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LOCK COIL

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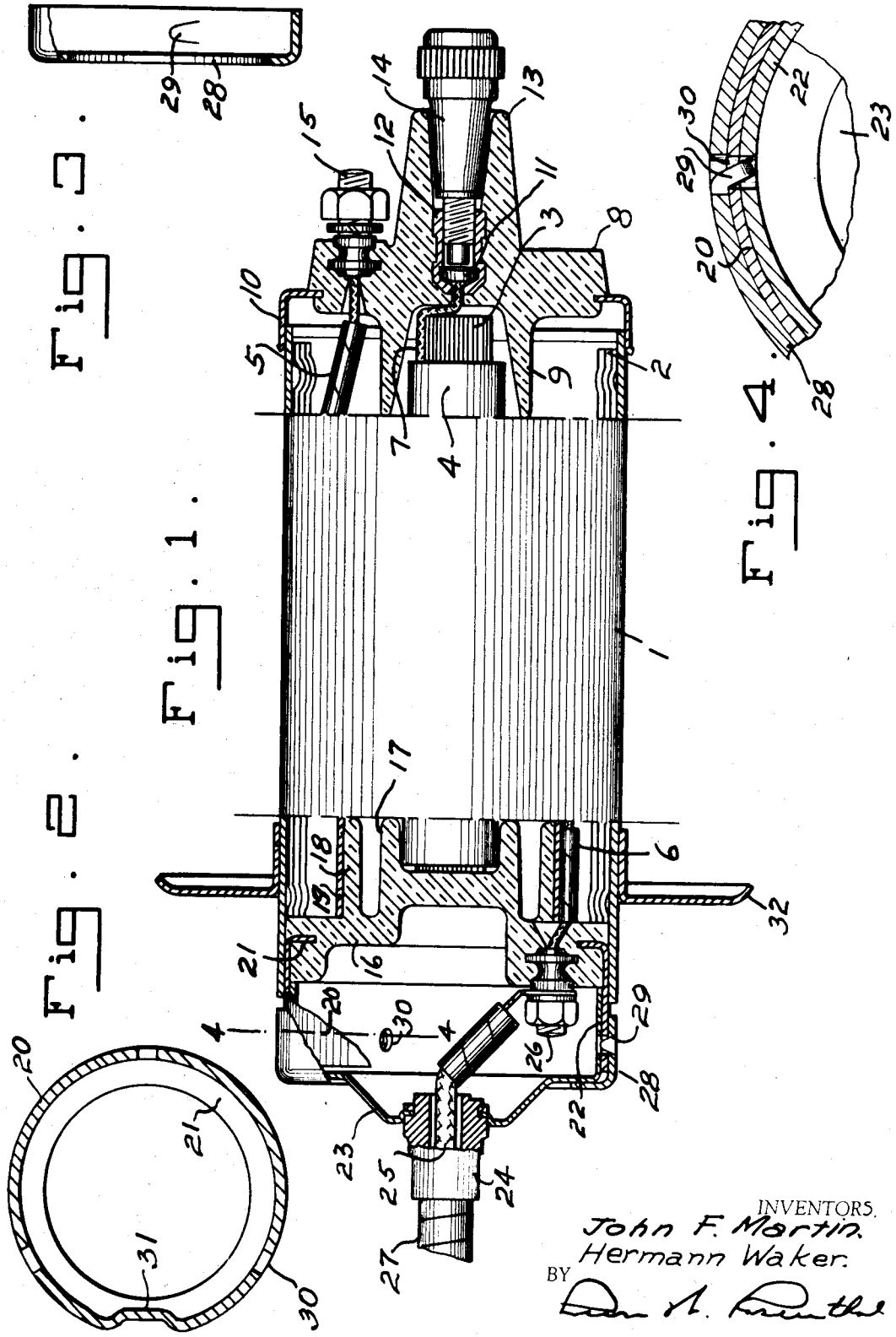


Fig. 3.

Fig. 1.

Fig. 4.

Fig. 2.

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LOCK-COIL

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Our invention relates to improvements in lock coils and particularly to means for attaching to an ignition coil for an internal combustion engine the conductor or cable which connects the coil with the ignition controlling switch.

An object of the invention is to provide a high tension ignition coil in a suitable casing having means at one end for connection with the high tension and low tension portions of the ignition system, and improved means at the opposite end for enabling the conductor or cable that leads to the ignition switch to be secured to one of the low tension terminals of the coil.

Another object of the invention is to provide an improved lock coil comprising high and low tension windings in a suitable casing, one end of which, such as the bottom end, is closed by an improved cap of moulded insulation having a flange therein adapted to cooperate with the adjacent end of the switch lead or conductor to hold the latter securely in connected position.

A further object of the invention is to provide a lock coil having suitable windings in an enclosing casing which is closed at one end, as above stated, by an improved moulded insulating cap with an embedded flange therein and suitable cooperating members with flanges capable of being secured to one another and of holding the switch lead or conductor securely so that the connection with said lead or conductor with an adjacent terminal of the coil is effectively maintained.

Further objects and advantages of the invention are fully set forth herein; and while we have shown one embodiment of the device, variations in the details of construction may be employed without departing from the spirit of the invention or exceeding the scope of the appended claims.

On the drawing:

Fig. 1 is a side view of a lock coil partly in section at both ends, according to this invention;

Fig. 2 is an end view partly in section of a flange embedded in the closure cap of insulation at one end of the coil;

Fig. 3 is a side view partly in section of a locking flange; and

Fig. 4 is a section showing details of construction along the iine 4—4 in Fig. 1.

On the drawing the same numerals identify the same parts throughout.

The casing or housing of the coil is shown at 1. It is preferably formed of tinned plate tubing. Within this housing are core laminations 2 of magnetic material which envelop the windings of the coil, placed between these laminations and a central laminated core 3. These windings comprise secondary turns immediately encircling the central core 3 but separated therefrom by an insulation tube 4. Primary windings are wound over the secondary windings and lie between these and the laminations 2. One terminal of the primary winding, as shown at 5 is at the right end or top of the encased coil, and the other terminal of the primary winding, shown at 6, is let out through the other end or bottom of the encased coil. The top end is closed by a head of insulation 8 having an inside annular flange 9 which surrounds the adjacent end of the central magnetic core 3 and tube 4. Embedded in the head 8 is a flange 10 which is angle-shaped in cross section and telescopes over the adjacent extremity of the housing 1 and is preferably soldered thereto so as to make the joint tight. One terminal of the secondary winding indicated at 7, is joined to a terminal 11 in a sleeve or socket 12 of conductive material embedded in the head 8 at the bottom of a bore or recess in a boss 13 which projects outwardly from the center of the head and this recess may receive a conductor tip 14, to which the usual high tension lead connected to the distributor is joined, so that this high tension lead can be placed in circuit with the secondary through the inner end of the tip making contact with the terminal 11. The other end of the secondary is, of course, connected to ground through one of the primary conductors. The head 8 also bears an embedded primary post 15 for the primary lead 5.

The opposite end of the housing is closed by a moulding of bakelite 16 which is extended on its inner side by a central boss 17 and a surrounding flange 18. The central boss 17 is recessed, as shown, to receive the adjacent end of the core 3 and tube 4. Surrounding the flange 18 is a piece of tubing 19 that extends from the cap 16 towards the opposite end of the coil and lies between the primary and secondary windings. Attached to the cap 16 is a flange 20 which has its inner edge overturned, as shown at 21, and is embedded in the moulded cap 16. This flange is encircled by the adjacent end of the housing 1 but projects beyond the end of the same to receive within it the rim 22 of the switch lead flange 23. This flange 23 has the form of a cup-shaped closure with a conical bottom and a central opening therein to receive a tubular bushing 24 through which the conductor, joined to the primary wire 6, is led to the ignition switch. This conductor is covered with insulation 25 and is secured to the primary terminal 6 by means of a binding post 26 embedded in the cap 16. This conductor is enclosed in a protective sheathing 27 which is also secured in one end of the bushing 24 and this bushing is affixed in the opening at the center of the switch lead flange 23 in any suitable manner.

The rim 22 of the switch lead flange 23 abuts against the outer end of the moulded cap 16 and is held to the flange 20 by means of a locking flange 28 which is also angular in cross section. This locking flange projects over the switch lead flange 23 and encircles the outer end of the flange

20. In the lock flange are a number of sheared tongues 29 which may be three in number and the flange 20 and rim 22 of the switch lead flange 23 have a corresponding number of openings 30 which register with each other, as shown in Figs. 1 and 4. When the locking flange is slipped over the flange 20 to lock the switch lead flange in place, the tongues 29 are forced down into the openings 30 and the three flanges are thus made rigid with each other. The switch lead conductor can thus be first secured to the binding post 26 and then when the switch lead flange or element 23 is placed within the flange 20 and forced against the cap 16, the locking flange 28 can be attached by bending in the tongues 29 and then the switch lead flange cannot be taken off or even turned on the flange 20. Thus the lock between the coil and the lead to the ignition switch is effected.

The housing 1, being made of tubing, will in practice have a seam along the outside, and to clear this seam the flange 20 may be indented slightly at 31. The housing 1 may be surrounded by a mounting ring or flange 32 which is secured thereto and can be attached to any suitable support.

With this construction of lock coil, the unit can be held in proper position, for example, at the front of a coil by fastening the mounting flange 32 to the dash which may have an opening in which the bottom of the housing of the coil may be placed so that the conductor 25 within the sheath 27 may easily be led to the ignition switch; while the terminals of the opposition end of the coil may be conveniently connected to the distributor and the battery through the necessary circuit interrupter.

Having described the invention, what is claimed is:

1. In a lock ignition coil, the combination of a housing, a flange within said housing projecting from one end thereof, a terminal in said housing for attachment to a switch lead, a member having an outlet for said lead, and means for securing said member to said flange.

2. In a lock ignition coil, the combination of a housing, a flange within said housing projecting from one end thereof, a terminal in said housing for attachment to a switch lead, a member having an outlet for said lead, and means for securing said member to said flange after insertion of the member into the flange.

3. In a lock ignition coil, the combination of a housing, a flange in the housing projecting from one end thereof, a terminal in the housing for attachment to a switch lead, a member having an outlet for said lead, and provided with a rim which is encircled by said flange, and means for securing said rim to said flange.

4. In a lock ignition coil, the combination of a housing having a flange therein projecting from one end thereof, a terminal for attachment to a switch lead in the housing, a member having an outlet for the lead and a rim to be placed in engagement with the flange, and a locking flange to encircle said rim and the first flange and be secured thereto and having a portion overlapping and engaging said member to prevent detachment thereof.

5. In a lock ignition coil, the combination of a housing, a moulded insulating cap closing one end of said housing, a flange attached to said cap and projecting from one end of the housing, a terminal carried by the cap to connect the coil to a switch lead, and means for securing said lead to said flange.

6. In a lock ignition coil, the combination of a housing, a moulded insulating cap closing one end of said housing, a flange attached to said cap and projecting from one end of the housing, a terminal carried by the cap to connect the coil to a switch lead, and means for securing said lead to said flange, said insulating cap having a hollow internal projection to support the core of the coil in the housing.

7. In a lock ignition coil, the combination of a housing having a moulded bakelite cap in one end, said cap carrying a terminal for attachment to a switch lead, and means for securing said lead to said cap, said means being partly embedded in said cap.

8. In a lock ignition coil, the combination of a housing, a moulded insulating cap in one end of the housing, said cap having a flange with one edge embedded therein, said flange projecting from said end of the housing, a terminal carried by the cap for attachment to a switch lead, a member having an outlet for said lead, and a rim encircled by the flange, and a locking flange engaging said rim and said first flange to secure said member and said first flange together.

9. The combination of an ignition lock coil having a housing, a flange projecting from one end of the housing, a member having an outlet for a switch lead connected to the coil, said member having a portion adjacent the flange and a locking flange to hold said member and the first flange together.

10. The combination of an ignition lock coil having a housing, a flange projecting from one end of the housing, a member having an outlet for a switch lead connected to the coil, said member having a portion adjacent the flange and a locking flange to hold said member and the first flange together, said portion and said first flange having openings and said last-named flange having tongues which enter said openings.

11. An ignition lock coil comprising a housing, a moulded insulating cap in one end of the housing, a flange embedded in said cap and projecting from said end, a coil terminal carried by the cap, a switch lead secured to the terminal, a member having an outlet for said switch lead, said member having a rim which enters the flange and a locking flange angle-shaped in cross section engaging the first flange and overlapping said member, said first flange and said rim having registering openings and said locking flange having tongues which enter said openings.

12. In a lock ignition coil, the combination of a housing, a flange in the housing projecting from one end thereof, a terminal in the housing for attachment to a switch lead, a member having an outlet for said lead and means for securing said member to said flange.

13. In a lock ignition coil, the combination of a housing, a coil therein, a molded insulating cap in the housing closing one end thereof, means carried by the cap for connecting the coil to the switch lead, a flange within the housing secured to the cap and a cover carrying one end of the lead engaging said flange.

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