F. C. KRAMER.

FIRING TOOL.

APPLICATION FILED DEC. 7, 1914.

1,199,010. Patented Sept. 19, 1916.

FIG. 1.

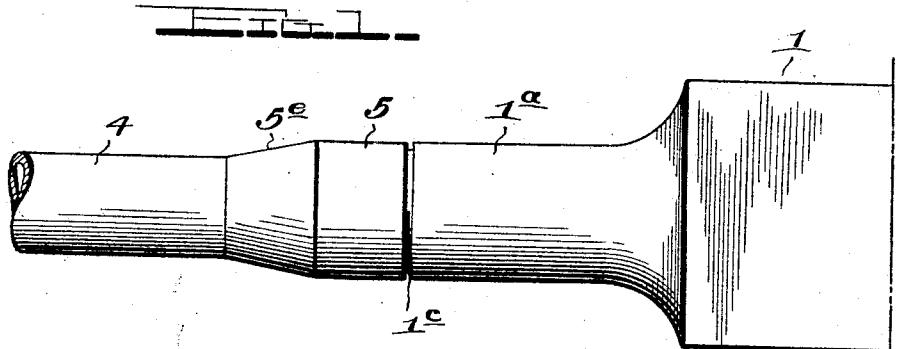


FIG. 2.

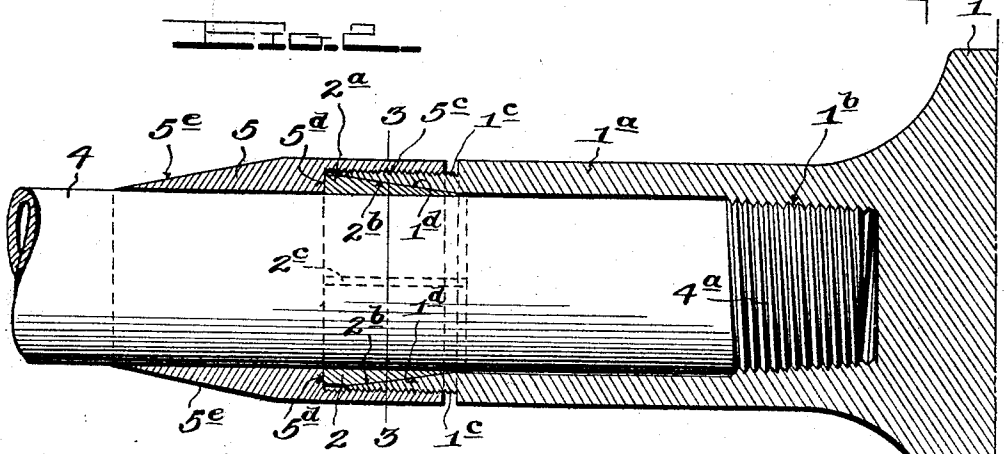


FIG. 3.

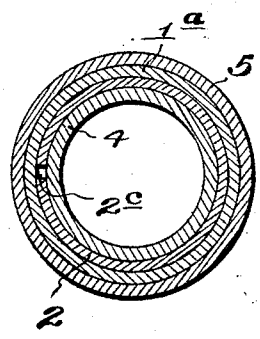


FIG. 4.

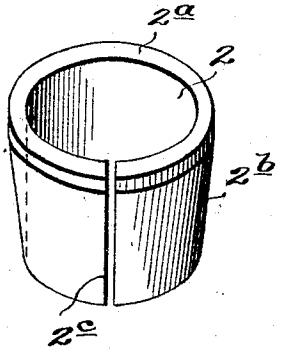
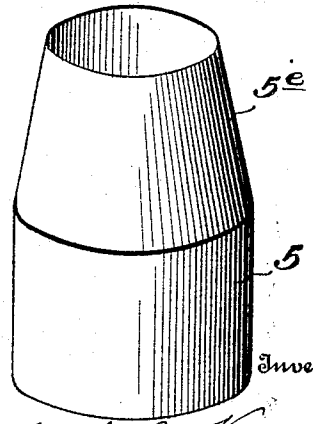


FIG. 5.



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Witnesses

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FIRING-TOOL.

1,199,010. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed December 7, 1914. Serial No. 875,922.

To all whom it may concern:

Be it known that I, FREDERICK C. KRAMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Firing-Tools; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to fire tools, and its object is to provide means for firmly clamping a fire tool to its handle.

The invention is particularly designed for use in connection with slice bars or other firing tool, which is provided with the properly formed socketed shank for the engagement of the handle as hereinafter explained. By the invention the handle is securely attached to the tool by means of a split clamping ring adapted to slip over the handle and engage the tapered end of the socket in the shank of the fire tool, said split ring being forced inward by means of a sleeve adapted to slip onto the handle and over the clamping ring and screw onto the threaded end of the shank, and as such sleeve is screwed on the shank it forces the clamping ring into the socket and the tapered surfaces cause the ring to bind the handle tightly and effectually prevent the handle from working loose or unscrewing, and make a firm and rigid connection between the handle and tool.

I will explain the invention in detail with reference to the accompanying drawings in which it is illustrated in connection with an ordinary slice bar.

In said drawings: Figure 1 is a side view showing the means for attaching the handle to a firing tool. Fig. 2 is an enlarged longitudinal sectional view through Fig. 1. Fig. 3 is a transverse section on the line 3—3, Fig. 2. Figs. 4 and 5 are perspective views of the clamp member and sleeve detached.

The tool 1 is shown as a slice bar but may be of any desired construction, and is provided with a tubular shank 1^a which may be internally threaded at its bottom as shown at 1^b for the engagement of the lower threaded end 4^a of a handle 4, which is preferably made of rod steel or iron pipe and corresponds in exterior diameter with the interior diameter of the socket 1^a, and has its inner end 4^a threaded and engaged with the threaded portion 1^b of the socket. Thus far the construction is ordinary, and the objection to such ordinary construction is that the handle soon works loose, and the tool is then apt to become disengaged or broken off while in use, causing a great deal of trouble and annoyance to the operator. Various means have been tried to prevent turning of the handle, such as screws tapped through the socket to engage the handle, but they have all been more or less objectionable, and it is quite desirable to have no protuberances on the socket or handle of the tool.

In my invention the outer end of the shank 1^a is externally reduced in diameter and threaded as indicated at 1^c, and the outer end of the socket in the shank is conically tapered as indicated at 1^d. This conical portion 1^d is adapted to be engaged by a tapered split clamping ring 2 whose normal internal diameter corresponds to the handle 4 so that it can be slipped thereupon and its tapered end entered into the tapered portion 1^d of the socket. The clamping ring is preferably made of steel and is longitudinally split as at 2^c, and its outer broader end 2^a normally projects beyond the end of the shank 1^a and is adapted to enter within an annular recess 5^c in the end of a sleeve 5, which is adapted to be slipped upon the pipe 4 and neatly fits the same, except the recessed part 5^c which is internally threaded, as shown, to engage the external threads on the part 1^c of the socket. The end 2^a of the clamping member 2 engages the shoulder 5^d at the inner end of the threaded part 5^c, so that when the sleeve 5 is screwed onto the shank the clamping member 2 will be forced inwardly into the tapered end 1^d of the socket by the shoulder 5^d engaging the end 2^a as indicated in Fig. 2; and the tighter the sleeve 5 is screwed onto the shank the more forcibly the clamping ring is pressed into the recess of the socket 1^d and the opposed tapered surfaces of the socket and clamping ring contract the latter upon the handle 4 and securely clamp it. The clamping ring not only prevents turning of the handle in the tool but also forms an additional bearing between the shank and handle at the outer end of the socket, the handle having two rigid points of connection with the tool, *i. e.*, at the threaded end 4^a and at the clamping ring 2.

The sleeve 5 is preferably made of steel and its outer end is tapered down as shown

at 5°, to approximately the diameter of the handle, and this prevents the tool from catching against the door frame or on other obstructions when the operator is withdrawing the tool from the fire.

While the invention is particularly adapted for firing tools, it could be usefully employed with other tools or implements.

By this invention the handle is clamped to the tool in a most efficient and durable manner and will not become loosened nor break when heated. The clamping ring is fully protected while in use, and if desired the invention can be used with a series of interchangeable tools each provided with a socket corresponding to the socket 1^a.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

A firing tool having a shank with its outer end reduced and externally threaded and provided with an internal socket whose outer end is internally tapered and which is internally threaded at its bottom, and a handle having a threaded end adapted to engage the threaded portion of the socket; with a split tapered clamping ring adapted to be slipped onto the handle and into engagement with the internally tapered end of the socket; and a sleeve adapted to be slipped onto the handle and over the said clamping ring and having an internally threaded recess adapted to engage the externally threaded portion of the shank, whereby when said sleeve is screwed onto the shank the said clamping ring is forced into the tapered portion of the socket and caused to securely clamp the handle.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

FREDERICK C. KRAMER.

Witnesses:
LUCY M. BRENNER,
GEO. GOODFELLOW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."