

April 9, 1957

V. E. McCARTY

2,788,386

TERMINAL

Filed April 27, 1953

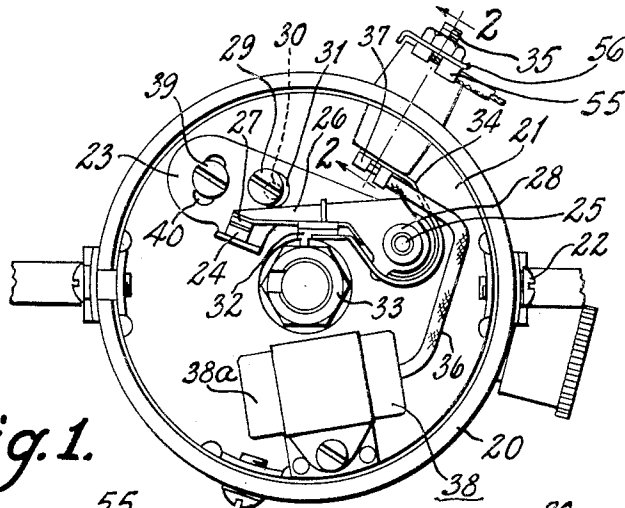


Fig. 1.

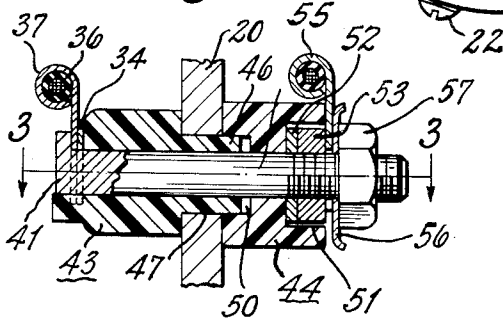


Fig. 2.

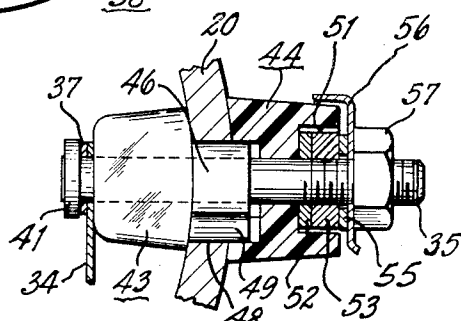


Fig. 3.

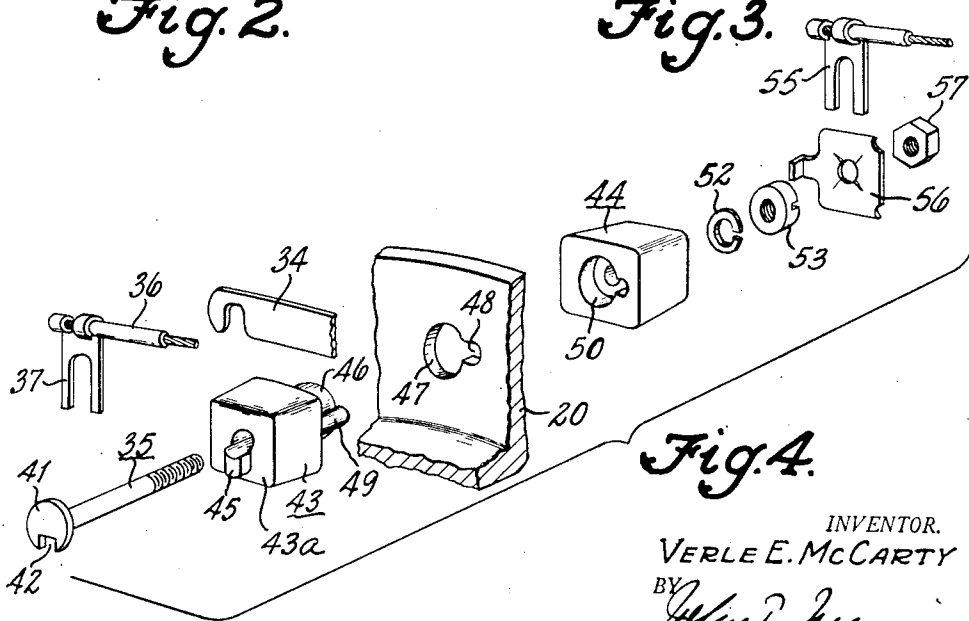


Fig. 4.

INVENTOR.  
VERLE E. McCARTY

BY *John P. Kamin*  
his ATTORNEYS

1

2,788,386

TERMINAL

Verle E. McCarty, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Application April 27, 1953, Serial No. 351,388

2 Claims. (Cl. 174-153)

This invention relates to improvements in electrical terminals and a method of constructing and mounting the terminal in an apertured wall for an electrical apparatus, for example, ignition timers.

An object of the present invention is to provide a terminal screw and means for insulatingly supporting the terminal screw from a metal housing wall of the apparatus, and having means at both ends for attaching conductors thereto and detaching the same without disassembling the means which secure the screw to the housing wall.

Another object of the invention is to provide a device having parts so constructed that when the parts are once secured in position, they cannot rotate relative to each other or work loose from the housing wall.

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 drawing:

Figure 1 is a plan view of an ignition timer having a terminal embodying the invention;

Figure 2 is a sectional view, on an enlarged scale, taken on line 2-2 of Figure 1;

Figure 3 is a view taken on line 3-3 of Figure 2, certain parts being shown in elevation, the parts being turned at an angle of ninety degrees from that shown in Figure 2; and

Figure 4 is an exploded view of the parts of the terminal assembly.

Referring to Figure 1, the terminal assembly is shown installed in connection with an ignition timer which includes a housing wall 20 supporting a breaker plate 21 attached to the housing wall by screws 22. The plate 21 supports a bracket 23 which carries a stationary contact 24. The plate carries a post 25 which provides a pivot for a circuit breaker lever 26 carrying a contact 27 engageable with the stationary contact 24. The lever 26 is insulated from the post 25 by a bushing 28. The post 25 also acts as a pivot for the bracket 23 which is adjustable by the turning of a slotted disc 29 having an eccentric shank 30 pivotally supported in the plate 21. The disc is received by a slot 31 formed in the bracket 23. By turning the disc 29 it varies the adjustment of a rubbing block 32 carried by the lever 26 relative to an ignition timer cam 33. A screw 39 passing through a slot 40 in the bracket 23 and threaded into the plate 21 secures the bracket in adjusted position. The block 32 is urged against the cam 33 by a leaf spring 34 attached at one end to the lever 26, the other end of the spring 34 is connected with a conducting member or terminal rod or screw 35 insulatingly supported by the housing 20. A wire 36 has a clip 37 which is adapted to be connected to the terminal screw 35. The other end of the wire 36 is connected with one foil of a condenser 38, the other

2

foil of the condenser 38 is connected with a metal case 38a attached to the plate 21.

The terminal screw or conducting rod is male threaded at one end and is provided with an integral flange or head 41 having a notch 42. The threaded end of the terminal 35 extends through an internal hollow body 43 and an external hollow body 44. Both bodies 43 and 44 are made of molded insulating material; plastics or other suitable nonconducting materials. The body 43 is provided on one face with a longitudinal boss 45 adapted to extend into the notch 42 in the head 41 of the terminal screw 35 to prevent relative rotation between the rod 35 and the body 43. The body 43 has an extension 46 on the other face, said extension extending through a key-shaped opening 47 provided by the housing 20. The opening 47 includes a notch 48 which receives a rib 49 on the exterior of the extension 46, and thus preventing relative rotative movement between the body 43 and the housing 20. The external body 44 is provided on one face with a cavity or pocket 50 that is the same shape and size as the extension 46 and rib 49 on the body 43. The extension and rib have a close fit with the cavity 50 to prevent relative rotative movement of the bodies. The other face of the body 44 has a recess 51 for receiving a lock washer 52 and a nut 53.

The terminal screw 35 and the body 43 are assembled together and are placed within the housing 20 and are assembled with the housing by placing the extension 46 through the openings 47, 48 of the housing. The body 44 is then assembled over the extension 46. A lock washer 52 is placed over the shank of the terminal screw, and, while manually holding the parts 35, 43 and 44 together, the nut 53 is threaded on the shank of the terminal screw 35. Before the nut 53 is tightened, the leaf spring 34 and the terminal clip 37 are fitted over the boss 45 between the head 41 and the inner face 43a of body 43. Then by a suitable tool the nut 53 is tightened in order to secure the bodies 43 and 44 in firm engagement with the wall 20 and to clamp firmly the parts 37 and 34 between the head 41 and the inner face 43a and also to provide a good electrical connection between the parts 35, 37 and 34.

An external terminal clip 55 and an external lock clip 56 are clamped against the nut 53 by a nut 57 threadedly engaging the threaded shank of the terminal bolt 35. The tightening and slight loosening of the nut 57 does not effect any turning of the bolt 35 due to the fact that the head 41 is kept from turning by the boss 45 on the body 43 which has a splined connection with the housing 20. The nut 53 cannot be turned by threading the nut 57 on the terminal 35 for reason that the nut 53 is gripped by the lock washer 52 which grips the body 44 which is splinedly connected with the body 43 which in turn is splinedly connected with the housing 20.

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:

1. An electrical terminal for use with an automotive distributor having a vertically disposed arcuate wall including a notched aperture therein through which said terminal is adapted to pass, said distributor also including an electrical device therein adapted to be connected to the inner end of said terminal, the combination comprising; an apertured insulating member including a reduced diameter portion adapted to pass through the aperture in said wall, a longitudinally extending key on said reduced diameter portion adapted to interlock with the notch in said wall aperture for preventing relative rotation between the insulating member and the wall, a second key on the inner end of said member, a threaded

3

terminal bolt having a notched head thereon adapted to interlock with said second-mentioned key and also adapted to pass through the aperture in said insulating member, a second apertured insulating member adapted to pass over said bolt at the opposite side of the wall from the first member and to embrace that portion of the longitudinal key on said first member that extends through said wall, and a nut for preventing rotation thereof relative to the first insulating member adapted to be screwed onto said bolt for integrating the assembly in non-rotative position relative to said wall.

2. An electrical terminal for use as an automotive distributor having a vertically disposed arcuate wall including a notched aperture therethrough into which said terminal is adapted to be mounted, said distributor also including an electrical device therein adapted to be connected to one end of said terminal by means of a conductor including a forked attachment clip thereon, the combination comprising; a shouldered and apertured insulating member including a key adjacent the entrance to said aperture and a second longitudinally extending key adapted to fit within the notch within said wall when the member is passed through the wall so that its shouldered portion bears thereagainst for preventing relative rotation between the member and the wall, an elongated conductor passing through said apertured member and having

4

a notched head adapted to pass over the first-mentioned key and to clamp the forked end of said conductor between said head and the end of said first-mentioned member, a second apertured insulating member being disposed so as to telescope over the protruding end of the first member on the opposite side of the wall, said second member including a keyway therein adapted to engage the protruding portion of said longitudinally extending key on the first member, said elongate terminal passing through said second member and extending beyond the outer end thereof, and means associated with the outer end of said terminal for drawing the terminal head tightly against the inner end of the first member and for causing the first and second members to be drawn tight against opposite sides of the wall whereby a non-rotative insulating connection is formed through the wall.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

2,443,545	Schwennesen	June 15, 1948
2,514,440	Breisch	July 11, 1950
2,552,686	Melcher	May 15, 1951

##### FOREIGN PATENTS

609,920	Great Britain	Oct. 8, 1948
---------	---------------	--------------