Oct. 30, 1956 C. E. FOOGDE ET AL 2,768,430

METHOD OF PRODUCING HOLLOW ROCK DRILL STEEL

Filed Oct. 8, 1953

Fig. 1

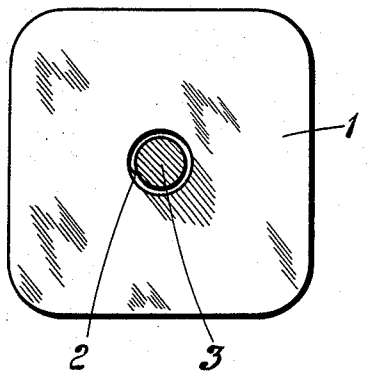


Fig. 4

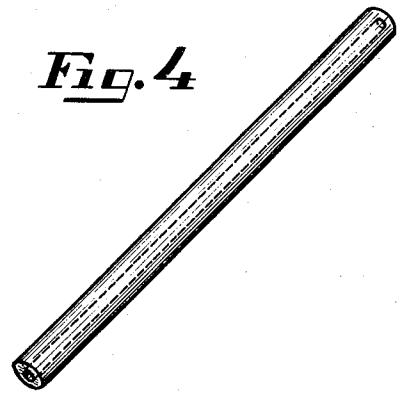


Fig. 2

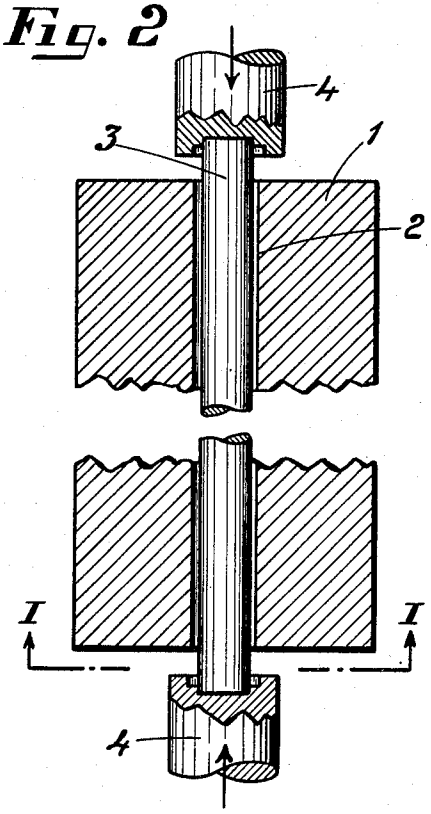
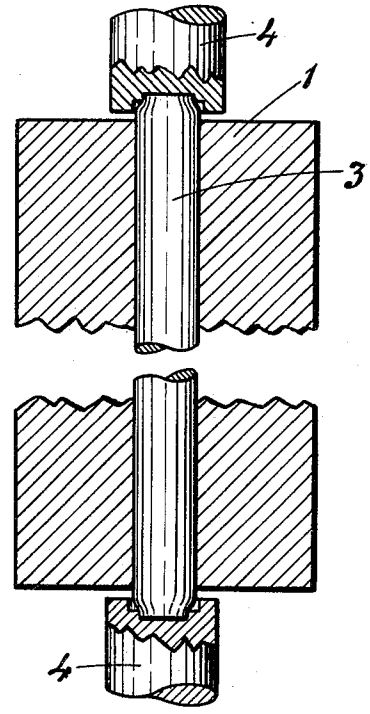


Fig. 3



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METHOD OF PRODUCING HOLLOW ROCK DRILL STEEL

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Claims priority, application Sweden October 10, 1952

1 Claim. (Cl. 29—423)

In the production of hollow rock drill steel it is already known, after boring the blank which is to be rolled to form such rock drill steel, to insert a steel core of suitable composition in the cavity. The core is welded to the blank or is held in position due to the fact that it is curved. By this method a space of 1–2 mms. is left between the core and the wall of the cavity of the steel blank. This results in the formation of scales and folds on the wall of the cavity during the rolling.

If the core is upset in such a manner that it completely fills up the cavity in the blank, which is possible by using austenitic core material, advantages as regards quality are gained, for example, entrance of air with formation of glow scales in the zone between the core and the cavity wall is avoided. Furthermore, the wall of the cavity has appeared to be less inclined to formation of folds during the rolling.

It is also possible to upset the core in such a manner that the core only fills up the ends of the cavity of the blank, which also prevents the formation of glow scales.

The invention is illustrated in the accompanying drawings in which—

Fig. 1 is a section on the line I—I of Fig. 2 showing a cross section of a cylindrical core positioned in a cylindrical cavity in a blank,

Fig. 2 is a vertical section on a plane through the axis of the cylindrical cavity in the blank with the core appearing in elevation,

Fig. 3 is a section similar to that of Fig. 2 after the core has been upset to fill the cavity, and

Fig. 4 is a perspective view of the finished rock drill steel.

Referring to the drawings **1** is the steel blank which is to be rolled to form the drill steel, **2** is the cylindrical cavity extending axially through the blank, **3** is the cylindrical core positioned in the cavity **2** and **4**, **4** represent the means for upsetting the core **3** to cause it to tightly fill the cavity **2**. As appears in Figs. 1 and 2 the core **3** has been inserted into the cavity **3** but there is a thin space between the surface of the core and the wall of the cavity. As appears in Fig. 3 the core has been upset or compressed endwise and expanded laterally so that it tightly fills the cavity thereby preventing the entrance of air with the formation of scale and/or the formation of folds in the wall of the cavity during the rolling operation. In making the drill steel the structure illustrated in Fig. 3 is rolled in the customary manner to reduce its diameter and elongate it to the tubular shape of the drill steel shown in Fig. 4.

Having now described our invention, what we claim as new and desire to secure by Letters Patent is:

A method of producing rock drill steel from a steel blank which comprises boring said blank to provide it with an axial cylindrical cavity, introducing a cylindrical austenitic steel core into said cavity with its ends extending beyond the ends of said blank, upsetting the extending ends of said core by compressing said ends in the longitudinal direction thereby expanding said core laterally until it completely fills said cavity and prevents the entrance of air between the wall of said cavity and the surface of said core and thereby prevents the formation of scales and folds on the wall of said cavity during the subsequent rolling operation, reducing the resulting structure by rolling to convert said blank into a drill steel and finally pulling said core out of said cavity.

References Cited in the file of this patent

UNITED STATES PATENTS

1,574,551	Bumford	Feb. 23, 1926
1,763,651	Gumaelius	June 17, 1930
2,021,945	Payne	Nov. 26, 1935
2,300,353	Eberhardt	Oct. 27, 1942
2,432,819	Schumacker	Dec. 16, 1947

FOREIGN PATENTS

150,562	Great Britain	Sept. 9, 1920
325,169	Great Britain	Feb. 13, 1930