

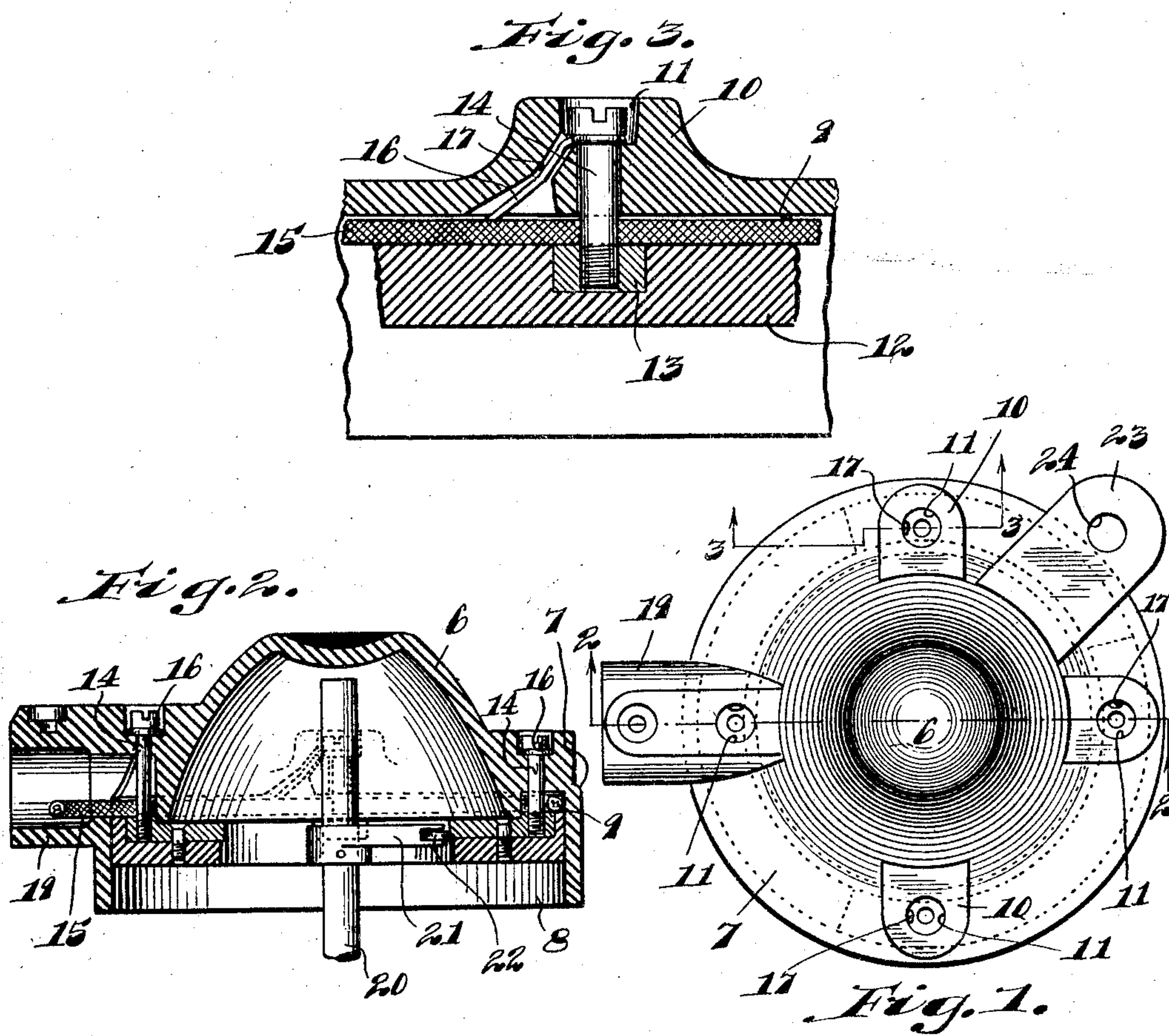
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TIMER CAP

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# UNITED STATES PATENT OFFICE

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## TIMER CAP.

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*To all whom it may concern:*

Be it known that I, NEWELL B. PARSONS, a citizen of the United States, and a resident of the city of La Grange, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Timer Caps, of which the following is a specification.

My invention relates to improvements in timer caps and is of particular value in connection with timer caps such as are used on Fords, the ignition circuits of which are so arranged that the low tension current coming from the battery or the magneto is interrupted and also distributed through a series of relatively stationary contacts in conjunction with a revolving brush, said contacts, however, being capable of a limited amount of angular adjustment around the axis of rotation of the brush to enable the spark to be advanced or retarded as occasion requires.

The principal objects of the invention are to provide improved means for enclosing the electrical connections in order to prevent short circuiting; to provide improved means for positioning in the cap of the timer a member which supports a series of contacts over which the brush travels; to provide improved means for housing the end of the cable and the individual wires leading therefrom to the contact connections; to provide a construction which shall be simple in design and economical to manufacture, while being efficient in operation and inexpensive to maintain, and keep in repair, and in general to provide an improved timer construction of the character referred to.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Fig. 1, is a top plan view of my invention, Fig. 2, is a sectional view taken on substantially line 2—2 of Fig. 1, and

Fig. 3, a sectional view taken on substantially line 3—3 of Fig. 1.

In the use of timers or commutators, a cap is provided into which project wires respectively leading to the low tension sides of the spark coils, the high tension windings of which are respectively connected to the spark plugs of the engine. Great difficulty has been experienced with the use of the

timer cap now in use, for the reason that the connection at the terminal post, which is secured in the timer cap itself, often becomes loose and causes an irregular delivery of electric current to the spark plug. In my invention a more positive connection is made between the terminal post used in the timer cap and the wire leading therefrom. To accomplish this I provide a timer cap 6, which is provided, adjacent its rim, with a flange 7. Projecting vertically from the flange 7 is a flange 8. Formed in the flange 7 is a circumferential groove 9. Formed upon the cap are bosses 10, each of which is provided with a recess 11. A fibre or insulating ring 12 is provided, in which is imbedded, at intervals, contact blocks or plugs 13, these plugs extending inwardly relatively to the ring so as to lie flush with the inner surface of the ring itself. Terminal posts 14 are projected through passages formed in the cap 6 and threaded into the members 13. Engaging in the groove 9 is a cable 15, in which the wires 16 which connect with the spark plugs of the engine are insulated. Communicating with the recess 11 and with the groove 9 is an upwardly inclined passage 17, in which one end of the wire 16 is projected. The extreme end of the wire 16, which is free from insulation, is securely clamped against the insulating cap 6 by means of the terminal 14 which is constructed in the form of a screw having an enlarged head on one end. An extension 19 is mounted upon the member 6, and preferably made integral therewith, which forms a passage for the cable 15.

My invention is designed for use with gasoline engines, tractors, aeroplanes and automobiles, and principally those of the Ford type, the cap 6 being adapted for use with a timer or commutator ordinarily used. The timer may be rocked on a motor casing by means of a lug 23 which has an opening 24 through which the pin of an actuating rod or link may be inserted. An arm 21 is rigidly mounted upon the forward end of the timer shaft 20, and at the free end of the arm 21 a roller 22 is secured, which is adapted to contact with the inner surface of the ring 12 and also with the contact blocks 13 when passing over the point in the ring to which the same are secured. My invention resides principally in pro-



viding the inclined passage 17 in the boss 10, so as to provide a means for securing the end of the member 16 in close connection with the member 14 by looping the same around the upper end thereof and then clamping the looped end against the member 6. With the timer caps as now in use, the end 16 of the wire which connects the terminal post with the spark plug lies in the groove 9 and is looped around the post 14 at that portion of the post which projects through the groove 9. The wire is then soldered to the post and the connection thus established. In use, however, this soldered connection becomes broken and the wire 16 is permitted to vibrate on the member 14, and at intervals no connection is established between the member 14 and the wire 16. By securely clamping the wire against the member 14 in the manner already described, a positive connection is established at all times, and a more efficient structure results.

The cap is preferably made of a phenol condensation or other suitable dielectric and is formed by molding the same to the necessary shape. By constructing the cap in this manner and from this material, a simple and economical cap is provided.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A device of the class described comprising a cup-shaped cap; a flange formed on said cap adjacent the rim having a groove therein; and a passage for the insertion of a terminal post, there being a passage connecting said groove with said terminal post passage, substantially as described.

2. In a timer, a cap having a groove formed therein; an insulator ring; contact members on said ring; terminal posts engaging said contact members; and wires leading through inclined passages from said groove to the outer ends of said terminals, substantially as described.

3. In a timer, a cap having a groove provided with outwardly inclined passages leading to terminal posts in said cap; and a cable disposed in said groove and having wires leading through said passages to said terminal posts, substantially as described.

4. In a timer, a cap having a groove; and a boss on said cap having a recess therein, there being an inclined passage connecting

said recess and said groove, substantially as described.

5. In a timer, a cup-shaped cap having a groove; and a number of bosses on said cap, each having a recess therein, there being inclined passages in said cap connecting the recesses in said bosses with said groove, substantially as described.

6. In a timer, a cap molded from a dielectric, and having a groove therein; a boss on said cap having a recess therein, there being a passage in said cap connecting said recess with said groove, substantially as described.

7. In a timer, a cup-shaped cap having a groove and inclined passages leading from the groove, an insulating ring adjacent said groove, spaced metallic contact plates in said ring, terminal posts having their inner ends engaging said contacts, and wires leading from a cable in said groove and through the inclined passages in said cap to the outer end of each of the terminal posts, substantially as described.

8. In a timer, a cap having a groove formed therein; an insulator ring; contact members mounted in said ring; terminal posts having their inner ends threaded into said contact members; and wires leading through inclined passages from said groove to the outer ends of said terminals and being clamped therebeneath.

9. In a timer of the class described, the combination of a hollow cap having an open end and a closed end, an insulator track member insertable and removable through the open end of the cap, contacts carried by said track member, and track fastenings carried by the cap and detachably connected with the track member and operable at the exterior of the cap for disconnecting the fastenings from the track member.

10. In a timer of the class described, the combination of a hollow cap having an open end and a closed end, the open end having a concentric cylindrical flange constituting a rotary bearing member for the cap, an insulator track member insertable and removable through the open end of the cap and lying against the closed end thereof, contacts carried by said track member, and track fastenings carried by the cap and detachably connected with the track member and operable at the exterior of the cap for disconnecting the fastenings from the track member.

11. In a timer of the class described, the combination of a hollow cap body having an open end and a closed end, an insulator track member insertable and removable through the open end of the cap, contacts carried by said track member, and track fastenings extending through the cap body and detachably connected with the track for maintaining the latter in place, said fasten-



ings being operable at the exterior of the cap for disconnecting the fastenings from the track member.

12. A timer comprising a body provided in its inner face with a groove and also with a circular flange projecting at the inner face of the body and outside of the groove, the body having a series of passages extending from the outer face of the body and intersecting the groove, the outer end of each passage being enlarged, a ring within the circular flange and against the inner face of the body, contact members embedded in the ring and flush with the inner periphery of the ring, headed terminals extending through the passages and connected with the respective contacts, the heads of the terminals lying in the enlarged outer ends of the passage, there being a branch passage leading from the groove to the enlarged outer end portion of each of the first mentioned passages, and conductors lying in the groove, the terminal of each conductor extending through one of the branch passages and engaged with one of the terminals and clamped between the head thereof and the back of the enlarged portion of the adjacent passage.

13. A timer comprising a body provided in its inner face with a groove, passages intersecting the groove and terminating in enlargements at the outer face of the body, headed terminals extending through the passages and through the groove, branch passages leading from the groove to the enlarged outer end of each of the first mentioned passages, and conductors lying in the groove, the terminal of each conductor extending through one of the branch passages and engaged with one of the terminals and clamped between the head of the latter and the back wall of the enlarged portion of the passage.

14. A timer comprising a body provided in its inner face with a groove, a series of bosses on the outer face of the body and in alignment with the groove, the body being provided with passages extending through the bosses and intersecting the groove, the outer end of each passage terminating in an enlargement at the outer face of the adjacent boss, the body also being provided with a branch passage extending through each boss and leading from the groove to the enlarged passage portion in the boss, headed terminals extending through the passages with their heads in the enlarged portions thereof, and conductors lying in the groove, the terminal of each conductor extending through one of the branch passages and being engaged with the adjacent terminal member and clamped between the head thereof and the back of the enlarged portion of the passage.

15. A timer cap, comprising a cap body

provided in its under face with a groove, a depending circular flange outside of the groove, there being a series of open topped terminal-passages extending downwardly through the cap and intersecting the groove, the top of each terminal passage and the groove being connected by a branch passage, a removable ring of insulating material lying against the bottom face of the cap and closing the groove, a series of contact elements embedded in the ring and flush with the inner periphery thereof, fastenings securing the contacts with the ring, headed terminals in the terminal-passages and having their heads at the outer ends of said passages and said heads being accessible at the top of the cap, the lower ends of the headed terminals being screw threaded into the respective contacts and securing the ring to the cap, and conductors lying in the groove, the terminal portion of each conductor extending through the branch passage and into engagement with the adjacent headed terminals and clamped between the head thereof and the cap.

16. A timer cap, comprising a cap member, an insulating ring member at the bottom of the cap member and carrying a series of contacts, one of said members having an annular groove, a series of headed terminals extending downwardly through the cap and intersecting the groove and connected with the respective contacts, the heads of the said terminals being accessible at the top of the cap, there being a branch groove leading from the annular groove to the head of each terminal, and conductors lying in the groove, the terminal portion of each conductor extending through one of the branch passages to the adjacent terminal member and clamped between the head of the terminal member and the cap.

17. A timer cap, comprising a cap body provided with an outwardly directed peripheral flange at the base of the cap, a cylindrical flange depending from the first mentioned flange, the bottom face of the first mentioned flange having an annular groove provided with a lateral entrance, an insulating ring fitting the interior of the cylindrical flange and closing the open bottom of the groove, the cylindrical flange projecting below the ring and constituting a rotary bearing member for the cap, a series of contacts embedded in and secured to the ring and lying between the latter and the bottom of the cap and also flush with the inner periphery of the ring, each contact underlying the groove of the cap, headed terminal members extending downwardly through the first mentioned flange and through the groove and having screw threaded connections with the respective contacts, the head of each terminal member being accessible at the top of the first mentioned flange, there



being a branch passage leading from the groove to the head of each terminal member, and conductors lying in the groove and extending through the entrance portion thereof, the terminal of each conductor extending through one of the branch passages and clamped between the head of the adjacent terminal and a portion of the first mentioned flange.

10 18. In a timer of the class described, the combination of a hollow cap having an open end and a closed end, an insulator track member insertable and removable through the open end of the cap, contacts carried by  
15 said track member, and disconnectible fastenings for securing the track member to the cap, said fastenings capable of disconnection without displacing the contacts and also operable at the exterior of the cap for disconnecting the fastenings from the track member.

19. In a timer of the class described, the combination of a hollow cap having an open end and a closed end, an insulator track  
25 member insertable and removable through the open end of the cap, contacts carried by said track member, and binding posts associated with the contacts and projecting from the back of the track member towards the closed end of the cap, there being a space  
30 back of the track member to receive conductors leading to the binding posts, said cap having an entrance opening leading to the said space.

35 20. In a timer, the combination of a rotary timer shaft, a hollow cap having an open end and a closed end and enclosing the end of said shaft, a brush carried by said shaft, a track of insulating material having contacts  
40 permanently embedded therein and engageable successively by the brush as the latter

rotates with the shaft, said track being insertable through the open end of the cap and removably seated therein, a cable including a set of conductors for leading current from  
45 said contacts to the sparking devices, there being a space between the closed end of the cap and the track for receiving said conductors, the cap also being apertured to receive and admit said cable, and binding posts projecting from the back of the track for detachably connecting the ends of said conductors to said contacts.

21. In a timer, the combination of a rotary timer shaft, a hollow cap having an open  
55 end and a closed end and enclosing the outer end of said shaft, a brush carried by said shaft, a track unit of insulating material having contacts permanently embedded therein, said unit being insertable through  
60 the open end of the cap and removably seated against the end of the cap, said contacts being engageable successively by the brush as the latter rotates with the shaft, a cable including a set of conductors for leading current from said contacts to the sparking  
65 devices, there being a space between the closed end of the cap and the track unit for receiving said conductors, the cap also being apertured to receive and admit said cable, and screws projecting from the back of the track  
70 unit and threaded into back portions of said contacts and having heads under which the ends of said conductors are clamped.

In testimony whereof I have signed my  
75 name to this specification in the presence of two subscribing witnesses.

NEWELL B. PARSONS.

Witnesses:

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