

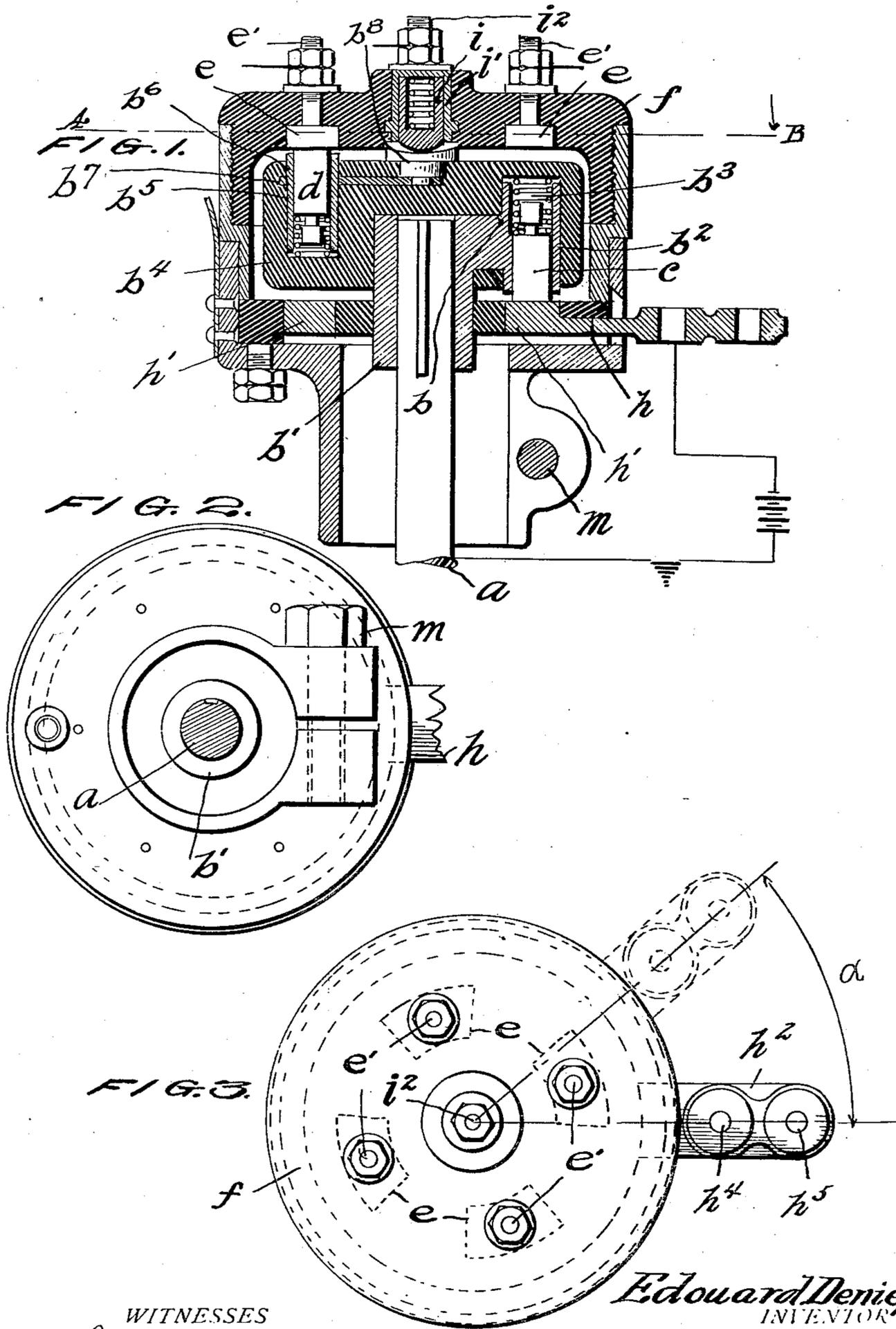
E. DENIÉPORT.  
SPARK DISTRIBUTER.

APPLICATION FILED SEPT. 30, 1908.

934,715.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.



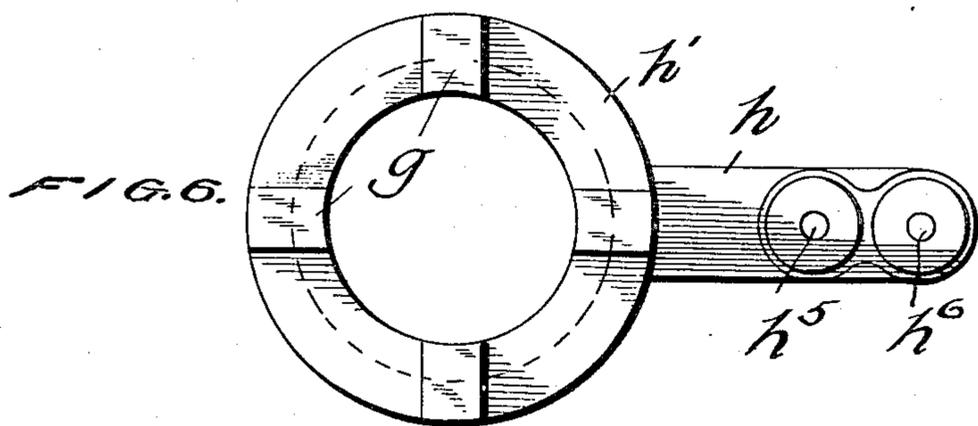
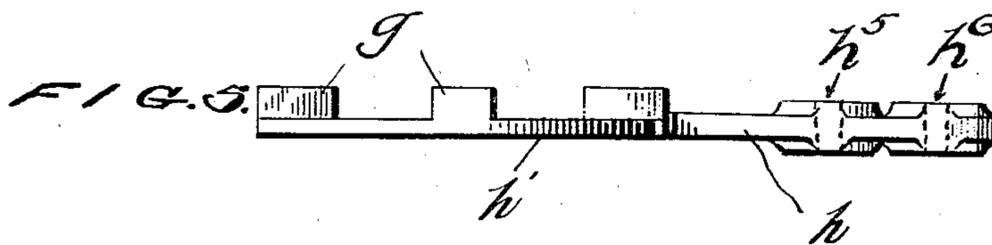
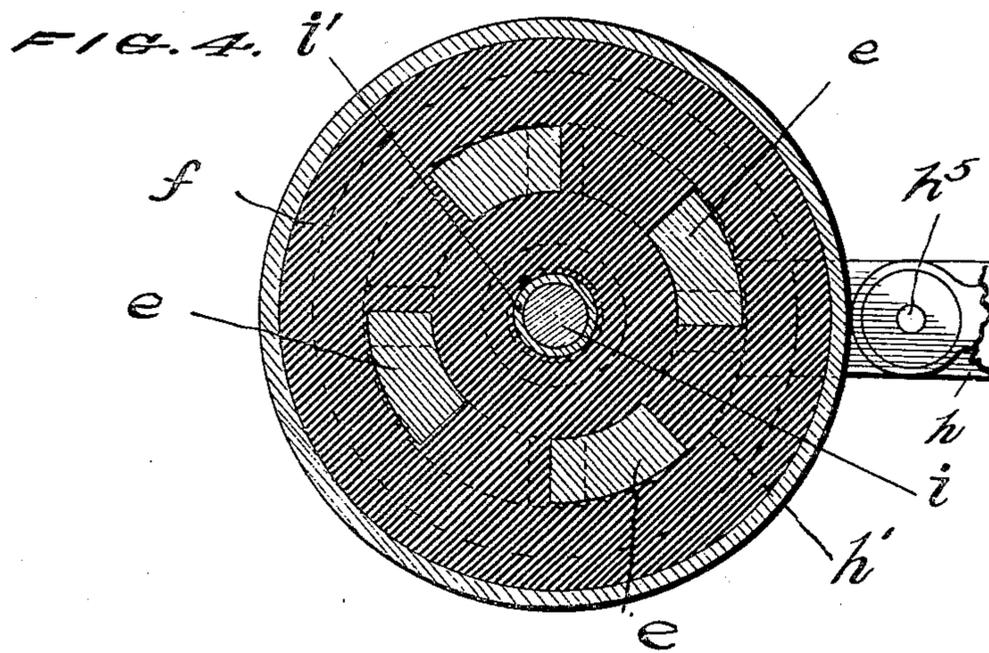
WITNESSES  
Chas. N. Davies  
Myron G. Cleas

Edouard Deniéport.  
INVENTOR  
by B. Singer.  
Attorney

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# UNITED STATES PATENT OFFICE.

EDOUARD DENIÉPORT, OF PARIS, FRANCE.

SPARK-DISTRIBUTER.

934,715.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed September 30, 1908. Serial No. 455,421.

To all whom it may concern:

Be it known that I, EDOUARD DENIÉPORT, a citizen of the French Republic, and resident of Paris, France, have invented certain new and useful Improvements in Spark-Distributers, of which the following is a specification.

This invention relates to spark distributers, for internal combustion engines, and has for its object, to provide a device of this kind which will occupy the minimum space, which can be easily and quickly taken apart and assembled, and which can be readily attached to a motor.

In the accompanying drawing wherein is illustrated a preferred embodiment of my invention, Figure 1 is a central longitudinal sectional view thereof. Fig. 2 is a view from the bottom of the same. Fig. 3 is a top plan view. Fig. 4 is a sectional view on line A—B of Fig. 1, and, Figs. 5 and 6 show respectively a side elevation and a top plan view of the member carrying the primary contacts.

In the drawing, *a* designates a shaft designed to be connected with, and actuated by the internal combustion engine with which the spark distributor is to be used. Secured to this shaft and preferably keyed thereon as shown, is a rotary member *b*, comprising a metal hub *b'*, having an arm *b<sup>2</sup>* provided with a cylindrical opening or recess *b<sup>3</sup>* and a plate or block *b<sup>4</sup>* of suitable insulating material partially surrounding the hub, and provided with a cylindrical recess *b<sup>5</sup>*, provided with a metal lining *b<sup>6</sup>* as shown. Within the opening or recess *b<sup>3</sup>* is disposed a contact element *c*, which is spring pressed against a contact plate *h*, of suitable insulating material supported upon a metal ring *h'* having symmetrically disposed integral upstanding contact elements *g* (Figs. 5 and 6), with upper flat surfaces flush with the upper surface of the insulating material, as shown in Fig. 1. This insulating material serves to effectively insulate the ring *h'* from the hub *b'*, and the surrounding metal casing to be hereinafter referred to. The ring *h'* carries an arm *h<sup>2</sup>*, provided with openings *h<sup>4</sup>* and *h<sup>5</sup>* adapted to respectively receive a binding post (not shown) to be connected with a wire leading from a primary battery and any suitable means (not shown) as a rod or link, for shifting or moving the plate.

The contact carrying plate *h* is adapted to be rotated or shifted around the shaft *a* through the limits of a certain angle alpha

(Fig. 3) which is ordinarily equal to about 28°, to advance or retard the time of the spark in the motor cylinders.

It will be evident that, in the operation of the device, the rotation of the spring-pressed contact element *c* will cause it to contact successively with each of the contact elements *g* thereby successively closing a primary battery circuit through a suitable induction coil (not shown), the opposite poles of the battery being in electrical communication with the arm *h'* and the shaft *a* as indicated in Fig. 1.

It will be noted that the cylindrical recess *b<sup>5</sup>* is disposed diametrically opposite the cylindrical recess *b<sup>3</sup>*, and that the metal lining of the former recess is in electrical communication through metal strip *b<sup>7</sup>* with a metal button or knob, *b<sup>8</sup>* which is engaged by a spring pressed metal rod or plunger *i*, mounted within the cylindrical casing *i'* to which is connected the binding post *i<sup>2</sup>*, to which one side of the secondary circuit of an induction coil (not shown) is in communication. The rod or plunger *i* serves not only to convey the ignition current from the binding post *i<sup>2</sup>* to the button or knob *b<sup>8</sup>*, but it also serves as an abutment to prevent any undesired displacement of the head or block *b*, as from the action of the spring associated with contact element *c*.

Disposed within the cylindrical recess *b<sup>5</sup>* is a brush *d*, spring pressed against the cap or cover *f*, within which are secured a plurality of symmetrically disposed contact plugs *e*, having their surfaces flush with the lower surface of the cap or cover *f*, and adapted to be successively engaged by the brush *d* in its rotation. The plugs *e* are connected with binding posts *e'*, each of which is adapted to be electrically connected with a different spark plug of a four cylinder internal combustion engine.

It will be understood that, in the rotation of the head or block *b*, the primary circuit being alternately opened and closed, as described, the current induced in the secondary circuit of the induction coil, will pass from one end of such secondary circuit through the rod or plunger *i*, button *b<sup>8</sup>*, metal strip *b<sup>7</sup>*, brush *d*, contact plug *e*, to and through the spark plug selected to receive it and back to the opposite end of the secondary circuit, this current passing successively through the spark plugs connected with the binding posts *e'* and being periodically in-

interrupted as brush *d* moves out of engagement with contact plugs *e*, as will be readily understood.

A suitable housing for the device is provided as shown. This is adapted to be readily secured in position as by clamping to a bearing within which the shaft *a* revolves, by means of bolt *m*.

While I have illustrated a form of my invention designed for use with a four cylinder motor, it will be evident that by changing the number of contact elements *e* and *g*, the device can be used in connection with engines having any number of cylinders.

Having fully described my invention, I claim:

1. In a spark distributor of the kind described, the combination with a rotary shaft, of a head or block secured to the end of said shaft, a primary contact element mounted in one side of said head or block, a secondary contact element mounted in the opposite side of said head or block, and in diametrical relation with reference to the said primary contact element, means for conveying primary current to the said primary contact element, and means for conveying secondary current to the said secondary contact element, a plurality of secondary contact plugs mounted in a stationary member adapted to form a cover for said distributor, an angularly shiftable plate arranged opposite that face of the said rotary head or block in which the said primary contact is engaged, a plurality of primary contact plugs carried by said plate and adapted to cooperate with the said primary contact element, and means for shifting said plate, substantially as and for the purpose set forth.

2. In a spark distributor of the kind described, the combination with a rotary shaft,

of an insulating head or block, secured to the end of said shaft, a primary contact element mounted in one side of said insulating head or block, means for electrically connecting the said primary contact element with the said rotating shaft, a secondary contact element mounted in the opposite side of said head or block, and in diametrical relation with reference to the said primary contact element, a stationary casing surrounding the said rotary insulating head or block, a cover for said casing, a central contact element arranged in said cover, a contact plug arranged opposite the said central contact element in the center of said rotating disk, and adapted to cooperate with the said central contact element, conducting means connecting the said central contact element with the said secondary contact element, a plurality of secondary contact plugs mounted in spaced relation in the said cover, and adapted to cooperate with the said secondary contact element, an angularly shiftable plate mounted in the said casing opposite that face of the said rotary insulating head or block which carries the said primary contact element, a plurality of primary contact elements arranged in spaced relation in said angularly shiftable plate, and adapted to cooperate with the said primary contact element, means for operating the said angularly shiftable plate and electric conductors connected with said primary contact elements and said secondary contact plugs, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

EDOUARD DENIÉPORT.

Witnesses:

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H. C. COXE.