J. C. THERIOT.

WELL DRILLING TOOL.

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1,134,930.

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Fig. 1.

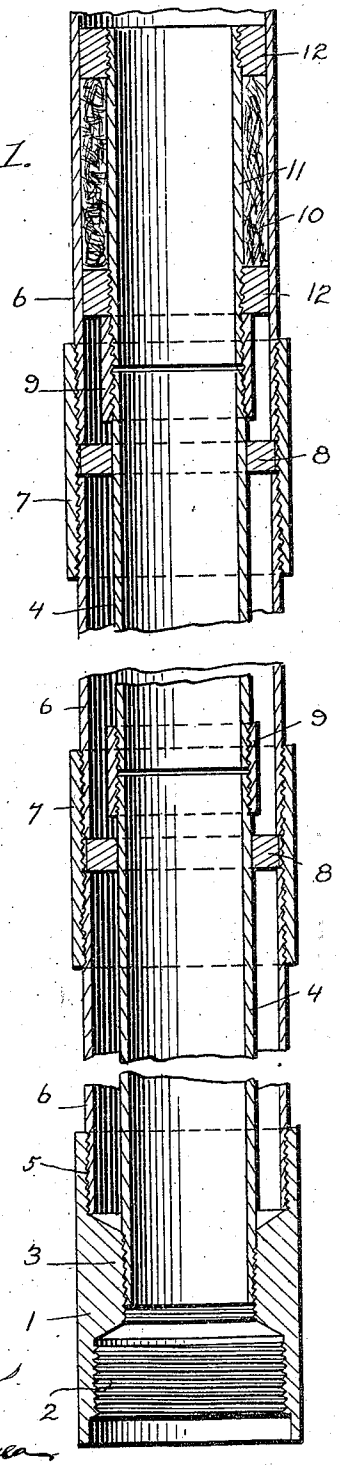
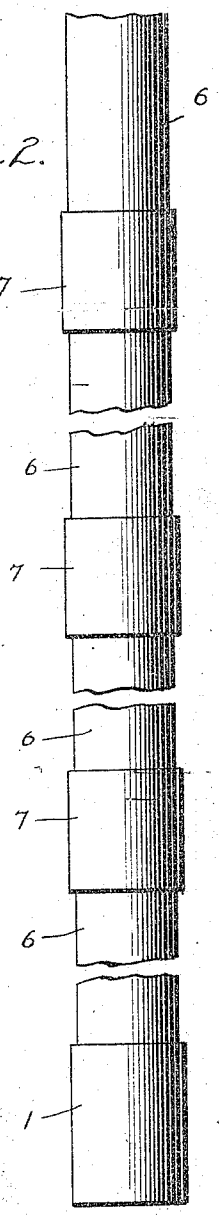


Fig. 2.



Witnesses

P. M. Jones

E. P. Bunyea

Inventor

J. C. Theriot.

By A. Randolph Jr.

Attorneys

UNITED STATES PATENT OFFICE.

JAMES C. THERIOT, OF TAFT, CALIFORNIA.

WELL-DRILLING TOOL.

1,134,930. Specification of Letters Patent. Patented Apr. 6, 1915.

Application filed March 27, 1914. Serial No. 827,688.

To all whom it may concern:

Be it known that I, JAMES C. THERIOT, a citizen of the United States, residing at Taft, in the county of Kern and State of California, have invented certain new and useful Improvements in Well-Drilling Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to well drilling tools, and one of the principal objects of the invention is to provide reliable and efficient means for recovering the drill bit after it has become detached from the rotary drill casing.

In ordinary well drilling, where rotary drills and drilling bits are used, the drill bit is held within a collar at the lower end of a casing made up of a number of sections connected together. When the bit strikes a hard refractory substance or formation, there is a great torsional strain upon the casing, and this strain is frequently sufficient to twist the casing and drop the drill bit and collar to the bottom of the well. To recover the bit and broken portion of the casing requires considerable time and is very expensive in practice.

One of the principal objects of this invention is to provide reliable and efficient means for preventing the bit from dropping any great distance in case the drill casing should be twisted off. It has been found in practice that the drill casing usually parts at a point within the first three or four sections of the casing adjacent to the bit or tool.

The objects and advantages above referred to may be attained by means of the construction illustrated in the accompanying drawing, in which,

Figure 1 is a longitudinal sectional view taken through a safety device made in accordance with this invention, portions being broken away between the collars and rings, and Fig. 2 is a side elevation of the device, portions being broken away between the collars and the device being shown on a smaller scale than that shown in Fig. 1.

Referring to the drawing, the numeral 1 designates a drill collar which is interiorly screw threaded at 2 for the connection of the drilling bit. The collar 2 is provided at its upper end with a reduced screw threaded portion 3, in which is fitted a section of the inner safety casing 4. The collar 1 is also provided with an interior screw threaded portion 5 at its upper end in which is fitted the rotary casing 6. The casing 6 is made up of a series of separate sections connected together by interiorly screw threaded collars 7, and interposed between the meeting ends of the sections 6 are steel unthreaded rings 8, which are substantially rectangular in cross section, and are fitted to slide upon the inner safety casing 4. The sections 4 of the inner safety casing are connected together by means of collars 9, and these collars are disposed some distance above the steel rings 8. Any suitable number of the sections 6 may be connected together and the safety casing sections 4 are extended to conform to the length of the casing 6. A packing of hemp, rubber, leather or other suitable material 10 surrounds a core 11 which conforms to the side of the inner safety casing 4, said packing being interposed between the outer casing 6 and said core and said packing being held against endwise movement by locking rings 12 at the opposite ends of the packing, said rings being threaded to the core 11.

From the foregoing it will be obvious that if in operation, the rotary casing is twisted off by the excessive strain upon the drilling bit, and the break occurs within the area of the three or four joints at the lower end of the casing 6, the safety inner casing 4 would slide within the steel rings 8 and would stop when one of the collars 9 came into contact with said rings thus preventing the loss of the tool and permitting the latter to be readily withdrawn from the well for repairs.

Various changes may be made in the details of construction without departing from the spirit and scope of the invention as defined in the claim.

What is claimed is:—

A safety device for the purpose described comprising an inner casing and an outer casing, steel rings mounted to move upon the inner casing, a packing between the inner casing and outer casing and means for holding the packing in place.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. THERIOT.

Witnesses:

ELI BIGELOW,

R. B. WHITTEMORE.