Oct. 27, 1953 F. W. HARTMAN, JR 2,657,035

CENTRIFUGAL MEANS FOR A HIGH TENSION DISTRIBUTOR ARM

Filed July 26, 1951

2 Sheets-Sheet 1

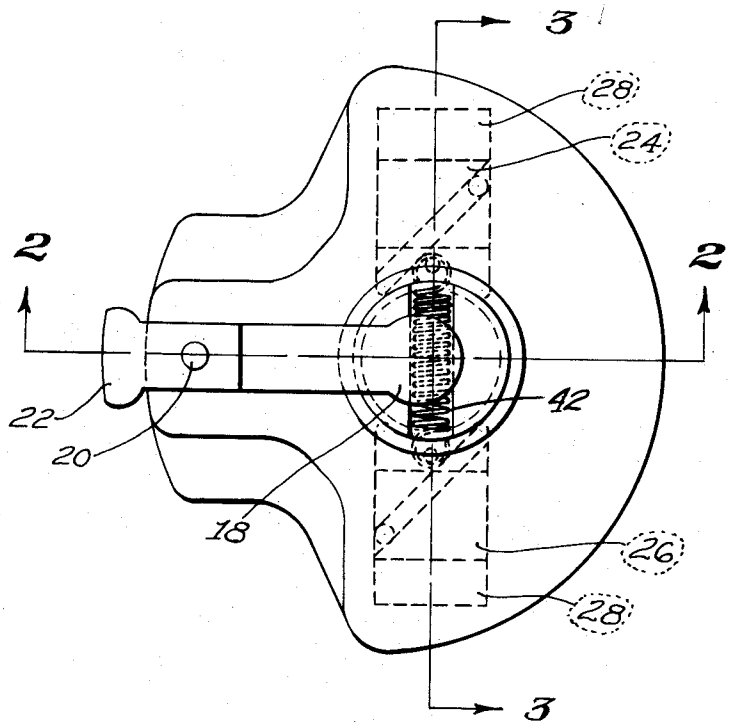


Fig. 1

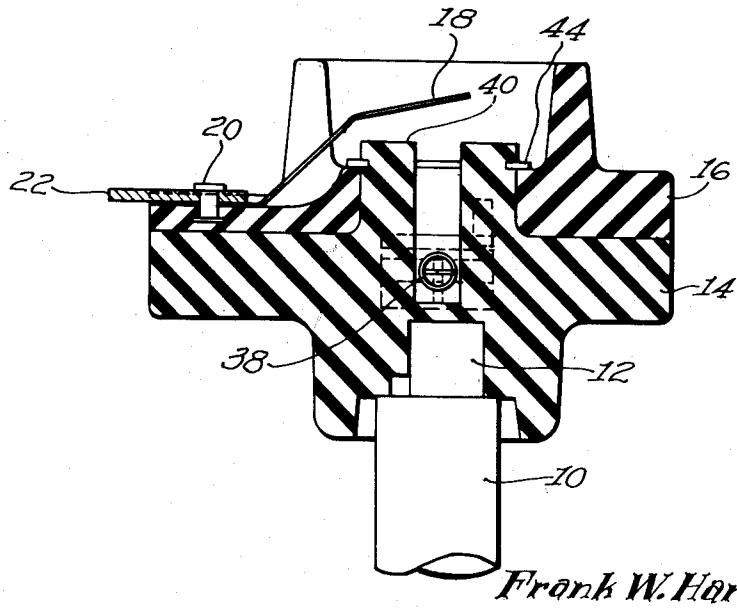


Fig. 2

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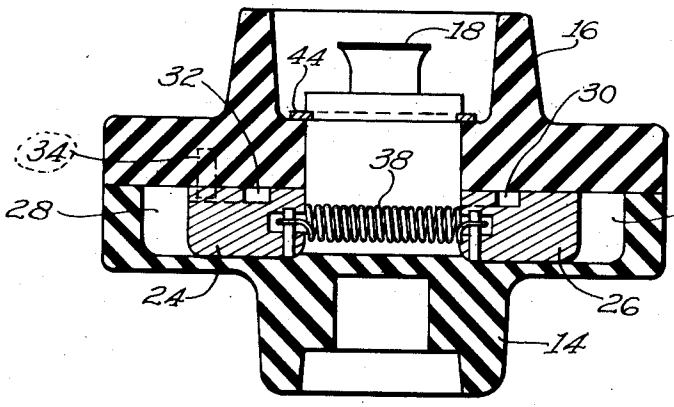


Fig. 3

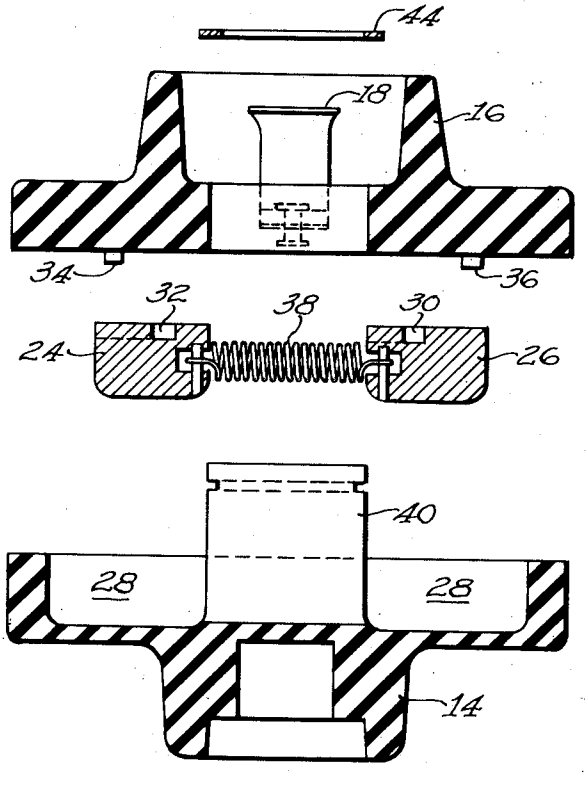


Fig. 4

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Patented Oct. 27, 1953

2,657,035

UNITED STATES PATENT OFFICE

2,657,035

CENTRIFUGAL MEANS FOR A HIGH TENSION DISTRIBUTOR ARM

Frank W. Hartman, Jr., Dearborn, Mich., assignor to Holley Carburetor Company, Detroit, Mich., a corporation of Michigan

Application July 26, 1951, Serial No. 238,679

1 Claim. (Cl. 264—17)

1

The object of this invention is to advance the high tension point of the distributor of an automotive engine by centrifugal force. In the conventional ignition system a low tension circuit breaker is mounted on an oscillating plate and the cam position and the position of the high tension distributor point is not varied relative to the crank shaft of the engine. The problem is that with an overhead valve engine the circuit breaker plate must be advanced to such a point that the high tension distributor fires on the wrong cylinder at high speeds.

If the high tension distributor itself is made to respond to centrifugal force it too will advance with speed and the low tension circuit breaker will not get out of phase with the high tension distributor.

Figure 1 shows a plan view looking down on Figure 2.

Figure 2 is a cross sectional elevation taken on plane 2—2 of Figure 1.

Figure 3 is a cross sectional elevation taken on plane 3—3 of Figure 1.

Figure 4 is an exploded view of the parts shown in Figures 1, 2 and 3 taken in the plane 3—3 of Figure 1.

In the figures:

10 is the drive shaft from the cam (not shown) and 12 is the eccentric driving end piece engaging with the lower portion of the distributor head 14 formed of insulating material. 16 is the movable portion also made of insulating material which responds to centrifugal force. 18 is the high tension conductor formed of flat spring stock and anchored on element 16 by a rivet 20, and 22 is the metal point which distributes the high tension electricity from the conductor 18.

Two weights 24 and 26 slide in a slot 28 in the lower insulating element 14. An inclined slot or groove 30 is formed in the upper face of weight 26 and a similar groove 32 is formed in the upper face of weight 24. Two projections 34 and 36 project from the upper insulating element 16 and engage with the slots 30 and 32 in the weights 24 and 26. A tension spring 38 is stretched between the two weights. 40 is the central projection from the lower insulating element 14 and is provided with a slot 42 through which the spring can move. A "circlip" 44 locks the upper insulating element 16 to the lower element 14.

2

Operation

The shaft 10 drives the distributor head 14 at a speed half that of the speed of the engine. At the speed when the high tension ignition tends to lag behind the low tension circuit breaker the weights 24 and 26 overcome the spring 38 and the upper insulation head 16 is driven ahead of the lower insulating head 14.

The pins 34—36 engage with the slots 32—30 in the weights 24—26 to produce this angular motion to advance the portion of the metal point 22 which distributes the high tension to the various spark plugs.

What I claim is:

A high tension distributor for an internal combustion engine comprising a drive shaft driven at one-half engine speed, a first element made of insulating material mounted on said shaft, a second element also made of insulating material mounted on said first element, a pair of speed responsive weight sliding in the first element and engaging the second element to drive the second element, yielding means to oppose said weights, said driving means being designed to advance the timing of the second element relative to the first element, said weights comprising two similar sliding weights symmetrically located and the yielding means including a tension spring connected to the weights and restraining the outward travel of the weights in response to centrifugal force.

FRANK W. HARTMAN, JR.

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