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IGNITION TIMER WIRING ASSEMBLY

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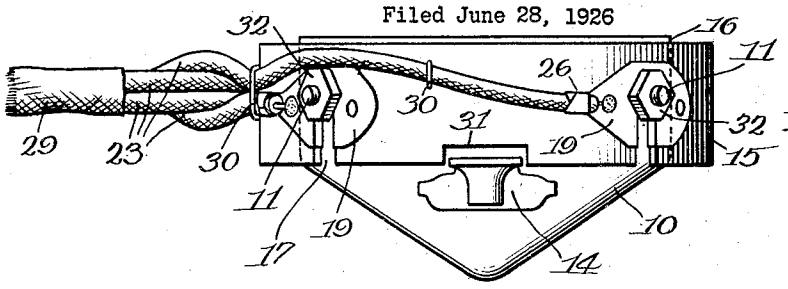



Fig. 1

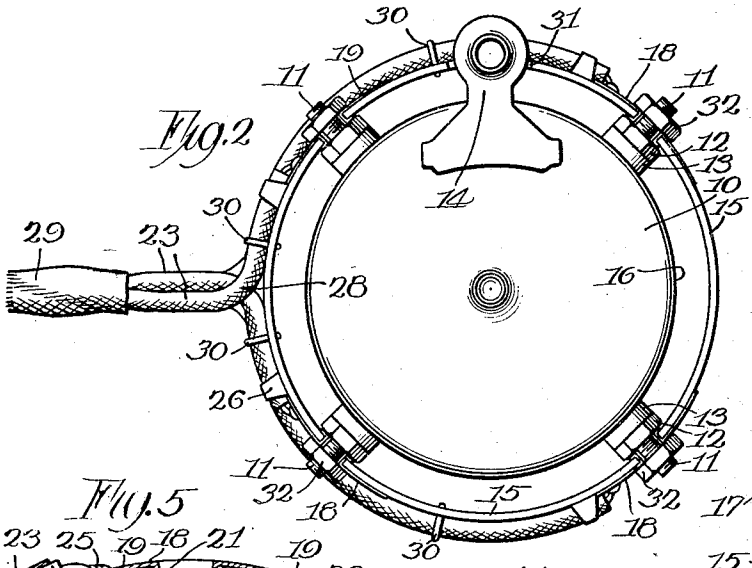



Fig. 2

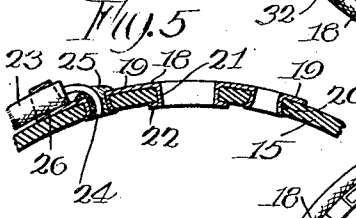



Fig. 5




Fig. 3

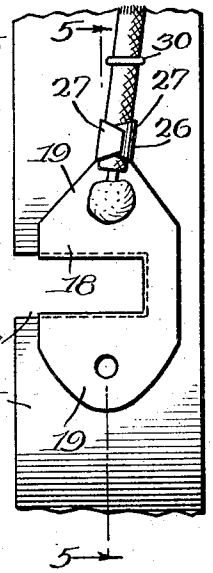



Fig. 4

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# UNITED STATES PATENT OFFICE.

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## IGNITION-TIMER WIRING ASSEMBLY.

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This invention relates to wiring assemblies for use in connection with ignition timers such as are used on internal combustion engines, and more particularly to timers such as are used on the engines of a Ford automobile.

The objects of the invention are; to provide a convenient means for connecting the necessary conductors to the binding posts of a timer which is in a comparatively inaccessible place; to provide means whereby the ends of a plurality of conductors which are to be connected to the timer, may be mounted so as to be handled as a unitary structure and thereby eliminate the necessity of individual handling of each conductor; to prevent transposing of the conductors; to provide means for retaining the conductors adjacent the timer so as to avoid the danger of injury to said conductors by engagement with a moving part of the engine, and to provide means for protecting the conductors to a large degree from oil and grease, which ordinarily disintegrate the usual insulation used on the conductors.

Other objects of the invention are to provide a wiring assembly which may be easily and inexpensively manufactured, which will be strong and rigid in construction and light in weight; and other objects will become apparent when the following specification is considered in connection with the accompanying drawing, wherein I have illustrated a selected embodiment of my invention, and in which;

Fig. 1 is a plan showing my improved assembly connected to a timer.

Fig. 2 is an elevation of the parts shown in Fig. 1.

Fig. 3 is an elevation of the wiring assembly disconnected from the timer.

Fig. 4 is a plan of one of the contact members, and

Fig. 5 is a section on the line 5—5 of Fig. 4.

Referring now to the drawings 10 indicates a timer of common construction such as used on Fords. The timer 10 is provided in the present instance with four projecting terminals or binding posts indicated at 11, which are insulated from each other and which are connected to suitable contact segments within the timer. The segments are held in place within the timer partly by means of clamping nuts 12 threaded on the binding posts 11 and which are screwed down against the periphery of the cylindrical part 16 of the timer shell, an insulating washer 13 being interposed therebetween to prevent the establishment of electrical contact between the nut 12 and the timer casing. A suitable ear 14 is secured to the timer and adapted to receive an adjusting rod which is connected with the spark control lever in accordance with well known practice. The timer 10 is mounted so as to be capable of being oscillated about its axis for the purpose of advancing or retarding the spark which is also in accordance with well known practice.

My improved wiring assembly for use in connection with a timer of the above described construction comprises a strip 15, preferably of flexible insulating material, in the form of a band or ring which is adapted to embrace the cylindrical part 16 of the timer. The band 15 is provided with a plurality of slots 17 which are adapted to receive the binding posts 11 of the timer when the band 15 is in position thereon. Each of the slots 17 is provided with a contact member 18 which preferably extends along both sides of the slot and across the bottom, and is secured to the insulating band 15 in any suitable way.

One convenient way of securing the contact members 18 in position on the band 15 is to provide ears 19 on the contact member, and apertures 20 in the band 15 over which the ears are adapted to lie. The metal in the ears 19 of the contact members may then be punched down so as to pass through the apertures 20, and bent over the edges of the band around the aperture to form integral tubular rivets. Additional securing means may be provided by extending the contact member 18 downwardly through the slot 17 as indicated at 21 and bending the downward extension 21 outwardly, as indicated at 22, under the edges of the band 15 around the said slot.

Each one of a plurality of conductors 23 which are preferably covered with a suitable insulation, are adapted to be connected at one end to one of the contact members 18 and at its other end to another device, whereby it will be capable of conducting electrical energy between the devices at its ends. One convenient way of connecting the end of the conductor to the contact member 18 is to in-

sert the bared end of the wire, as indicated at 24, into the aperture in one of the ears 19, which is occasioned by the above described fastening means, and soldering the said bared end and ear 19 together, as indicated at 25. An extension 26 on the ear may be provided with lugs 27—27 which may be wrapped around the end of the conductor 23 to hold the conductor adjacent the ear 19 and to largely eliminate stress on the soldered connection which might otherwise occur.

In the present instance I prefer to dispose the conductors 23 about the band 15, from the respective contact members to which they are connected to a junction point at the side of the band as clearly indicated at 28 in Fig. 2. From the junction point 28, I prefer to braid the conductors together for a suitable distance outwardly, whereby the wires are rendered more or less self supporting and rigid enough to prevent excessive bending and flexing at this point whereby they might be broken. By this means the need of a spring or other supporting means is eliminated, although if found desirable, it may readily be added.

While the conductors are thus rendered rigid enough to prevent sharp bending and possible breakage by reason thereof, they are nevertheless sufficiently flexible so that the necessary bending and manipulating of the assembly and conductors will not be interfered with. I also prefer to cover all of the conductors with a single flexible covering such as a braided fabric covering, as indicated at 29, to further protect them and render their handling more convenient and to improve the general appearance of the assembly.

The conductors are each secured to the band by being connected to the contact member 18 which is fastened to the band and additional means may be provided intermediate this connection and the junction point 28. One such means may be in the form of staples 30 placed over the conductors at the desired points and passed through the band 15, and bent thereunder so as to retain them in place.

As shown in Fig. 1, the slots 17 in the band are made of a depth which will require the provision of a notch 31 in the outer edge of the band to receive the timer ear 14 when the band is adjusted to its proper position on the timer. It will be apparent that the contact members may be so reduced in size and so positioned at the bottom of the respective notches that they will not engage the terminals except when the ear 14 enters the said notch 31. By this means improper application of the wiring assembly may be readily detected.

The above described wiring assembly is preferably applied to the timer by removing the timer shell from the engine and inserting the timer into the band so that the binding posts 11 thereof enter into the notches 16 of the band, and between the edges of the contact member 18. When in this position, suitable binding nuts 32 on the terminals 11 may be screwed down to engage the contact members 18 and thereby clamp the band 15 in position. The timer may then be replaced on the engine and the timer connections are then complete. It will be noted that even though the binding nuts should become loosened, the assembly cannot come off since it is locked between the end of the engine and the ear of the timer.

I have thus provided a device which is simple in construction, inexpensive to manufacture, may be easily and quickly applied, and which accomplishes the aforesaid objects of the invention.

I am aware that various changes in the form, construction and proportion of parts may be made without departing from the essence of the invention, and I therefore reserve the right to make such changes as fall within the scope of the following claims.

I claim as my invention:

1. In combination, an ignition timer having a plurality of spaced terminals, and a wiring assembly for connecting a plurality of conductors to said terminals and comprising a flexible member adapted to embrace a part of said timer, a plurality of relatively insulated contacts mounted on said member in spaced relation according to the spacing of said terminals and adapted to respectively engage the latter, and a conductor connected to each of said contacts.

2. In combination, an ignition timer having a plurality of spaced terminals projecting radially therefrom, and a wiring assembly for connecting a plurality of conductors to said terminals and comprising a flexible band adapted to embrace a part of said timer and having a plurality of slots therein for respectively receiving said terminals, a plurality of contact members insulated from each other and respectively secured to said band at said slots so as to contact with the corresponding terminals, and a conductor connected to each of said contact members.

3. In combination, an ignition timer having a plurality of spaced and relatively insulated terminals projecting radially therefrom and a wiring assembly comprising a flexible band embracing a part of said timer, a plurality of relatively insulated contacts secured to said band and respectively engaging said terminals, and means on said terminals for clamping said contact members into engagement with the former, the flexibility of said band permitting yielding thereof under pressure of said clamping means and a conductor connected to each of said contacts.

4. In combination, an ignition timer in-

cluding a cup-shaped shell having a plurality of relatively insulated and circumferentially spaced terminals projecting radially therefrom, and a wiring assembly comprising a flexible band of insulating material embracing a part of said shell, and having a plurality of slots therein for receiving said terminals, a plurality of contact members respectively secured to said band at said slots so as to engage the terminal received by the corresponding slot, and means on said terminals for clamping said contacts into engagement with the terminals, the flexibility of said band permitting yielding thereof under pressure of said clamping means, and a conductor connected to each of said contacts.

5. In combination, an ignition timer, including a shell having a plurality of relatively insulated and circumferentially spaced terminals projecting radially therefrom, clamping nuts on said terminals for holding the latter in place on the shell, and a wiring assembly comprising a flexible strip adapted to embrace a part of said shell, a plurality of contact members insulated from each other and secured to said strip in spaced relation according to the spacing of said terminals and adapted to be seated on the clamping nut on the corresponding terminal, binding nuts on said terminals adapted to force said contacts into engagement with said clamping nuts, and a conductor connected to each of said contacts.

6. In combination, an ignition timer including a shell having a plurality of relatively insulated and circumferentially spaced terminals projecting radially therefrom, clamping nuts on said terminals for holding the latter in place on the shell, and a wiring assembly comprising a flexible band embracing said shell and having a plurality of slots therein for receiving said terminals, a plurality of contact members respectively secured to said band at said slots and seated on said clamping nuts, a binding nut on each of said terminals operative to force said contacts into engagement with said clamping nuts, and a plurality of conductors respectively connected to said contact members.

7. In combination, an ignition timer having a plurality of spaced terminals projecting therefrom and a binding nut on each of said terminals, and a wiring assembly comprising a band embracing a part of said timer and having a plurality of openings therein for receiving said terminals, a plurality of contacts respectively secured to said band adjacent said openings so as to engage the respective terminals received by said openings, and a plurality of flexible conductors respectively connected to said contacts, disposed on the outside of said band and extending from their respective contacts to a junction point common to all, said conductors extending away from said band at said junction point and being braided together in the vicinity thereof whereby sufficient flexibility is retained but sharp bending thereof is prevented in said vicinity.

8. In combination, an ignition timer having a plurality of spaced terminals projecting therefrom and a binding nut on each of said terminals, and a wiring assembly comprising a flexible band embracing a part of said timer and having a plurality of openings therein for receiving said terminals, a plurality of contacts respectively secured to said band adjacent said openings so as to engage the respective terminals received by said openings, and a plurality of flexible conductors respectively connected to said contacts, disposed adjacent said band and extending from their respective contacts to a junction point common to all and then away from said band in a group from said junction point, and means for preventing sharp bending of said conductors in the vicinity of said junction while permitting flexing thereof.

9. In a wiring assembly for connecting a plurality of conductors to a standard Ford timer, the combination of a cup-shaped timer shell having a plurality of projecting binding posts spaced around its periphery and insulated from each other, a strip of insulating material adapted to embrace a part of said shell and having a plurality of openings therein for receiving said binding posts, a plurality of contact members respectively secured to said strip adjacent said openings, a binding nut on each of said posts for clamping the band in position and for effecting electrical connection between the post and contact a set of flexible conductors, each of which is permanently secured to one of said contact members, disposed adjacent said strip and extends from its contact to a junction point common to all of said conductors, said set of conductors extending away from said strip at said junction and means for supporting said set in the vicinity of said junction to prevent sharp bending thereof.

10. A wiring assembly for connecting a plurality of conductors to the terminals of a standard Ford timer and comprising a flexible band of insulating material adapted to embrace a part of the timer and having a plurality of openings therein for receiving said terminals, a plurality of contact members respectively secured to said band adjacent said openings so as to engage the respective terminals received by the openings, and a plurality of conductors respectively secured to said contact members.

11. A wiring assembly for connecting a plurality of conductors to the terminals of a standard Ford timer and comprising a flexible band of insulating material adapted to embrace a part of the timer and having

a plurality of openings therein for receiving said terminals, a plurality of contact members respectively secured to said band adjacent said openings so as to engage the respective terminals received by the openings, a plurality of conductors respectively secured to said contact members, and means for preventing improper application of said assembly to the timer.

12. In combination, an ignition timer having a plurality of spaced and relatively insulated terminals projecting radially therefrom and a wiring assembly comprising a flexible band embracing a part of said timer, a plurality of relatively insulated contacts secured to said band and respectively engaging said terminals, means on said terminals for clamping said contact members into engagement with the terminals, the flexibility of said band permitting yielding thereof under pressure of said clamping means, and a plurality of flexible conductors respectively connected to said contacts, disposed about and secured to the outside of said band from their respective contacts to a junction point common to all and extending away from said band in a group from said junction point.

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