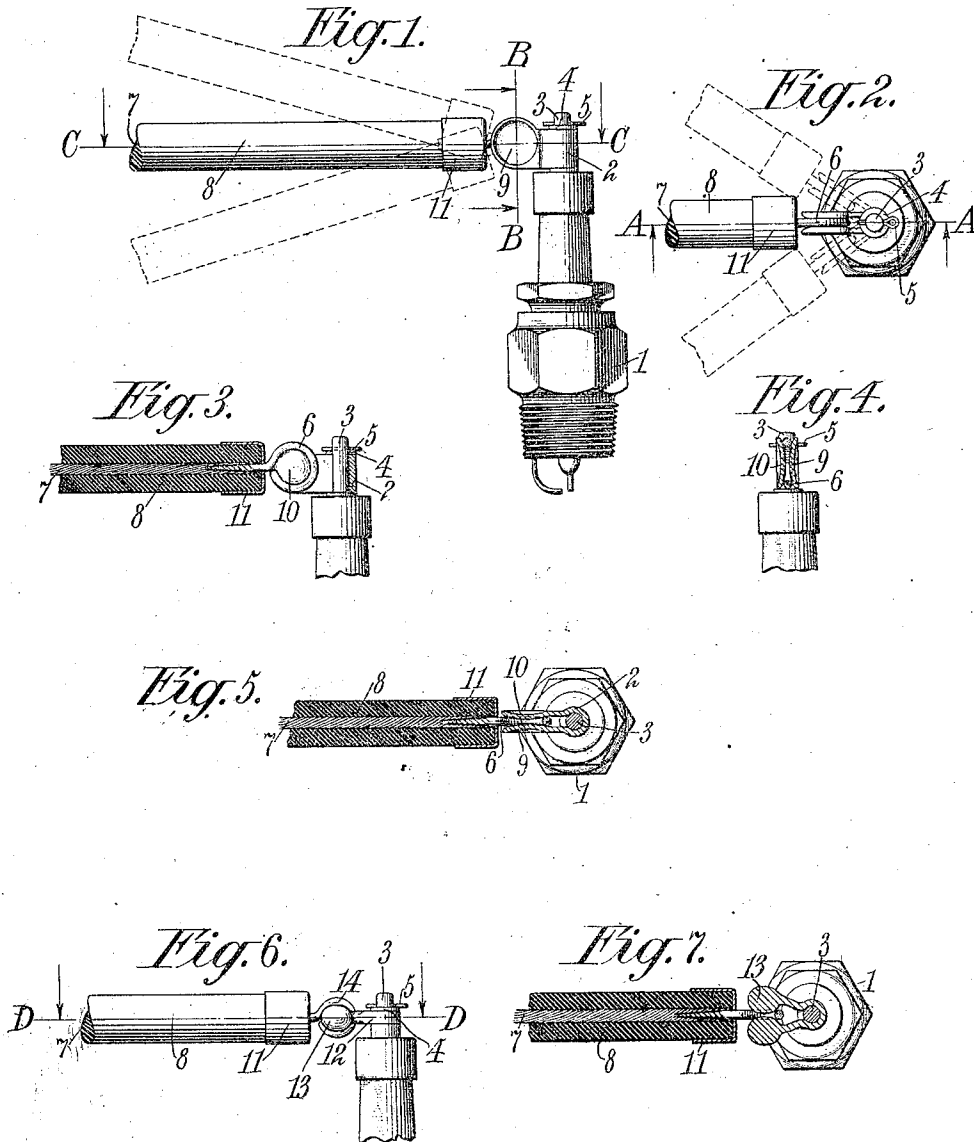


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 TERMINAL FOR ELECTRIC WIRES.
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Patented July 4, 1911.



Witnesses:
 Harry J. Fischer
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UNITED STATES PATENT OFFICE.

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TERMINAL FOR ELECTRIC WIRES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GUSTAVE L. HERZ, a subject of the Emperor of Austria-Hungary, and resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Terminals for Electric Wires, of which the following is a specification.

This invention relates to terminals for electric wires and more particularly for terminals for connecting secondary cables to the spark plug or other ignition device used in connection with an explosive hydrocarbon engine, with the object in view of providing a terminal having two members, one of which is adapted for firm but rotatable engagement with the ignition device, and the other of which is adapted for firm but removable engagement with the cable while the two are arranged for snap engagement with each other, which snap engagement is also very firm but rotatable in a plane at right angles to the place of rotation of the first-mentioned member on the ignition device.

Another object is to provide certain improvements in the form, construction and arrangement of the various parts whereby the above-mentioned objects may be effectively carried out.

Practical embodiments of my invention are represented in the accompanying drawings, in which—

Figure 1 represents a side elevation of the terminal illustrating its use in connecting a cable to a spark plug, the cable being shown in one position in full lines and in other positions in dotted lines, for illustrating the rotatable engagement between the two members of the terminal, Fig. 2 represents a top plan view of the same, the cable being shown in one position in full lines and in two other positions in dotted lines for illustrating the rotatable engagement between the terminal and the spark plug, Fig. 3 represents a section taken in the plane of the line A—A of Fig. 2, looking in the direction of the arrows, Fig. 4 represents a section taken in the plane of the line B—B of Fig. 1, looking in the direction of the arrows, Fig. 5 represents a section taken in the plane of the line C—C of Fig. 1, looking in the direction of the arrows, Fig. 6 represents a side elevation of a modified form showing the terminal connecting a cable to a spark

plug, and Fig. 7 represents a section taken in the plane of the line D—D of Fig. 6, looking in the direction of the arrows.

The spark plug, denoted by 1, in connection with which the application of this invention is illustrated, is of a conventional form and will not be described as it forms no part of this invention.

Referring now to the preferred form illustrated in Figs. 1 to 5 inclusive, the terminal comprises a yoke member 2, which is adapted to be rotatably mounted on the conducting wire 3 of a spark plug 1 and held in position against longitudinal movement thereon by the washer 4 and split cotter pin 5; and a screw-eye member 6 which is adapted to be screwed into the end of the wire proper 7 of an electric cable 8.

The yoke 2, as its name implies, is provided with a pair of arms, which arms have adjacent convex circular faces 9, 10. The yoke is composed of spring metal and is substantially flat in cross section, as is indicated in Fig. 3, except for the convex faces 9, 10.

The arms of the yoke 2 are shown as concavo-convex at their ends but the concave outside faces of these arms are immaterial so far as this invention is concerned.

The head or eye of the screw-eye 6 is about the same diameter as the convex faces 9, 10, of the yoke 2 and is fitted to be inserted between the arms of the yoke until its head or eye registers with the faces 9, 10, for forming a snap engagement between the screw eye member and the yoke member of the terminal.

The eye or head of the screw-eye member is composed of sufficiently thick wire so that the convex faces 9, 10, of the yoke will not come in contact with each other when the two parts of the terminal are in the snap engagement with each other just described. The reason for this provision is to insure a firm engagement between the yoke and screw-eye, which engagement might be very much weakened if the faces 9, 10, of the yoke abutted so as to exert upon each other their spring actuated tendency to come together.

The engagement between the head of the screw-eye 6 and the faces 9, 10, of the yoke is one which permits the screw-eye to rotate upon the faces 9, 10, in a plane at right angles to the plane of rotation of the yoke 2

about the conducting wire 3 of the spark plug. Thus a universal joint is provided between the cable 8 and the spark plug 1.

A cap 11 may be provided for finishing off neatly the end of the cable 8, which cap is provided with a centrally arranged aperture through which the shank of the screw-eye member 6 may pass when it is screwed into the wire 7 of the cable 8.

Referring now to the form shown in Figs. 6 and 7, the yoke member and the screw-eye member of the terminal are each mounted in their respective positions on the spark plug and on the cable in a manner similar to the form shown in Figs. 1 to 5 inclusive. The yoke, denoted in this form by 12, is more nearly square in cross section and is provided at the end of its arms with a pair of balls 13 which are shown as somewhat smaller in diameter than the convex faces 9, 10. These balls, as is indicated by their name, have a pair of adjacent convex faces which cooperate with the screw-eye member 14, shown in this form as somewhat smaller than the preferred form, in the same manner as has been described in connection with the form shown in Figs. 1 to 5.

The manner of using this terminal is as follows: The split cotter pin 5 and the washer 4 are removed from the conducting wire 3 of the spark plug 1 and the yoke member 2 is slid longitudinally to its seat on the conducting wire 3, when the washer 4 and split cotter pin 5 are replaced. The yoke is now firmly held against longitudinal movement on the conducting wire 3 but is free to rotate thereon. The cap 11 is applied to the end of the cable 8, as clearly indicated in Figs. 3, 5 and 7, and the screw-eye member 6 is passed through the central aperture in the cap 11 and is screwed home into the wire proper 7. Now, when it is desired to connect the cable and the spark plug, it is only necessary to force the head or eye of the screw-eye member 6 between the arms of the yoke 2 until the convex faces 9, 10, of the yoke register with the eye of the screw-eye, when the arms of the yoke will snap together as far as possible, thus producing a rotatable engagement between the screw-eye member 6 and the yoke member 2, which engagement may be broken at any time by merely pulling the

screw-eye out from between the arms of the yoke.

The use and operation of the form shown in Figs. 6 and 7 are the same as of the form shown in Figs. 1 to 5 inclusive. This device is extremely simple and easy to manufacture while, at the same time, it provides an arrangement between the electric cable and ignition device which is firm to a degree not heretofore attained by snap terminals and which engagement is of an universal joint character, thus permitting the cable to be swung in any direction whatever about the ignition device without having the faintest tendency to weaken the electric contact between the cable and the ignition device.

While I have illustrated and described this device as used in connection with an electric ignition device, viz; a spark plug, I do not wish it to be understood that I intend to limit my invention to this particular use, as it is well adapted for use in connecting an electric cable to many articles which are not ignition devices, such, for instance, as magnetos, electrically operated horns, etc.

It is evident that slight changes might be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of this invention; hence I do not wish to limit myself strictly to the structure herein set forth, but

What I claim is:—

1. A terminal comprising a spring yoke fitted to be attached to an article and a screw-eye, the said yoke being provided with arms having convex adjacent faces for snap engagement with the screw-eye.

2. A terminal comprising a spring yoke fitted to be rotatably attached to an article and a screw-eye, the said yoke being provided with arms having convex adjacent faces for rotatable snap engagement with the screw-eye.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this seventh day of February 1910.

GUSTAVE L. HERZ.

Witnesses:

F. GEORGE BARRY,
HENRY C. THIEME.