J. S. RIST & W. E. TOTTEN.

WELL DRILL BIT.

APPLICATION FILED APR. 22, 1913.

1,088,452. Patented Feb. 24, 1914.

Fig. 1.

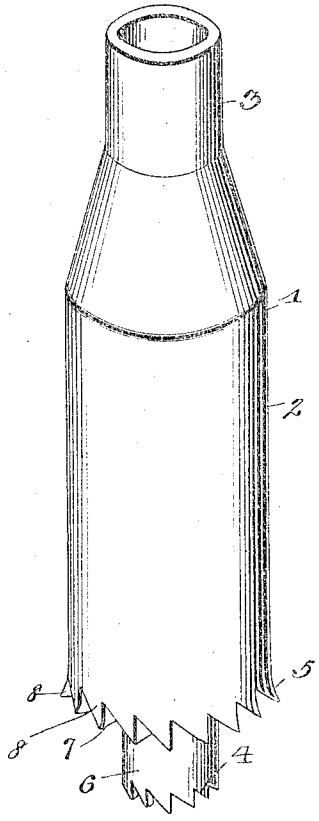
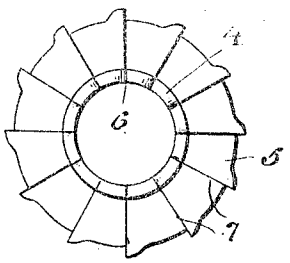



Fig. 2.




Witnesses
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# UNITED STATES PATENT OFFICE.

JOHN S. RIST AND WILSON E. TOTTEN, OF TYRONE, OKLAHOMA.

## WELL-DRILL BIT.

1,088,452. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed April 22, 1913. Serial No. 762,851.

*To all whom it may concern:*

Be it known that we, JOHN S. RIST and WILSON E. TOTTEN, citizens of the United States, residing at Tyrone, in the county of Texas and State of Oklahoma, have invented new and useful Improvements in Well-Drill Bits, of which the following is a specification.

The invention relates generally to an improvement in drills and particularly to a bit constructed for effective and rapid work in the harder grades of material ordinarily encountered in drilling.

The main object of the present invention is the provision of a drill having concentrically disposed sets of teeth, one set being arranged on a lower operating plane than the other set, whereby more effective results are secured.

The invention in the preferred details of construction will be described in the following specification, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view illustrating the improved bit. Fig. 2, a bottom plan of the same.

With reference particularly to the accompanying drawings the improved bit comprises the usual hollow sleeve-like member 1, which for the greater portion of its length is of uniform diameter, as at 2, and above such part is gradually reduced in diameter to form a section 3 for connection in the drill tube or rod in any usual or preferred manner.

The operative end of the bit is formed with two concentric sets of teeth 4 and 5, the former being arranged at a terminal of a sleeve projection 6 having a diameter materially less than the maximum diameter of the bit and centrally disposed. These teeth which may be of any type desired in specific formation serve as the initial cutting teeth. The upper set of teeth are formed on a plane above the lower set and concentric and wholly beyond the same, said latter set of teeth having cutting edges 7 inclining downwardly and outwardly with relation to the outer surface of the sleeve member of the lower set of teeth, and an outer edge 8 which inclines downwardly and outwardly with relation to the outer surface of the main length of the drill, so that the cutting plane of the teeth 5 is wholly beyond the cylindrical surface of the drill proper.

In the use of the improved bit it will be understood that the lower set of teeth cut a comparatively small initial opening in the material through which the drill is passing and that said opening or hole thus cut serves through the guiding coöperation of the wall of such hole and the outer surface of the sleeve 6, as a guide for the cutting movement of the upper set of teeth. By thus dividing the work and having the upper set of teeth operate upon the material subsequent to the lower set of teeth the drill is advanced more rapidly and with less work than where the teeth are cutting on the same plane.

Of course, it is to be understood, that we contemplate the formation of the bits in any and all sizes and of such materials as will best adapt them for the particular work for which they are designed, intending by the description and showing herein no limitation other than in the relative disposition of the respective sets of teeth and the cutting plane of the upper set beyond the normal surface of the bit.

What is claimed as new is:—

A drill bit having an operative end thereof formed to provide cutting teeth projected radially of said end and having cutting edges projected beyond the peripheral surface of the bit, a sleeve member extending from the operative end of the bit at the relatively inner end of the teeth, the end of the sleeve member below the said teeth being formed to provide cutting teeth.

In testimony whereof we have affixed our signatures in presence of two witnesses.

JOHN S. RIST.
WILSON E. TOTTEN.

Witnesses:
R. T. WRAY,
H. J. RIST.