June 17, 1958 V. E. McCARTY 2,839,186

DISTRIBUTOR STRUCTURE PACKAGE

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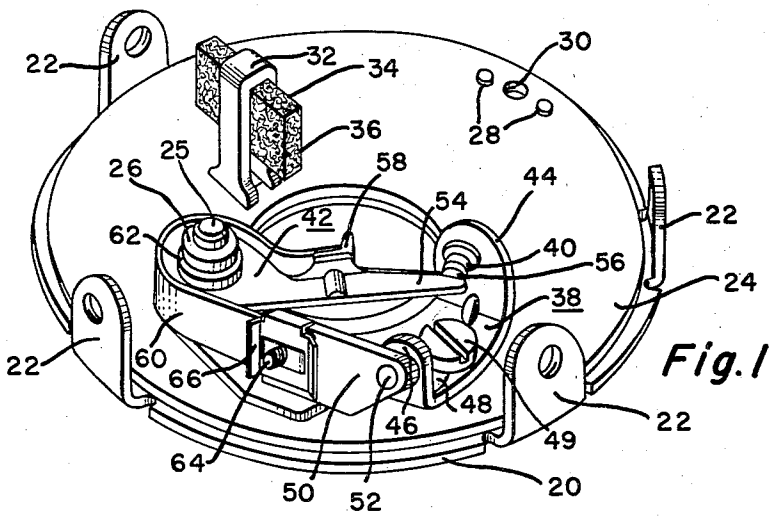


Fig. 1

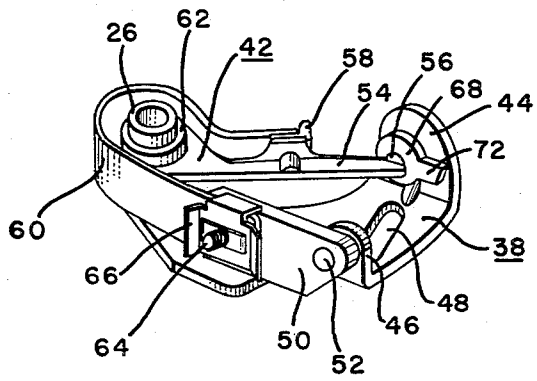


Fig. 2

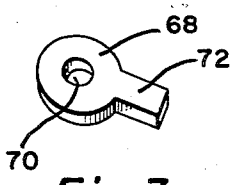


Fig. 3

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DISTRIBUTOR STRUCTURE PACKAGE

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Application June 21, 1956, Serial No. 592,796

1 Claim. (Cl. 206—46)

The present invention relates to distributors and more particularly to replacement breaker point assemblies for use in a distributor.

It is well known that distributor breaker points frequently require replacement. The present invention is directed to service replacement breaker point assembly which may be installed in a distributor with a minimum of labor and which assembly can be installed without disturbing the factory adjustments which are made to assure the proper operation of the breaker points after installation in a distributor.

Heretofore when the points of the distributor were replaced it was necessary for the mechanic to first disconnect the condenser lead wire, the primary ignition lead wire and the breaker lever spring from a single attachment point before the part supporting the stationary contact and the breaker lever which supports a movable contact were removed from the pivot post. The pivot post is carried by the breaker plate which is supported for rotation in the distributor. When the new parts were installed in the distributor, the above procedure is reversed. It can be appreciated difficulties were frequently encountered when the breaker arm spring, the condenser lead wire, and the primary ignition circuit lead were assembled on a common bolt for the tension on the spring constantly opposed the connection. Further not only was this connection difficult to establish but frequently the breaker lever spring was distorted during installation, and the factory preset spring tension was disturbed. This results in improper action or excessive wear of the distributor parts as follows: When the spring is distorted to exert excessive pressure, then rapid rubbing block, cam and contact wear will occur while insufficient pressure will permit high speed bounce which will, in turn, cause arcing and burning of the points and missing of the engine.

It is an object therefore to provide a replacement breaker assembly for a distributor which can be readily installed in a distributor without disturbing the factory setting of the breaker lever spring.

A further object of the present invention is to provide a breaker point assembly with a means which will hold the points of a distributor in aligned engagement prior to their installation in a distributor. This object is accomplished by providing an annulus with an inner opening sized simultaneously to embrace both the stationary and movable contact and maintain them in alignment while the service part is transported and installed in a distributor.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred embodiment of the present invention is clearly shown.

In the drawings:

Fig. 1 is a perspective view showing the replacement parts of the type used in the present invention as mounted on a breaker plate of a distributor.

Fig. 2 is a perspective view of the service replacement parts before assembly in the distributor plate in Fig. 1.

Fig. 3 is a perspective view showing the means for maintaining alignment between the contact points of the service parts during shipment and installation on the breaker plate shown in Fig. 1.

While the means for maintaining the contact points in alignment may be used with any suitable breaker point assembly; for the purposes of explanation, the service replacement set which will be herein described is particularly suited for use in a distributor as set forth in the U. S. patent to Arthur, 2,348,236, which has been assigned to the assignee of the present invention.

As set forth in the patent, the distributor breaker plate assembly includes a stationary plate **20** which is secured by lugs **22** to the inner walls of the distributor. The movable plate **24** which is rotated on plate **20** has a pivot pin **25** secured thereon in a predetermined position relative to a distributor cam, not shown. Located in a predetermined position on plate **24** are the pair of raised portions **28** and a threaded opening **30**. These raised portions **28** and threaded opening **30** are used to position and secure an ignition condenser, not shown, on plate **24**. A cam lubricator may also be mounted on plate **24**. This cam lubricator preferably consists of a nylon yoke **32** which is formed as shown so it may be secured in a pair of spaced openings in the plate **24**. This yoke **32** will embrace and maintain an oil impregnated wick **34** in position so the edge **36** of the wick engages the distributor cam to constantly cause the surface of the cam to be coated with a lubricant.

The service part assembly which is positioned on the breaker plate **24** is shown in Fig. 2. This service part assembly includes a support **38** for the stationary contact **40** and a breaker arm assembly **42**.

The support **38** is formed to have two upstanding flanges **44** and **46** and an opening, not shown, which receives the pin **25**. The support **38** also has an arcuate opening **48** curved on a radius from the center of the opening which receives pin **25**. The opening **48** receives a screw **49** for adjustably securing support **38** on plate **24**. The stationary contact **40** is carried by flange **44**. The flange **46** has a part **50** secured thereto by rivet **52**. The part **50** is formed of a suitable insulating material and has its free end notched to be received in an aperture, now shown, in support **38** so the part **52** will be rigid relative to the support.

The breaker arm or lever assembly **42**, which is fully disclosed in the Nichols et al. Patent 2,658,129, assigned to the assignee of the present invention, includes a breaker arm **54**, a movable contact **56**, a rubbing block **58**, a breaker arm spring **60** and a sleeve **26** of insulating material. These parts are arranged as shown so the contact **56** on one end of the arm **54** will engage the stationary contact **40** when the sleeve **26** is in position on pin **25**. The rubbing block **58** is positioned so it will engage the distributor cam to cause contacts **56** and **40** to separate. The spring **60** has one of its ends secured to the arm **42** at the rubbing block **58**. The spring is curved so it embraces the portion of the lever **62** which secures the sleeve **26**. The other end of the spring is preferably notched so it may be secured to part **50** by a bolt **64** which is tightened by the metal fastener **66**.

It is to be noted that when the service part assembly is detached from the breaker plate, the only point of attachment between the arm assembly **42** and the support **38** is the fastening which is accomplished by bolt **64**. Thus the sleeve **26** is spaced from and movable relative to support **38**. Therefore, unless the contacts **40** and **56** are maintained in engagement the arm assembly **42**, when inadvertently moved upward, would be urged counter-

clockwise in Fig. 2 by the tension of spring **60**. This will cause the opening in support **38** to be out of alignment with the sleeve **26** to make it difficult to assemble the arm **42** and support **38** on the pin **25** without distorting the spring **60** and changing its tension. This difficulty is overcome by providing the annulus **68** which is clearly shown in Fig. 3. This annulus is sized to have an inner opening **70** which is substantially of the same diameter as the contacts **40** and **56**. The annulus is of a thickness greater than at least one of the contacts so the contacts will be held against lateral movement relative to each other as long as the annulus is in the position shown in Fig. 2. When the parts are in the free state the contacts will thus be held in face-to-face engagement by the tension of spring **60** and the annulus **68**. If desired, the annulus may have a projecting means **72** which may be grasped to facilitate the removal of the annulus **68** from between the contacts after the assembly is installed in a distributor.

From the above it is apparent the annulus **68** will maintain the contacts in alignment prior to the installation of the parts on a distributor plate. Thus the factory preset tension of the spring **60** will be maintained. Further when the contacts are aligned, the respective openings in the support plate **38** and sleeve **26** will be substantially aligned so the assembly can be slipped over the pin **25** without difficulty and without distorting the spring **60** to upset the factory calibration. Further as the end of the spring **60** is secured in position on the insulating part **50**, parts may be readily installed in the distributor by first securing a bolt through opening **48** and then securing the primary ignition leads and the condenser leads with a nut, not shown, which is threaded on the projecting portion of bolt **64** which extends beyond clip **66**. This will require considerably less time in replacing breaker points in a distributor as when the contact support **38** and breaker arm **42** were furnished as separate parts.

While the embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

In a replacement breaker point assembly for a distributor having a movable breaker plate with a pivot pin extending from the plate and attached thereto, the combination comprising; a contact support plate adapted for assembly to the breaker plate and having two spaced upwardly extending flanges thereon, a stationary contact mounted on and carried by one of said flanges, a breaker arm, a movable contact carried by one end of said breaker arm, a curved and calibrated spring attached to said breaker arm in spaced relation to said movable contact and connected to the other of said flanges on said support plate for urging the movable contact into predetermined pressure engagement with the fixed contact and acting as the sole means of support for the breaker arm with respect to said plate, said breaker arm having a pivot opening spaced from said movable contact and in alignment with an opening in the support plate, said pivot opening and said opening in the support plate being adapted to pass over said pivot pin when the support plate is assembled to the breaker plate for pivotally mounting the breaker arm on the pivot pin, and removable means for maintaining alignment between the movable and stationary contacts and between said pivot opening and said opening in said support plate, said means consisting of an annulus of rigid material wherein the annulus is sized to have an inner opening of substantially the same diameter as that of said contacts to pass over and simultaneously embrace the outer surfaces of the movable and stationary contacts when the contacts are held in engagement by the spring, said means being disposable when the support plate is assembled to the breaker plate with the breaker arm mounted on said pivot pin.

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