May 31, 1932. J. DRAZICK 1,860,998

TOOL HOLDER

Filed Aug. 21, 1931

Fig. 1.

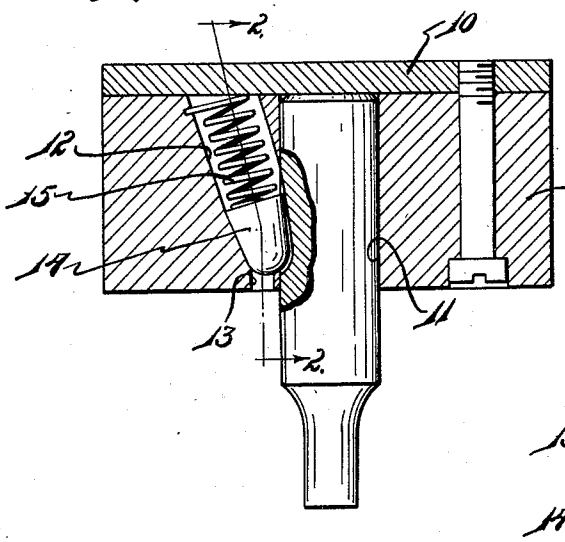


Fig. 5.

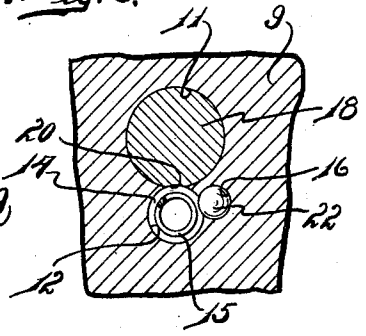


Fig. 3.

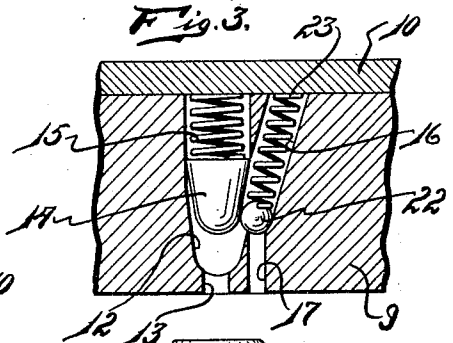
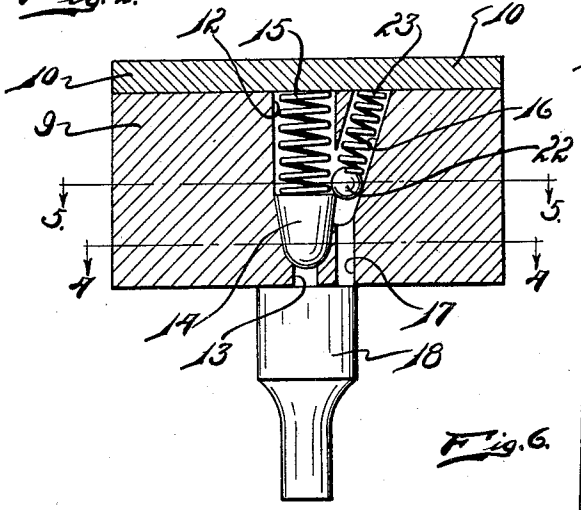


Fig. 2.



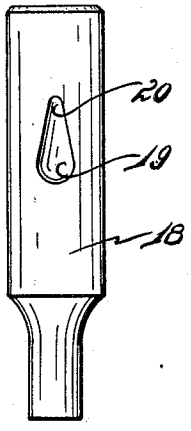


Fig. 6.

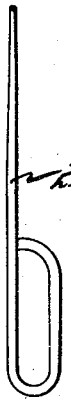
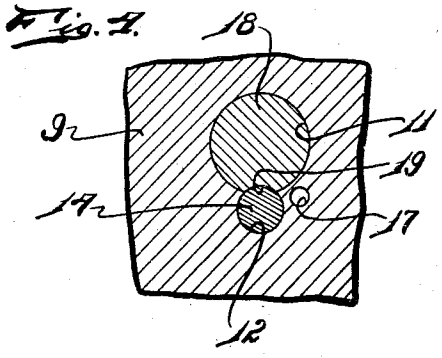


Fig. 4.



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UNITED STATES PATENT OFFICE

JOHN DRAZICK, OF DETROIT, MICHIGAN

TOOL HOLDER

Application filed August 21, 1931. Serial No. 558,487.

My invention relates to a new and useful improvement in a tool holder adapted for use in retaining tools such as punches and the like in such a manner that when mounted in the retainer they will be rigidly held in position and firmly locked therein while at the same time they may be easily and quickly removed therefrom.

Another object of the invention is the provision of a tool holder of this class having a locking element mounted in a retainer and so arranged and formed that a maximum bearing on the periphery of the tool by the locking element, may be present.

Another object of the invention is the provision in a tool retainer of this class of a tool engaging and locking member and means for locking this member in inoperative position so as to facilitate the insertion and removal of a tool.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification, and in which,

Fig. 1 is a central vertical sectional view of the invention.

Fig. 2 is a view taken on line 2—2 of Fig. 1, showing the locking member in locking position.

Fig. 3 is a fragmentary sectional view similar to Fig. 2, showing the locking member locked in inoperative position.

Fig. 4 is a view taken on line 4—4 of Fig. 2.

Fig. 5 is a view taken on line 5—5 of Fig. 2.

Fig. 6 is a side elevational view of a punch and a releasing tool.

The invention comprises a retaining plate or block 9 which in use is secured to a backing plate 10. A tool receiving passage or bore 11 is formed in the retainer 9 and a passage 12 is formed in the retainer 9 extended diagonally to the axis of the passage or bore 11. This passage opens into the bore 11 and extending from the outer face of the retainer 9 inwardly into the passage 12 is a passage 13. Slidably mounted in the passage 12 is a tapered elongated locking member 14 which is normally pressed by the spring 15 into position so as to project into the passage 11. A passage 16 is formed in the retainer 9 and inclined to the axis of the passage 11 and also inclined to the passage 12 and opening into the passage 12. A passage 17 is formed inwardly from the outer face of the retainer 9 to communicate with the end of the passage 16. The tool 18 is provided on its periphery with a recess 19 tapering to narrow dimensions at its inner end 20.

In use, the wire tool 21 may be pushed inwardly so as to force the locking member 14 upwardly from the position shown in Fig. 1 into the position shown in Fig. 3. In forcing the locking member 14 inwardly, the ball 22 which is mounted in the passage 16 and held normally by the spring 23 projected into the passage 12 will be forced upwardly to permit the locking member 14 to pass beyond the same whereupon the ball 22 will be forced into the position shown in Fig. 3 and serve to lock the locking member 14 in inoperative position. When this locking member is in this position, the tool 18 may be easily and quickly inserted into or removed from the opening or passage 11 in the retainer 9. Upon pressing the rod 21 into the passage 17 when the parts are in the position shown in Fig. 3, the ball 22 will be forced inwardly of the passage 16 and the locking member 14 released for movement to locking position.

It will be noted that the recess 18 is deeper at its widest end and shaped so that the surface of the recess 19 engages the periphery of the locking member 14. There is thus a corelation between the taper of the locking member 14 and the incline of the bottom of the recess 19.

With a tool retainer constructed in this manner, the tool may be easily and quickly removed, and a hardening of the retainer 14 is avoided because of the large area of the locking member 14 which is engaged by the tool 18. Consequently no heat treating being necessary, no warping of the tool retainer or its parts is possible, with the result that

a more accurately sized tool retainer is provided.

While I have illustrated and described the preferred form of construction of my invention, I do not wish to limit myself to the precise details of structure shown, but desire to avail myself of such variations and modifications as may come within the scope of the appended claims.

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

1. A tool holder of the class described, comprising: a retainer having a tool receiving passage formed therein and communicating intermediate its ends with a passage formed in said retainer inclined to the axis of said tool receiving passage; a locking member movably mounted in said inclined passage and projectable into said tool receiving passage for engaging a tool inserted therein; a spring for normally moving said locking member into operative position, said retainer having a third passage formed therein inclined to the axis of said inclined passage and communicating therewith intermediate its ends; a locking ball positioned in said third passage and engageable with said locking member for resisting movement of the same from inoperative to operative and from operative to inoperative position.

2. A tool holder of the class described, comprising: a retainer having a tool receiving passage formed therein and communicating intermediate its ends with a passage formed in said retainer inclined to the axis of said tool receiving passage; a locking member movably mounted in said inclined passage and projectable into said tool receiving passage for engaging a tool inserted therein; a spring for normally moving said locking member into operative position, said retainer having a third passage formed therein inclined to the axis of said inclined passage and communicating therewith intermediate its ends; a locking ball positioned in said third passage and engageable with said locking member for resisting movement of the same from inoperative to operative and from operative to inoperative position, said retainer having a pair of passages projecting inwardly from one face, each communicating with one of said inclined passages.

In testimony whereof I have signed the foregoing specification.

JOHN DRAZICK.