Dec. 19 1922.

1,439,287

T. W. BELL.
WELL DRILL JAR.
FILED MAR. 16. 1922.

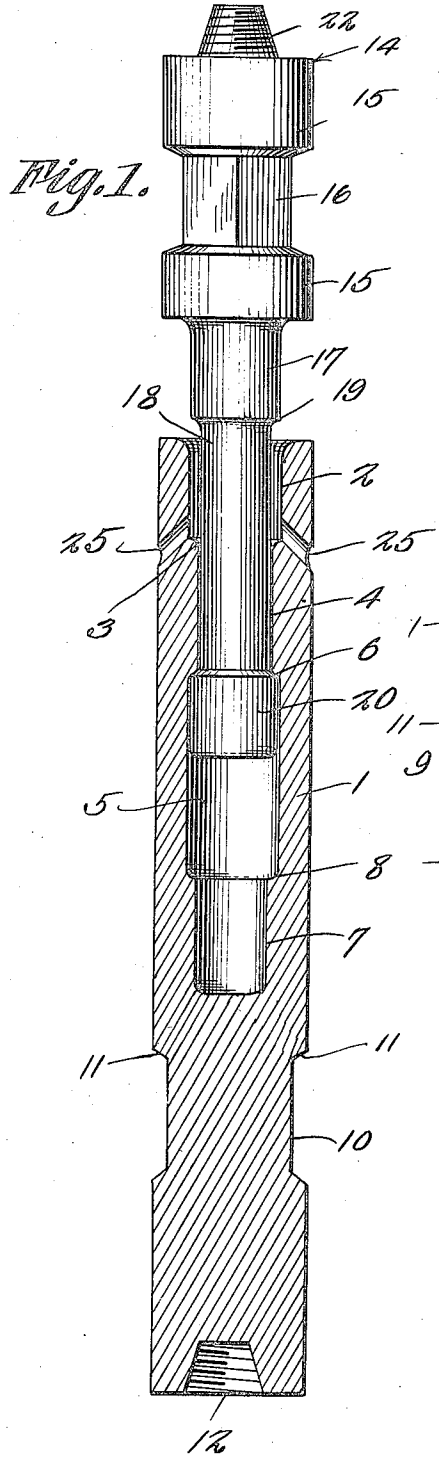


Fig. 1.

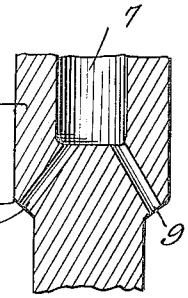


Fig. 3.

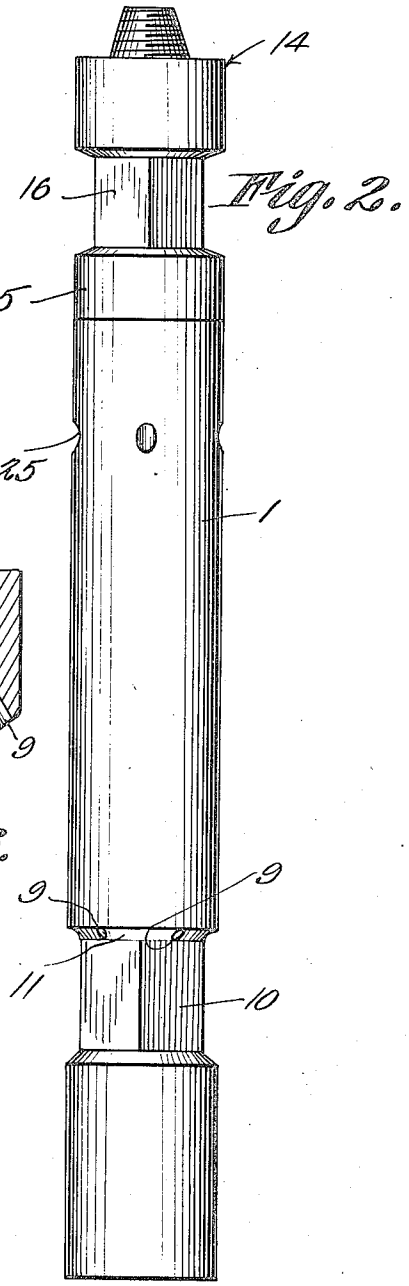


Fig. 2.

Inventor
T. W. Bell
By C. A. Snow & Co.
Attorneys.

Patented Dec. 19, 1922. 1,439,287

UNITED STATES PATENT OFFICE.

THOMAS W. BELL, OF SISTERSVILLE, WEST VIRGINIA.

WELL DRILL JAR.

Application filed March 16, 1922. Serial No. 544,297.

To all whom it may concern:

Be it known that I, THOMAS W. BELL, a citizen of the United States, residing at Sistersville, in the county of Tyler and State of West Virginia, have invented a new and useful Well Drill Jar, of which the following is a specification.

This invention aims to provide a well drill jar so constructed that there will be three cooperating impact surfaces on the body of the jar and on the plunger thereof.

Another object of the invention is to provide a well drill jar, the operation of which will not be impeded by dirt or liquid which may find its way into the body of the device.

A further object of the invention is to provide a jar which may be fished out without difficulty, should any parts thereof become broken.

In the drawings:—

Figure 1 shows in longitudinal section, a device constructed in accordance with the invention, the plunger remaining in elevation; and Figure 2 is an elevation, wherein the plunger is lowered from the position of Figure 1. Fig. 3 is a section of the lower chambered portion through openings 9.

In carrying out the invention, there is provided a body 1 equipped in its upper end with an upper bore 2 communicating with a reduced passage 4, there being a first shoulder 3 in the body 1 at the upper end of the passage 4. The passage 4 communicates with an enlarged lower bore 5, there being an upper shoulder 6 at the upper end of the lower bore 5. The lower bore 5 communicates with a reduced chamber 7, there being a lower shoulder 8 at the lower end of the bore 5. The body 1 has any desired number of lateral outlets 9 communicating with the lower end of the chamber 7. The body 1 is reduced in diameter to form wrench surfaces 10, and to form an external shoulder 11, the outlets 9 opening downwardly through the shoulder 11, and a clogging of the outlets being therefore unlikely. At its lower end, the body 1 is supplied with the usual connecting socket 12. The body 1 has any desired number of lateral upper outlets 25, communicating with the upper bore 2 adjacent to the lower end thereof.

The tool includes a plunger 14 supplied at its upper end with the usual connecting screw 22. The plunger 14 comprises a head 15 which is reduced in diameter intermediate its ends to form wrench surfaces 16. A reduced shank 17 extends downwardly from the head 15. A reduced neck 18 extends downwardly from the shank 17 and defines a first shoulder 19 at the lower end of the shank 17. The neck 18 is provided at its lower end with an enlarged foot 20. The head 20 is mounted slidably in the lower bore 5 of the bore 1. The neck 18 of the plunger is mounted slidably in the passage 4 of the body 1. The shank 17 is mounted slidably in the upper bore 2 of the body 1.

In practical operation, when the plunger 14 moves downwardly, the head 15 engages the upper end of the body 1, the shoulder 19 of the plunger engages the shoulder 3 on the body, and the lower end of the foot 20 engages the shoulder 8 on the body. There are, therefore three points of impact between the plunger and the body, and the constituent material of the tool is not likely to be distorted by impact, such a distortion resulting in a jamming or a binding of the plunger in the body 1.

Any dirt which may find its way into the upper bore 2 will be forced outwardly through the outlets 25. Liquid which finds its way into the lower bore 5 will be received in the chamber 7 on the down stroke of the plunger, and will pass outwardly through the outlets 9, there being no cushioning of the plunger, on its downward stroke.

When the plunger 14 is raised sufficiently, the upper end of the foot 20 on the plunger will engage the shoulder 6 on the body 1, thereby permitting the body to be lifted out of the hole, along with the plunger.

The device is so constructed that it will not be likely to break, even under severe and long continued use, but if any portion of the tool should break, the part of the tool in the well may be fished out readily.

The jar forming the subject matter of this application is free from welds, and is assembled by the swaging process, well known in the blacksmithing art.

There may be any desired number of the outlets 9, these outlets being drilled at a point midway between the longitudinal edges of the wrench surfaces 10, as shown in Figure 2.

What is claimed is:—

1. In a tool of the class described, a body provided with an upper bore communicating with a reduced passage, the passage opening into an enlarged lower bore, there being a

first shoulder at the upper end of the passage, and an upper shoulder at the upper end of the lower bore; and a plunger slidable in the body and including a head, a reduced shank projecting from the head, a reduced neck projecting from the shank and forming a shoulder in the plunger, and an enlarged foot on the lower end of the neck, the foot engaging the body at the lower end of the lower bore, the shoulder on the plunger engaging the first shoulder in the body, and the head engaging the upper end of the body, simultaneously, on the down stroke of the plunger, and the foot being adapted to cooperate with the upper shoulder of the body, when the plunger is raised sufficiently.

2. A device of the class described, constructed as set forth in claim 1, and further characterized by the fact that the body is provided with a reduced chamber communicating with the lower bore, the body having a lateral outlet leading from the chamber.

3. A device of the class described, constructed as set forth in claim 1, and further characterized by the fact that the body has a lateral outlet communicating with the upper bore.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THOMAS W. BELL.

Witnesses:

JOHN H. McCOY,

EFFIE M. CUMMINGS.