

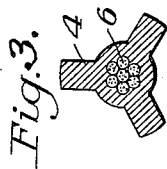
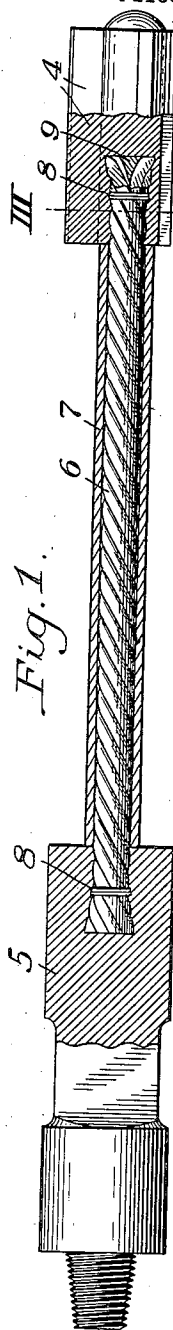
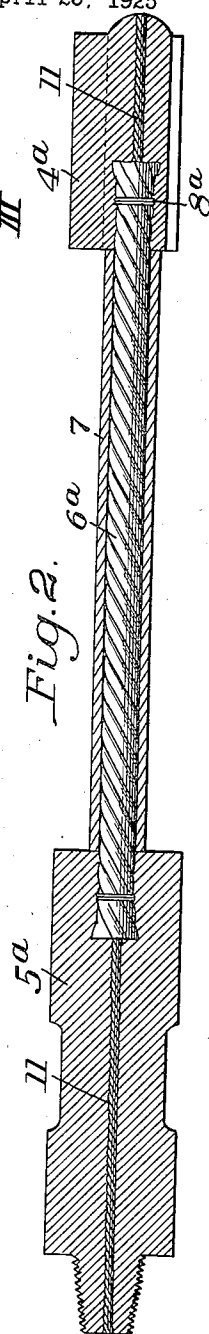
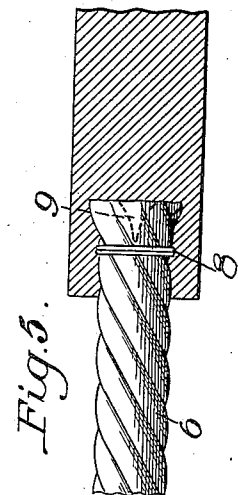
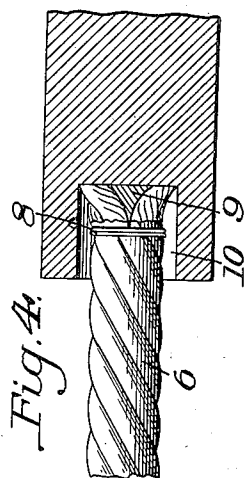
July 20, 1926.

1,593,430

C. R. BRYSON

DRILL JAR PISTON

Filed April 25, 1925



INVENTOR
Charles R. Bryson
By Bryson, Stebbins & Carmichael
His Attys

Patented July 20, 1926.

1,593,430

UNITED STATES PATENT OFFICE.

CHARLES R. BRYSON, OF PITTSBURGH, PENNSYLVANIA.

DRILL-JAR PISTON.

Application filed April 25, 1925. Serial No. 25,890.

The present invention relates to drill jar pistons and more particularly to a drill jar piston having a connecting shank formed of a flexible tension member such as wire rope and a shield or spacer member.

In the drawings which illustrate the preferred embodiment of my invention, Figure 1 is an elevation partly in section of the drill jar piston. Figure 2 is a longitudinal section showing a modification. Figure 3 is a section along the line III—III of Figure 1 and Figures 4 and 5 are detailed views showing the way in which the ends of the wire rope are secured.

In the illustrated embodiment of the invention a drill jar piston of the type shown in my prior Patent No. 1,200,465, is shown. It comprises a hammer portion or head 4 and a body portion 5 which are connected by means of a shank formed of a piece of wire rope 6 having its ends embedded in the head and body portions and a metal sleeve 7 which surrounds the wire rope and protects it from abrasion. The sleeve abuts against the head and body portions to form a rigid spacer. It will thus be seen that the wire rope and the surrounding sleeve form a substitute for the usual integral shank portion of the piston. Figures 4 and 5 illustrate the manner in which the ends of the rope are embedded in the portions 4 and 5. Each end portion of the rope is tightly bound adjacent the extreme end thereof by means of a fine wire or cord 8. The end portion of the rope is then expanded by driving a wedge 9 of suitable material therein. The expanded portion of the rope is then inserted in a socket 10 formed in the portion to which it is to be connected, as illustrated in Figure 4. Such portion is then forged down to a reduced cross section, thereby firmly embedding the expanded end portion of the wire rope in such portion, as illustrated in Figure 5. It will be appreciated that the wire rope constituting the shank portion of the piston is much more resistant to breakage than the integral shank of the usual piston construction, since it allows a slight amount of yield and is not as rigid as a shank forged integral with the head and body portions.

In the modified construction shown in Figure 2 the wire rope 6^a has embedded therein a smaller wire rope 11 which extends beyond the ends of the wire rope 6^a and has its projected end portions embedded

in the hammer or head and body portions 4^a and 5^a of the piston. It will be appreciated that with this construction if the hammer portion or the body portion should become fractured the embedded rope 11 will serve to temporarily hold the parts together and thus enable the drill jar to be drawn out of the well for repairs.

While I have specifically illustrated and described my preferred structure, it is to be understood that the invention may be otherwise embodied within the scope of the following claims.

I claim:

1. A drill jar piston comprising a body, a head spaced therefrom, and piece of wire rope connecting the body and head, the body and head portions being forged around the ends of the rope to retain them.

2. A drill jar piston comprising a body, a head spaced therefrom, a piece of wire rope connecting the body and head, and a protecting shield around the wire rope.

3. A drill jar piston comprising a body, a head spaced therefrom, and a shank connecting the body and head formed of a piece of wire rope and a spacer.

4. A drill jar piston comprising a body, a head spaced therefrom, and a shank connecting the body and head formed of a piece of wire rope having its ends embedded in the body and head and a rigid spacer abutting against the body and head, the body and head portions being forged around the ends of the wire rope.

5. A drill jar piston comprising a body, a head spaced therefrom, and a shank connecting the body and head formed of a piece of wire rope having its ends embedded in the body and head and a tube surrounding the rope between the body and head.

6. A drill jar piston comprising a body, a head spaced therefrom, and a shank connecting the body and head formed of a flexible tension member and a rigid spacer member.

7. A drill jar piston comprising a body, a head spaced therefrom, a wire rope of relatively small cross section embedded in the body and head and running axially there-through, and a wire rope of relatively large cross section connecting the body and head and enclosing the first mentioned wire rope for at least a portion of its length.

8. A drill jar piston comprising a head, a body spaced therefrom, a wire rope of relatively small cross section embedded in the

body and head and running axially there-
through, a wire rope of relatively large cross
section connecting the body and head and
enclosing the first mentioned wire rope for
5 at least a portion of its length, the body and
head portions being forged around the ends
of the larger wire rope to retain them, and

a rigid tubular shield and spacer surround-
ing the wire rope between the body and
head. 10

In testimony whereof I have hereunto set
my hand.

CHARLES R. BRYSON.