No. 719,275. PATENTED JAN. 27, 1903.

S. S. SWAN.

TOOL AND TOOL HOLDER.

APPLICATION FILED JUNE 26, 1902.

NO MODEL.

Fig. 1.

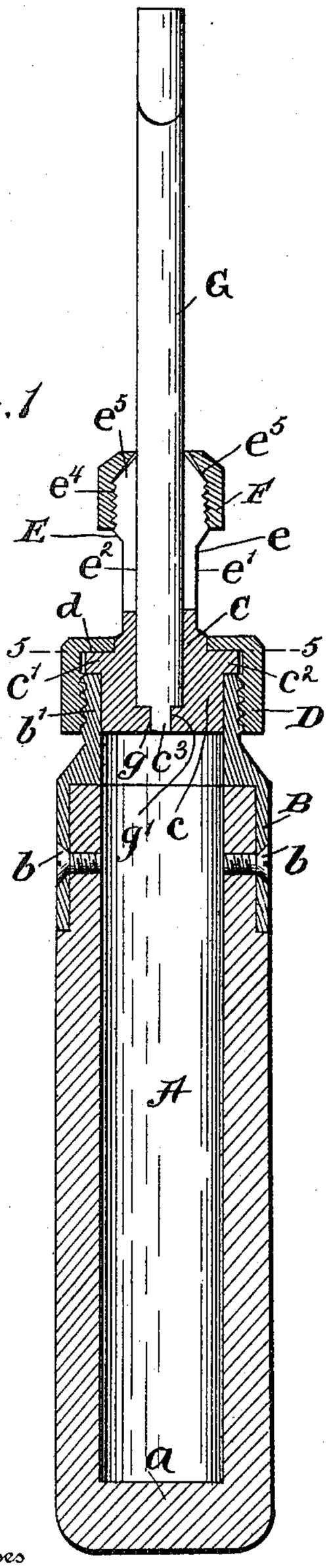


Fig. 2.

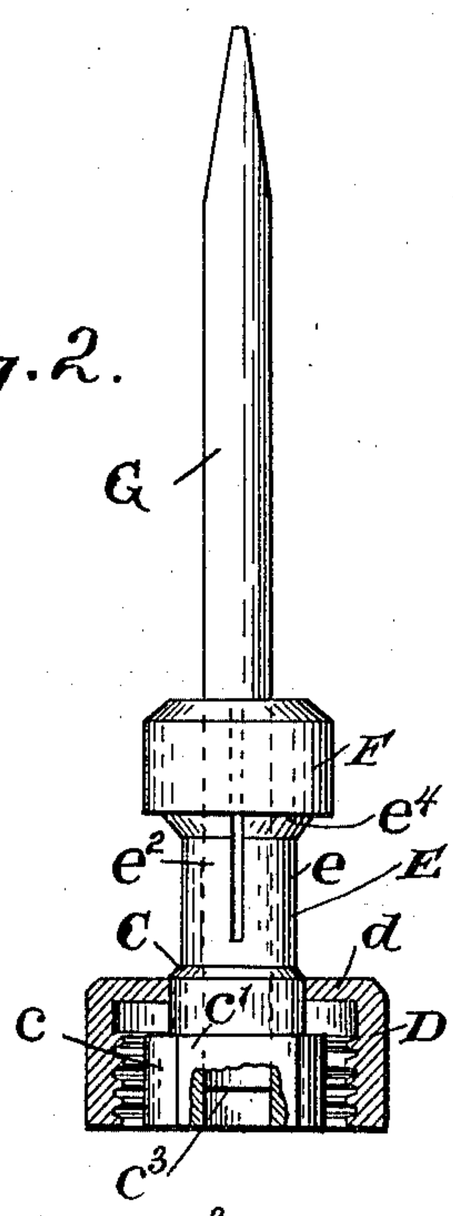


Fig. 3.

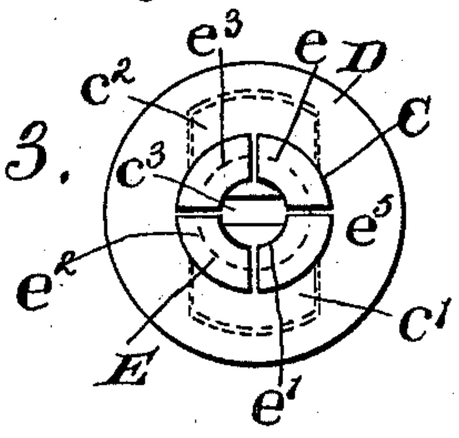


Fig. 4.

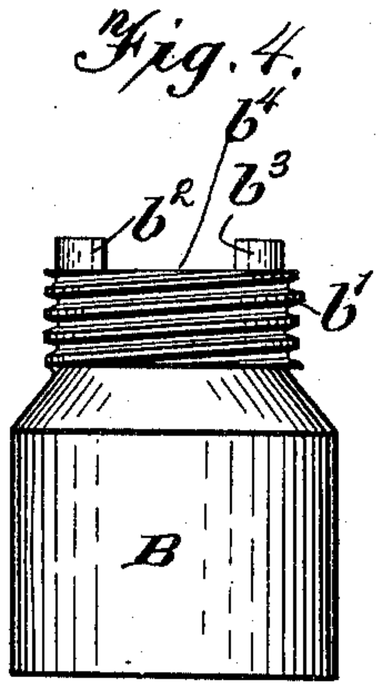
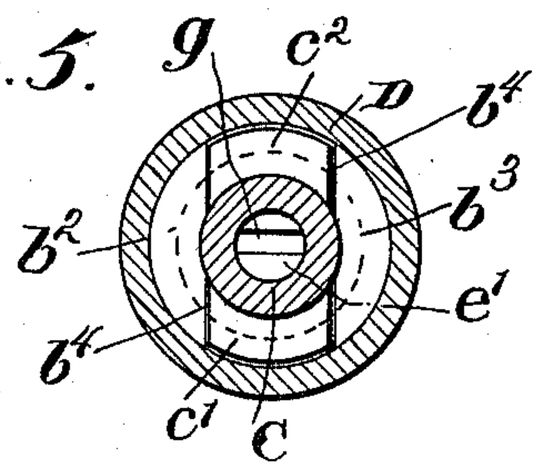


Fig. 5.



Witnesses

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SOREN SORENSEN SWAN, OF WITWATERSRAND GOLD FIELDS, TRANSVAAL, SOUTH AFRICA.

TOOL AND TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 719,275, dated January 27, 1903.

Application filed June 26, 1902. Serial No. 113,335. (No model.)

To all whom it may concern:

Be it known that I, SOREN SORENSEN SWAN, a subject of the King of Denmark, residing on the property of the Paarl Central Gold Mining Company, Limited, Witwatersrand Gold Fields, Transvaal, South Africa, have invented certain new and useful Improvements in Tools and Tool-Holders, such as screw-drivers, chisels, gimlets, brad-awls, and the like, of which the following is a specification.

This invention consists in certain improvements in detachable tools and tool-holders applicable to screw-drivers, chisels, gimlets, brad-awls, and the like, to tap-wrenches, and to other small tools. It is designed to provide a simple, efficient, and expeditious means of fixing the tool in and for detaching the tool from its holder and to produce a cheaper tool than those at present in use and one of stronger and firmer construction.

In a tool constructed in accordance with my invention no strain is placed on the nuts or caps, the wear and tear on the parts is practically *nil*, the parts do not work loose while the tool is being used, and the tools can be removed and replaced or substituted with increased facility. In detachable tools of this kind as heretofore constructed the screw-cap fitted on the outer extremity of the handle or holder often bursts when the tool is brought into use, owing to the force required and applied to turn the tool.

In order that the invention may be the more readily understood, I append a sheet of drawings in which, by way of example, it is shown applied in the construction of a screw-driver and by aid of which drawings I will now proceed to describe it in detail.

In the drawings, Figure 1 is a longitudinal section of the handle with the tool fixed in position; Fig. 2, a part sectional elevation of the tool-socket and tool at right angles to Fig. 1; Fig. 3, an end view of the socket with the cap F removed; Fig. 4, an elevation of the inner end of the handle, and Fig. 5 a transverse sectional view cut on line 5 5 of Fig. 1.

A designates the hollow handle of the tool, which forms a convenient receptacle for three or four different sizes of the detachable screw-drivers or other tools. The outer extremity *a* of the handle is made solid—that is to say, no opening is formed in it at this end to permit of access to the interior, as in the present tools.

Over the inner and open end of the handle A is fitted a ferrule B, secured in position thereon by the screws *b*. The ferrule is shaped to fit the end of the handle A and is provided at the top with a preferably double-pitch screw-thread b'. Extending partially around the top of the ferrule B beyond the screw-thread b' are two curved projections b^2 b^5, which being opposite form a slot or recess b^4 across the top of the ferrule, as seen more particularly in Figs. 4 and 5.

C is the tool holder or socket, into which the inner extremity of the tool is projected. Its inner end *c* is of cylindrical form and is adapted to fit into the open end of the ferrule B. On opposite sides of the cylindrical part *c* of the socket are formed two curved projections c' c^2, which extend partially around it. The projections c' c^2 are equal in width to the slot or groove b^4, formed by or between the projections b^2 b^3 on the ferrule B. When the socket C is in position in the ferrule, the projections c' c^2 fit into the slot b^4 and at the sides rest against or engage the ends of the projections b^2 b^3. This construction and arrangement insure the rotation of the socket and with it the tool when the handle A is turned.

D is a cap provided with an internal screw-thread corresponding to the external screw-thread b' of the ferrule B, over which it is screwed. At the top the cap is formed with an inward annular projection *d*, which fits over the projections c' c^2 on the socket C. When screwed into position, the annular projection *d* locks or retains the projections c' c^2 in the slot or groove b^4 and in engagement with the projections b^2 b^3. The upper portion of the socket is in the form of a split tube E. It is shown slit longitudinally in two directions at right angles, thereby forming four compressible pieces or jaws *e* e' e^2 e^3. At the upper end of the split tube the jaws *e* e' e^2 e^3 are formed with a screw-thread e^4 and beyond the thread e^4 with a conical extremity e^5. Over the screwed end or head of

the split tubular part E is fitted a cap F, provided with an internal screw-thread corresponding to the screw-thread e^4 and with an internal conical hollow or recess beyond the thread corresponding to the conical extremity e^5 of the socket C. By screwing down the cap F the several pieces or jaws e e' e^2 e^3 are compressed, and the tool thereby firmly clamped in position in the socket C.

G represents the screw-driver or other tool arranged in the socket C. At its lower or inner end the tool is stepped or so shaped as to provide two flat faces g g' on opposite sides.

In the end of the cylindrical part c of the socket C is cut a transverse slot c^3, which intersects the cavity formed therein for the reception of the end of the tool G. This slot c^3 is of the same width as the end of the tool between the flat faces g g'.

In fitting the tool G into the holder its extremity is passed down the split tube E or between the jaws e e' e^2 e^3 into the cavity in the cylindrical part c, the stepped or flat portion projecting into the transverse slot c^3, thereby insuring the rotation of the tool G on the turning of the handle A.

The tool G is reduced slightly in circumference at the point where the jaws e e' e^2 e^3 grip it to prevent it being pulled out endwise after the nut or cap F has been tightened to fix it in the socket C.

To remove the tool, the nut or cap F is unscrewed, which allows the jaws e e' e^2 e^3 to expand and release it. If desired, the cap D can be unscrewed to remove the socket C from the handle A to permit of access to the tools in the interior and the tool of the required size abstracted. The socket can then be replaced and the cap C be screwed down to fix the socket to the handle, either before or after the tool has been fixed in the socket, by screwing down the cap F. The screwing down of the nut or cap F causes the sides or walls of the internal conical recess to bear against or engage the conical extremity of the tube E or the several jaws e e' e^2 e^3 and to compress or force the same inward to grip or clamp the tool in position.

What I claim as my invention, and desire to protect by Letters Patent, is—

In a detachable tool and tool-holder in combination the hollow handle A, the ferrule B on the inner end thereof, the screw-thread formed on the ferrule and the two curved projections b^2 b^3 beyond said screw-thread, the tool-socket C comprising the lower cylindrical portion c fitting into the ferrule B, and the split tubular part E, the two curved projections c' c^2 extending partially around the cylindrical part c of the socket fitting the slot b^4 and engaging the projections b^2 b^3 to cause the socket to rotate with the handle, the cap or nut D screwed on the end of the ferrule engaging and locking the projections c' c^2 in the slot b^4, the transverse slot formed in the inner end of the cylindrical portion intersecting the cavity formed in the socket for the reception of the tool, a screw-thread formed around the tubular part and the conical extremity beyond said screw-thread, the tool arranged in the socket formed with the flat faces g g' fitting the transverse slot in the end of the socket to insure its rotation with the handle and the nut or cap F screwed over the end of the split tube, formed with an internal conical recess to engage the conical extremity of the tube to clamp the end of the split tube or the jaws around the tool to fix it in position in the socket, the diameter of the said cap, F, being greater than the diameter of the central opening of the nut, D, whereby the said nut is prevented from becoming free from the tubular part, E, while the said cap, F, engages the same.

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

SOREN SORENSEN SWAN.

Witnesses:
CHAS. OVENDALE,
HERMINE SCHUYT.