No. 656,710. Patented Aug. 28, 1900.

C. W. ALLEN.

JOINT FOR TOOL HANDLES.

(Application filed Jan. 20, 1900.)

(No Model.)

Fig. 1.

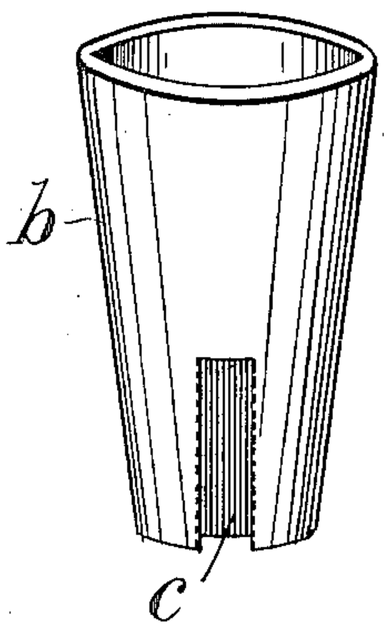


Fig. 2.

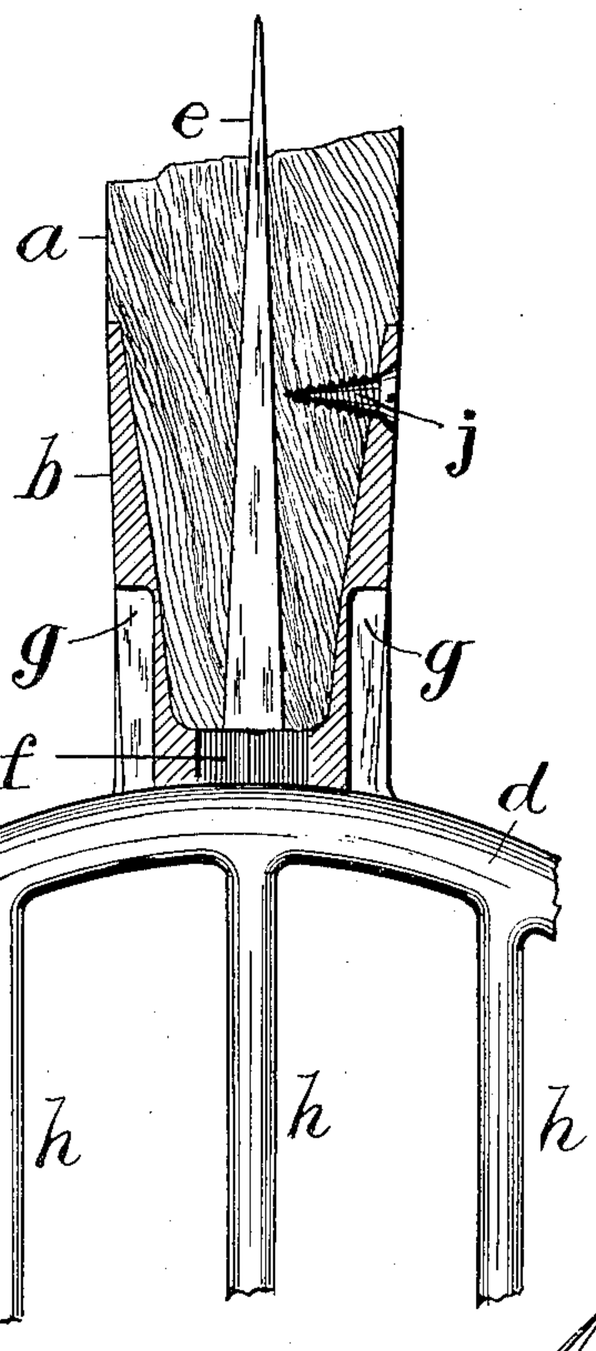


Fig. 3.

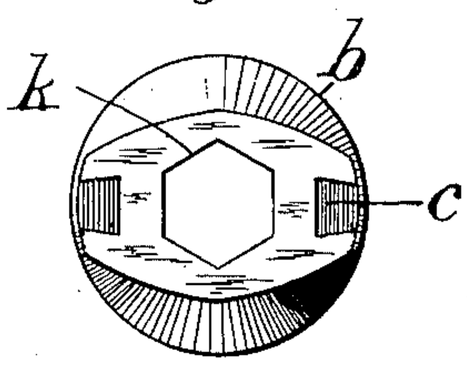
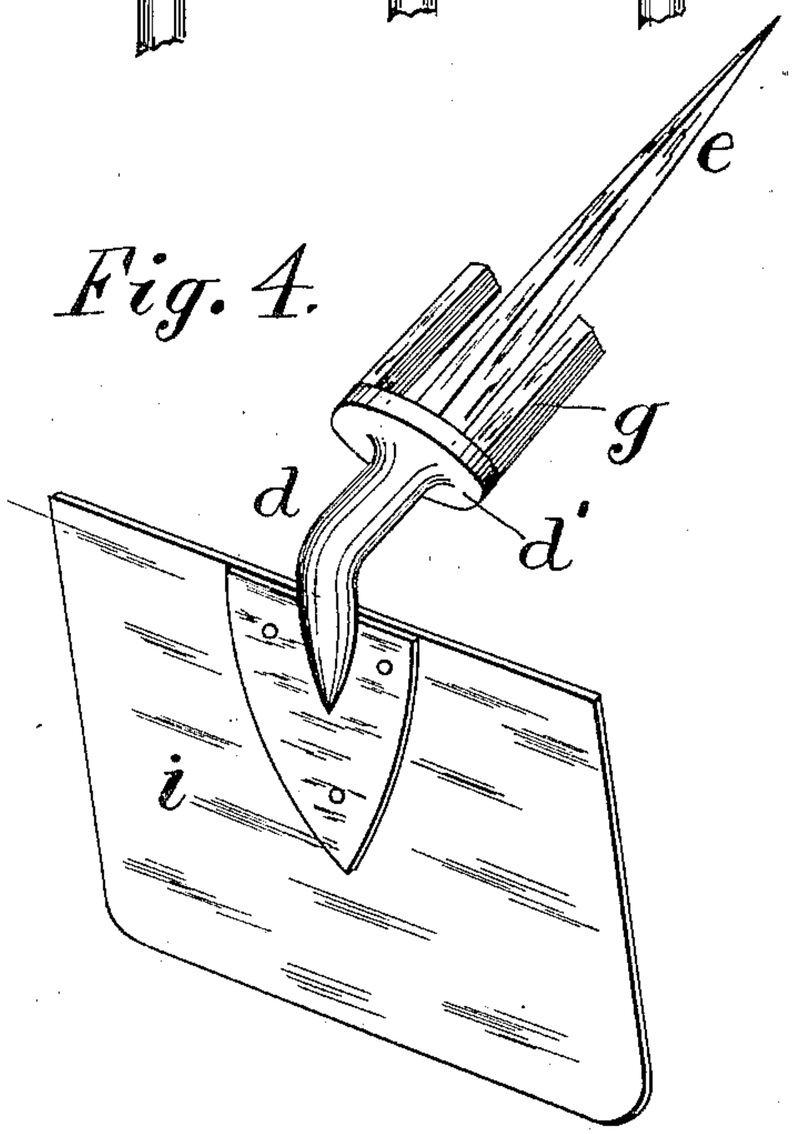


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES WHITE ALLEN, OF MANASQUAN, NEW JERSEY.

JOINT FOR TOOL-HANDLES.

SPECIFICATION forming part of Letters Patent No. 656,710, dated August 28, 1900.

Application filed January 20, 1900. Serial No. 2,111. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WHITE ALLEN, a citizen of the United States, residing at Broad street, Manasquan, county of Monmouth, State of New Jersey, have invented certain new and useful Improvements in Joints for Tool-Handles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to furnish an efficient means of strengthening the connection between the wooden handle and the shank of a shovel, rake, fork, hoe, or other prying or lifting tool. In connecting the handles with such tools it is common to form the shank of the tool with a long tapering tang and to provide the end of the handle with a ferrule or band to strengthen or reinforce the wood where it is driven upon the tang. With such a connection the prying or lifting strain to which the tool is subjected is supported mainly by the tang, which strains severely against the wood inside the ferrule and tends to enlarge the hole in which it is driven. Protracted use thus loosens the tang from the handle. In the present invention I not only connect the tang with the wood of the handle, but I transfer a part of the strain to the ferrule by providing the shank with projecting prongs and the ferrule with corresponding grooves or longitudinal recesses to receive such prongs. The prongs are made substantially parallel with the tang, so that when the tang is driven into the handle the prongs are simultaneously entered in the grooves of the ferrule. With this construction the shank is thereafter supported by the ferrule, so that the tang is prevented from straining upon the wood and is not so liable to get loose in the handle. The engagement of the metal prongs with the metal ferrule is obviously more strong and durable than the engagement of the tang with the wood of the handle, and the connection is thus not only rendered more durable, but is very greatly increased in strength for the purposes of lifting or prying. The end of the ferrule may be made with a square or hexagonal hole and the base of the tang made of similar shape to fit the same snugly, and the grooves in the ferrule may be made of dovetail cross-section and the prongs upon the shank of corresponding shape, so that when the prongs are engaged with the grooves they are securely held in their operative position. In some cases the tang may be supplemented by a single prong to engage a groove in the ferrule.

In the annexed drawings, Figure 1 is an edge view of the ferrule, showing one of the grooves. Fig. 2 is a longitudinal section through the grooves in the ferrule of the entire joint of a handle and tool-shank. Fig. 3 is an end view of the ferrule in which the grooves are exhibited and a polygonal hole from the base of the tang. Fig. 4 shows a hoe having the shank provided with my improvements.

In the case of a fork the base to which the tines are attached forms a shank from which the tang and prongs may be projected; but in the case of a tool like a hoe, which has a slender shank, a cross-bar *d'* is necessary, as shown in Fig. 4, at the base of the tang to furnish a support for the prongs.

a designates the handle, only a portion of which adjacent to the ferrule is shown in Fig. 2.

b designates the ferrule, and *c* the longitudinal groove or grooves therein.

d designates the shank of the tool; *e*, the tang; *f*, the enlarged base of the tang, and *g* the prongs, projected from the shank parallel with the tang.

The shank in Fig. 2 is shown of arched form, as in the case of a digging-fork, with parts of three tines *h*, while in Fig. 4 the shank is shown of cylindrical form, with the hoe-blade *i* secured thereto in the usual manner. The ferrule *r* is provided with the usual conical bore, into which the end of the handle *a* may be driven tightly and secured therein by a pin or by a screw *j*, as shown in Fig. 2. The metal at the extreme end of the ferrule is made of sufficient thickness to form the grooves *c* therein, such grooves, as shown in Fig. 3, being preferably made wider at the bottom to form a dovetail recess, so that a dovetail prong when inserted therein may be prevented from lateral displacement. In Fig. 3 the end of the ferrule is shown with hexagonal hole *k*, and the base of the tang is shown with hexagonal enlargement *f* to fit

such hole. The inner sides of the prongs are shown parallel in Fig. 2, so as to slide easily into the grooves *c* when the tang *e* is driven into the end of the handle; but it is obvious that the prongs would bend outwardly during the driving operation if the grooves in the ferrule were not parallel with one another. The prongs *g* engage the metal of the ferrule, which cannot be chafed by pressure, like the wood, and thus furnish a stronger support for the tool-shank than is afforded by the tang itself. The combined strength of the tang and the prongs thus supports the shank and sustains the strain upon the tool in the most efficient manner.

The device may be applied to any tool-shank to which it is suited and is especially adapted for implements subjected to a prying or lifting strain.

The ferrule may be provided with only a single groove and the shank of the tool with a single prong *g*, if desired, in which case the prong and groove would preferably be located upon the under side of the handle. Where the shank is provided with two prongs, it will be observed that the shank embraces the ferrule externally, and thus gains a strong grip upon the handle through the intervention of the ferrule. The particular construction of the shank for embracing the ferrule is not essential in practicing this part of the invention, although I have only illustrated grooves in the ferrule and prongs upon the shank, as such features afford a cheap and convenient means of construction. Any construction which enables the shank to embrace the exterior of the ferrule is within the scope of my invention.

It is obvious that the ferrule may be modified in shape longitudinally and in cross-section to suit the joint for which it is intended.

In the case of handles which are bent adjacent to the tool-shank the ferrule may be curved longitudinally to correspond with the bend of the handle and the prongs constructed to spring into the grooves in the ferrule when the handle is driven upon the tang.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In a tool-handle joint, the combination, with the shank of the tool, of a tang for insertion in the wood of the handle, and a prong for engagement with the ferrule of the handle.

2. In a tool-handle joint, the combination, with the handle having a ferrule with grooves at opposite sides, of a tool-shank having a tang and prongs at opposite sides of the tang to engage the grooves in the ferrule.

3. In a tool-handle joint, the combination, with the handle having a ferrule with grooves at opposite sides, and a polygonal hole in the end, of a tool-shank having a tang with polygonal base and prongs at opposite sides of the tang to engage the grooves in the ferrule.

4. In a tool-handle joint, the combination, with the handle having a ferrule with dovetail grooves at opposite sides, of a tool-shank having a tang and dovetail prongs at opposite sides of the tang to engage the grooves in the ferrule.

5. In a tool-handle joint, a tang having a cross-bar *d'* at its base, with prongs *g* projected from the opposite ends of the cross-bar parallel with the tang, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES WHITE ALLEN.

Witnesses:
G. M. DAVISON,
JOHN I. BAILEY.