H. W. GABEL.

SPARK TIMER.

APPLICATION FILED OCT. 14, 1907.

916,694.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.

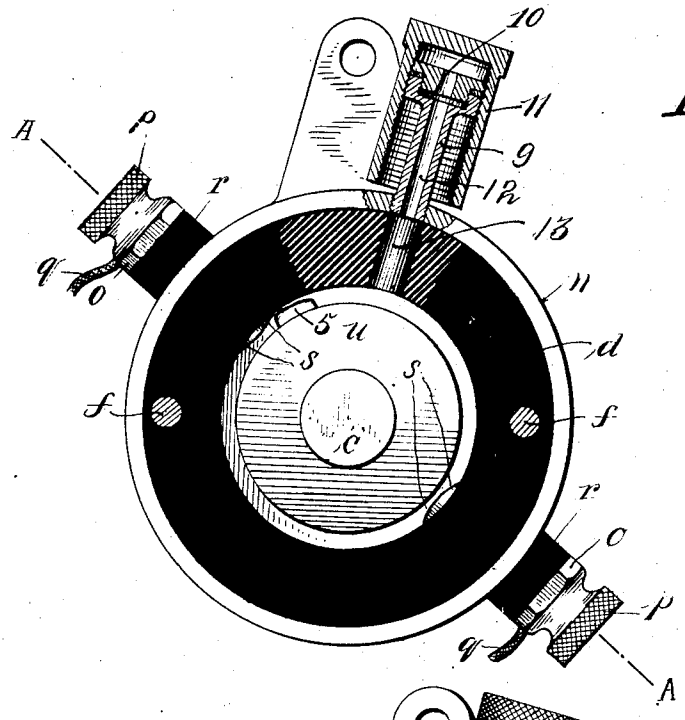


Fig. 1.

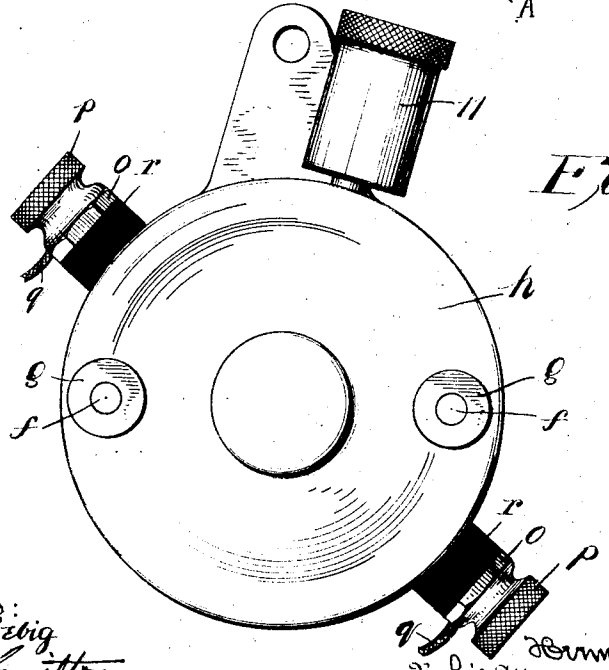


Fig. 2.

Witnesses:
Harry C. Hibig
Albert Hamilton

Inventor
Herman W. Gabel
By his Attorney
James Hamilton

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2 SHEETS—SHEET 2.

Fig. 9



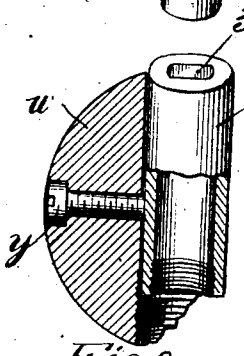


Fig. 8.

Fig. 3

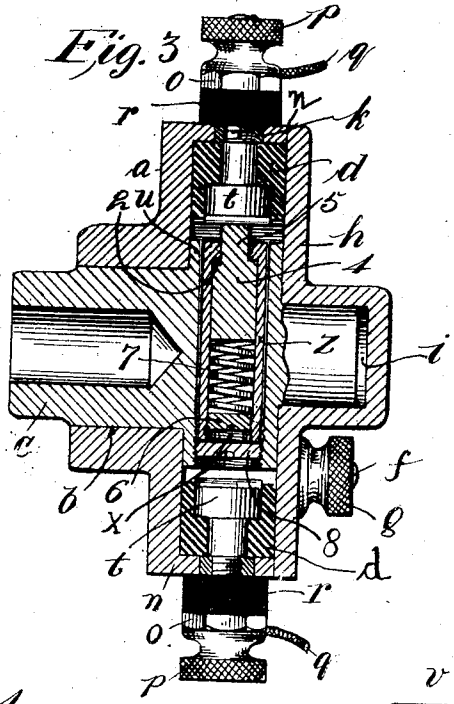


Fig. 7.

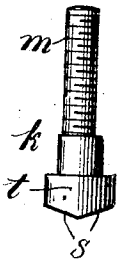


Fig. 5.

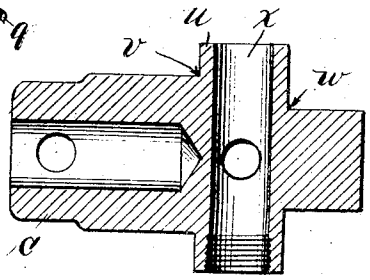


Fig. 4.

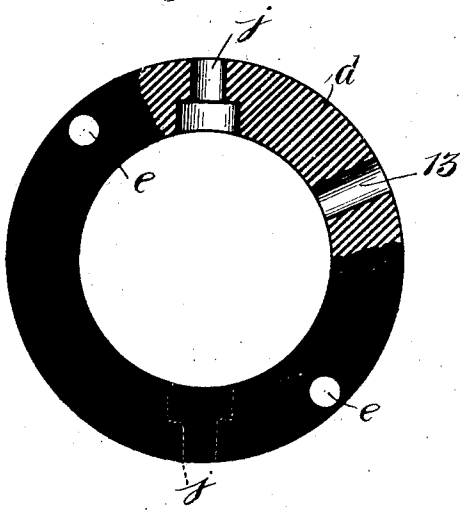
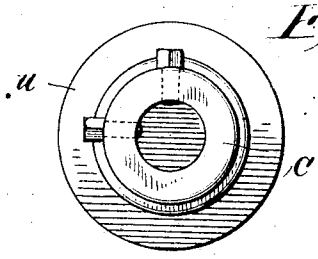


Fig. 6.



Witnesses:
Harry C. Hibig
Albert Hamilton.

Herman W. Gabel Inventor
By his Attorney,
James Hamilton

UNITED STATES PATENT OFFICE.

HERMAN W. GABEL, OF FOND DU LAC, WISCONSIN.

SPARK-TIMER.

No. 916,694. Specification of Letters Patent. Patented March 30, 1909.

Application filed October 14, 1907. Serial No. 397,359.

To all whom it may concern:

Be it known that I, HERMAN W. GABEL, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Spark-Timers, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in devices for regulating the time of sparking or time of ignition in gas engines and similar motors; and an object of my invention is to increase the life of such devices and to permit of the ready adjustment of the rubbing parts, when worn by long use.

Another object of my invention is to provide a device of this character which will prove economical in operation and will require the minimum expenditure of energy for its operation.

A further object of my invention is to provide a spark-timer which will prove simple in construction, comparatively cheap in manufacture and efficient and economical in operation and which will be made up of few parts and susceptible of ready adjustment.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a view of the interior, partly in section, the cover-plate being removed; Fig. 2 is a front elevation; Fig. 3 is a section on the line A—A of Fig. 1; Fig. 4 is a detail of the insulating ring; Fig. 5 is a longitudinal section and Fig. 6 an end view of the rotary shaft; Fig. 7 is a detail of the stationary contact-post; Fig. 8 is a detail of the sleeve and Fig. 9 is a detail of the slidable spring-controlled firing-pin.

The housing or casing *a* is in the form of a flat cylindrical box having a central aperture *b* the walls of which serve as a bearing for the shaft *c* which carries the firing mechanism hereinafter described. Mounted in the housing *a* is an insulating ring *d* formed with holes *e* through which extend or project the threaded studs or posts *f* cast integral with the back wall of the casing. Held in place by the nuts *g* upon these posts *f* is the cover-plate *h* formed with a central socket *i* into which projects the front end of the shaft *c*. The insulating ring *d* is formed with as many recesses *j* as there are stationary contact-posts *k*, one of the latter being mounted in each recess *j*. The threaded shank *m* of the contact-post *k* projects outwardly through the cylindrical wall or rim *n* of the housing from which it is carefully insulated. Upon the threaded shank *m* outside of the housing are screwed a flat or washer-nut *o* and a binding-nut *p*. Between the nuts *o*, *p* may be placed the lead wire *q* which charges the contact-post *k* with electricity. Between the rim *n* and the flat nut *o* is mounted a washer *r* of insulating material. As is best shown in Fig. 7, the contact-faces *s* of the contact-post *k* are inclined and meet near the center of the head *t*, whereby the latter is wedge-shaped.

The shaft *c* is formed with a disk-like portion *u* between which and the rear part of the shaft is a shoulder *v* and between which and the front part of the shaft is a shoulder *w*. Against the latter fits the cover-plate *h*, while the back wall of the casing *a* fits against the shoulder *v*. The disk *u* is formed with a diametrical passage or chamber *x* in which is held by the set-screw *y* a firing-pin carrier or sleeve *z* threaded interiorly at one end and formed with a shoulder or flange 2 at the opposite end. The opening 3 of the sleeve is not circular in section but has flattened sides or walls which prevent the firing-pin 4 slidably mounted in the sleeve from turning. (See Fig. 8). The firing-pin 4 is formed with a contact tip 5, which fits in the opening 3 and is designed and adapted to rub against the contact-head *t* of the contact-posts *k*. Into the threaded end of the sleeve *z* is screwed a flat nut 6 between which and the butt or inner end of the firing-pin 4 is interposed a coil-spring 7 which tends to press the latter outwardly, against the shoulder or inwardly-projecting flange 2. By turning the screw-nut 6 the tension of the coil-spring 7 may be varied. One end of the chamber or passage *x* is threaded to receive an adjusting nut 8 larger than but similar to the screw-nut 6. The nut 8 bears against the threaded end of the sleeve *z* and by turning it, after loosening the set-screw *y*, the sleeve *z* may be forced outwardly to compensate for the wear of the rubbing parts,—the firing-pin tip 5 and the contact-head *t* of the post *k*. This is an important feature of my invention.

Screwed into the rim *n* is the shank 9 of the lubricant-holder or grease-pot 10 over which

fits the interiorly-threaded follower 11. By turning the latter, the grease is forced through the central channel 12 in the shank 9 and the passage 13 in the insulating ring *d* into the interior of the spark-timer to lubricate the rubbing parts. As the firing-tip 5 wipes against the inclined contact-faces *s* with a yielding pressure, these faces are kept automatically free from dust, grit, grease, rust and other products of corrosion.

I claim:

1. In a spark-timer, the combination with a casing and contact-posts mounted therein, of a rotary member mounted in said casing and formed with a chamber; a carrier mounted in said chamber; means located in said chamber for varying the position of said carrier in said chamber; and a firing-pin carried by said carrier and adapted to rub against said contact-posts.

2. In a spark-timer, the combination with a casing and contact-posts mounted therein; of a rotary member mounted in said casing and formed with a chamber; a sleeve mounted in said chamber; means located in said chamber for varying the position of said sleeve in said chamber; and a firing-pin carried by said sleeve and adapted to rub against said contact-posts.

3. In a spark-timer, the combination with a casing and contact-posts mounted therein; of a chambered shaft mounted in said casing and rotatable relative thereto; a firing-pin adapted to rub against said contact-posts; a carrier in which said firing-pin is carried, said carrier being mounted in said chambered shaft; and means located in the chamber of said shaft for adjusting the position of said carrier relatively to said shaft, whereby said firing-pin is adjusted relatively to said contact-posts.

4. In a spark-timer, the combination with a casing and contact-posts mounted therein; of a shaft mounted in said casing and rotatable relatively thereto; a firing-pin adapted to rub against said contact-posts; a chambered carrier in which said firing-pin is carried and which is adjustably mounted in said shaft; a yielding device mounted in said chambered carrier and adapted to act upon said firing-pin; means for adjusting the position of said chambered carrier and thereby of said firing-pin; and means for varying the tension of said yielding device.

5. In a spark-timer, the combination with a casing and contact-posts mounted therein; of a rotary member mounted in said casing; a firing-pin adapted to rub against said contact-posts; a chambered carrier which is adjustably mounted in said rotary member and in which said firing-pin is carried, said carrier being formed with an inwardly-projecting flange; means for adjusting said chambered carrier and thereby varying the position of said flange; and a yielding device mounted in said chambered carrier and adapted to press upon said firing-pin, the outward travel of which is limited by said flange.

In witness whereof I have hereunto set my hand in the presence of the two witnesses undersigned, this seventh day of October, 1907, at said Fond du Lac.

HERMAN W. GABEL.

Witnesses:
B. A. HUSTING,
B. J. HUSTING.