April 14, 1936. R. MAHAFFEY 2,037,524

ROTOR WITH SPARK GAP

Filed March 12, 1935

Fig. 2.

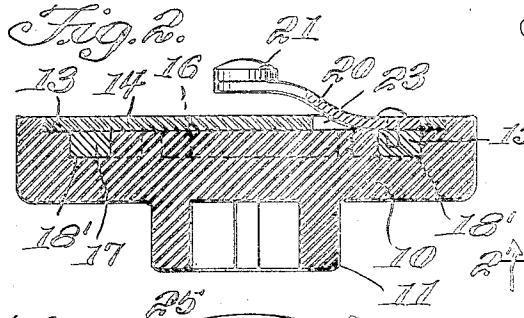


Fig. 1.

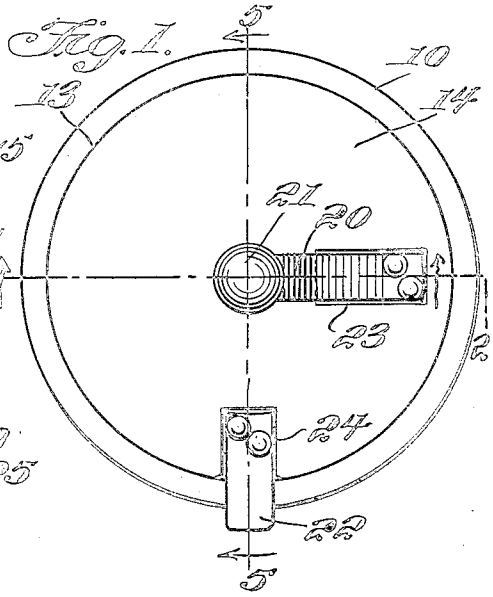


Fig. 3.

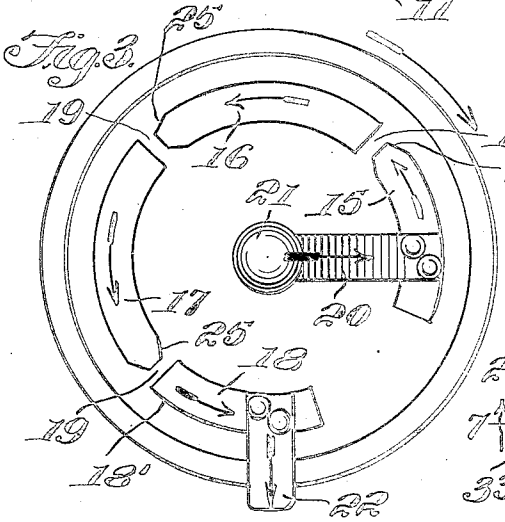


Fig. 6.

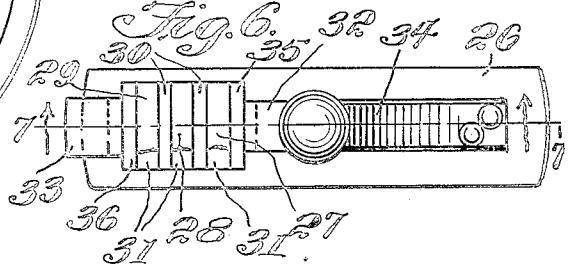


Fig. 4.

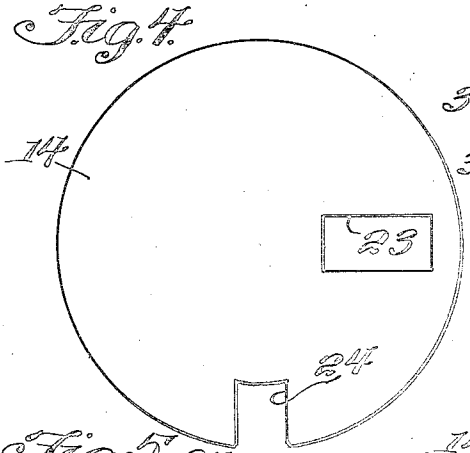


Fig. 7.

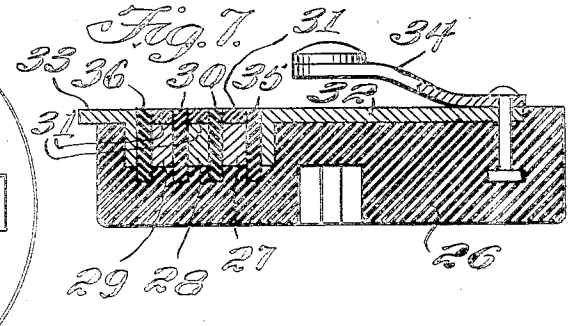
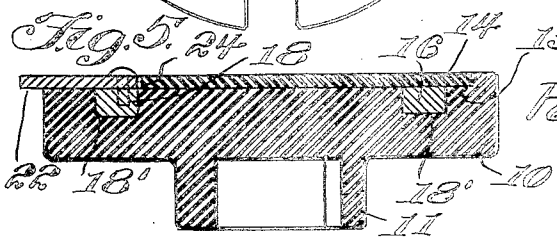


Fig. 5.



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UNITED STATES PATENT OFFICE

2,037,524

ROTOR WITH SPARK GAP

Richard Mahaffey, Myerstown, Pa.

Application March 12, 1935, Serial No. 10,741

1 Claim. (Cl. 200—19)

The invention relates to a rotor voltage amplifier and more especially to a spark intensifier for use in an ignition system.

The primary object of the invention is the provision of a device of this character wherein the rotor of a distributor carries spaced electrodes, these being in the form of metal plates separated from each other to provide gaps therebetween so that in the use thereof voltage through the ignition system will be amplified to intensify a spark at a spark plug, the spaces providing arc gaps of any desired dimension between the electrodes and these latter being arranged between the sparking coil and the spark plug and rotate with the rotor of the distributor.

Another object of the invention is the provision of a device of this character which is extremely simple in construction, thoroughly reliable and efficient in its operation, strong, durable, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention and pointed out in the claim hereunto appended.

In the accompanying drawing:

Figure 1 is a top plan view of a distributor rotor showing the device constructed in accordance with the invention in association therewith.

Figure 2 is a sectional view on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a view similar to Figure 1 showing the insulator disk for the rotor removed.

Figure 4 is a plan view of the insulator disk.

Figure 5 is a sectional view on the line 5—5 of Figure 1 looking in the direction of the arrows.

Figure 6 is a plan view of a modified form of rotor and device.

Figure 7 is a sectional view on the line 7—7 of Figure 6 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, particularly Figures 1 to 5 inclusive, there is shown a rotor 10 as employed in a distributor for use in the ignition system and this rotor has the hub 11 engageable with a timing shaft, not shown, as conventional in internal combustion engines. The rotor 10 as is customary is made from insulating material and in this instance the upper face has formed a circular shaped counterseat 13 for an insulating disk 14 effecting a covering for a series of arcuately formed conductor pieces 15, 16, 17, and 18, respectively, of metal, these being embedded as at 18 in the rotor 10 in spaced relation to each other and underlie the disk 14, the spaces 19 providing arc gaps.

Joined with the piece 15 is a spring contact 20 having a button terminal 21 the latter being adapted for electrical connection with the lead of a sparking coil, not shown, as conventionally fitted in the head of a distributor, while connected with the piece 18 is an output contact 22 which delivers electric current to the lead or leads to a spark plug or plugs, not shown, the distributor points of such leads to the said spark plug or plugs being conventionally fitted with the head of the distributor. The insulator disk 14 has the clearances or openings 23 and 24, respectively, for the spring contact 20 and output contact 22.

The conductor pieces 15, 16 and 17 have the tapered ends 25 in the direction of the gaps 19.

In Figures 6 and 7 there is shown a slight modification wherein the rotor body 26 is of elongated formation and has a plurality of spaced conductor pieces 27, 28 and 29, respectively, made from metal countersunk in the said rotor with insulations 30 therebetween and top insulation coverings 31, while counterseated in the rotor 26 is the lead-in plate or strip 32 for electric current and the output piece 33, respectively, the lead-in strip 32 being joined with the spring contact 34 corresponding to the contact as indicated at 20 and 21.

The lead-in strip 32 is spaced from the pieces 27, 28 and 29 and this space if occupied by an insulating section 35 and likewise the contact 33 is correspondingly spaced therefrom and such space is occupied by insulation 36 so that arc gaps will be set up between the said parts 27, 28, 29, 32 and 33 for intensifying a spark at the spark plug, not shown.

What is claimed is:

In a rotor with spark gap formed from insulating material, a series of metal pieces embedded in the rotor and insulated from each other by the same, an extension on one end metal piece of the series for successively engaging contacts of a distributor connected to spark plugs, a spring contact on the other metal end piece of the series for engaging a high tension contact of the distributor and insulation covering all of the metal pieces excepting the end metal pieces of the series.

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