

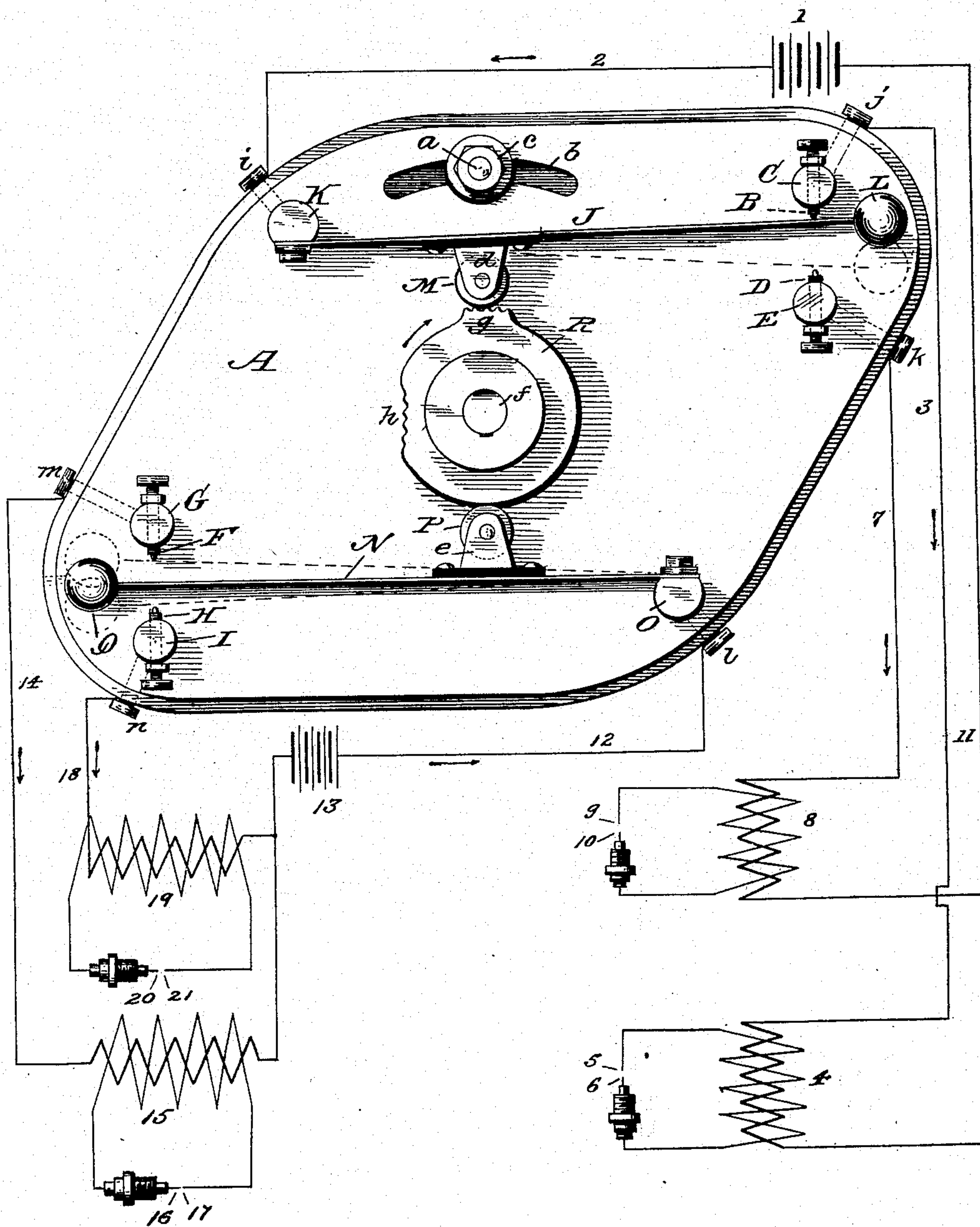
No. 674,029.

Patented May 14, 1901.

W. G. STOLZ.
IGNITER OR CIRCUIT BREAKER.

(Application filed Feb. 5, 1901.)

(No Model.)



Witnesses
G. J. Williamson
J. C. Barry

Inventor
William G. Stolz.
per Chas. H. Fowler.
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM G. STOLZ, OF BROOKLYN, NEW YORK.

IGNITER OR CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 674,029, dated May 14, 1901.

Application filed February 5, 1901. Serial No. 46,043. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. STOLZ, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Igniters or Circuit-Breakers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, and to the letters and figures of reference marked thereon.

The present invention has reference to that class of electric igniting devices or circuit-breakers applied to explosive engines or motors; and the object thereof is to materially improve and simplify the operating mechanism, whereby two cylinders may be ignited with a single vibrating device, thus dispensing with the usual vibrating device on the primary induction-coil.

The invention consists in an electric igniting device constructed substantially as shown in the drawing and hereinafter described and claimed.

In the accompanying drawing, which represents a plan view of the igniting or circuit-breaker attachment and a diagrammatic view of igniting-circuit, A designates the usual insulating supporting-block, which is rendered adjustable in the ordinary manner, so as to regulate the time of the spark in the cylinder, a suitable bolt *a* extending through a segmental slot *b*, and the clamping-nut *c*, engaging the bolt, holds the block to its base in its adjusted position.

The device as shown is applicable to an engine with four cylinders, and consequently four adjustable contact screws or points are necessary. These screws or points are adjustably supported in suitable posts in the ordinary manner, the contact-point B being adjustably connected to the post C and the contact-point D is in like manner connected to the post E, the contact-point F connected to the post G and the contact-point H connected to the post I, thereby providing four binding-posts with contact-points, which may be of the usual construction employed in this class of devices, this being left entirely discretionary so long as the object sought will be successfully attained. A contact-spring

arm J is secured at one end to a suitable post K, and the opposite end of the arm is provided with a suitable weight L to assist the arm in vibrating, said arm having a bearing-roller M, suitably connected to an insulated hanger *d*, and the arm extending between the posts C E, so as to be brought in contact with the points intermittently during the vibratory motion of the spring-arm. This spring-arm, with its attachments, is duplicated, so as to operate in connection with the contact-points F H, the spring-arm being shown at N and connected to the post O, the bearing-roller P connected to an insulated hanger *e* upon the arm, and said arm having the weight Q. These spring-arms are operated by a suitable wheel or disk R, of metal, keyed or otherwise rigidly secured to a rotatable shaft *f*, which may be driven by the engine, or any other preferred means may be used to give to the shaft a rotary motion. This wheel or disk has two bearing-surfaces *g h*, which are serrated or corrugated, so as to give, in connection with the weights, the required vibratory motion to the spring-arms, the weights assisting in imparting the vibratory motion to the arms to intermittently bring said arms in contact with the contact-points to make and break the circuit.

The corrugated or serrated bearing-surfaces *g h* are on different planes with relation to the periphery of the wheel R, the surface *g* being on a plane above the periphery of the wheel or disk, while the surface *h* is on a plane below the periphery, as shown. When the corrugated bearing-surface *g* comes in contact with the roller M, as shown, the spring-arm J, which is the circuit-closer, will have imparted to it a vibratory motion and is forced against the contact-point B, and when the corrugated or serrated surface passes the roller the weight L upon the circuit-breaker or spring-arm J will take up the vibratory motion and increase it at the end of the circuit-breaker or spring-arm. This vibratory motion of the circuit-breaker or spring-arm will cause the same to be intermittently brought in contact with the points B D, and thereby produce a multiplicity of sparks in the combustion-chamber of the engine by the rapid making and breaking of the circuit. When the corrugated or serrated surface *h*

comes in contact with the roller M, by virtue of said surface being on a plane below the periphery of the roller, the circuit-breaker or spring-arm J will be allowed to come in contact with the point D, thereby giving thereto the necessary vibratory motion to bring it intermittently in engagement with the contact-points B D, the circuit-breaker or spring-arm being so adjusted or regulated in its tension as to have a tendency to cause the roller M to bear down upon the periphery of the wheel or disk R during its revolution.

The corrugated or serrated bearing-surface *h* will impart to the circuit-breaker or spring-arm the same trembling motion as is imparted thereto by the corrugated or serrated bearing-surface *g*. The surface *h*, being below the periphery of the wheel or disk R, is depended upon to bring the circuit-breaker or spring-arm in engagement with the contact-point D, while the surface *g*, being above the periphery of the wheel or disk, will force the circuit-breaker or spring-arm against the contact-point when said surface comes against the roller.

The battery or source of electric energy is indicated at 1 and connects with the post K through the medium of the wire 2 and screw *i*, the current passing from the post to the circuit-closer or spring-arm J, to the post C, through the contact-point B, and to the screw *j*, and thence through the wire 3 to the primary and secondary induction-coils, as indicated at 4, and from said coils to the ignition-points 5 and 6 in the combustion-chamber of the engine-cylinder.

The circuit-closer or spring-arm N is operated in the same manner as the spring-arm J, one simply being a duplicate of the other and used on engines with four cylinders, the electricity being supplied to the arm through the post O, screw *l*, and wire 12, which leads from the battery or source of electric energy, as indicated at 13, and from the circuit-closer or spring-arm, the current passing from the contact-point F, when the circuit-closer or spring-arm is in engagement therewith, to the post G and screw *m*, and to the wire 14, and from thence to the primary and secondary induction-coils 15 and the ignition-points 16 and 17.

When the circuit-closer or spring-arm N is in contact with the point H, the current will pass therefrom into the post I and screw *n* and through the wire 18 to the primary and secondary induction-coils 19 and to the ignition-points 20 and 21, the opposite end of the battery 13 connecting with the wire 22 and the primary coils in the usual manner.

I do not wish to be understood as limiting my invention to any particular number of cir-

cuit-closers or spring-arms, as the number may be regulated in accordance with the number of cylinders used in the engine; neither do I wish to be confined to any special construction of roller, and any suitable device may be used in place thereof that will successfully operate when the corrugated or serrated bearing-surfaces are brought in contact therewith to give to the circuit-closer or spring-arm the desired trembling movement. When the circuit-closer or spring-arm is extended between two contact-points, one circuit-closer or spring-arm will suffice to do the work in igniting the explosive gases in two cylinders, thereby dispensing with a separate circuit-closer for each cylinder.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an igniting device, a contact point or points, a circuit-closer, and a rotatable wheel or disk having two corrugated or serrated surfaces extending respectively on a plane above and below the plane of the periphery of the wheel or disk, and means upon the circuit-closer to operate in connection with the corrugated or serrated bearing-surfaces, substantially as and for the purpose set forth.

2. In an igniting device for explosive-engines, a contact point or points, a circuit-closer comprising a weighted spring-arm, and a rotatable wheel having two corrugated or serrated surfaces extending respectively on a plane above and below the periphery of the wheel, and means upon the circuit-closer to operate in connection with said surfaces, substantially as and for the purpose specified.

3. In an igniting device for explosive-engines, a contact point or points, a circuit-closer comprising a spring-arm, a rotatable wheel or disk having two corrugated or serrated surfaces on different planes, and a bearing-roller upon the spring-arm with which the surfaces come in contact, substantially as and for the purpose described.

4. In an igniting device for explosive-engines, a contact point or points, a circuit-closer comprising a spring-arm having a weight at its free end and a bearing-roller carried by said arm, and a rotatable wheel or disk having two corrugated or serrated surfaces upon different planes, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM G. STOLZ.

Witnesses:

GEORGE M. BOND,
C. M. FORREST.