

June 14, 1932.

G. M. WRIGHT ET AL

1,862,876

CONNECTER HOUSING

Filed Nov. 23, 1928

*Fig. 1*

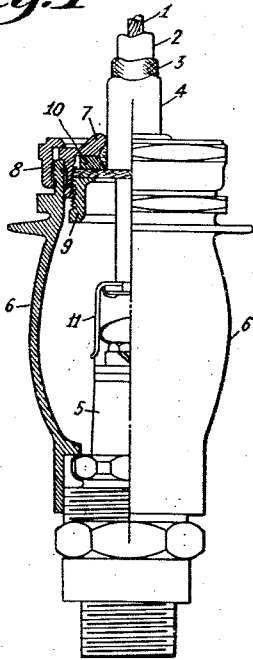


*Fig. 2*

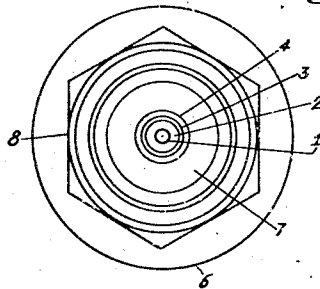


*Fig. 5*

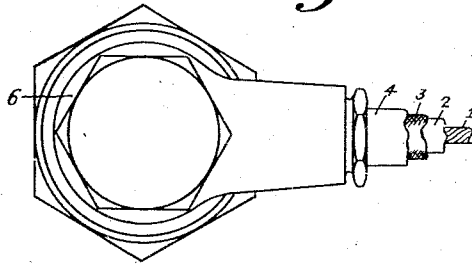


*Fig. 3*

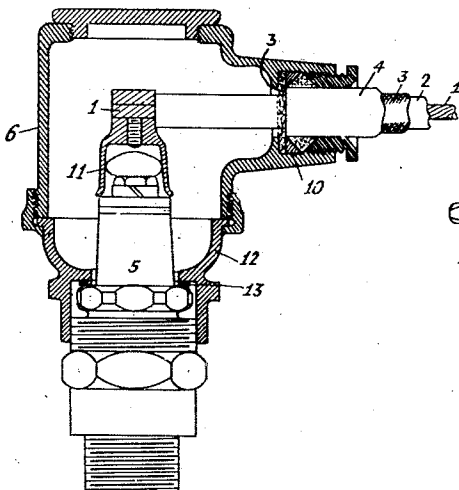
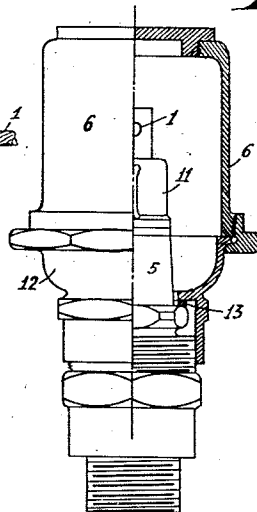


*Fig. 4*



INVENTOR  
GEORGE MAURICE WRIGHT  
BY SIDNEY BERTON SMITH  
*George M. Wright*  
ATTORNEY

# UNITED STATES PATENT OFFICE

GEORGE MAURICE WRIGHT, OF GREAT BADDOW, CHELMSFORD, AND SIDNEY BERTRAM SMITH, OF GORDONVILLE, CHELMSFORD, ENGLAND, ASSIGNORS TO RADIO CORPORATION OF AMERICA, A CORPORATION OF DELAWARE

## CONNECTER HOUSING

Application filed November 23, 1928, Serial No. 321,302, and in Great Britain December 5, 1927.

This invention relates to ignition systems for use in internal combustion engines, and has for its principal object to provide an improved ignition system which shall be effectively screened and thereby substantially prevented from interfering with radio apparatus which may be located in the neighbourhood of the said system. While not limited to its application thereto, the invention is particularly adapted for use on aircraft, where, as is well known, the interference with radio apparatus by the engine ignition system presents a considerable problem.

In a properly constructed ignition system to be used on aircraft the ignition leads and sparking plugs must be screened in such a manner as to enclose all electromagnetic and electrostatic disturbances set up thereby in the operation thereof. Furthermore, such ignition systems and screening therefor must be constructed and arranged in such a manner as to be waterproof, otherwise water is liable to run into the sparking plug screen and may short-circuit the plug.

The present invention has for its object to provide a screening system which electrically completely screens the ignition system and which is weatherproof.

According to this invention an ignition screening system comprises one or more weatherproof metal screens for the sparking plug or plugs and/or magneto or the equivalent thereof, and a lead or leads comprising a metal screening covered by weatherproof insulation, the arrangement being such that the connection between a screening and a plug and/or magneto screen is made within said screen into which the lead enters in a watertight manner.

The invention is illustrated in the accompanying drawing in which Figure 1 shows in half section and Figure 2 in plan one form of construction, while Figures 3, 4 and 5 show in sectional elevation, half sectional elevation and plan, respectively, a modified construction.

Referring to Figures 1 and 2, an ignition lead comprises a central conductor 1, insulation 2, metal screening braid 3 (for example, tinned copper) and outer weatherproof in-

sulation 4. 5 is a sparking plug which is encased within a screen 6 which will be referred to as the body member, and which is "earthed" and held in place as shown by threading at its base on to the body of the spark plug. The ignition lead enters the screen 6 at its top through a watertight joint comprising a removable gland housing 7, a union nut 8, a gland nut 9 and a gland ring 10. The gland ring 10 also serves as an "earth" bonding ring, and is connected, as shown, to the braiding 3 which is bared inside the screen 6. The ignition conductor 1 is connected to the insulated electrode of the sparking plug by means of a contacting piece 11, which may conveniently be of phosphor bronze. This water-proof joint also serves as a closure member for the screen 6.

The modification shown in Figures 3, 4 and 5 differs from that shown in Figures 1 and 2 principally in that the ignition lead enters the plug screen from the side through a water-proof joint in the body 6 instead of from the top.

In the said Figures 3, 4 and 5, parts corresponding to parts shown in Figures 1 and 2 are indicated by like reference numerals.

12 is a detachable base member threaded on the spark plug base and 13 a copper washer. The body member is retained in position on the base member 6 by means of a union nut 14.

To completely enclose the spark plug yet to permit easy access thereto, a cap member 15 is threaded into the body member 6.

In applying the invention to an ignition system, a suitable screen should be provided over the magneto and the ignition conductor or conductors led thereto through a watertight gland arrangement similar to those employed in the sparking plug screen or screens.

Having now fully described and illustrated our invention, we claim:

1. Metallic shielding apparatus for preventing electrical disturbances from being radiated from electrical conductor connectors, including a metallic cup shaped base member connected with one of said conductors and supported thereby, said base member being enlarged at its free end and

- terminating in a flange, a metallic shell-like body member adapted to be seated on said base member, threaded means for retaining said body member on said base member, a closure member threaded to said body member, and means comprising a water-proof joint in said closure member for permitting another of said conductors to be connected with said first named conductor.
- 10 2. Metallic shielding for electrical conductor connections comprising, a metallic cylindrical shaped base member threaded to one of said conductor members, said base member being enlarged at the free end and terminating in a flange, a cylindrical metallic body member adapted to be seated on said flange, threaded means for retaining said body member on said flange, a metallic closure member threaded in said body member, and means for permitting electrical connection to be made between another conductor and said first named conductor including, a water-proof joint in said closure member, said joint comprising a water-proof gland through which said other conductor may be passed.
3. A metallic shielding for electrical conductor connections comprising, a hollow shell-like member threaded to one of said conductors, said shell-like member flanging upwardly and having heat radiating corrugations thereon, an annulus shaped member adapted to fit into the open end of said shell-like member, said annulus member having an opening through which another conductor may be passed, compressible material interposed between said conductor and said annulus shaped member, a threaded member for retaining said annulus shaped member in said shell-like member, and additional threaded means for applying pressure between said compressible substance and said other conductor to produce a water-proof joint.

GEORGE MAURICE WRIGHT.  
SIDNEY BERTRAM SMITH.

50

55

60

65