(No Model.)

F. A. RALL.

TOOL FOR CLEANING OUT NUTS.

No. 568,277. Patented Sept. 22, 1896.

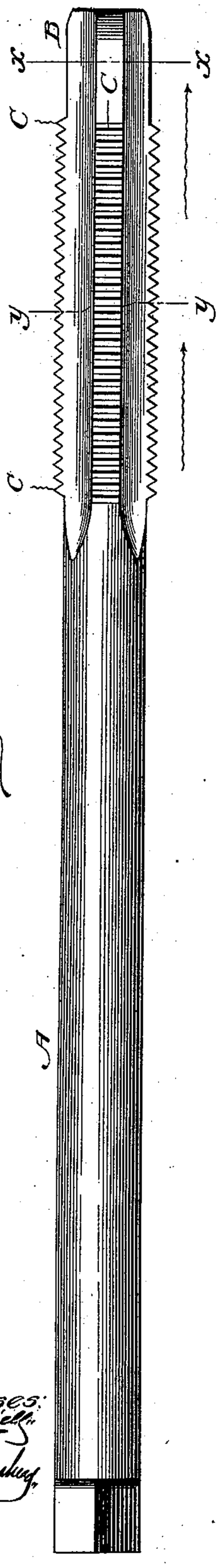

Fig. 1.

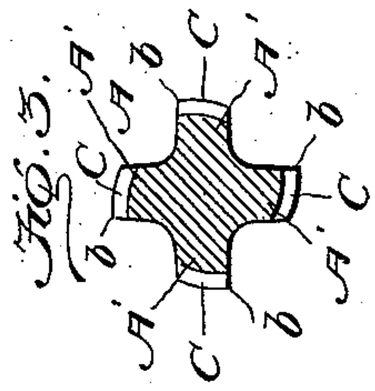

Fig. 3.

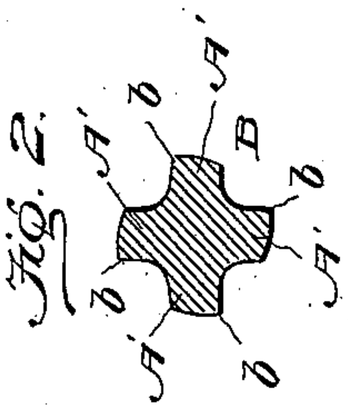

Fig. 2.

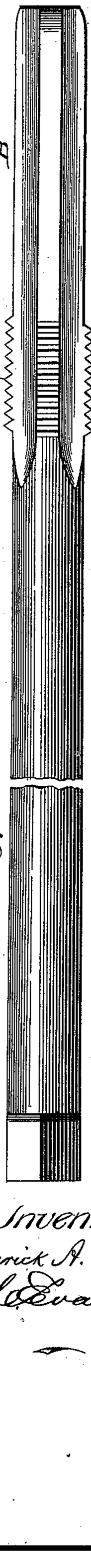

Fig. 4.

Witnesses:
Wm. Bashield
J. B. McMurtrey

Inventor
Frederick A. Rall
By A. H. Evans & Co
Attys.

UNITED STATES PATENT OFFICE.

FREDERICK A. RALL, OF TYLER, TEXAS.

TOOL FOR CLEANING OUT NUTS.

SPECIFICATION forming part of Letters Patent No. 568,277, dated September 22, 1896.

Application filed March 24, 1896. Serial No. 584,616. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. RALL, a citizen of the United States, residing at Tyler, Smith county, Texas, have invented certain new and useful Improvements in Tools for Cleaning Out Nuts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the tool. Fig. 2 is a section on line *x x*, Fig. 1. Fig. 3 is a section on line *y y*, Fig. 1; and Fig. 4 is a view similar to Fig. 1, but in which the tool is shown as it would appear after considerable use.

My invention has for its object to provide a tool for cleaning out internally-threaded apertures so as to refresh the screw-threads by removing all rust and dirt from between them and from off the edges thereof, and that without in any way destroying or changing the threads themselves. Heretofore it has been customary to clean out such screw-threaded apertures by an acid bath, by heat, and also by means of a screw-tap, but so far as I am aware there has been no special tool for this purpose.

I am aware of the tapering longitudinally-grooved tap having an integral bit or reamer on its end; also, that such tapering taps have had a plain or partially-threaded entering end or point, and that they have also had removable reaming-cutters; but in all such tools the tap begins with a tapering threaded portion which may or may not merge into a straight threaded portion. It follows, therefore, that when the tapering or feeding end of such combined reamers and taps become dull the tool becomes useless, and it will also be seen that if such a tap was used to clean out internally-threaded apertures the threads on its tapering end would not only become dulled, but would force the rust into the bottom of the grooves, from whence it cannot be removed until the last threads of the tap are engaged therewith, as they are the only ones which will reach the base of the threads. Hence it follows that the entire tap would be dulled and rendered useless and, moreover, the threads of the nut would be cut and enlarged thereby, so that the nut would fit loosely on its bolt. As these taps are far more expensive than a large number of nuts it does not pay to ruin them in attempting to clean nuts with them.

With these objects in view and the foregoing difficulties to overcome my invention consists in a tool provided with a plurality of longitudinal ribs having straight non-toothed reaming edges at the front end and transverse teeth in rear of the reaming edges and all of the same depth, the base-line of the teeth being in the longitudinal plane of the said reaming edges and the points of each row of teeth terminating on a line parallel with the longitudinal axis of the tool, so that when the tool is introduced into a threaded aperture the reaming edges of the tool will clear the edges of the threads from dirt and rust and the first tooth of the tool will enter the threaded groove and thoroughly clean it without changing the thread, said first tooth when dulled being ground off to thus lengthen and freshen the reaming edge and present a new tooth for the operation of cleaning.

In the drawings, A is the shank of the tool, squared at its rear end to receive an operating handle or device. A′ are four longitudinal ribs at the threaded front or working end of the tool, formed by grooving the shank longitudinally for the required distance. The front portions of these ribs form a reamer B, and the working edge *b* of each reamer-blade is parallel with the longitudinal axis of the tool, and the tool at this point will be of the same size or circumference as the bore of the threaded aperture to be cleaned, so that the reamer will not cut out or reduce the threads at all, but will only remove adhering rust or dirt from their edges.

C are the teeth formed on the ribs A′ immediately at the rear or inner end of the reamer B, and the base-line of each row of teeth is parallel with the longitudinal axis of the tool and in the same longitudinal plane as the adjacent reaming edge *b*, while the outer ends or edges of the teeth of each row terminate on a line parallel with the longitudinal axis of the tool. That is, all of the teeth are of the same depth and are shaped to fit the internal threads just as a bolt would

fit therein. It follows, therefore, that only the foremost tooth C will have to act in cleaning or refreshing an internal thread, said tooth following the groove in the nut or aperture and removing all dirt, rust, &c. As soon as this first tooth becomes dull it will be ground off and the blank space left thereby will form a part of the reamer, as shown in Fig. 4. Thus while the teeth grow fewer in number the reamer will be correspondingly refreshed by a new and sharper reaming-surface. This operation may be continued till the last tooth is removed.

The extremity of the reamer B is slightly rounded to permit the tool to be more readily introduced into the threaded aperture, and as the reamer snugly fits the bore thereof it will serve as a guide to center the tool and cause its tooth to enter the groove of the internal thread.

This tool will not drill nor will it tap a thread into an aperture, nor will it remove a previously-formed thread and cut a new one, but is designed for the sole purpose of cleaning a previously-formed internal screw-thread.

What I claim is—

A tool for cleaning internally-threaded apertures without changing the threads thereof, consisting in a shank provided at its working end with a plurality of straight longitudinal ribs, the front portions of which constitute reaming edges parallel with the longitudinal axis of the tool, and the tool in rear of said reaming edges being threaded and forming thereby a series of teeth on each rib; all of the teeth thus formed being of the same depth, with the base-line of each row in the longitudinal plane of the alined reaming edge; said threaded or toothed portion being constructed to fit the internally-threaded aperture to be cleaned, after the manner of its bolt, to cause the first tooth to act as the cleaner, substantially as set forth.

FREDERICK A. RALL.

Witnesses:
H. LOEBNITZ,
G. B. OLDROYD.