

C. D. McCOURT.  
METHOD OF UNITING A FLEXIBLE TO A SOLID BODY.  
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904,077.

Patented Nov. 17, 1908.

*Fig. 1.*

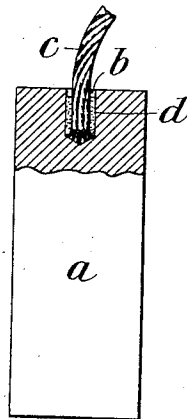


*Fig. 2.*

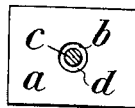
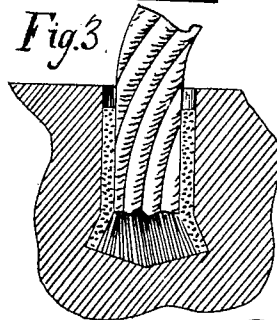


*Fig. 3.*



Witnesses.  
J. K. Moore  
R. E. Barry.

Inventor.  
Cyril Douglas McCourt  
By Whitaker & Trenchard, Attys.

# UNITED STATES PATENT OFFICE.

CYRIL DOUGLAS McCOURT, OF BALHAM HILL, LONDON, ENGLAND, ASSIGNOR TO THE MORGAN CRUCIBLE COMPANY, LIMITED, OF LONDON, ENGLAND.

## METHOD OF UNITING A FLEXIBLE TO A SOLID BODY.

No. 904,077.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Application filed March 14, 1908. Serial No. 421,130.

To all whom it may concern:

Be it known that I, CYRIL DOUGLAS McCOURT, a subject of the King of Great Britain, residing at 13 Malwood road, Balham Hill, London, England, have invented a certain new and useful Method of Uniting a Flexible to a Solid Body.

This invention relates to improvements chiefly designed for attaching flexible conductors to the carbon commutator brushes of electrical machines but also applicable for uniting rods or wires to carbon blocks for other purposes or to blocks of other materials.

According to this invention I form in the block, to which the wire or rod is to be connected, a cavity, preferably, of a section corresponding to that of the wire or rod but somewhat larger than the latter, the said cavity, if desired, having its walls undercut. Into this cavity the wire or rod, the end of which may be upset or splayed out if desired, is now inserted so that a space is left around it and into this space a metallic sponge, metal or alloy, in a powdered or fragmentary form, is now compressed by means of a punch or other suitable instrument so as to consolidate the metallic powder or fragments between the wire or rod and the walls of the said recess.

In the accompanying drawing:—Figure 1 is a sectional elevation of a commutator brush having the flexible lead applied according to my invention, and Fig. 2 is a plan of the same. Fig. 3 is an enlarged view of a modification of the device.

*a* indicates the body of the brush and *b* a hole bored or otherwise formed therein and adapted to receive the end of the flexible lead *c* the end of which, as shown, is upset.

*d* is the metallic filling which is introduced into and compressed in the hole *b* around the lead.

The powdered or fragmentary metallic sponge, metal, or alloy employed must be of such a nature as to consolidate when compressed. Several such metals are known. Thus, granulated aluminium, granulated lead, granulated tin and the like may be employed or spongy copper produced by the

reduction of copper oxid. Where the body to which the wire or rod is to be attached is not very strong, as for example a carbon commutator brush, it is advisable to select a powder which does not require too severe a compression; accordingly, in the case of carbon brushes, I prefer to use the powdered spongy copper above referred to, rather than granulated aluminium. Were the latter employed, there would be some danger of fracturing the carbon block when subjecting the powder to the required degree of compression.

In addition to the advantage that a thorough bond is formed between the wire or rod and the block the invention possesses the further advantage that when applied in connection with commutator brushes a practically perfect electrical contact is formed between the conductor and the carbon of the brush without the necessity for applying a metallic coating to the brush as has hitherto generally been considered necessary.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The method of attaching a flexible to a solid body, consisting in forming in one of such bodies an aperture larger than the part of the other body which is inserted into said aperture, filling the space between the two articles with a substance of a nature to be consolidated by pressure, and in a finely powdered condition and consolidating this filling, substantially as described.

2. The method of attaching a flexible to a solid body, consisting in forming in the solid body an aperture larger than the part of the flexible body, which is inserted into said aperture, filling the space between the two articles with a metallic substance, of a nature to be consolidated by pressure and in a finely powdered condition and consolidating this filling by pressure, substantially as described.

CYRIL DOUGLAS McCOURT.

Witnesses:

JOHN E. BOUSFIELD,  
C. G. REDFERN.