

No. 775,932.

PATENTED NOV. 29, 1904.

J. W. PACKARD.

SPARKING IGNITER DEVICE FOR HYDROCARBON ENGINES.

APPLICATION FILED JUNE 27, 1903.

NO MODEL.

Fig. 2.

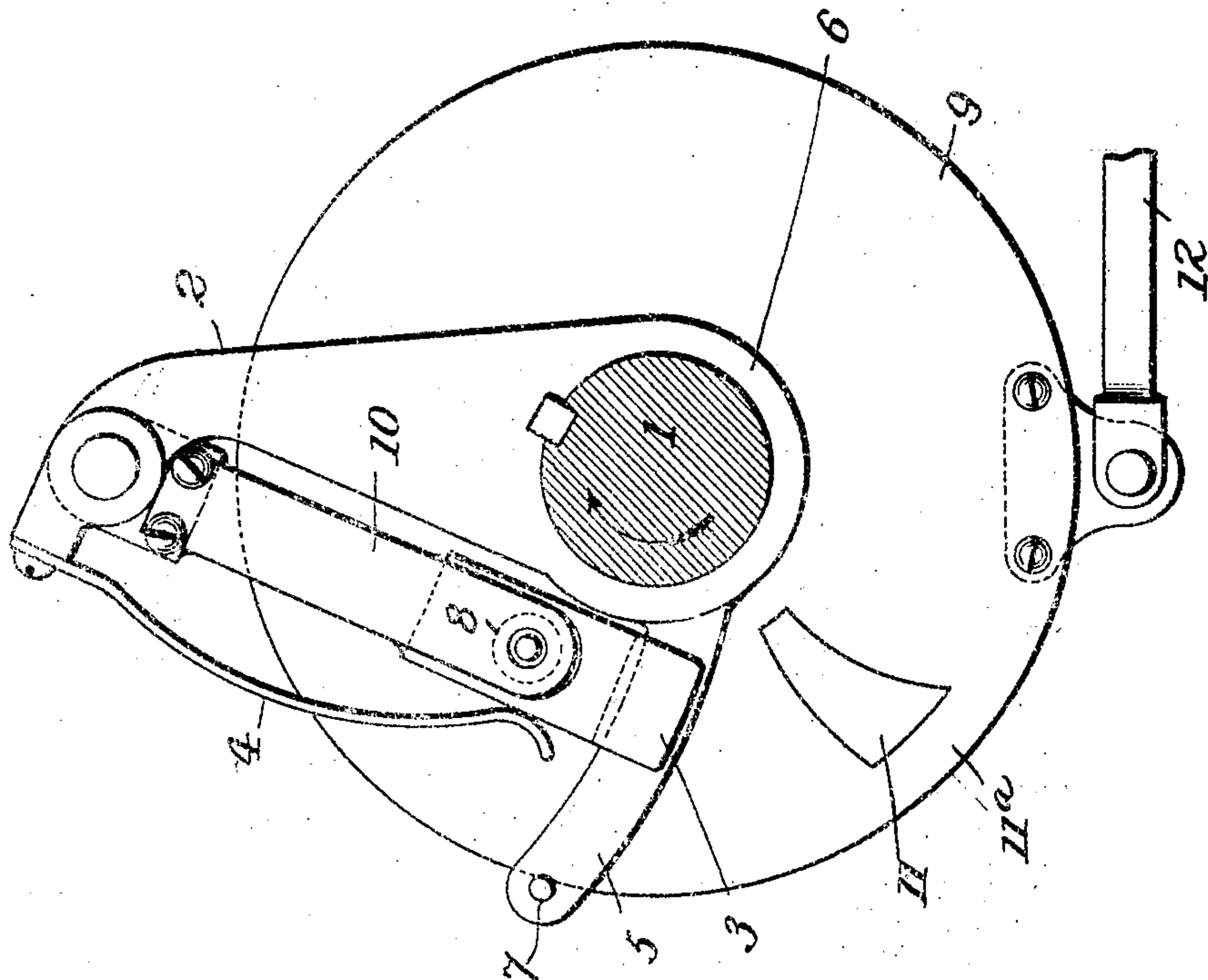
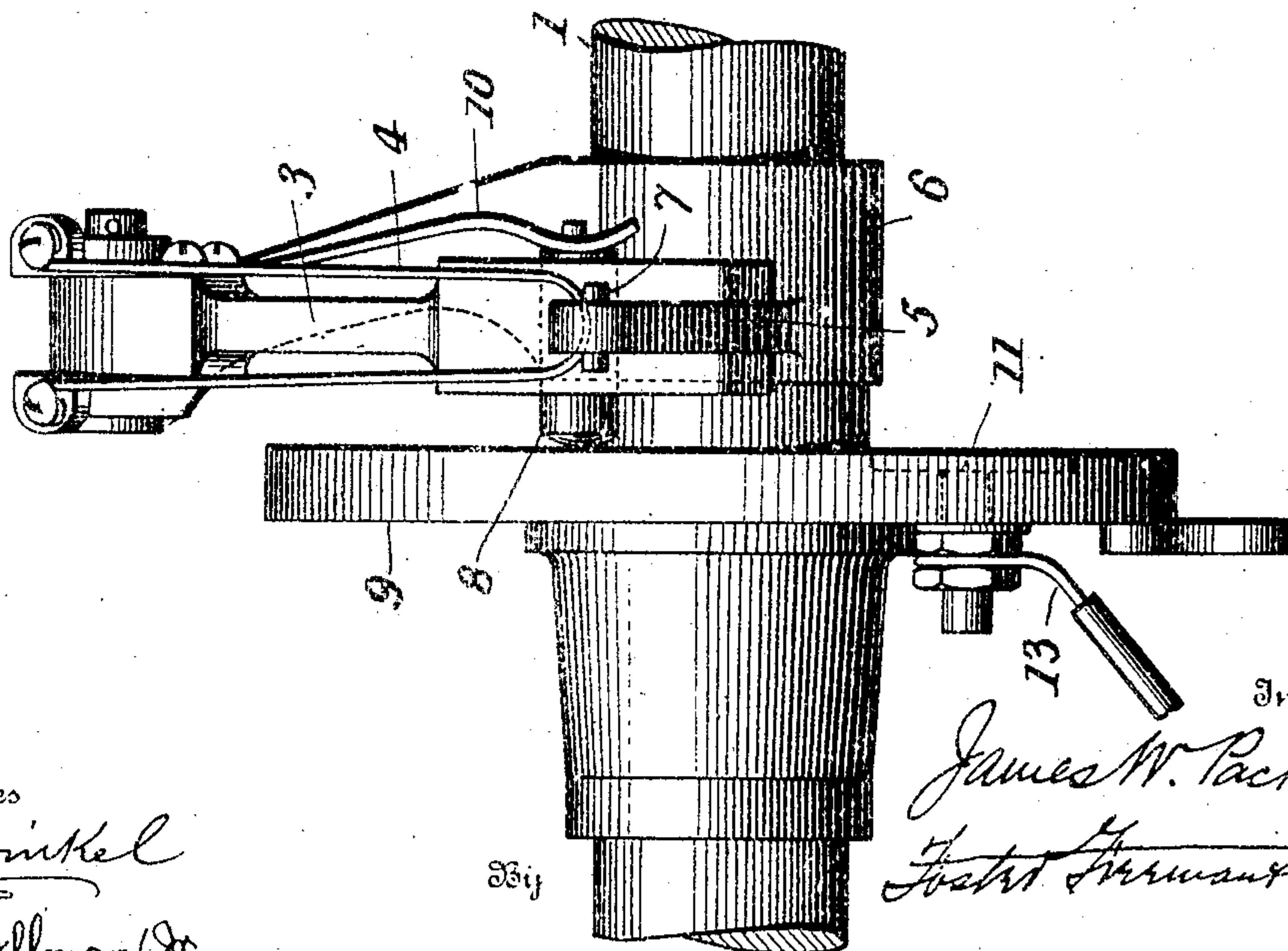


Fig. 1.



Witnesses

J. H. Stinkell  
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Fig.

Inventor

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# UNITED STATES PATENT OFFICE.

JAMES W. PACKARD, OF WARREN, OHIO, ASSIGNOR TO PACKARD MOTOR CAR COMPANY, OF WARREN, OHIO, A CORPORATION OF WEST VIRGINIA.

## SPARKING IGNITER DEVICE FOR HYDROCARBON-ENGINES.

SPECIFICATION forming part of Letters Patent No. 775,932, dated November 29, 1904.

Application filed June 27, 1903. Serial No. 163,351. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. PACKARD, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Sparking Ignition Devices for Hydrocarbon-Engines, of which the following is a specification.

This invention comprises an improvement in sparking igniting devices for hydrocarbon-engines of the class illustrated in my United States Patent, No. 667,792, issued February 12, 1901.

The invention comprises means for advancing the spark automatically as the speed of the engine increases, for advancing it by hand, if desired, and for producing a spark of substantially uniform duration while the engine is running at different speeds.

The invention will be described with reference to the accompanying drawings, in which—

Figure 1 is an edge view of an apparatus embodying the invention, and Fig. 2 is a side view thereof.

Referring to the drawings, 1 indicates the motor-shaft, 2 an arm rigidly connected to and revolving with said shaft, and 3 a governor-lever pivotally connected to the outer end of the arm and extending inward substantially parallel thereto. A spring 4 holds the lever to its innermost position when the engine is not running and permits it to swing outward more or less as the speed varies when running, the lever being suitably weighted to cause it to act as a governor. As shown, the lower end of the lever is forked and it embraces a guide-arm 5, extending outward from the hub 6 of arm 2. At the outer end of the guide-arm is a pin or projection 7, which prevents the governor-lever from swinging out beyond its proper range of movement. The governor-lever carries a contact-pin 8, which is pressed continuously into contact with a disk 9 by a suitable spring 10, fixed to said lever. The disk 9 is constructed of insulating material and is provided with a contact-plate 11 flush with the face upon which the pin 8 travels. The disk is mounted free on the shaft 1, and

it is adjusted to properly time the igniting spark by means of a connection 12. The pin 8 is electrically connected with one terminal of the igniting circuit through the governor-lever 5, arm 2, and shaft 1, while the contact-plate 11 is directly connected with the other terminal of the circuit by a wire 13, as shown. The shape of the contact-plate 11 is preferably as shown in Fig. 2—that is, it increases in width as the radius increases, and its forward edge advances or is inclined forward with respect to a radial line as the radius increases. The increase in width insures a spark of substantially constant duration for different speeds, and the inclined forward edge advances the spark as the speed increases. The form of contact-plate shown is that preferred; but it may be varied to suit other conditions, if desired. When the speed of the motor exceeds the desired limit, the contact-point 8 moves out beyond the plate 11, and no further ignition takes place until the speed is reduced within the said limit. For this purpose the disk 9 extends beyond the plate 11, as shown at 11<sup>a</sup>.

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

1. An igniting device for hydrocarbon-engines comprising, in combination, a sparking circuit, a rotating shaft, a governor device on said shaft, a disk of insulating material arranged transversely of the shaft, a contact-plate carried by said disk, and a contact-point carried by the governor device and arranged to travel over said disk and contact-plate, said disk having a portion of insulating material extending radially outward from said contact-plate whereby the ignition is discontinued when the speed exceeds a given limit.

2. In an igniting device for hydrocarbon-engines, the combination of a shaft, two arms secured to said shaft and projecting radially therefrom at an angle to each other, a governor-lever pivotally connected to one of said arms and loosely engaging the other arm, a contact-point carried by said lever, a disk of insulating material arranged transversely of

the shaft, a contact-plate carried by said disk and lying in the path of said contact-point on the lever, and a sparking circuit having terminals electrically connected, respectively, to  
5 said contact point and plate.

3. In an igniting device for hydrocarbon-engines, the combination of a shaft, an arm projecting radially from said shaft, a governor-lever pivotally mounted on said arm, a  
10 guide and stop carried by the shaft and acting to guide the governor-lever and limit its movement in one direction, a spring acting to move said lever in the opposite direction, a disk of insulating material arranged trans-  
15 versely of the shaft, a contact-plate carried by said disk, a contact-point carried by the governor-lever and adapted to contact with said plate and disk as the shaft rotates, and a sparking circuit including said point and  
20 plate.

4. In an igniting device for hydrocarbon-

engines, the combination of a shaft, two arms projecting radially from said shaft at an angle to each other, a governor-lever pivotally mounted on one of said arms and having a  
25 guide-slot formed therein through which the other of said arms extends, a spring acting to hold the free end of said lever adjacent the shaft, a disk of insulating material arranged transversely of the shaft, a contact-plate car-  
30 ried by said disk, a pin mounted in said governor-lever in position to cross said plate as the shaft rotates, a spring acting to force said pin against said plate, and a sparking circuit including said plate and pin. 35

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

JAMES W. PACKARD.

Witnesses:

S. D. WALDON,  
RUSSELL HUFF.