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OVERHEAD CONTACT HOOP
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Fig. 1

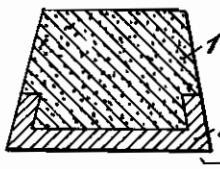


Fig. 2

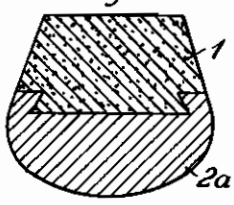
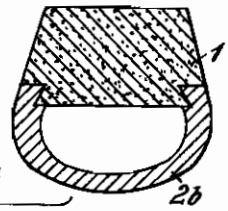


Fig. 3



Known construction

Fig. 4

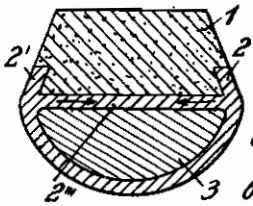


Fig. 5

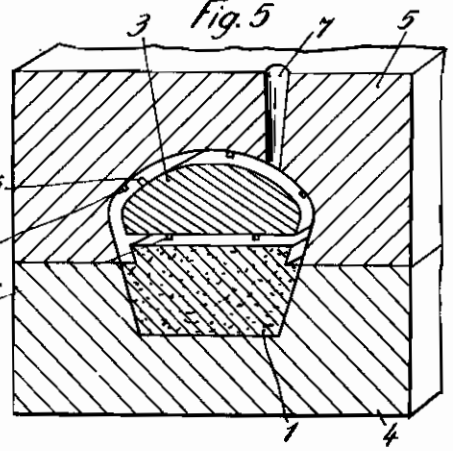


Fig. 7

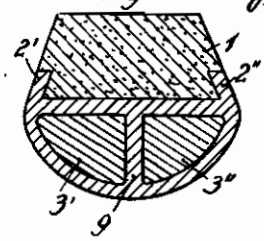


Fig. 6

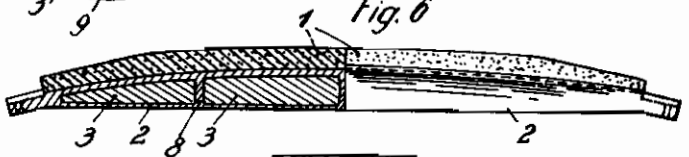
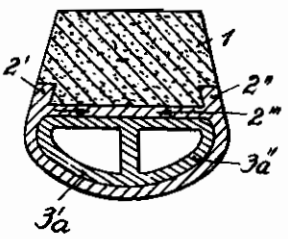


Fig. 8



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ALIEN PROPERTY CUSTODIAN

OVERHEAD CONTACT HOOP

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Application filed December 13, 1939

This invention relates to collector bows or overhead contact hoops of the carbon type for electrically driven vehicles.

It is an object of the present invention to provide a collector bow or trolley brush ensuring very intimate contact between the carbon material and the holder therefor.

Another object of the invention is to reduce the weight of the complete collector bow.

Still another object of the invention is to provide a collector bow having a favourable stream-line shape and low aerodynamic resistance.

With these and other objects in view, as may become apparent from the within disclosures, the invention consists not only in the structures herein pointed out and illustrated by the drawings, but includes further structures coming within the scope of what hereinafter may be claimed.

The character of the invention, however, may be best understood by reference to certain of its structural forms, as illustrated by the accompanying drawings in which:

Fig. 1 is a cross sectional view of a known form of a collector bow.

Fig. 2 is a cross sectional view of a further known form, comprising a stream-lined holder for the carbon brush.

Fig. 3 is a cross sectional view of still another known form, comprising a hollow holder for the carbon brush.

Fig. 4 is a cross sectional view of a collector bow having the invention applied thereto.

Fig. 5 is a perspective, sectional view of a mould for casting the collector bow shown in Figs. 4 and 6.

Fig. 6 is a front elevation, partly in section, of my novel collector bow system.

Figs. 7 and 8 are cross sectional views showing modifications of the form of Fig. 4.

Similar reference numerals denote similar parts in the different views.

Referring now to the drawings in greater detail and first to Figs. 1, 2 and 3, showing known constructions, it will be seen that a strip 1 of carbon or similar brush material is held dove-tail fashion in a holder or mounting 2, or 2*a*, or 2*b*, respectively, consisting, for instance, of light metal, applied to the carbon in a casting process. The shape of the holder 2 according to Fig. 1 is unfavourable from an aerodynamic standpoint, while the stream-line shape 2*a* shown in Fig. 2 is rather heavy. It has been suggested, therefore, to provide a recessed holder, as indicated at 2*b* in Fig. 3, however, while in the constructions according to Figs. 1 and 2 pressure is exerted by the holder upon the carbon due to the shrinking of the holder as it cools down after the casting, no such pressure is produced in the design according to Fig. 3 and hence, no intimate contact between the holder and the carbon brush is obtained. Moreover, the contact area between the carbon and the holder is diminished, since the foot of the carbon strip is not engaged by the metal holder.

It will thus be seen that none of the known forms of collector bows meets with all of the above mentioned requirements, viz—intimate contact, stream-line shape and light weight.

Referring now to Fig. 4, it will be noted that the holder is also hollow similar to the holder 2*b* shown in Fig. 3, however, the portions 2' and 2'' of the holder forming the dove-tail mounting are additionally connected by a transverse wall portion 2''', and the hollow space between the walls is filled up by a very light core 3, thus re-establishing the shrinking action which is present with the solid holder shown in Fig. 2. The shrinking effect is indicated by the arrows in Fig. 4.

The structure shown in Fig. 4 may be produced by a mould of the type shown in Fig. 5. The carbon strip 1 is embedded in the lower half 4 of the mould, with its dove-tail portion extending into the upper half 5 of the mould which is formed with a hollow space corresponding to the stream line shaped cross section of the holder. A very light core 3 is disposed in the mould, by means of spacer pins 6, and the hollow space within the mould is now filled up by the light metal melt, through channels 7. On cooling down, the casting is removed from the mould and corresponds to the bow shown in Fig. 4.

In order to permit shrinking of the cast metal, the core 3 must be somewhat porous to permit a certain compression, or it must consist of a material which is also subject to shrinkage when cooling down.

The core may be subdivided into several portions 3, 3, as indicated in Fig. 6, and spacings may be left between the portions to form intermediate partition wall 8 by which the strength of the holder is improved.

Further, or by way of alternative, longitudinal partition walls 9 may be arranged as indicated in Fig. 7 by the provision of two parallel spaced core portions 3' and 3'' in the mould.

It is also contemplated to further reduce the weight of the complete structure by the provision of hollow cores 3*a*' and 3*a*'', as shown in Fig. 8.

Cores of various materials may be used, but preferably asbestos wool or kieselguhr and similar materials are used, in a loosened form to permit compression.

The method and apparatus of the present invention have been described in detail with reference to specific embodiments. It is to be understood, however, that the invention is not limited by such specific reference but is broader in scope and capable of other embodiments than those specifically described and illustrated in the drawing.

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