No. 746,770. PATENTED DEC. 15, 1903.

W. G. WILSON.

COMMUTATOR FOR CAUSING THE IGNITION OF THE CHARGES IN EXPLOSION ENGINES.

APPLICATION FILED JUNE 23, 1902.

NO MODEL.

FIG. 2.

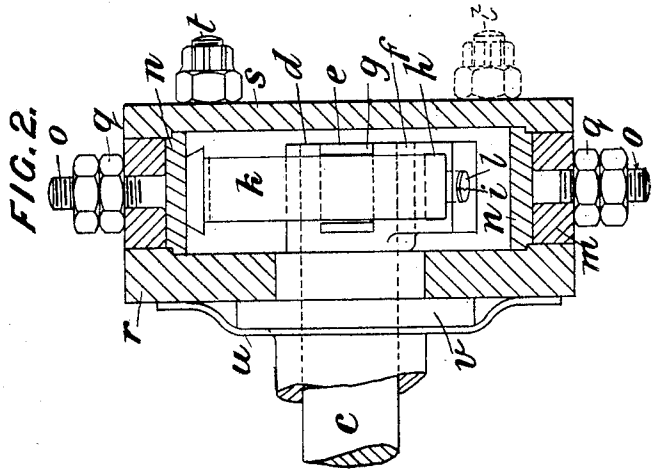
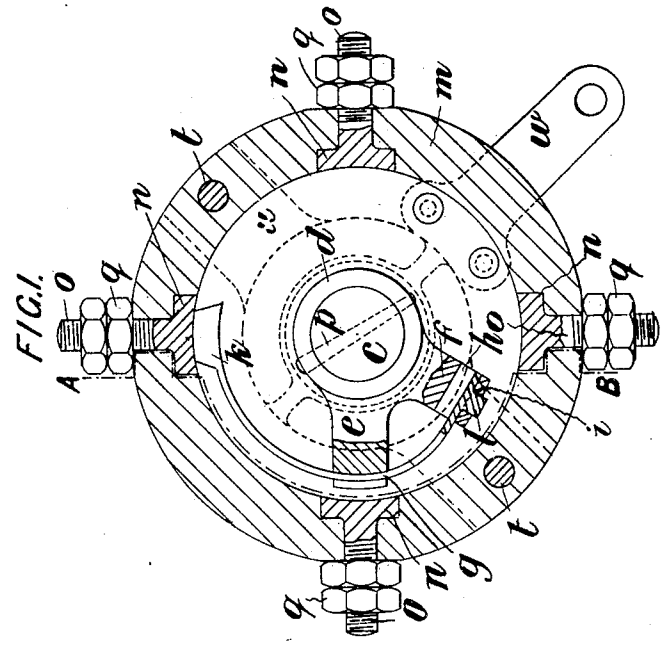


FIG. 1.



Witnesses:
J. F. Oberlin
M. F. Reall.

Inventor:
Walter Gordon Wilson
by Henry Orth & Son
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 746,770. Patented December 15, 1903

UNITED STATES PATENT OFFICE.

WALTER GORDON WILSON, OF WESTMINSTER, ENGLAND.

COMMUTATOR FOR CAUSING THE IGNITION OF THE CHARGES IN EXPLOSION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 746,770, dated December 15, 1903.

Application filed June 23, 1902. Serial No. 112,918. (No model.)

To all whom it may concern:

Be it known that I, WALTER GORDON WILSON, engineer, a subject of the King of Great Britain, residing in the city of Westminster, in the county of Middlesex, England, have invented new and useful Improvements in Commutators for Causing the Ignition of the Charges in Explosion-Engines, of which the following is a specification.

This invention relates to improvements in commutators for causing the ignition of the charge in explosion-engines.

According to this invention a contact or a number of contacts corresponding to the number of cylinders or explosions to be made is mounted in or on a hollow or solid cylinder or disk in such manner that contact is made for the igniting device for each cylinder at each revolution or once every two revolutions (as the case may be) of the shaft of the engine or motor, and a spring-brush is mounted on the said shaft or on the valve-shaft, which brush is in electrical connection with one pole of the source of electricity, the other pole being connected to the igniting device or devices.

Figure 1 of the accompanying drawings illustrates in sectional elevation a commutator constructed according to this invention, and Fig. 2 is a cross-section thereof on the line A B, Fig. 1.

On the shaft *c* for operating the valves (or, it may be, on the crank-shaft of the engine in the case of an engine having an explosion during each revolution) a carrier *d* is keyed or otherwise attached—for example, by a pin *p*—which carrier has two lugs *e* and *f*. The lug *e* has a recess or is made forked at its end at *g* and the lug *f* has a slot *h* near its outer end and a small hole *i* formed in its end and communicating with the slot. One end of a spring-brush *k* rests in the slot *h* and is provided with a stud or projection *l*, which takes into the hole *i*. The spring of the brush *k* passes through the recess or fork *g* in the other lug *e*, by which fork it is kept straight.

Inclosing the spring-brush *k* and concentric with the shaft *c* there is a hollow cylinder *m*, made of non-conducting material and provided with a contact-piece or with more than one contact-piece. In the example shown there are four contact-pieces marked *n n n n*. The contact-pieces, which are of similar dimensions, are spaced symmetrically around the interior or surface of the hollow cylinder *m* in order that the brush *k* shall make contact at precisely the same relative point in the strokes of the engines. The contact-pieces are let into a recess or recesses in the hollow cylinder *m*, as shown, and flush with the inner periphery of the latter, being held therein by short studs or screws *o*, suitably made in one with the said contact-pieces, which studs are provided with nuts *q* and also serve as terminals. The back *r* of the hollow cylinder *m* is made with a central hole to allow the shaft *c* to pass through, and the front or cover *s* of the said hollow cylinder is suitably connected thereto and to the back *r* by bolts *t* passing right through all three parts. If desired, the front cover *s* may be transparent or have a window for observation. The cylinder is conveniently held in place by means of spring-clips *u u*, also held by the aforesaid bolts *t* and passing over the flange *v* of an end bearing of the shaft, or the commutator is held in place by any other suitable means. By attaching the commutator to the shaft-bearing in this or in any other convenient manner the former may be partially revolved to adjust the time at which the brush makes electrical contact, and by means of a lever *w*, fixed to the cylinder *m*, a connecting-rod, and a screw and nut or other suitable device the exact moment of ignition with regard to the position of the piston or pistons can be regulated from the driver's seat or other convenient place.

A very great advantage obtained by this invention consists therein that however much or unevenly the contacts may wear (particularly where there are two or more) their relative positions are always unaltered and their positions with regard to the positions of the pistons in the cylinders of the motor are always the same, except they be altered by moving the commutator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A commutator for causing the ignition of the charge in an explosion-engine comprising a cylindrical casing of insulatory material, one or more contact-pieces countersunk in said casing to be flush with the interior

surface thereof, a carrier to rotate within the casing, a lug on the carrier having a recess at its outer end, another lug having a slot near its outer end and a hole, a spring-brush, a pin near the end of the spring, the spring being adapted to take into the recess of one lug and into the slot in the other lug and the pin adapted to take into the hole of the latter lug, substantially as set forth.

2. A commutator for causing the ignition of the charge in an explosion-engine comprising a hollow cylindrical casing, a back for the said casing with a central hole therein, a cover for the said casing, a plurality of contact-pieces attached to the said casing and having their inner faces flush with the interior of the casing, a plurality of terminals each of which is connected to a contact-piece, a carrier fixedly mounted on a revolving shaft passing into the casing, a lug on the carrier having a recess at its outer end, another lug having a slot near its outer end and a hole, a spring-brush, a pin near the end of the spring, the spring of the brush being adapted to take into the recess of one lug and into the slot in the other lug and the pin adapted to take into the hole of the latter lug, said brush adapted to revolve with the carrier and to make contact periodically with the contact-pieces in the casing, substantially as set forth.

3. A commutator of the kind described comprising a cylindrical casing, a back for the said casing with a central hole therein, a cover for the said casing, a plurality of contact-pieces attached to the said casing and having their inner faces flush with the interior of the casing, a plurality of terminals each of which is connected to a contact-piece, a carrier fixedly mounted on a revolving shaft passing into the casing, a lug on the carrier having a recess at its outer end, another lug having a slot near its outer end and a hole, a spring-brush, a pin near the end of the spring, the spring of the brush being adapted to take into the recess of one lug and into the slot in the other lug and the pin adapted to take into the hole of the latter lug, the brush being adapted to revolve with the carrier and to make contact periodically with the contact-pieces in the casing, spring-clips on the casing, a flange on a bearing of the revolving shaft over which the spring-clips take and a lever fixed to the casing by means of which it may be partially revolved, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER GORDON WILSON.

Witnesses:
VICTOR JENSEN,
WALTER J. SKERTEN.