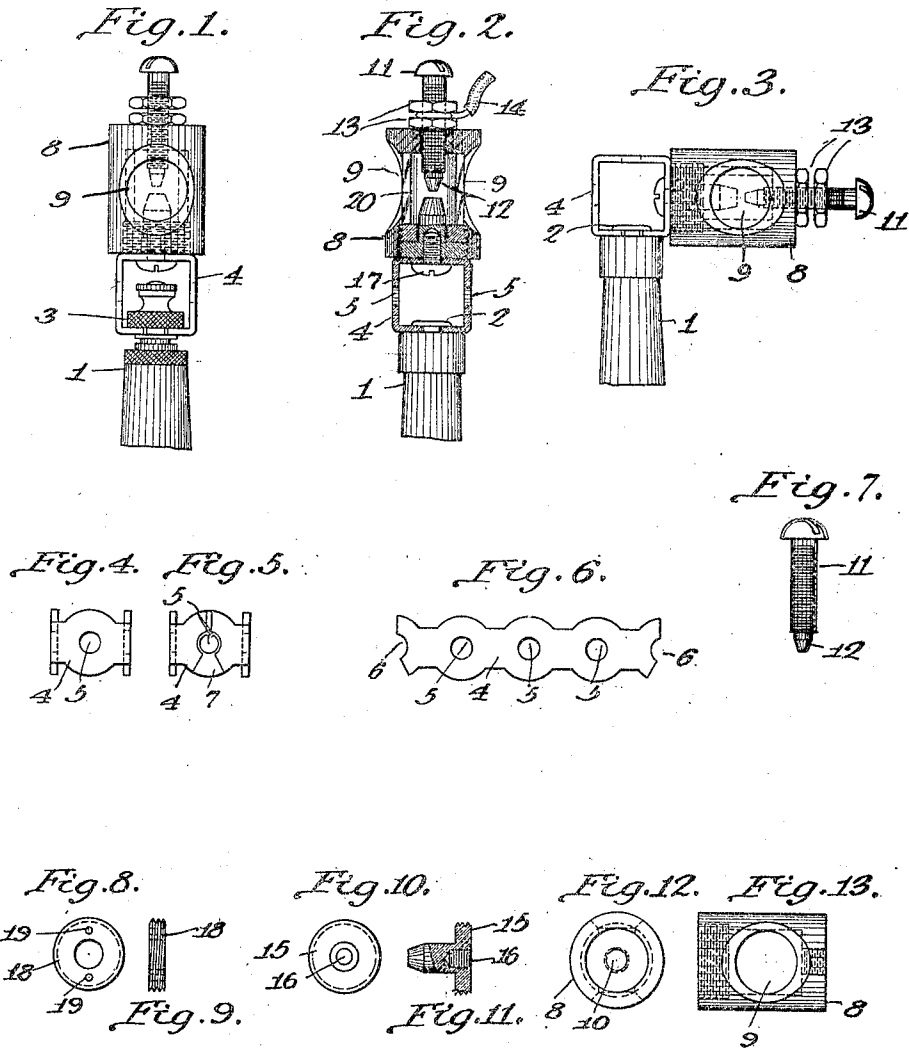


E. STIRNKORB.
 SPARK INTENSIFIER FOR SPARK PLUGS.
 APPLICATION FILED APR. 10, 1912.

1,057,186.

Patented Mar. 25, 1913.



WITNESSES:

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SPARK-INTENSIFIER FOR SPARK-PLUGS.

1,057,186.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed April 10, 1912. Serial No. 689,836.

To all whom it may concern:

Be it known that I, EUGENE STIRNKORB, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Spark-Intensifiers for Spark-Plugs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in spark intensifiers for spark plugs employed in motor vehicles and like purposes. It is well known that in a device of this character the principal difficulties are found in preventing a short circuit from the jarring action of the vehicle upon which the device is employed, and in mounting the device upon the spark plug in the limited vehicle space found in some motor vehicles.

The primary object of my present invention is to provide an improved spark intensifier in which a short circuit is impossible, and which is adapted to be readily mounted on the spark plug in either a vertical or horizontal position to suit the location in which it is used, and also having a novel form of spark plug screw which materially increases the efficiency of the spark gap.

The principal novel features of my present invention reside in the means for securing the device in position; and the means for securing the insulating glass tube which insulates the spark gap; and in the construction of the spark plug screw which forms one of the spark points of the said gap.

My invention consists in the combination of a sheet metal clasp for uniting the spark intensifier to the supporting plug, and capable of such an adjustment thereon as to admit of anchoring the intensifier either in alinement with its support or at right angles thereto; a cylindrical shield having openings at its two opposite sides and formed of wood fiber or other proper insulating material; a spark point mounted in the lower end of the shield; means for securing the same to the said clasp; a glass tube mounted in the cylindrical casing and rigidly secured in position therein; and a novel form of spark point screw adjustably mounted in

the upper end of the casing in alinement with the lower spark point and provided with means for securing one end of the current conducting point thereto.

Similar reference numerals indicate like parts in the several views of the drawing in which—

Figure 1 is a view in elevation of my invention mounted in position on a spark plug partly broken away showing the general arrangement of the operative parts. Fig. 2 is a vertical central section of the same showing the construction of the lower spark point and means for securing the glass tube in position. Fig. 3 is a view in elevation showing the relative arrangement of my invention when adjusted in a right angular position relative to the spark plug. Fig. 4 is a detail of the clasp for uniting my invention to a supporting plug and Fig. 5 is a detail of the same taken at right angles to Fig. 4, showing the opening by means of which it is secured in position. Fig. 6 is a detail of the spring metal blank from which the clasp is formed. Fig. 7 is a detail of my novel form of spark-point screw. Fig. 8 is a side view of the lock-nut for the base of the shield and Fig. 9 is an edge view of the same. Fig. 10 is a detail of the lower screw forming the spark point, and Fig. 11 is a view of the same partly in cross-section. Fig. 12 is a lower end view of the insulating shield, and Fig. 13 is a side view of the same.

Referring now particularly to Figs. 1, 2 and 3, the spark plug 1 is of any proper construction, and has any suitable top 2 consisting of a short neck and enlarged circular upper end, as shown in Figs. 2 and 3, or it may consist of a thumbscrew 3 or any other suitable means to form an anchorage for the intensifier. The means for uniting the intensifier to its anchorage consists of a spring metal plate 4, Fig. 6, having three lateral screw openings 5 therein and having its opposite ends provided with a semi-circular recess 6 adapted to form a circular opening when the plate 4 is bent into rectangular form, as shown in Figs. 1, 2 and 3, to form the completed clasp. When the clasp is thus formed the opening formed by the recesses 6 has a flaring lateral opening 7, Fig. 5, to aid in placing the clasp in position in the manner hereafter described.

The insulating shield 8 has opposite lateral

openings 9 to afford an unobstructed view of the inclosed spark gap, and has its upper end provided with a screw threaded opening 10 in which the spark point screw 11 is adjustably mounted. The screw 11 has its lower end reduced in cross-section and provided with a frusto-conical point 12, Fig. 7. On the outer portion of this screw are mounted the nuts 13 between which the adjacent end of the leading in wire 14 is secured in the usual manner. The lower end of the shield 8 is internally screw-threaded, and is closed by the screw plug 15 which fits the said opening by a screw-threaded connection, and has a central screw-threaded opening 16 to receive the screw 17 which secures the said shield rigidly to the outer face thereof, when the said plug is in position in the shield.

Directly above the circular head of the plug 15 is arranged an externally screw-threaded nut 18 which fits the lower end of the shield by a screw-threaded connection, and which is preferably provided upon its lower face with a pair of diametrically opposite lateral recesses 19 for the use of a proper tool for rotating the same to and from its position. In the shield 8 is arranged the usual insulating glass tube 20 whose upper end bears firmly against the lower face of the upper head of the shield, and whose lower end rests upon the upper face of the nut 18, as shown in Fig. 2.

The operation and manner of employing my invention thus described is obvious and briefly stated is as follows: When it is more convenient to mount the intensifier in alignment with the supporting plug, because of the location in which it is used, the operator secures the clasp 4 to the base of the plug 15 by means of the screw 17 which is passed through the central opening 5 of Fig. 6, thereby leaving the opening formed by the recesses 6 on the lower side of the clasp. As this opening is formed by the free ends of the clasp which can readily be sprung apart it can conveniently be secured in position on the plug or detached therefrom. To facilitate the placing of the clasp in position on the screw 2 or plug 3 the clasp is provided at one edge of the meeting ends with a cut-away portion 7, as shown in Fig. 5.

When it is desired for want of vertical space to arrange the intensifier in a horizontal position, or a right angular relation to the spark plug, as shown in Fig. 3, the operator arranges the clasp on the base of the intensifier with the meeting ends of the clasp upon the lower side thereof, and correspondingly changes the screw 17 to one of the other openings 5. By this construction it is obvious that the intensifier can be arranged in either a vertical or horizontal

position with equal facility and effectiveness. When the current is supplied to the leading-in wire 14 it passes through the screw 11 and thence across the gap to the plug 15, and then completes the circuit in the usual manner through the clasp 4.

By the use of the nut 18 the glass tube 20 is firmly held in position against the jarring motion to which it is subjected in use, and the frusto-conical form of the spark gap point of the screw 11 greatly increases its efficiency as shown by numerous tests.

Having thus described my invention and the manner of employing the same what I desire to secure by Letters Patent is:

1. A spark intensifier for spark plugs consisting of a spring metal clasp provided with aperture in the sides thereof and having its meeting ends cut away as described; an insulating shield having an internally screw-threaded base and openings in two opposite sides thereof; a circular nut having a central opening and arranged in the base of the shield; a screw-plug arranged in the base of the shield and passing through the opening in the said nut; a glass tube arranged in the shield and secured therein by the said nut; and a screw adjustably mounted in the upper end of the shield and provided with a frusto-conical point in cooperative relation with the adjacent end of the said plug to form a spark gap.

2. A spark intensifier consisting of an insulating shield having opposite openings in the sides thereof and an internally screw-threaded base; a screw having a frusto-conical point adjustably mounted in a central opening in the outer end of the shield; a glass tube arranged in the shield and secured therein by an externally screw-threaded nut or disk having a central opening therein; a screw-plug mounted in the lower end of the shield and having its tapering inner end arranged in cooperative relation with the said screw to form the spark gap; and a spring metal clasp whose meeting ends are laterally recessed and cut away, as described, and adapted to engage a suitable anchorage on its support.

3. In a spark intensifier an adjustable means for uniting the intensifier to its support in either an aligned or an angular relation, and consisting of a spring metal clasp laterally apertured and having its meeting ends recessed and cut away as described.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 4th day of April, 1912.

EUGENE STIRNKORB.

Witnesses:

WILLIAM H. HOLZWARTH,
HELEN DENNY.