Dec. 6, 1927. 1,651,489

A. E. VOIGT

MARKER LIGHT PLUG

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Fig. 1.

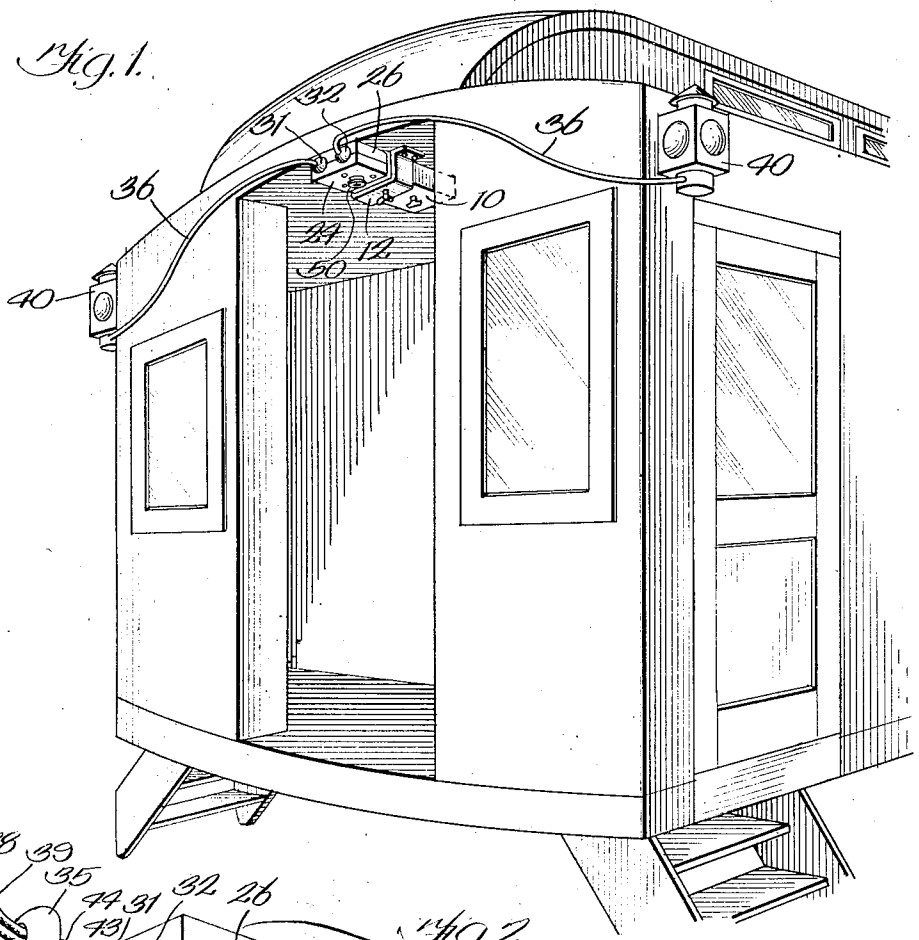
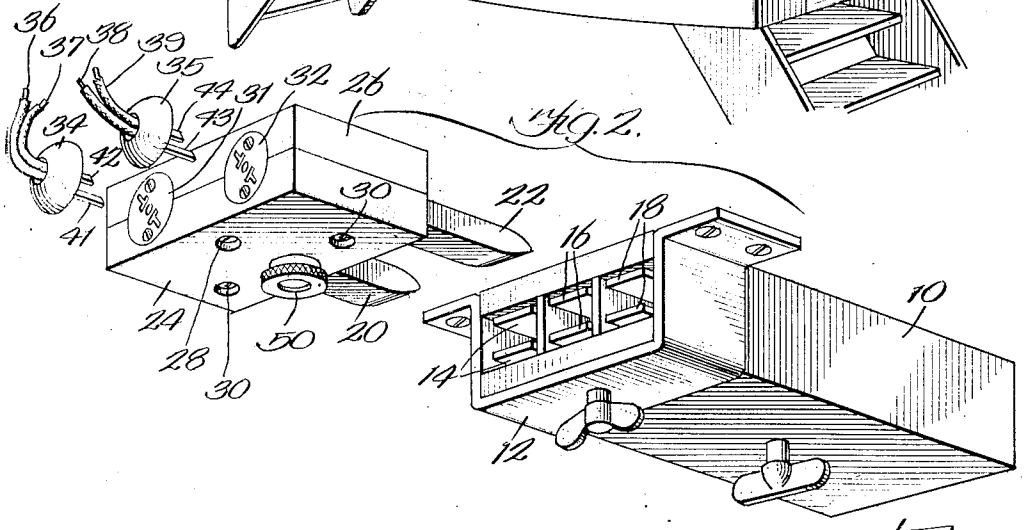


Fig. 2.



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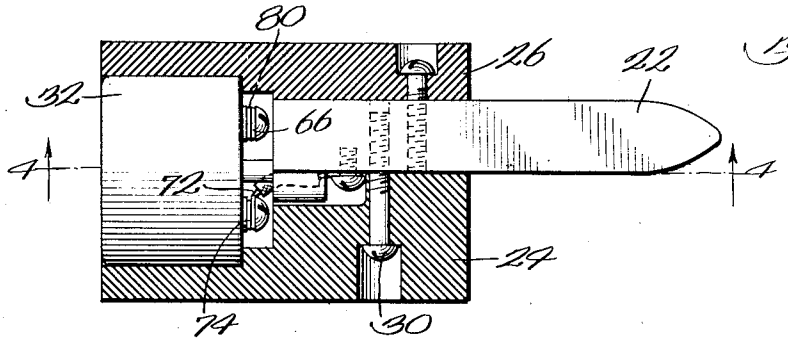
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Fig. 3.



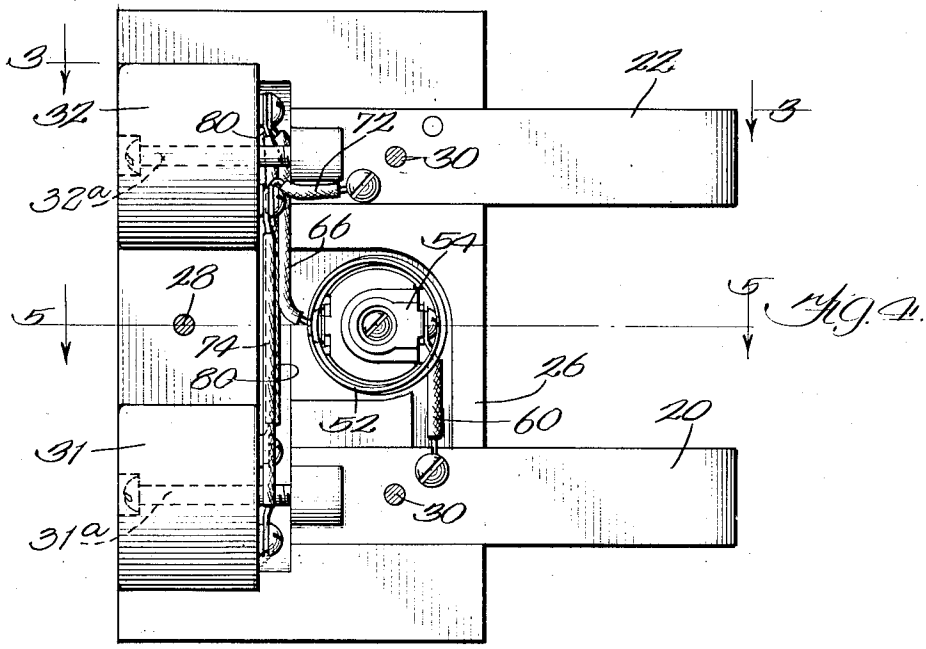
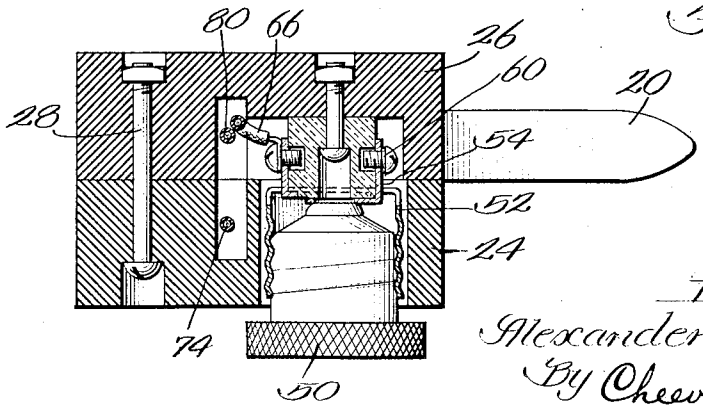


Fig. 4.

Fig. 5.



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Fig. 6.

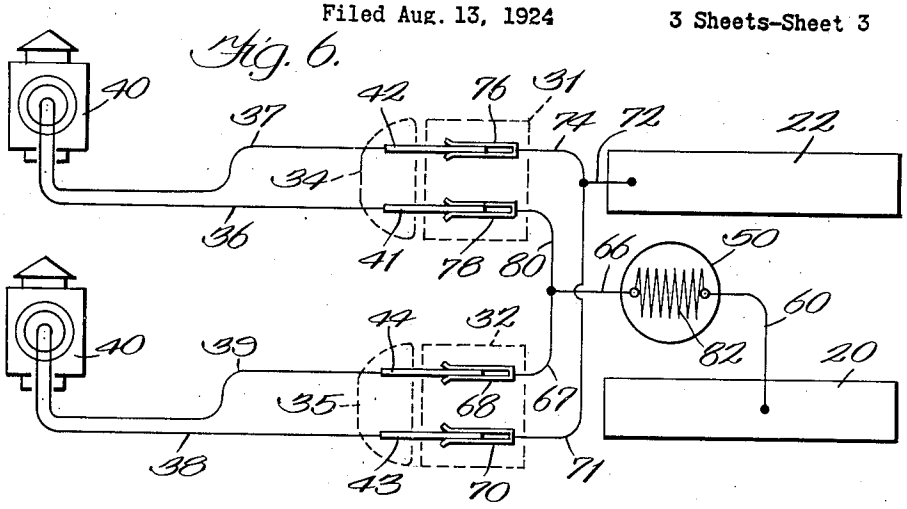
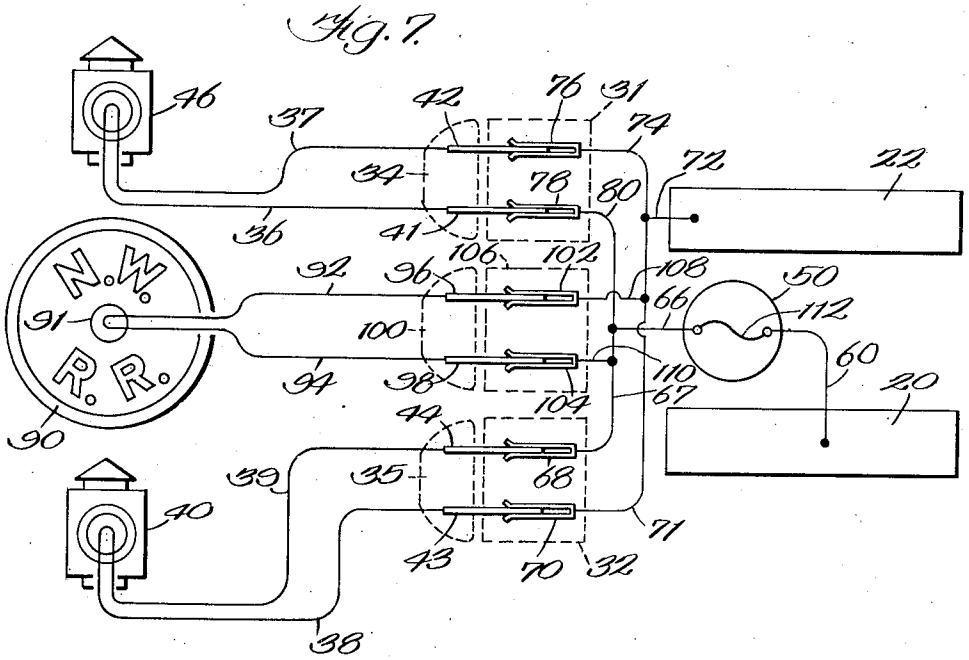


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALEXANDER H. VOIGT, OF TOPEKA, KANSAS.

MARKER-LIGHT PLUG.

Application filed August 13, 1924. Serial No. 731,762.

My invention relates to plugs for use on railway cars for illuminating marker lights and other external lamps. It is well known to those familiar with the operation of electric lighted trains on steam railways that in a common form of lighting there is a "train line" of electric conductors from which the lamps and fans within the cars are energized. The section of train line carried by one car is connected to the section carried by another car by means of a "connector" which consists of semiflexible conductors provided at each end with a plug designed to fit into receptacles on the ends of the cars and connected to the conductors on the cars. No provision is made, however, for illuminating the marker lamps which are always required at the rear end of the train. These marker lamps are under the supervision of the flagman, whose duty it is to place them in position, see that they are kept burning, and take custody of them at the end of his run. Heretofore marker lamps have been of the oil burning type and the flagman at the end of his run takes them with him to be refilled and otherwise kept in condition until they are to be used again. The object of my invention is to do away with oil-burning marker lamps and to provide means whereby they may be illuminated electrically and energized from the train-line conductors. Generally speaking I accomplish my object by providing electric marker lamps, flexible conductors, or extension cords through which the bulbs may be energized, and a plug for the free end of the extension cord, which plug is so constructed that it may be inserted into the standard receptacles to be found at the ends of the cars. As a result of my invention the flagman can take with him and keep the marker lights, plug and extension cords, and he will be relieved of any special work in connection with the lights, such as filling, trimming and cleaning. At the same time the train will be provided with electric instead of oil lamps.

In addition to marker lights passenger trains, especially those traveling long distances, are frequently provided with platform signs, giving, for example, the name of the train. Special provision has to be made for illuminating such platform sign, and it is part of my purpose to provide also for the illumination of such signs.

I accomplish my objects by the construction illustrated in the accompanying drawings in which

Figure 1 is a perspective view of the rear end of a train showing my equipment in use.

Figure 2 is a separated perspective view showing the receptacle at the end of the train line conductors, and also showing my type of plug and the connections for the extension cords.

Figure 3 is a sectional view of the plug on the line 3—3 Figure 4.

Figure 4 is a bottom plan view of the upper half of the plug, the view being taken looking upward on the line 4—4 Figure 3.

Figure 5 is a sectional view on the line 5—5 Figure 4.

Figure 6 is a diagram showing the equipment arranged for two marker lights and protected by a resistance in case there is excess difference of potential between the two train conductors.

Figure 7 is a diagram showing the arrangement where two marker lights and a sign are to be illuminated. In this case the translating circuit is protected by a fuse.

Like numerals denote like parts throughout the several views.

A common type of receptacle now used at the ends of passenger cars at the ends of the traine-line conductor is shown at the right end of Figure 2 and it would be sufficient for the present purpose to state that in these receptacles there is a casing 10 adapted to be held to the roof of the car by a bracket 12 of any appropriate design. The receptacle is provided with three pairs of contactors 14, 16, 18.

The plug which forms part of my invention consists of two fingers 20, 22 mounted within and projecting from blocks 24, 26 of porcelain or other insulating material. These blocks are held together in any suitable manner, for example, bolt 28 supplemented by other holding devices presently to be described. The fingers 20, 22 are of metal so as to be conductors of electricity and are fastened to block 26 by bolts 30.

Where provision is to be made for only the two marker lights the plug is provided with only two receptacles 31, 32 which are mounted in the blocks 24, 26 by means of screws 31^a, 32^a passed through the receptacles and threaded into the fingers 20, 22

and are electrically connected to the fingers through suitable conductors which will best be understood by reference to the wiring diagrams hereinafter explained. These receptacles are designed to cooperate with plugs 34, 35 shown at the left end of Figure 2. These plugs are provided with extension conductors 36, 37, 38, 39 leading to the two marker lights 40. Said conductors are electrically connected to the fingers 41, 42, 43, 44 which enter the receptacles 31, 32. These extension conductors lead to said marker lights and energize the bulbs therein in accordance with the practice in vogue with any electrically lighted lamp. It will be understood that the marker lights themselves are detachably mounted upon brackets at the sides of the car in accordance with usual custom. A resistance plug or fuse plug 50 screws into a shell 52 mounted in the block 24. The center contact of the fuse or resistance engages a terminal member 54 in the manner which will become clear from the diagrams hereinafter explained.

Referring now to the simpler form of equipment shown in Figure 6 in which only the two marker lights are to be illuminated: The finger 20 is connected by a conductor 60 to one terminal of the protective device 50, the opposite terminal being connected by a conductor 66 to a conductor 67 which leads to a terminal 68 in receptacle 32. The finger 44 is connected by the conductor 39 to one side of the marker lamp 40. The other side of the lamp is connected by a conductor 38 to the finger 43 which cooperates with the remaining terminal 70 in receptacle 32. A conductor 71 is connected by conductor 72 to the finger 22, and by the conductor 74 to the terminal 76 in receptacle 31. This cooperates with finger 42 which is electrically connected by conductor 37 to one side of the other lamp 40. A conductor 36 leads back from this lamp to the finger 41 in receptacle 34, and this finger engages terminal 78 in receptacle 31. A conductor 80 connects terminal 78 to the conductors 66 and 67. Thus the two lamps are arranged in parallel and energized from the two fingers 20, 22. It will also be evident that the circuit is protected by the element 50. In Figure 6 the protective element or device 50 contains a resistance 82 which cuts down the voltage and will be used in those cases where the train system normally uses a higher voltage than the lamp bulbs are designed to take. A fuse, however, may be substituted in those cases where the normal train line voltage is suitable for the lamp bulbs but an excess of current may occasionally occur.

Now referring to the three outlet system illustrated in Figure 7, in addition to the part shown in Figure 6 there is a sign 90 having one or more lamp bulbs 91. This bulb is energized by two conductors 92, 94 connected respectively to fingers 96, 98 in plug 100. Said fingers are adapted to engage terminals 102, 104 respectively in a receptacle 106. Terminal 102 is connected to conductor 71 by a conductor 108 and terminal 104 is connected to conductor 67 by a conductor 110. Thus it will be evident that the platform sign is in parallel with the marker lamps. In practice the conductors 92, 94 will constitute the extension cord or conductor.

In the form shown in Figure 7 I have illustrated a fuse 112 in the protective device 50 instead of the resistance 82 shown in diagram Figure 6. This fuse will protect the lamps against excess current.

It will be noted that due to the arrangement whereby the fasteners 31^a, 32^a for the receptacles 31, 32 engage the fingers 20, 22, the bolts 30 serve to secure both the fingers and the receptacles to the blocks 24, 26, the necessity of providing separate holes in the blocks to receive the fasteners for the receptacles, which would weaken the blocks, thereby being eliminated.

From the foregoing description taken in connection with the drawings it will be evident that my apparatus furnishes a practical and convenient outlet by which current may be obtained at the rear end of a passenger train for illuminating marker lights and if desirable a platform sign. It is well known that lamps of greater brilliance are practical when electric bulbs are used than when oil burning lamps are depended upon. Thus it is possible through my invention to conveniently furnish better external lighting for the rear end of the train. My equipment has the added advantage that it will not be necessary to maintain a supply of oil at various stations for the marker lamps nor will it be necessary for the flagman to devote as much time to the care of the lamps. In fact, practically speaking, no care will be required, and the lamps and connections will be in readiness at all times.

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

In an electrical connector, a block of insulating material, a metallic finger disposed partly within said block and extending beyond one side thereof for engagement with a circuit continuing member, means securing said finger to said block, a circuit continuing receptacle detachably mounted within said block, and means detachably securing said receptacle to said finger.

In witness whereof, I have hereunto subscribed my name.

ALEXANDER E. VOIGT.