Dec. 1, 1942. W. S. THOMAS 2,303,771

BREAKER POINT ASSEMBLY

Filed Oct. 2, 1940

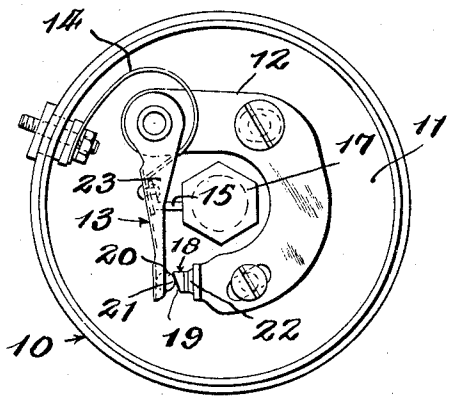


Fig. 1.

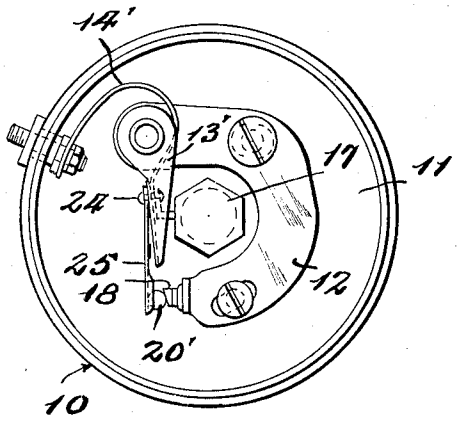


Fig. 5.

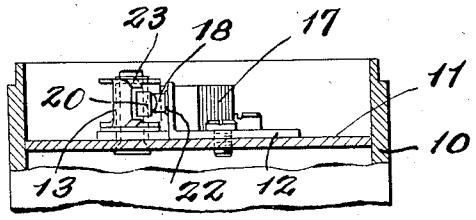


Fig. 2.

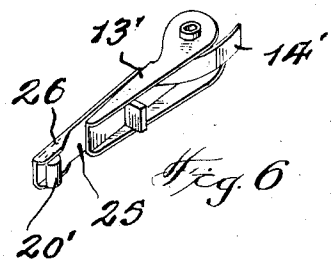


Fig. 6

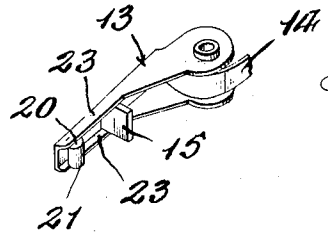


Fig. 3.

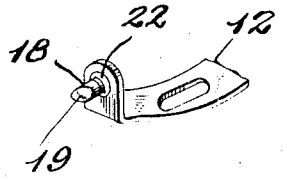


Fig. 4.

Inventor

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Patented Dec. 1, 1942

2,303,771

UNITED STATES PATENT OFFICE

2,303,771

BREAKER POINT ASSEMBLY

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Application October 2, 1940, Serial No. 359,445

1 Claim. (Cl. 200—30)

This invention relates to electrical contact points, especially applicable to ignition systems of internal combustion engines and it consists in the constructions, arrangements and combinations herein described and claimed.

It is well known to those skilled in the automotive as well as other fields, that the present day construction of breaker points presents a source of motor failure due, in most cases, to formation of pitting between the contacts. When pitting between the contacts occurs, one of the contacts will have a tit formed thereon, while the other will have a pit and unless the tit and pit are actually aligned during closing of the contacts, the contacting surface is insufficient to transmit currents for proper operation of the engine, with consequent loss of power as well as liability of complete failure of the engine.

It is therefore the cardinal object of the invention to provide a novel construction of contact points in which a sliding or wiping action is inherent between points, thus eliminating the formation of a tit or pit on the contact points, which consequently reduces the failure of a spark in a system employing the contacts.

More specifically, it is an object of the invention to provide a pair of cooperating contacts, one of which has a convex face complemental to a tapered surface of the other contact, thereby providing a wiping or cleaning effect between the contacts during opening and closing movements of the contacts.

Additional objects, advantages and features of invention will be apparent from the following description considered in conjunction with the accompanying drawing, wherein

Figure 1 is a top plan view of a distributer with the cover removed, having my invention installed therein.

Figure 2 is a vertical section through the distributer casing, showing the breaker points in end elevation.

Figure 3 is a perspective view of one of the breaker arms illustrating the contact having a radius.

Figure 4 is a similar view of the other contact.

Figure 5 is a view similar to Figure 1, illustrating a modified form of one of the breaker arms.

Figure 6 is a perspective view of the breaker arm shown in Figure 5.

There is illustrated a distributer casing 10 of conventional form, having an assembly plate 11 for mounting of an adjustable contact arm 12 and a cam actuated swinging arm 13. The mounting of the arms 12 and 13 is well understood and a detailed description is unnecessary to the full understanding of the invention. The arm 13 is spring-actuated as at 14, holding the rubbing block 15 into engagement with a cam 17.

The arm 12 is provided with a breaker point 18, the contact face 19 of which is tapered or inclined with respect to the longitudinal axis thereof, and the arm 13 embodies a breaker point 20 having a convex contact face 21 arranged to engage the point 18 as shown in Figure 1.

By the construction of breaker points as shown, it will be obvious that the convex face 21 by reason of its convexity will tend to produce a sliding or wiping action on the tapered contact face 19, thereby reducing liability of formation of pits and tits on the points. In addition, the surfaces of the breaker points will prevent oxidation of the contact faces, as well as maintain the faces free of foreign matter which would interfere with proper operation of the distributer.

While I have shown and described the convex breaker point as being mounted on the arm 13, and the tapered contact 19 on the arm 12, reversal of the contacts is possible, without departing from the efficiency of the assembly.

The breaker points 18 and 20 will be cut from cylindrical bars of tungsten, of proper lengths, and as shown, the point 18 will include a stud 22 for rigid mounting upon the arm 12, and the point 20 will have a length to frictionally fit between parallel flanges 23 of the arm 13, where it is spot-welded or otherwise secured.

The breaker assembly, namely, the arms 12 and 13 are to be made in sizes and so constructed as to readily replace similar arms of standard distributers, thereby permitting installation of the assembly upon distributers already in use.

In Figures 5 and 6, a modified form of my breaker assembly is shown, in which the swinging arm 13′ is provided with a spring for mounting of a breaker point 20′ to produce a greater sliding or wiping effect than is possible in the first form described.

In this form of the arm 12 and breaker point 18 remain as first described, but the arm 13′ is of shorter length and has fixed inwardly of the free end thereof, as at 24, a flat steel leaf spring 25. The spring 25 will include parallel flanges 26 corresponding to the flanges 23 for mounting of the breaker point 20′.

The relation of the points 18 and 20′ will be the same as before described, but in operation, the spring 14′ being of greater strength than

the leaf spring **25** a decided sliding or wiping action between the contacts is obtained.

I have particularly described the invention as applied to a breaker assembly for a distributer, but obviously, the construction is applicable to many make-and-break devices for electrical circuits.

While I have shown and described preferred forms of the invention, this is by way of illustration only, and I consider as my own, all such modifications in structure as fairly fall within the scope of the appended claim.

I claim:

An ignition timer for internal combustion engines comprising a fixed arm and a movable arm, said movable arm having a flat leaf spring fixed inwardly of the free end of the arm and projecting therebeyond, a contact carried adjacent the projecting end of the spring, a contact carried by the fixed arm complemental to the first named contact, one of said contacts having a tapered face cooperative with an arcuate face of the other contact, whereby a sliding action is effected between the contacts at and during the period of contacting engagement and means for intermittently moving the movable arm.

WILLIAM S. THOMAS.