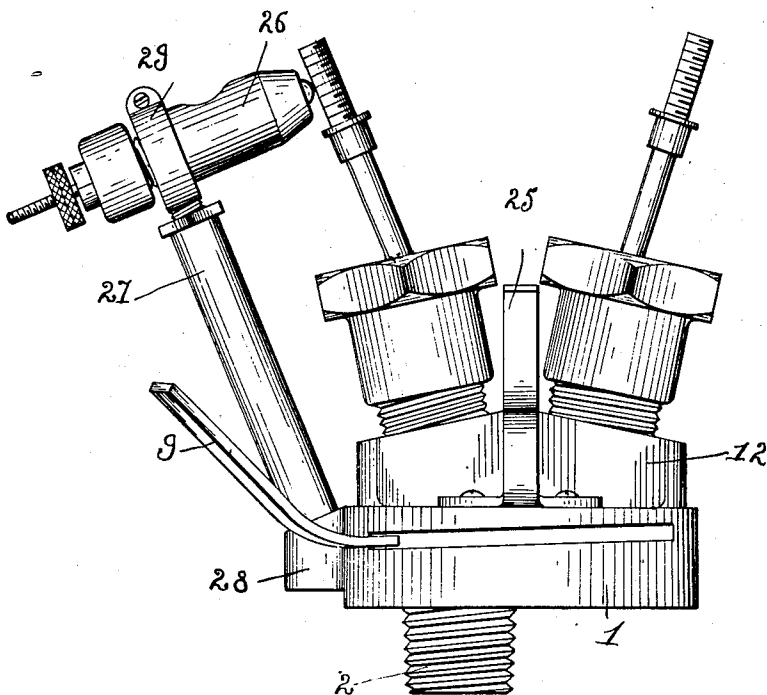
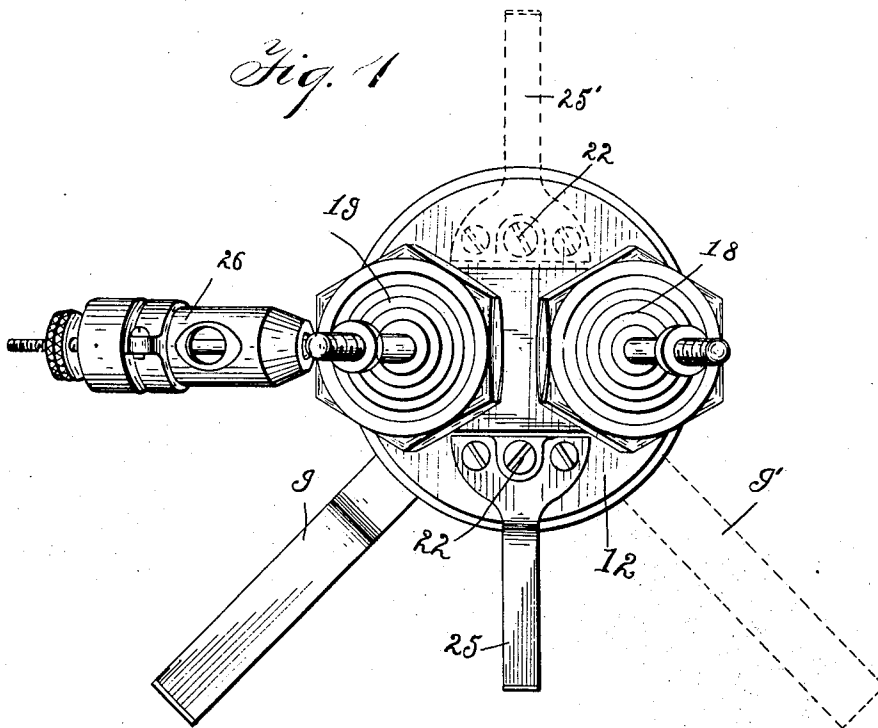


1,024,819.

3 SHEETS—SHEET 1.



Witnesses

C. E. Kumpfer
S. M. Gullerick

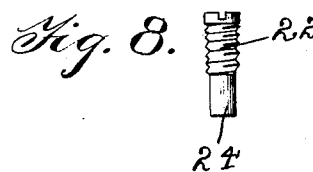
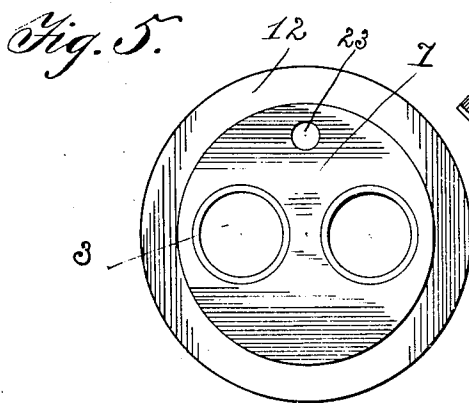
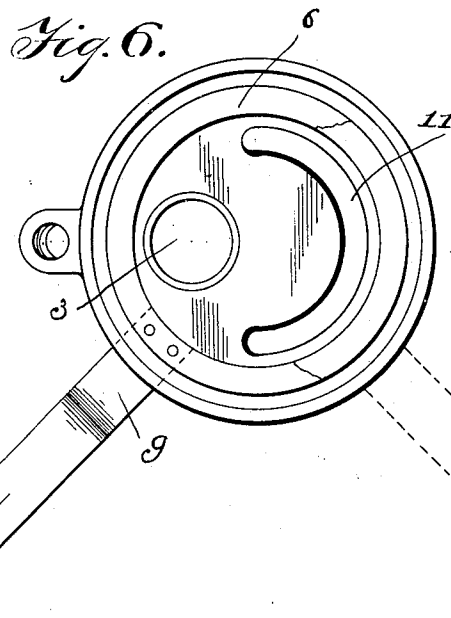
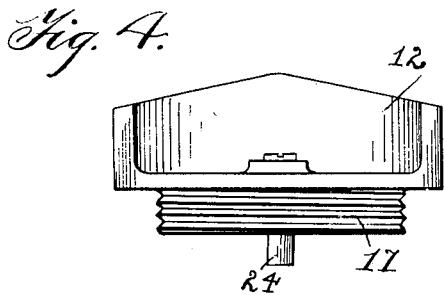
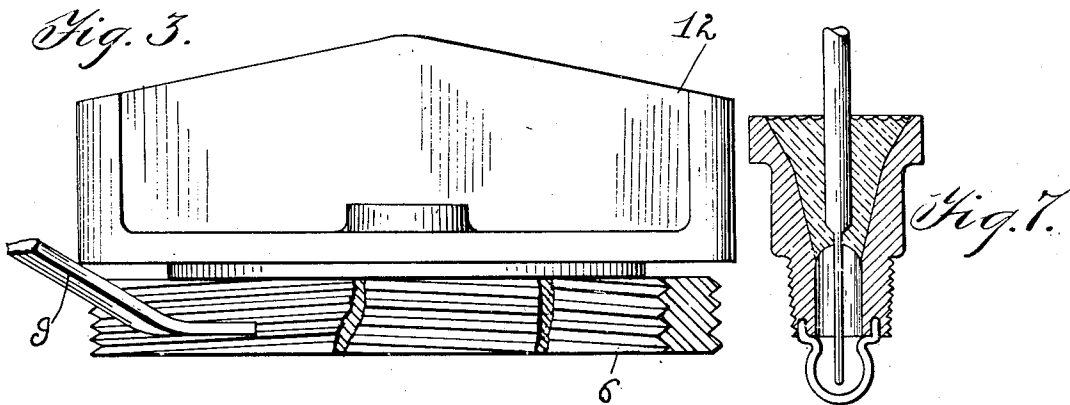
Inventor
E. H. Benn
atw. J. Waddell & Co.
Attorney

E. H. BENN.
SPARK PLUG HOLDER AND SPARK INDICATOR.
APPLICATION FILED NOV. 29, 1910.

1,024,819.

Patented Apr. 30, 1912.

3 SHEETS-SHEET 2.



2 Witnesses

C. E. Kemper
L. M. Lillie

Inventor

E. H. Benn
Att. J. W. Edwards

Attorney

E. H. BENN.
SPARK PLUG HOLDER AND SPARK INDICATOR.
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1,024,819.

Patented Apr. 30, 1912.

3 SHEETS—SHEET 3.

Fig. 9.

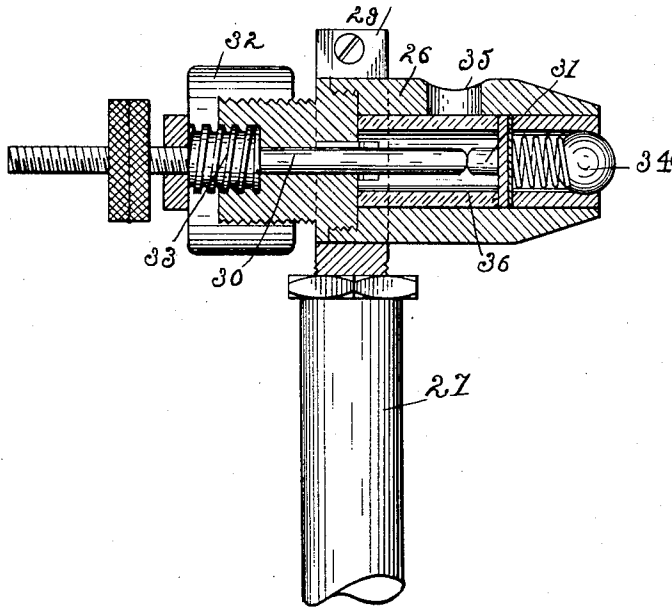
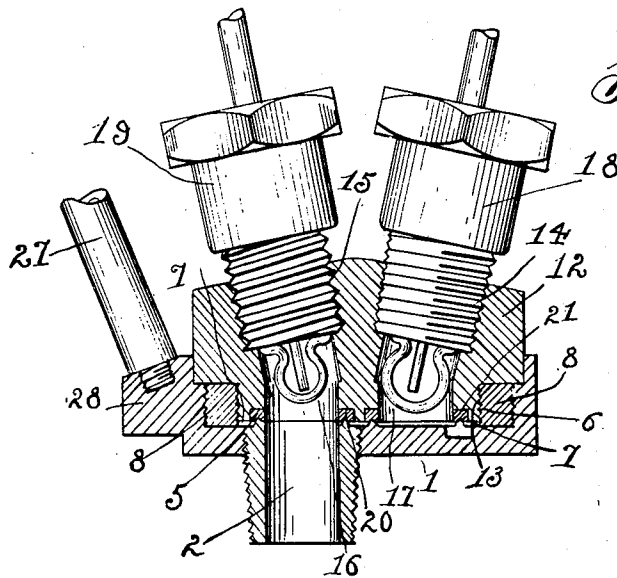


Fig. 10.



Witnesses

C. E. Pender
E. M. Gilmartin

Inventor

E. H. Benn
att. f. W. H. Benn

Attorney

UNITED STATES PATENT OFFICE.

EDWARD HARRON BENN, OF WEYMOUTH, MASSACHUSETTS.

SPARK-PLUG HOLDER AND SPARK-INDICATOR.

1,024,819.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed November 29, 1910. Serial No. 594,797.

To all whom it may concern:

Be it known that I, EDWARD HARRON BENN, citizen of the United States, residing at Weymouth, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Spark-Plug Holders and Spark-Indicators, of which the following is a specification.

This invention relates to improvements in a combination spark gap and double ignition spark plug holder, and one of the objects of the invention is to combine a spark gap and contact points.

Another object of the invention is to produce a double ignition plug holder by means of which absolute certainty of proper ignition may be obtained from either a coil or magneto.

Another object of the invention is to produce an ignition plug which may be changed instantly from a starting or slow speed plug to a high speed plug with a minimum loss of power.

With the above and other objects in view, I have invented the device illustrated in the accompanying drawings in which—

Figure 1 is a top plan view of my improved spark plug holder, Fig. 2 is a side elevation thereof, Fig. 3 is a detail elevation of a reversible plug holder, having a wedging ring thereon, Fig. 4 is a view similar to Fig. 3 with the wedging removed, Fig. 5 is a bottom view of Fig. 4, Fig. 6 is a top plan view of a plug holder body, Fig. 7 is a vertical sectional view of one of the spark plugs, Fig. 8 is a detail of a screw guide plug, Fig. 9 is an enlarged longitudinal sectional view of a spark gap, and Fig. 10, is a vertical cross sectional view of the spark plug holder showing the spark plugs in elevation.

Like reference characters indicate like parts throughout the specification and in the several views in the drawings in which 1, is a spark plug holder body having a screwthreaded bushing 2, screwed into an opening 3, in the bottom thereof, and is the means by which the device is secured to an engine. This bushing projects slightly above the inner bottom surface of the holder body as indicated at 5. A wedging or locking ring 6, having its inner surface provided with right-hand screw threads 7, and its outer surface provided with left-hand screw threads 8, is screwed into the body 1, and a wrench handle 9, is fixedly secured

thereto, this handle passing through an angularly disposed slot 10, in one side of the body 1.

In the bottom of the body a groove 11, is provided the purpose of which will later be explained. A reversible spark plug holder 12, is adapted to set snugly into this body 1, this holder having a screwthreaded reduced portion 13, which is adapted to screw into the inner screwthreaded portion 7, of the ring 6, and be held in place in the body 1, thereby. A pair of angularly disposed screwthreaded openings 14, and 15, which are vertical at the lower ends 16, and 17, are adapted to have screwed therein spark plugs 18, and 19. Fitted in sockets around the lower part of the vertical portion of the openings 14, and 15, are gaskets 20, and 21, which when swung over the portion 5, of the bushing 2, and pressed thereagainst will seal the connection between the passage through the bushing and the passage to the spark plug thereover, thus preventing fouling of the plug not in use. A screw plug 22, passes through the opening 23, in the plug holder 12, and the smooth end 24, engages the groove 11, in the body 1, and limits the movement of the plug holder to a half revolution in either direction. A handle 25, is secured to the member 12, by means of which said member may be readily revolved and when the plug desired is in contact with the spark gap 26, which is supported by a post 27, mounted on a lug 28, on the body 1, the handle 9, is pushed from one end of the slot 10, to the other end thereof, thus causing the ring 6, to operate against the screwthreaded portion of the body 1, and the screwthreaded portion of the spark plug holder conjunctively in different directions thus binding or locking the members in a fixed position, and a reversal of the handle 9, will again loosen the members so that they may again be readjusted. The spark gap 26, is mounted on the post 27, by a clamping ring 29. The upper contact rod 30, is rubbed toward or away from the lower contact rod 31, by means of the thumb screw 32, which operates the screw 33, on the contact rod 30. The spring operated ball contact 34, carries the charge to the spark plugs 18, or 19. 35 is a peep sight through the means of which the length of the spark may be readily adjusted, and 36, is a glass for the peep sight inclosing the spark gap.

In using this device in connection with both magneto and battery the coil can be used to start the engine and the magneto will take care of it after speed is attained and in such an instance the second plug will act as an auxiliary in case of ignition trouble from carbonizing, fouling, etc. By means of this double plug arrangement it may be readily ascertained if the plug is at fault in case of trouble arising, by merely shifting the plugs. The plug that is not in actual use is in an air and gas tight chamber, thereby keeping it clean and dry and in perfect condition for use when desired. It is not necessary to stop an engine to change from one plug to another and new plugs can be mounted on the plug holder at any time without stopping the engine.

Having now described my invention, that which I claim to be new and desire to procure by Letters Patent is:

1. In combination with a spark indicator, a spark plug holder, means for locking said spark plug holder in a rigid position, said spark plug holder consisting of a body portion having a rotatable member mounted thereon to hold a pair of spark plugs in an oppositely inclined position, means for limiting the movement of said rotatable member.

2. In combination with a spark indicator, a spark plug holder, means for locking said spark plug holder in a rigid position, said spark plug holder consisting of a body portion having a rotatable member mounted thereon, said member adapted to hold a pair of spark plugs in an oppositely inclined position, means for limiting the movement of said rotatable member, said locking means consisting of a ring having oppositely screw-threaded portions on its inner and outer surface, said outer screw-threaded portion adapted to engage said body member, said inner screw-threaded portion adapted to engage said rotatable member.

3. In combination with a spark indicator, a spark plug holder, means for locking said spark plug holder in a rigid position, said spark plug holder consisting of a body portion having a rotatable member mounted thereon, said member adapted to hold a pair of spark plugs in an oppositely inclined position, means for limiting the movement of said rotatable member, said locking means consisting of a ring having oppositely screw-threaded portions on its inner and outer surface, said outer screw-threaded portion adapted to engage said body member, said inner screw-threaded portion adapted to engage said rotatable member, means for rotating said ring thus causing it to act in different directions upon said body member and said rotatable member.

4. In combination with a spark indicator,

a spark plug holder, means for locking said spark plug holder in a rigid position, said spark plug holder consisting of a body portion having a rotatable member mounted thereon, said member adapted to hold a pair of spark plugs in an oppositely inclined position, means for limiting the movement of said rotatable member, said locking means consisting of a ring having oppositely screw-threaded portions on its inner and outer surface, said outer screw-threaded portion adapted to engage said body member, said inner screw-threaded portion adapted to engage said rotatable member, means for rotating said ring thus causing it to act in different directions upon said body member and said rotatable member, means for sealing one of said plugs against fouling when not in use.

5. In combination with a spark indicator, a spark plug holder, means for locking said spark plug holder in a rigid position, said spark plug holder consisting of a body portion having a rotatable member mounted thereon, said member adapted to hold a pair of spark plugs in an oppositely inclined position, means for limiting the movement of said rotatable member, said locking means consisting of a ring having oppositely screw-threaded portions on its inner and outer surface, said outer screw threaded portion adapted to engage said body member, said inner screw-threaded portion adapted to engage said rotatable member, means for rotating said ring thus causing it to act in different directions upon said body member and said rotatable member, means for sealing one of said plugs against fouling when not in use, said spark indicator having a spring-operated ball therein.

6. A spark plug holder comprising a base provided with a passage adapted to communicate with the combustion chamber of an internal combustion engine, a rotatable member seated on said base adapted to hold a plurality of spark plugs, a ring connecting said base and said rotatable member and adapted to hold said members in rigid relation, passages in said rotatable member adapted to communicate with the passage in said base and means for sealing said communication.

7. A spark plug holder comprising a base, a rotatable member seated on said base, a screw threaded ring for connecting said base and said rotatable member, spark plugs mounted on said rotatable member, an externally screwthreaded tube connected to said base and adapted to secure same to an engine, the upper edge of said tube extending slightly above the inner surface of said base, passages in said rotatable member adapted to communicate with the opening in said tube.

8. A spark plug holder comprising a base,

a rotatable member seated on said base, a screw threaded ring for connecting said base and rotatable member, spark plugs mounted on said rotatable member, an externally screw threaded tube connected to said base and adapted to secure same to an engine, the upper edge of said tube extending slightly above the inner surface of said base, passages in said rotatable member adapted to communicate with the opening in said tube, gaskets around the passages in said rotatable member adapted to engage said extension of said tube.

9. A spark plug holder comprising a base, a rotatable member seated on said base, a screwthreaded ring for connecting said base and rotatable member, spark plugs mounted on said rotatable member, an externally screw threaded tube connected to said base and adapted to secure same to an engine, the upper edge of said tube extending slightly above the inner surface of said base, passages in said rotatable member adapted to communicate with the opening in said tube, gaskets around the passages in said rotatable member adapted to engage said

extension of said tube, said ring adapted to raise and lower said rotatable member on said base.

10. A spark plug comprising a base, a rotatable member seated on said base, a screwthreaded ring for connecting said base and rotatable member, spark plugs mounted on said rotatable member, an externally screwthreaded tube connected to said base and adapted to secure same to an engine, the upper edge of said tube extending slightly above the inner surface of said base, passages in said rotatable member adapted to communicate with the opening in said tube, gaskets around the passages in said rotatable member adapted to engage said extension of said tube, said ring adapted to raise and lower said rotatable member on said base, and thereby connect and disconnect said gaskets and said tube extension.

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

EDWARD HARRON BENN.

Witnesses:

FRED L. RICHARDS,

THEODORE A. LONGUEMARE.