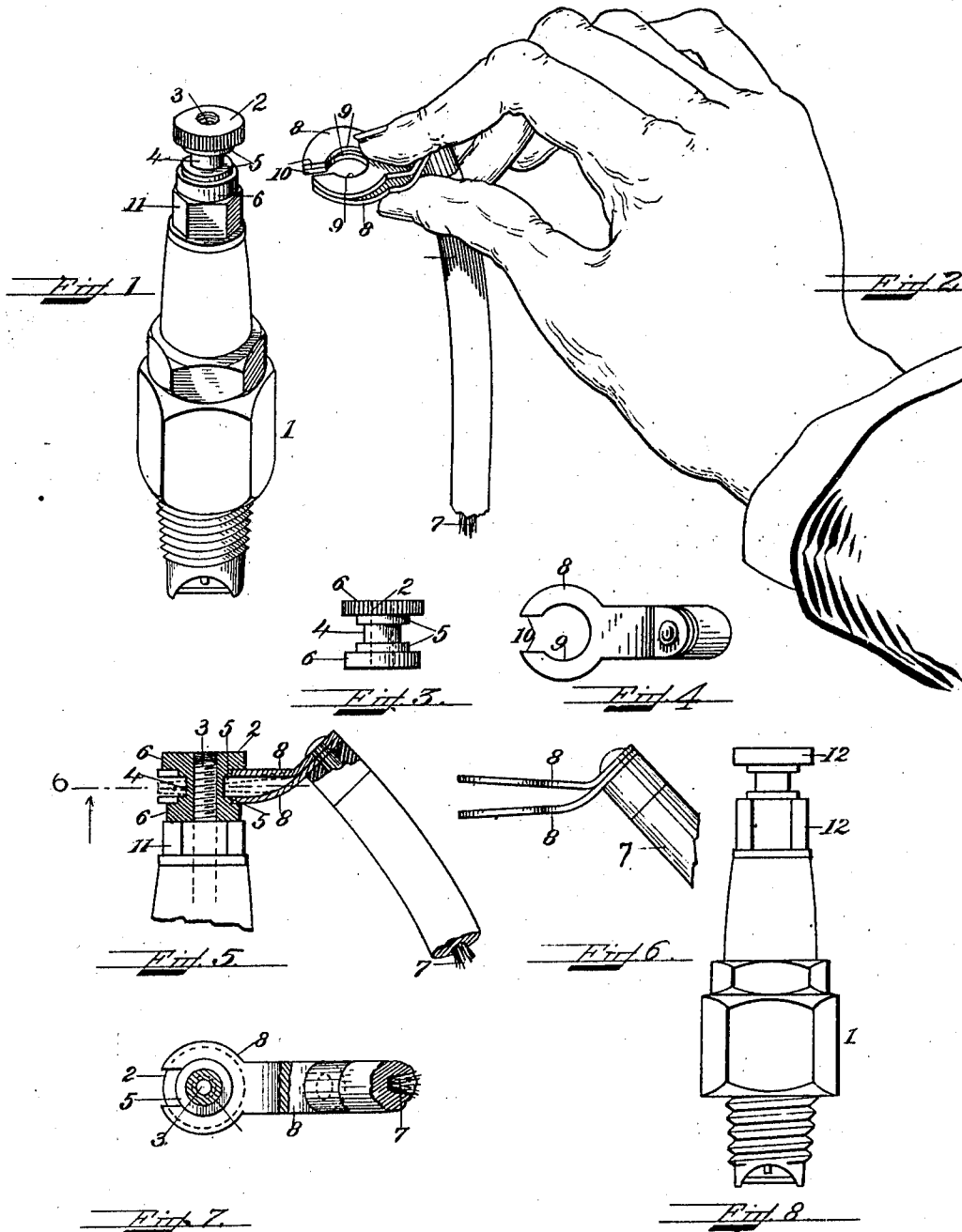


J. O. HEINZE, JR.
 LOCK SNAP CONTACT FOR MAKING ELECTRICAL CONNECTIONS.
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1,039,392.

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UNITED STATES PATENT OFFICE.

JOHN OTTO HEINZE, JR., OF LOWELL, MASSACHUSETTS.

LOCK-SNAP CONTACT FOR MAKING ELECTRICAL CONNECTIONS.

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1,039,392.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed December 13, 1910. Serial No. 597,031.

To all whom it may concern:

Be it known that I, JOHN OTTO HEINZE, Jr., a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Lock-Snap Contacts for Making Electrical Connections, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide for a high tension wire and an electrical element, say a spark plug, a secure and quickly operated slip connection.

In the drawings illustrating the principle of my invention, and the best method now known to me of embodying the same in operative structure, Figure 1 is a perspective view showing one feature of my invention; viz. a stepped-cone head for the high tension terminal of a spark plug. Fig. 2 is a similar view showing a further feature residing in a compressible spring lock-clip, to engage the head shown in Fig. 1. Fig. 3 is an elevation of the head. Fig. 4 is a plan view of the clip. Fig. 5 is a longitudinal section of the head and clip when in operative engagement. Fig. 6 is an elevation of the clip, in Fig. 5. Fig. 7 is an under plan of what is shown on section line 6, Fig. 5. Fig. 8 is an elevation of a modified form of head.

An electrical element 1, say a spark plug for an internal combustion engine, has a spool shaped external metallic contact nut 2, threaded upon its high tension terminal wire 3. This nut 2, Fig. 3, has two opposite series of cylindrical offsets or steps, the smallest step 4, being common to both series and forming what may be termed the spindle; the next larger steps 5, 5, the lock-steps; while the largest steps 6, 6, may be called the shoulder-steps; all of which clearly appear in Figs. 1, 3 and 5.

An insulated high tension wire 7, Figs. 2 and 5, as from a magneto, is provided with a slip spring terminal, comprising a pair of C shaped metal contact plates 8, 8, the rear portions of which are secured to the high tension wire 7, in any suitable way, for example, that shown in Figs. 4 and 5. These two plates 8, 8, when held in operative position, see Fig. 5, are substantially parallel; and they have therein, in alinement, two side openings, each of which is formed by a circular hole 9 and an entrance or mouth 10

connecting it with the outside edge of its respective plate 8. The width of these entrances 10, and the diameter of the circular holes 9 correspond with the diameter of the spindle 4 of the spool, and the diameter of the next larger pair of steps, i. e. lock-steps 5, 5; hence the distance between the metal plates 8, 8, Fig. 5, when they are substantially parallel, equals the length of the spindle 4, or the distance between the lock-steps 5, 5. Normally, if the contact plates are not in use, they are not parallel but are at an acute angle, as shown in Fig. 6.

Figs. 1 and 2 illustrate how the electrical connections may be made. By pressing the plates 8, 8, together with the fingers, the mouths 10, 10, of the openings permit the passage of the spindle 4 of the spool into the circular portions 9, 9, and upon the release of the compressed plates, they spring outward, embrace the circular lock-steps of the head, as is clearly shown in Fig. 5, and are arrested by the parallel faces of the shoulders 6, 6; the spring plates 8, 8, and the spark plug 1 becoming securely locked together in electrical contact, because the diameter of the lock-steps 5, 5, is greater than the width of the mouths 10, 10, of the openings, as appears in Figs. 3, 4, 5 and 7.

To unlock the connections, the plates 8, 8, Figs. 2 and 5, are pressed together, as indicated in dotted lines, in Fig. 5, become disengaged from the lock-steps 5, 5, and the horns of the plates, which now embrace the common step or spool 4, may be pulled away from the plug, for the reason that the mouths 10, 10, of the openings and the diameter of the common step or spool are the same; the severed parts taking the positions shown in Figs. 1, 2 and 6.

In order that a spark plug, employing the common binding nut 2 for wire connection, may use my lock snap plates, these lock steps may be cut in the binding nut, as already explained; or, in case it is desirable to use only my style of spring connection, then the binding nut 2 and the terminal nut 11, shown in Figs. 1 and 5, may be made in a single piece 12 embodying the modification illustrated in Fig. 7.

Desiring to protect my invention in the broadest manner legally possible, what I claim is:—

A spool shaped metallic terminal provided with steps, for an electrical element; a pair

of spring plates compressible toward each other and connected to a high tension wire, each plate having a side opening designed to permit the plate to be moved into position and embrace one of the steps; the mouths of these openings, being in width larger than the diameter of the spool but smaller than the diameter of the steps; and shoulders outside of the steps to limit the

opening movements of the spring plates in the direction of the axis of the spool.

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

JOHN OTTO HEINZE, JR.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."