Feb. 24, 1953 S. W. PETRE 2,629,121

ROTATABLE BRUSHING TOOL FOR CLEANING PIPE THREADS

Filed Aug. 24, 1949

Fig. 1.

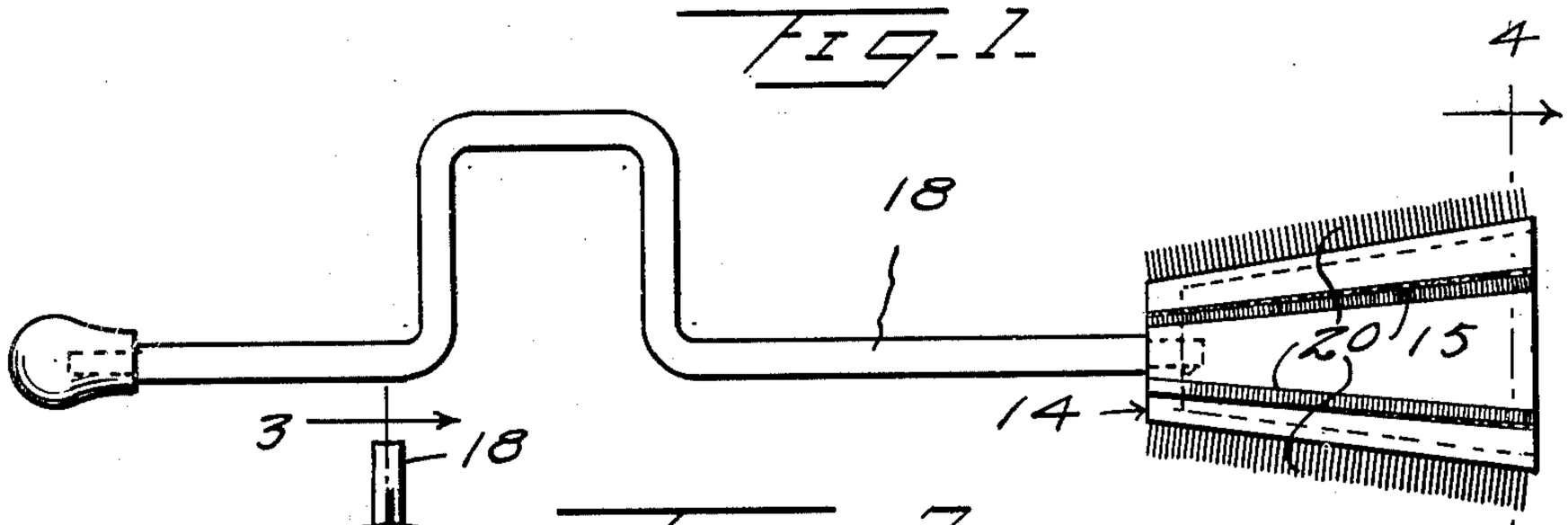


Fig. 2.

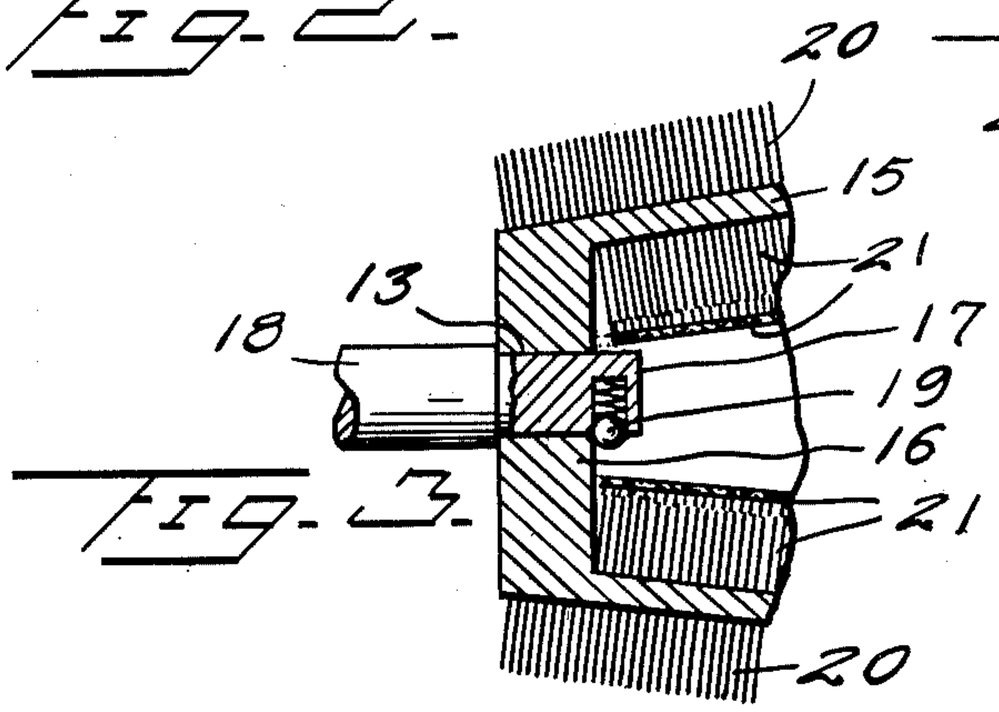


Fig. 3.

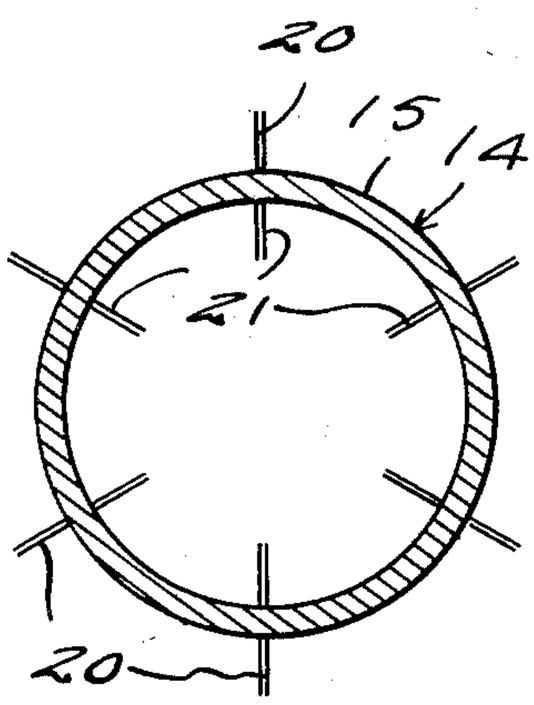


Fig. 4.

Fig. 5.

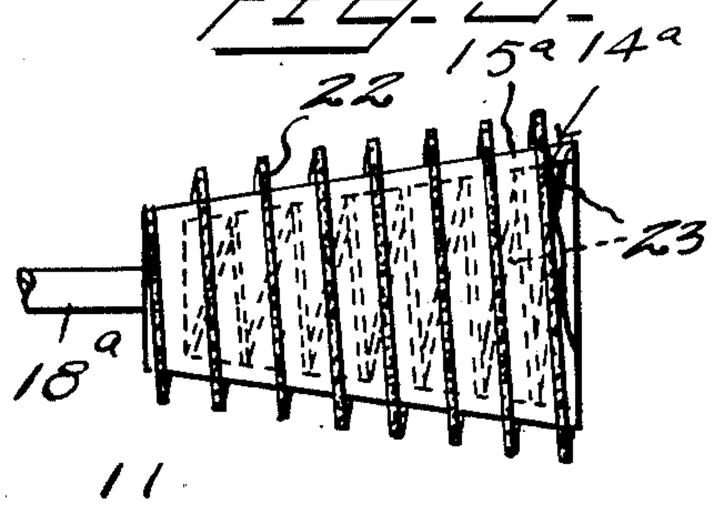
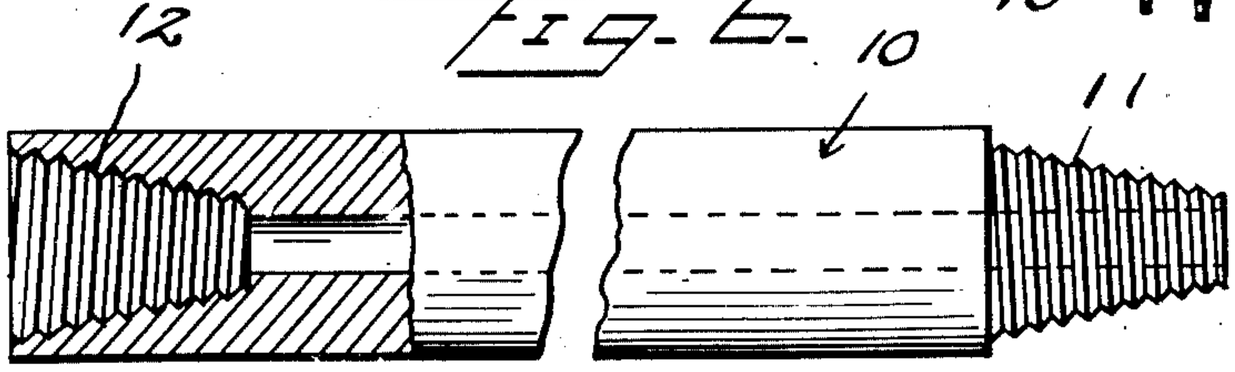


Fig. 6.



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ROTATABLE BRUSHING TOOL FOR CLEANING PIPE THREADS

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2 Claims. (Cl. 15—104.03)

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This invention relates to a thread cleaning brush.

In well drilling apparatus the drilling stems and other rods are formed with internal threads at one end and external threads at the other end with the threads disposed on a taper, and in order to provide for tight coupling of the stems or rods it is essential that the threads be as clean as possible, with all grit or other particles removed. It is, therefore, an object of this invention to provide a brush which will thoroughly clean the threads, both internal and external, so that a tight coupling may be formed.

Another object of this invention is to provide a brush of this kind which is of frusto-conical configuration, with an open base and a wall or head at the apex, having a polygonal central aperture within which the polygonal end of a crank is adapted to engage. The body of the brush has bristles projecting both outwardly and inwardly, with the bristles formed of metal, animal or synthetic material or combinations of metal and animal or synthetic material.

In one form of this invention the bristles are disposed in rows extending lengthwise of the conical body, whereas in another form of the invention the bristles are disposed on a spiral having a pitch substantially equal to the pitch of the threads.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawing and specification, and then more particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a detail side elevation of a thread cleaning brush constructed according to an embodiment of this invention,

Figure 2 is an end elevation of the device,

Figure 3 is a fragmentary sectional view taken on the line 3—3 of Figure 2,

Figure 4 is a sectional view taken on the line 4—4 of Figure 1,

Figure 5 is a detail side elevation of a modified form of this invention,

Figure 6 is a detail side elevation, partly broken away and in section, of a drill stem showing the tapered internal and external threads at the end of the stem.

Referring to the drawing, the numeral 10 designates generally an elongated drill stem which is provided at one end thereof with tapered external threads 11, and is provided at the opposite end thereof with tapered internal threads 12.

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In order to provide a means whereby the internal and external threads may be cleaned so that the stem sections may be tightly secured together, I have provided a cleaning brush generally designated as 14. The brush 14 includes a frusto-conical body 15 which is open at the base or large end thereof, and is provided with an end wall 16 at the apex or small end thereof. The wall 16 is formed with a polygonal opening 13 extending through the center thereof, and a polygonal stud 17 carried by one end of a crank 18 is adapted to removably engage in the opening 13.

A spring-pressed locking bolt 19 is carried by the stud 17 and is adapted to removably lock the stud 17 in the wall 16. The body 15 has extending from the outer side thereof lengthwise disposed rows of bristles or brush elements 20, and the body 15 also has extending radially inwardly from the inner side thereof bristles 21. The bristles 20 and 21 may be formed of either metal, animal or synthetic material, or if desired alternate rows of the bristles may be formed of metal and animal or synthetic material.

Referring now to Figure 5, there is disclosed a brush member 14*a* which includes a frusto-conical body 15*a* similar to the body 15, and the body 15*a* has extending from the inner and outer sides thereof spirally arranged bristles 22 and 23. The pitch of the bristles 22 and 23 is substantially equal to the pitch of the threads 11 and 12 so that the bristles will engage within the valleys of the threads as the brush member 14*a* is rotated by means of the crank 18*a*.

In the use and operation of this device, where external threads are to be cleaned, the crank 18 is mounted in the head or wall 16, as shown in Figures 1 and 3. As here shown, the crank extends from the apex or small end of the brush member so that the external threaded end of the stem 10 may be extended into the interior of the body 15. The crank 18 is rotated to permit the bristles 21 to clean the threads and if desired a liquid cleaning medium may also be used with the internal bristles 21. Where interior threads are to be cleaned, the crank 18 is reversed, extending through the base or open end of the body 15. The small end of the brush is then extended into the internal threads 12 and the brush rotated to clean the threads in both the valleys and the sides and peaks of the threads. The brush shown in Figure 5 is used in the same manner as that shown in Figures 1 to 4.

With a cleaning brush as hereinbefore described, the threads at the opposite ends of the drill stem, rod or other member used in well drilling may be thoroughly cleaned to remove grit or

other particles which tend to prevent the firm tightening of the connecting ends of the stems or rods together.

I do not mean to confine myself to the exact details of construction herein disclosed, but claim all variations falling within the purview of the appended claims.

What I claim is:

1. A brush for cleaning threads comprising a frusto-conical member open at the large end thereof and closed at the apex thereof, the apex of said member having a longitudinally extending polygonal opening therethrough, a longitudinally extending crank selectively engageable in said opening from either end of said member whereby either the base or the apex thereof may be extended toward the threads to be cleaned, and bristles carried by at least one side of said member, said bristles being disposed in radial, spaced apart lengthwise extending rows on said member, the bristles of alternate rows being comprised of different materials.

2. A brush for cleaning threads comprising a frusto-conical member open at the large end thereof and closed at the apex thereof, the apex of said member having a longitudinally extending polygonal opening therethrough, a crank engageable in said opening from either end, and radially extending bristles in longitudinally extending, widely spaced apart rows carried by at least one side of said member, alternate rows of said bristles being formed of relatively stiff material and certain others of said bristles being formed of relatively flexible material.

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