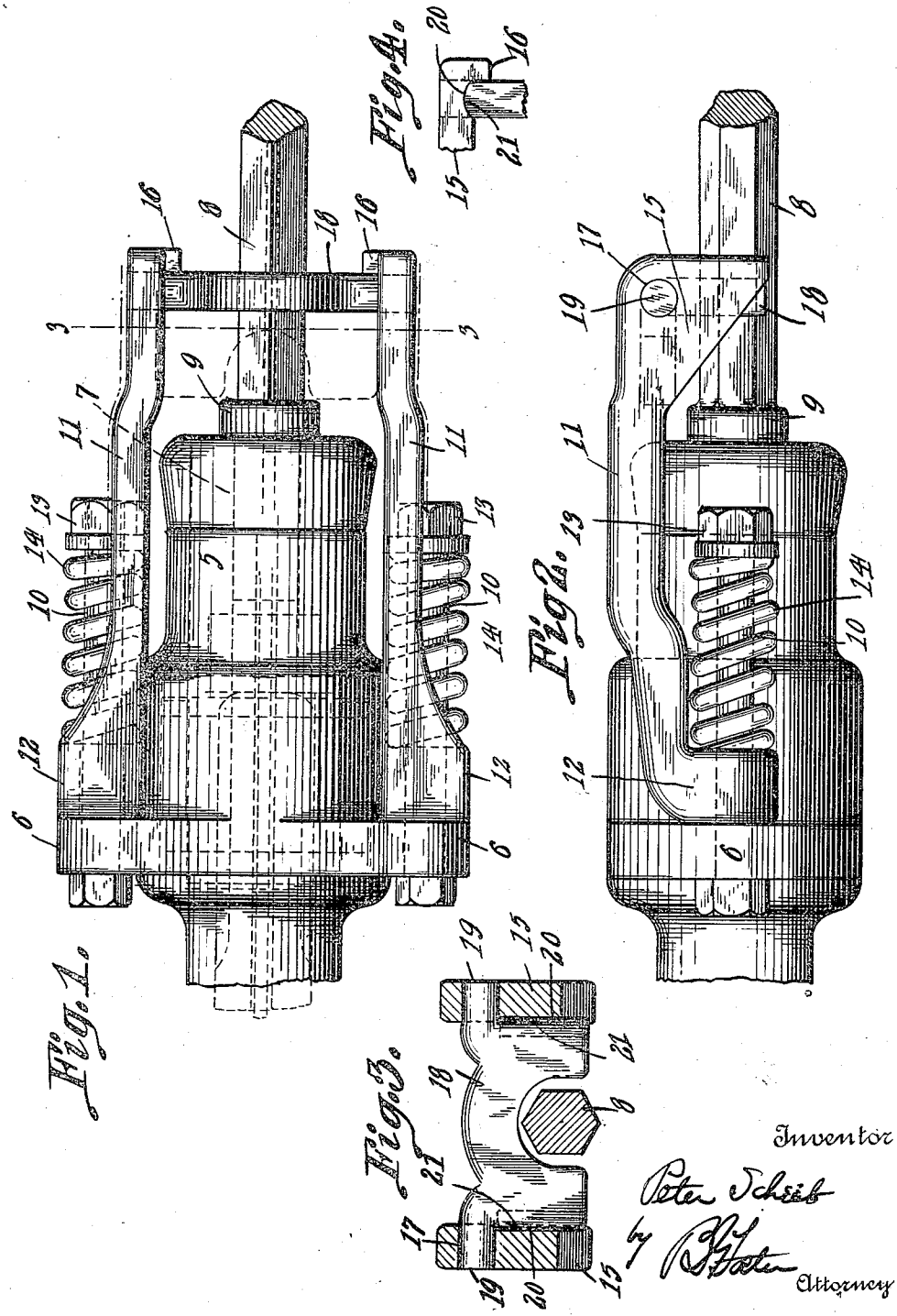
Oct. 30, 1923. 1,472,496

P. SCHEIB

TOOL RETAINER

Filed Nov. 22, 1917



Inventor
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by
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Patented Oct. 30, 1923. 1,472,496

UNITED STATES PATENT OFFICE.

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TOOL RETAINER.

Application filed November 22, 1917. Serial No. 203,442.

To all whom it may concern:

Be it known that I, PETER SCHEIB, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Tool Retainers, of which the following is a specification.

The present invention relates to tool retainers, and more particularly to that type employed on rock drills for temporarily securing the drill steel or bit against detachment from the socket for the purpose of removing the bit from the drill hole.

The primary object is to provide an effective device of this character that is not only novel in construction, but is simple and entirely practicable.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a plan view of the tool holding portion of a rock drill with the retainer thereon.

Figure 2 is a side elevation of the same.

Figure 3 is a cross sectional view on the line 3—3 of Figure 2.

Figure 4 is a bottom plan view of the outer end of one arm and the adjacent portion of the retaining yoke, showing the detachable interlocking engagement between the two.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated the chuck or tool holder is designated generally by the reference numeral 5, and may be of any desired character. It is provided on its rear portion with outstanding ears 6, and also has a socket 7 extending longitudinally thereinto and opening through the front end thereof to detachably receive a tool.

In the present embodiment, a portion of a rock drill steel or bit 8 is shown, the rear end of which detachably slips into this socket, said tool having a collar 9 thereon that limits the inward movement and is also arranged to be engaged by the tool retainer, as hereinafter described.

Passing through the ears 6 are longitudinal side bolts 10 that terminate short of the front end of the tool holder. Supporting arms 11 are disposed on opposite sides of said tool holder longitudinally thereof, and have offset rear ends 12 forming eyes that are slidably mounted on the bolts 10. Interposed between the said eyes 12 and the front heads or nuts 13 of the bolts, are coiled springs 14 which serve to yieldingly hold the arms in their rearward position with the eyes 12 against the ears 6.

The front ends of the arms 11 are enlarged to produce flat rearwardly tapered heads 15 having inset stop flanges 16, said heads also having transverse openings 17 in their upper portions and out of line with the longitudinal axis of the socket 7 of the tool holder. A tool retaining element, in the form of a yoke 18, extends across the space between the heads 15, and has terminal pivots 19 journaled in the openings 17. This yoke is thus movable between a position abutted against the stop flanges 16 and a substantially horizontal position at one side of the drill steel 8 and socket 7. The yoke is arranged to loosely surround the shank of the drill steel, but the opening or notch therein is of less cross sectional area than the collar 9 so that said collar will abut against the yoke when said yoke is in its operative position against said stop flanges 16. On the other hand, when swung to the opposite position, it is entirely out of the path of the collar 9 so that the drill bit may be withdrawn or replaced without difficulty.

The eyes 12 of the supporting arms 11 have a sufficiently loose fit upon the bolts 10 to permit their movement away from each other as indicated in dotted lines in Figure 1, but this movement is resisted by the springs 14. By referring particularly to Figure 4, it will be noted that each of the heads 15 of the side arms are provided in their inner sides and alongside the stop flanges 16 with grooves 20, and that the end edges 21 of the retaining yoke 18 are rounded so as to fit therein. It will thus be evident that when the retaining yoke is in its operative position, it will be detachably interlocked with the side arms, but that this interlocking relation can be overcome by employing sufficient force to swing the yoke rearwardly toward the tool holder.

The utility of the device will be evident to those skilled in the art. When the yoke is in its operative position, the drill bit, while having free play for operating pur-

poses, is nevertheless retained in the socket, for any material relative movement between the holder and drill steel will result in the collar 9 being abutted against the yoke 18. If the drill bit is driven with force against said yoke, the springs 14 permit the retainer to yield sufficiently to the shocks to avoid breakage or injury of the parts. On the other hand, when the yoke is swung to its inoperative position, the drill bit is free therefrom, and may be removed or replaced as desired.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. The combination with a tool holder of spaced yielding supporting arms extending longitudinally of the tool holder and capable of yielding lateral movement toward and from each other, mountings for the arms, and a tool retainer mounted on the arms between the same and movable thereon to and from an operative position with respect to a tool placed in the tool holder, said retainer and arms having coacting interfitting portions that secure the retainer in its operative position and the said lateral movement of the arms permitting the said portions to interlock and be disengaged.

2. The combination with a tool holder, of spaced yielding supporting arms extending longitudinally of the tool holder and capable of lateral movement, mountings for the arms, and a retainer yoke pivoted to and between the arms and capable of swinging to and from an operative position with respect to a tool placed in the tool holder, said retainer and arms having coacting interfitting portions that secure the retainer in its operative position and the said lateral movement of the arms permitting the said portions to interlock and be disengaged.

3. The combination with a tool holder, of spaced yielding supporting arms extending longitudinally of the tool holder and capable of yielding lateral movement toward and from each other, mountings for the arms, a tool retainer mounted on the arms between the same and movable thereon to and from an operative position with respect to a tool placed in the tool holder, the tool-engaging portions of said retainer being between and in rear of the projecting ends of the arms.

4. The combination with a tool holder having a socket, of spaced supports projecting forwardly of said socket on opposite sides of the same, and a tool retaining yoke disposed transversely of the socket in advance thereof and pivoted to both supports in advance of the holder to swing thereon on an axis transverse to the socket and a tool placed therein, said yoke being disposed wholly between their supports and in rear of their front ends.

5. The combination with a tool holder having a socket, of spaced supports projecting forwardly of said socket on opposite sides of the same, and a tool retaining element disposed transversely of the socket wholly in advance thereof and pivoted to both supports to swing thereon toward and from the socket and thus from and to an operative position with respect to a tool placed in the socket, and means carried by the supports and in line with the tool for limiting the swinging movement of the tool retaining element.

6. The combination with a tool holder having a socket, of spaced supports projecting forwardly of said socket on opposite sides of the same, and a tool retaining element disposed transversely of the socket in advance thereof and pivoted to both supports to swing thereon toward and from the socket and thus from and to an operative position with respect to a tool placed in the socket, and stops carried by the inner sides of the supports to limit the outward swinging movement of the tool retaining element to a position across the path of a portion of the tool.

7. The combination with a tool holder having a socket, of supporting arms mounted on opposite sides of the tool holder and slidable longitudinally thereof, springs for resisting such sliding movements, said arms having their front ends projecting beyond the tool holder and having inwardly extending stop flanges, and a tool holding yoke pivoted to the front ends of both arms and extending across the space between the same, said yokes swinging to a position against the flanges and to a position out of line with the socket.

8. The combination with a tool holder, of side arms movably mounted thereon and capable of movement away from each other, means for yieldingly holding the outer ends of the arms against movement away from each other, and a tool retaining element mounted on the arms and detachably clamped between the same.

9. The combination with a tool holder, of laterally movable side arms movably mounted thereon, springs for yieldingly resisting the longitudinal movement of the side arms and also resisting the relative movement of the outer ends of said arms

away from each other, and a tool retaining yoke pivotally mounted on and between the arms and holding said arms in spaced relation.

10. The combination with a tool holder, of bolts disposed longitudinally along opposite sides of the same, supporting arms slidably mounted on the bolts and projecting beyond the tool holder, springs resisting said sliding movements, said arms having inset flanges at their outer ends, and grooves disposed alongside the flanges, and a tool retaining yoke pivoted to the arms and extending across the space between the same, said yoke abutting against the flanges and having its edges detachably seating in the grooves.

11. The combination with a tool holder, of spaced supporting arms yieldingly mounted thereon and projecting in advance of the same, and a tool retainer bar yoke located transversely between the front ends of the arms in advance of the tool holder and pivoted to said front ends, coacting portions of the arms and yoke bar on opposite sides of the tool, but in line therewith, engaging when the latter is in an operative position in the path of a portion of a tool placed in the holder, to hold said yoke bar in said position.

12. The combination with a tool holder, of bolts extending alongside the same, non-swinging arms slidably mounted on the bolts, means for resisting the sliding movements of the arms on the bolts, and a tool retainer yoke pivoted on the front ends of the arms, coacting portions of the arms and yoke constituting means for limiting the movement of the yoke in one direction to an operative position in the path of a portion of a tool placed in the holder.

In testimony whereof I affix my signature in the presence of two witnesses.

PETER SCHEIB.

Witnesses:
JAMES R. EHNENDORF,
A. A. SELLECK.