July 30, 1929. L. F. MEUNIER 1,722,816

CABLE CONNECTION FOR PORTABLE TOOLS

Filed July 17, 1925

Fig. 1

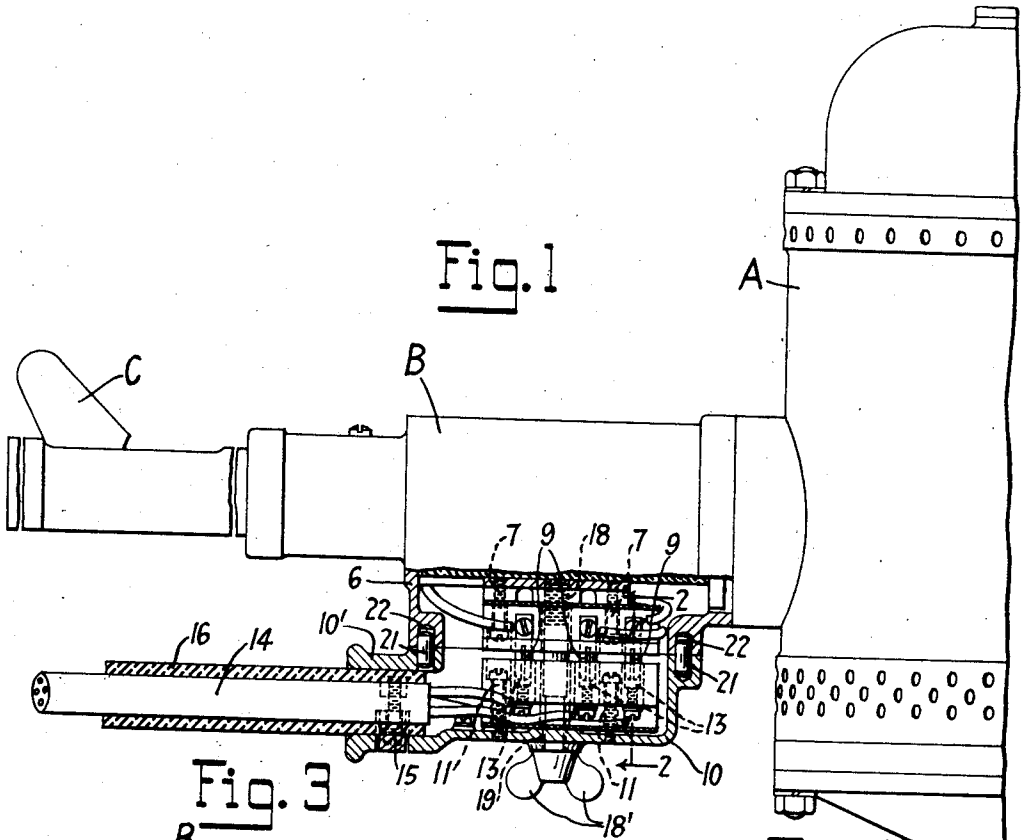


Fig. 3

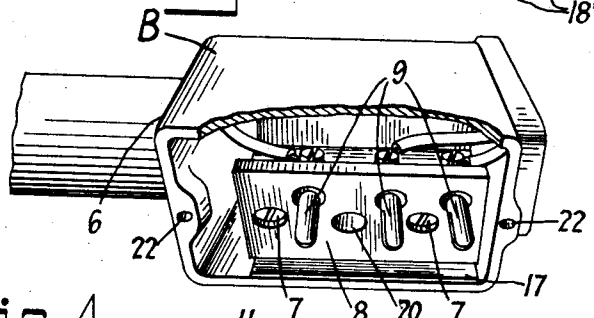


Fig. 2

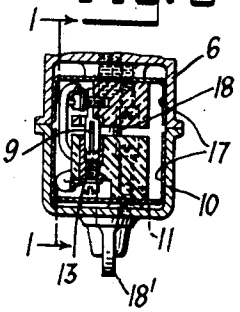


Fig. 4

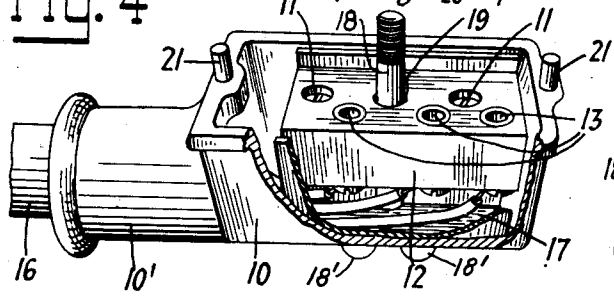
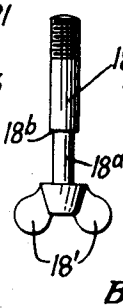


Fig. 5



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Patented July 30, 1929. 1,722,816

UNITED STATES PATENT OFFICE.

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CABLE CONNECTION FOR PORTABLE TOOLS.

Application filed July 17, 1925. Serial No. 44,197.

This invention relates to portable electrical tools with particular reference to the manner and means for making the cable connection with such tools.

Heretofore it has been the practice to secure the power cable to the tool in a substantially permanent manner, necessitating gathering up the cable whenever the tool is removed to a new location or taken to the repair shop. The substitution of one tool for another requires a taking in of the cable on the discarded tool and the extending of the cable on the new tool. In order not to hamper the operator in his work it is not infrequent to use a long cable on such a tool, so that it is clearly evident that a permanent cable connection is productive of delays when tools are to be changed or repaired and is uneconomical since it necessitates a cable for every tool whether in use or not rather than a cable for every tool actually in use. However, portable tools are subjected to such hard and inconsiderate usage that the ordinary type of detachable cable connection is entirely unsuitable.

Among the objects of the invention are to provide a simple, efficient and strong cable connection for portable tools which can be readily detached when required but which will not pull loose in service, and in general to improve the prior art and to avoid its defects in the interest of more satisfactory and economical service.

In order to illustrate the invention one concrete embodiment thereof is shown in the accompanying drawings, in which;

Fig. 1 is an elevational view of a portable tool equipped with the improved cable connection, the parts of which are shown in longitudinal section substantially on the line 1—1 of Fig. 2;

Fig. 2 is a fragmentary transverse sectional view on the line 2—2 of Fig. 1;

Figs. 3 and 4 are perspective views partly broken away, of the mating parts of the cable connection; and

Fig. 5 is a plan view of the clamping bolt.

The embodiment of the invention chosen for the purpose of illustration is disclosed in Fig. 1 as applied to to a portable electrical tool such as a drill A having a projecting control handle B provided with a manually operable actuator member C for the switch mechanism which may be disposed within handle B. While the cable connection may be secured to any part of the tool it is by preference as herein shown arranged to form a part of or to be attached to the switch handle B. To this end one side of handle B has an extension 6 preferably of metal hollowed out to form a socket in which is secured by suitable means such as screws 7 a block 8 of insulating material provided with projecting spring contacts 9 extending through the open face of the socket member. A similar socket member 10 likewise hollow and provided with an open face has secured therein as by screws 11 a block 12 of insulating material formed with metal lined recesses 13 arranged to register with and to receive the projecting contact members 9 of socket member 6 when the two socket members are placed in engagement as illustrated in Figs. 1 and 2. The power cable 14 enters socket member 10 through an apertured boss 10′ and is securely retained therein by a suitable clamping device 15. A sleeve 16 of rubber or other suitable material may surround cable 14 adjacent boss 10′ to prevent unduly sharp bends in the cable at this point. Leads extend from cable 14 to the contact sockets 13 and suitable leads extend from the contact projections 9 into the switch casing B. As an additional safeguard against short circuits socket members 6 and 10 may be lined with sheet insulating material 17.

On account of the severe usage to which tools of this kind are subjected socket member 6 and 10 forming the cable connection, must be secured together in a rigid and positive manner so as adequately to protect the cooperating contact members 9 and 13. A preferred means for this purpose comprises a strong clamping bolt 18, the head of which is provided with winged projections 18′ for manual operation. Bolt 18 extends entirely through socket member 10 and its block 12 by the provision of a bore 19 therefor. A similar bore 20 is provided in block 8 and socket member 6, that portion of the bore in the base of the latter being preferably threaded to cooperate with the threads on the end of bolt 18.

In order to prevent loss of bolt 18 when the parts of the connector are operated, the bolt is secured to one of the parts, preferably cable socket member 10. To this end bolt 18 has a reduced portion 18^a adjacent the wing head which makes a sliding fit with that portion of bore 19 formed in member 10 (see Fig.

1), the shoulder 18b and the wing head of the bolt forming stops to prevent bolt 18 from falling out of member 10.

Members 6 and 10 are keyed together by suitable means which preferably take the form of guide pins 21 on one of the members slidably fitting sockets 22 therefor in the other member. With the guide pins 21 in their sockets and the clamping bolt 18 set up member 10 is rigidly held in engagement with member 6 against any danger of being pulled loose, yet the connection can be quickly and easily broken by simply loosening bolt 18.

From the above it will be apparent that the cable connecting means herein disclosed provide a positive power-connection for a portable tool giving ample protection to the contact elements but permitting quick detachment of the power cable when the same is necessary or desirable.

While the preferred form of the invention has been herein shown and described it is to be understood that the invention is not confined to the specific details thereof but covers all changes, adaptations and modifications within the scope of the appended claims.

I claim as my invention:

1. In a cable connection for portable electrical tools, a pair of metallic receptacles having their opposed sides open, one of said receptacles being secured to the tool, the other to the power cable, cooperating contact elements within said receptacles engaging through said open sides, means securing said receptacles in engagement comprising a single clamping element passing transversely through said receptacles, and means for guiding said contact elements into engagement and for relieving the same of strains when engaged comprising pins on one of said receptacles arranged slidably to fit sockets therefor in said other receptacle.

2. The combination with a portable electrical tool of a detachable cable connection therefor comprising a socket member on said tool, a socket member secured to the cable, said members being provided with cooperating contact elements arranged to engage when said members are disposed in face engagement, a manually operable clamping bolt extending entirely through said cable socket member into threaded engagement with the base of said tool socket member, and cooperating guide means on said members for guiding the same into engagement and for relieving said contact elements of strain when engaged.

3. The combination with a portable electrical tool of a detachable cable connection therefor comprising a socket member on said tool, a socket member secured to the cable, blocks of insulating material within the sockets of said members, the block on said tool having contact elements projecting through the open face of its said member, the block on said cable member having contact sockets for said elements when said members are disposed in face engagement, a manually operable clamping bolt extending entirely through said cable socket member and releasably engaging said tool socket member, and guide pins on said cable member arranged to slidably fit sockets therefor in said tool member thereby to guide said members into engagement and to relieve the contact element of strains incident to the use of the tool.

Signed by me at Cleveland this 8th day of July, 1925.

LEON MEUNIER.