No. 886,231. PATENTED APR. 28, 1908.

E. E. MESSMORE.

JARRING DEVICE.

APPLICATION FILED JULY 2, 1907.

Fig. 1.

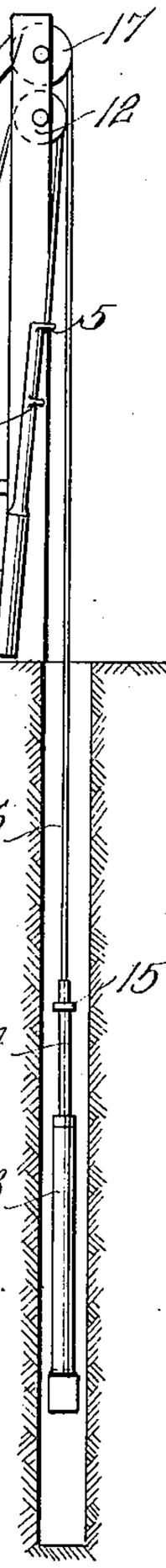

Fig. 2.

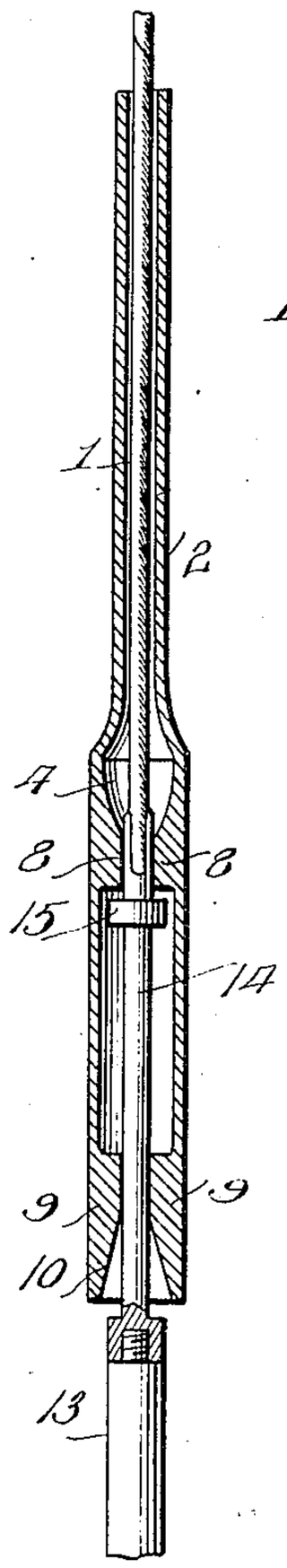

Fig. 3

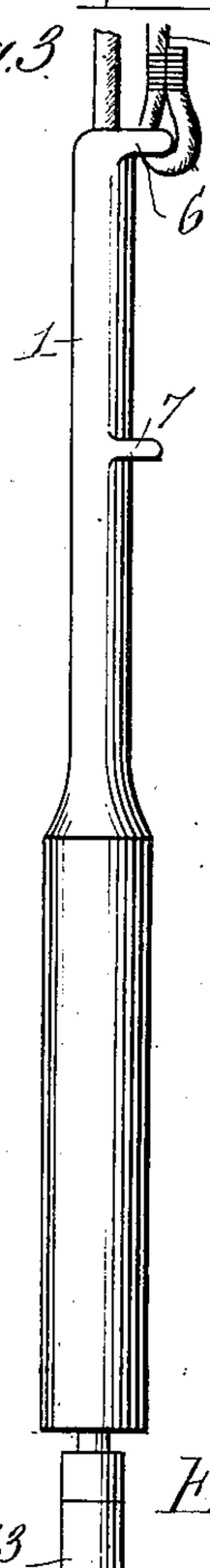

Fig. 4.

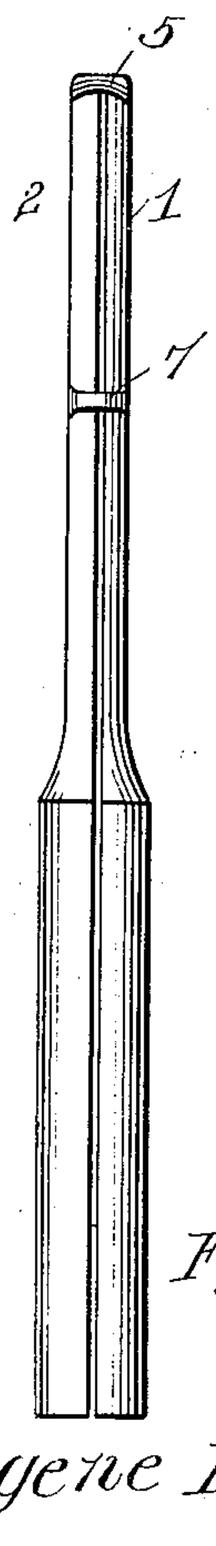

Fig. 5.

Witnesses

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JARRING DEVICE.

No. 886,231. Specification of Letters Patent. Patented April 28, 1908.

Application filed July 2, 1907. Serial No. 381,846.

To all whom it may concern:

Be it known that I, EUGENE E. MESSMORE, a citizen of the United States, residing at Epworth, in the county of Dubuque and State of Iowa, have invented new and useful Improvements in Jarring Devices, of which the following is a specification.

The invention relates to an improvement in jarring devices for well drills, whereby an impact may be imparted to the drill with the force desired by the operator.

The main object of the present invention is the provision of a jarring device which is directly applicable to the drill rope, and which, when in position, is serviceable for elevating and lowering the drill without the use of the drill rope.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in elevation, illustrating the application of my improved drill jar, Fig. 2 is an enlarged sectional view partly in elevation showing the jarring device in position on the drill and drill rope, Fig. 3 is an elevation of the same, Fig. 4 is an elevation of the drill jarring device detached, Fig. 5 is a sectional view of one of the sections of the drill jar.

Referring to the drawings, wherein is shown the preferred form of my invention, my improved drill jar is made up in duplicate sections 1 and 2, each made up of upper and lower portions 3 and 4, of practically semi-cylindrical shape in cross section with the lower portion of materially greater diameter than the upper portion. The respective sections are connected at the upper end by an integral strip 5, which is projected beyond the sections in the form of an eye 6, and below the upper end by a tie strip 7, the respective time members holding the upper portion of the sections so as to permit a slight relative movement of the free edges of the sections to space said edges to permit the introduction of the well rope, the lower ends of the sections being permitted a greater independent movement for a purpose which will presently appear.

The enlarged portion 4 of each section is provided at the opposite ends with lugs 8 and 9, the upper lug 8 having its lower edge squared or disposed at an approximate right angle to the plane of the section, while the lower lug 9 has its upper end at a right angle to the plane of the section. The relatively lower portion of the lower lug 9 is inclined with respect to the wall of the section, inclining upwardly and inwardly, as at 10. By the use of the lugs described when the sections are assembled the lug 8 of each section are disposed in diametric relation, while the lugs 9 are similarly disposed at the upper end of the section, thereby providing fixed abutments arranged at the respective ends of the enlarged portion of the drill jar and respectively spaced apart to permit the passage of the drill rope between them. In use the drill jar is supported on a cable 11 engaged with the eye 6 passing over a pulley 12 on the drilling machine, and terminally connected to a drum actuated by any suitable gearing. The drill proper 13 is provided with a stem having fixed thereon near the upper end a collar 15, the upper end of the stem being connected to the drill rope 16, which in turn is passed over a pulley 17 on the drilling machine, over the beam 18 and to the drum.

In use the drill is operated as in machines of this character, and when the use of the jar becomes necessary, for instance when the drill becomes immovable, the drill jar is passed over the drill rope until the latter is disposed between the sections, it being understood that in assembling the jar with the drill and rope the jar sections 1 and 2 are sprung apart a sufficient distance to permit the coöperation of the sections with the drill and rope, the collar 15 of the drill stem being arranged in the jar between the lugs 8 and 9. The drum on which the cable 11 is wound is then released and the drill jar allowed to gravitate down the drill rope, with the effect of engaging the collar 15 and causing the latter, through the inclines 10 of the lugs 9, to spread the lower portions of the sections 1 and 2 of the drill jar and dispose the collar 15 in the space between the lugs 8 and 9, it being understood, of course, that the sections 1 and 2 return to normal position after spreading through engagement with the collar. The jar may be then operated by movement of the cable 11 to impart the necessary impact to the drill. Furthermore, the jar rope may be connected with the beam 18 after disengagement of the drill rope therefrom, and the driving of the drill can be directly accomplished through the operation of the jar. If

desired the jar may be disconnected from the drill and allowed to remain inactive above the drill on the drill rope, thus maintaining the jar in position for use when desired without interfering in any manner with the usual drilling operation.

The drill jar of this improvement may be made of any desired weight, and will be found in use to avoid the undesirable noise and wear of the link usually utilized as a drill jar.

Having thus described the invention what is claimed as new, is:—

1. A drill jar made in sections, and means for connecting the sections, said sections being interiorly formed with contact members for engaging a portion of the drill.

2. A drill jar made in sections, and means for connecting the sections, said sections being arranged to encircle the drill rope, the lower portion of the jar being formed with fixed abutments to engage a portion of the drill.

3. A drill jar made in sections connected together adjacent their upper ends, said jar being adapted for sliding engagement with the drill rope, the lower portion of said jar having fixed abutments to provide impact faces for a collar on the drill, the lower portion of the jar being arranged to permit said drill collar to pass between the lower abutments in the initial downward movement of the jar.

4. A drill jar made up in duplicate sections, and means for connecting the sections, each section including an upper portion and a lower portion of greater diameter than the upper portion, and lugs formed adjacent the respective ends of the enlarged portion of each section, the lower portion of each lower lug of the section being inclined inwardly and upwardly relative to the section.

5. A drill jar made up in duplicate sections, each section including an upper portion and a lower portion of greater diameter than the upper portion, and lugs formed adjacent the respective ends of the enlarged portion of each section, the lower portion of each lower lug of the section being inclined inwardly and upwardly relative to the section, and means for connecting the sections to permit the passage of the drill rope therebetween and to permit an independent spreading movement of the lower ends of the sections.

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

EUGENE E. MESSMORE.

Witnesses:
A. L. McNeill,
H. S. Simpson.