A. McCALLUM.

INTERCHANGEABLE TOOL HOLDER FERRULE.

APPLICATION FILED DEC. 12, 1918.

1,407,668. Patented Feb. 21, 1922.

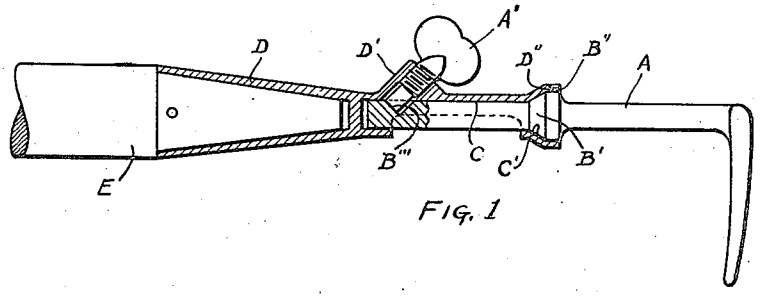


FIG. 1

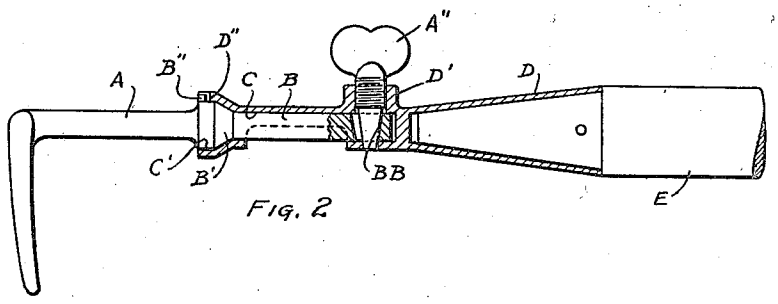


FIG. 2

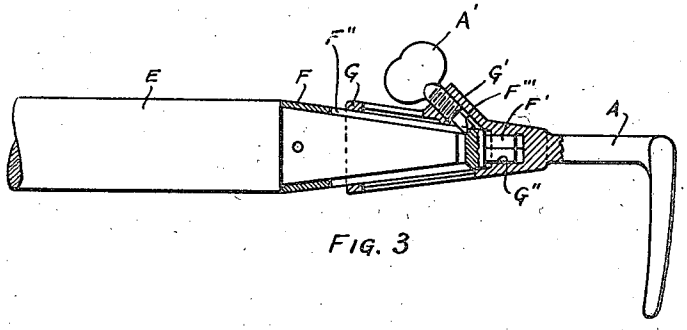


FIG. 3

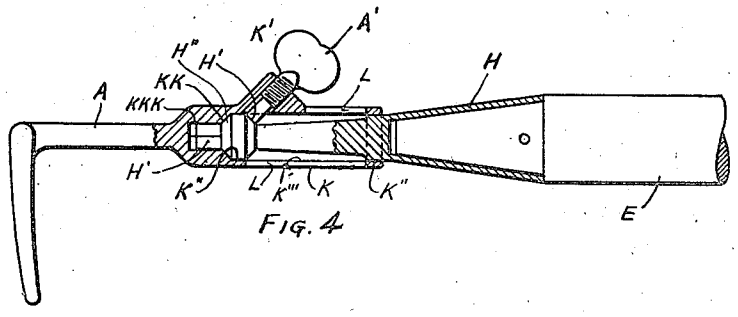


FIG. 4

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INTERCHANGEABLE TOOL-HOLDER FERRULE.

1,407,668. Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed December 12, 1918. Serial No. 266,462.

To all whom it may concern:

Be it known that I, ALEXANDER McCALLUM, a subject of Canada, residing at Menominee, in the county of Menominee and State of Michigan, (whose post-office address is 1809 State Road, Menominee, Michigan,) have invented certain new and useful Improvements in Interchangeable Tool-Holder Ferrules, of which the following is a specification.

My invention relates to improvements more particularly in interchangeable tool holder ferrules which are secured to, in most cases, long slender wood handles, and the object of my improvements is, primarily, to construct a combined tool holder and ferrule which shall be adapted to receive and hold securely hoes, rakes, or other tools. And another object is, to construct these ferrule tool holders so that the desired tool may be readily detachably secured thereto so that any other tool desired may be quickly exchanged for the one therein. And, another object is, to construct tools, or a set of tools, which shall be each adaptable to the said holder. Therefore, inasmuch as only one handle, with its combined ferrule and tool holder attached, is necessary, notwithstanding the number of tools that may be required, it is obvious, that as a result of my improvements, there will, most necessarily, be a great saving of wood handles and, also, a great saving to the purchaser of the articles. And too, it will be seen, that the storage space will be greatly reduced, and also, the tools may be packed for shipment in comparatively small package lots, and the handles for each respective lot, or set, may be shipped in separate lots in a place where it would be more convenient to store them.

These and other objects of my improvements will be more clearly pointed out in the accompanying drawings, specification and appended claim.

In the accompanying drawings:—

Figure 1, shown partly in section and partly in full, is a side view of my invention showing the improvements therein.

Figure 2, is a view similar to that of Figure 1, but disclosing different mechanism for obtaining the same results as secured by the mechanism illustrated in Figure 1.

Figure 3, is still another kind of mechanism for obtaining the same results as secured by the mechanism shown in Figure 1.

Figure 4, is a modified construction of the mechanism disclosed in Figure 3, and obtains the same result as that sought in the mechanism, shown in Figure 1.

Similar characters refer to similar parts throughout the several views.

In Figures 1 and 2 is shown the side view of a tool, A, in this instance a rake, with its shank, B, inserted in the socket, or bore, C, of the ferrule, or tool-holder, D, which is secured over the end of a handle, E. On the ferrule, or tool-holder, D, is built a boss, D′, in which a clamping screw, A′, and A″ is inserted. The object of the screw is, to force the conical portion, or shoulder, B′, of the tool, A, into and against the conical portion, C′, of the bore, C, and rigidly hold said tool thereagainst so tightly that the tool can not become loosened when being used. On the conical portion of the tool is provided a lug, B″, which fits into a slot, D″. The object of this lug is twofold. It prevents any tendency of the tool to twist and possibly cause the clamping screw to become loose; and it also acts as a means whereby the tool can be inserted to receive the screw without much trouble to the operator.

It will be noted that the screws, A′, and A″ are not of the same construction. As will be seen in Figure 1, the screw, A′, acts endwise against the bottom of a recess, B‴, in the shank, B, while in Figure 2, the screw, A″, acts as a wedge against the wall of a conical bore, BB, made in the shank, B, instead of the recess, B‴. It will also be noted that an ordinary $\frac{1}{4}$″—20 thumb screw, designed as shown, will be amply sufficient to clamp and hold the tool rigidly and securely in place against the most abusive use the tool may be put to.

The thumb screws fit, in their respective places, comparatively loose in order to eliminate, as much as possible, the possibility of the threads becoming rusted together. And, as much of the contacting surface against the two members, (the tool and the ferrule) has been eliminated, consistent with strength to avoid any possibility of they too becoming rusted together.

In Figures 3 and 4, it will be seen that the general construction differs materially

from the construction shown in Figures 1 and 2. That is, that part of the tool, A, as shown in Figure 3, which is secured to the conical ferrule, F, is made into the form of a conical socket, G, and has a boss, G′, built thereon to receive the screw, A′. A square hole, G″, is made at the innermost part of the socket, F, to receive the square end, F′. of the ferrule, F. These parts perform the same function as that previously mentioned for, B″, and, D″. In the conical ferrule, F, are slots, F″, the side, F‴, of which, being near the small end of the ferrule, F, is inclined to receive against it, the end of the screw, A′. When the screw, A′, is forced against said side, F‴, it draws the conical part, G, of the tool, A, upon the ferrule, F, and holds it firmly and securely in place.

In Figure 4, it will be seen that the ferrule, H, is so made that it receives over it the straight portion, K, of the tool, A. This straight portion or straight socket, K, has also a boss, K′, built onto it to receive the clamping screw, A′. And the ferrule, H, which receives the socket, K, has two straight portions, K″, which slidably fit the straight bore, K‴, of the socket, K, and at the end of the ferrule, H, are two conical surfaces, H′, and H″. H′, receiving the clamping screw, A′, against it, and H″, receiving the conical bottom, KK, of the bore, K‴, thereagainst. A square hole, KKK, is made in the bottom of the socket, K, to receive the square projection, H‴, which is on the end of the ferrule, H. The function performed by these square portions is identical with that mentioned for, B″, and D″. In the socket, K, are made slots, L, to make the part materially lighter, yet, without affecting the strength thereof.

Although I have referred more particularly to garden tools, I do not care to limit myself to that kind of tool, for, for instance, squeegees and other tools for various purposes may be made adaptable to the herein mentioned ferrule tool holder.

Having thus described my invention, the merits of my improvements can be readily understood, and it will be seen that the minor details of my construction may be altered in many ways without departing from the spirit of my invention, and what I claim and desire to secure by Letters Patent is—

Claim:

In an interchangeable tool holder ferrule, in combination with a handle and a hollow shank end tool, a handle receiving socket formed in one end of the ferrule, and, its opposite end formed into a square portion; two oppositely inclined conical shoulders formed inwardly from the end of the square end portion of the ferrule, the inner shoulder thereof adapted to receive a tool securing thumb-screw thereon; a hollow shank-end tool having a conical bore, and, a square socket formed in the bottom of said bore, and each adapted to receive therein the outer conical shoulder and square portion of the tool holder ferrule; and a tool securing means diagonally mounted in the hollow shank-end of the tool.

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Witnesses:
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