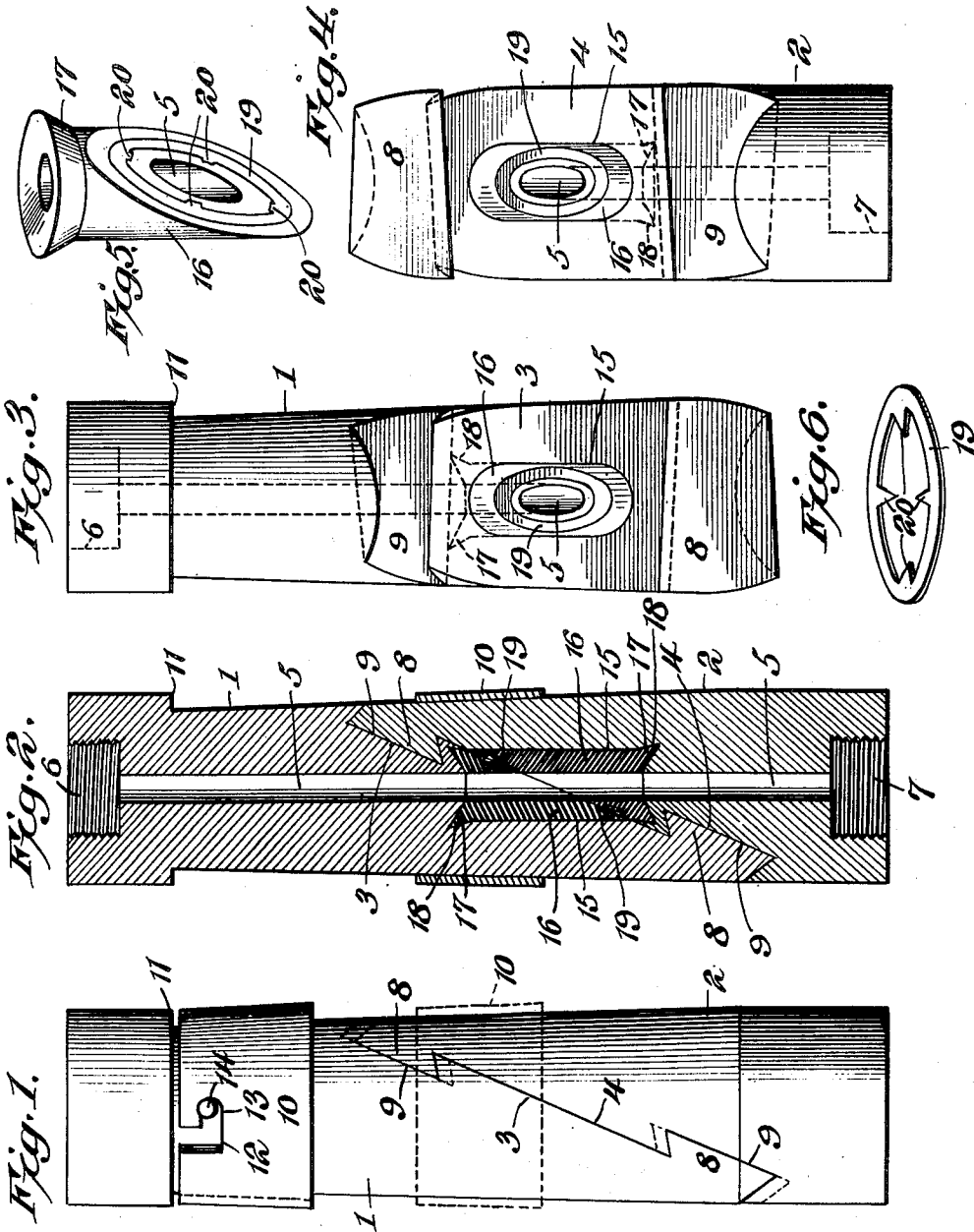


L. MASSA.
COUPLING FOR ROTARY DRILLS.
APPLICATION FILED MAY 15, 1909.

949,300.

Patented Feb. 15, 1910.



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LAWRENCE MASSA, OF COALINGA, CALIFORNIA.

COUPLING FOR ROTARY DRILLS.

949,300.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LAWRENCE MASSA, a citizen of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented a new and useful Coupling for Rotary Drills, of which the following is a specification.

The invention relates to improvements in couplings for rotary drills.

The object of the present invention is to improve the construction of pipe joints or couplings for rotary drills for drilling oil and water wells, and to provide a simple, inexpensive and efficient joint of this character, adapted to be readily applied to drill tubes, and capable of enabling the same to be quickly uncoupled, thereby saving time and labor when removing the drilling tube from a well for changing the bit or other purpose.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims here-to appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a side elevation of a joint or coupling, constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Figs. 3 and 4 are elevations of the sections or members of the coupling. Fig. 5 is a detail perspective view of one of the gaskets. Fig. 6 is a detail perspective view of the metallic face plate or washer of the elastic gasket.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

The coupling comprises in its construction upper and lower sections or members 1 and 2, constructed of forged steel, or other suitable material and having overlapped beveled terminal portions, presenting flat faces 3 and 4 to each other. The members of the coupling are tubular and provide a longitudinal bore or opening 5 for the circulation of water in the operation of drilling, and the outer ends of the sections or members are recessed and interiorly threaded to

provide sockets 6 and 7 for the attachment of drill tubes (not shown), which are screwed into the said sockets.

The overlapped terminal portions of the members of the coupling are each provided with a laterally disposed dove-tailed flange or enlargement 8 and a correspondingly shaped recess 9, having beveled or undercut transverse edges. The flange or enlargement 8 is also provided with beveled transverse edges, and the flange or enlargement 8 of one coupling member fits in the dove-tailed recess 9 of the other coupling member, the two members being slidably interlocked by a relative lateral movement of the sections on each other.

The joint or coupling has an exterior upper taper and receives a slidable sleeve 10, tapered upwardly to conform to the configuration of the joint and adapted to be dropped from the raised position, illustrated in Fig. 1 of the drawing to the lower engaging position shown in Fig. 2.

The upper member 1 is provided with a shoulder 11, which limits the upward movement of the sleeve 10, and the latter has a substantially L-shaped slot 12, provided at the inner end with a recess or enlargement 13, forming a seat for a pin or projection 14. The projection 14 is mounted on the upper member of the coupling, and the sleeve is partially rotated to carry the projection into and out of engagement with the recess or enlargement 13, and interlocks the sleeve with the projection and prevents accidental rotary movement of the former. The sleeve when in engagement with the tapered portion of the joint or coupling prevents lateral separation of the same and securely maintains the members in their interlocked relation.

The members of the coupling are provided in their flat contiguous angularly disposed faces 3 and 4 with seats 15 for tapered tubular elastic gaskets 16 of rubber, or other suitable material, fitted in the seats or recesses and having terminal enlargements 17, fitting in enlarged portions 18 of the seats or recesses, whereby the gaskets are interlocked with the tubular member and are prevented from falling out of the seats or recesses when the members are separated. The elastic gaskets are fitted together and compressed when the members of the coupling are interlocked with each other, and the said gaskets are provided with metallic

washers or face plates 19 of substantially elliptical form and of greater diameter than the bore of the elastic gaskets in order to expose the rubber around the bore or opening to provide a water tight joint or connection. The metallic washer or face plate, which is designed to be constructed of copper or other suitable material, is provided with tongues 20, which are embedded in the rubber or other material of the gaskets, whereby the said washers or face plates are secured to the same. The metallic washers or face plates fit against each other and enable the rubber of the gaskets to be compressed, thereby forming a tighter joint, and they also are adapted to receive the wear incident to coupling and uncoupling the sections.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A coupling for rotary drills including upper and lower tubular members having overlapped beveled portions slidably interlocked with each other, said members being tapered upwardly, a vertically slidable sleeve embracing the overlapped portions of the members and provided with a substantially L-shaped slot composed of vertical and horizontal portions, the horizontal portion extending from the lower end of the vertical portion and having a recess at its inner end, and a projection extending from the upper member and arranged to engage with the recess of the sleeve for supporting the latter above the overlapped portions of the members.

2. A coupling for rotary drills including two tubular members provided at their outer ends with drill pipe-receiving sockets and beveled at their inner ends to form long overlapped portions and having bores or openings for the circulation of the water in the operation of drilling, each of the said overlapped portions being provided at its outer end with a transversely disposed dove-tailed flange or enlargement and having an inner transversely disposed dove-tailed recess, said enlargements or flanges and the recesses interfitting and tapered transversely, whereby the members of the coupling are slidably interlocked and wedged together, and means for securing the members in their interlocked relation.

3. A coupling for rotary drills including two members beveled to form long tapered overlapped portions, and having means for slidably interlocking them, said overlapped portions being provided with seats enlarged at the inner portions, and elastic tubular gaskets fitted in the seats and tapered to provide diagonally arranged faces to conform to the tubular members and having enlarged inner portions interlocked with the enlarged portions of the seats.

4. A coupling for rotary drills including two tubular members beveled to form long tapered overlapped portions, and having means for slidably interlocking them, said overlapped portions being provided with seats, elastic tubular gaskets fitted in the seats and tapered to provide diagonally arranged faces to conform to the bevel of the members, and elliptical metallic face plates arranged at the diagonal faces of the gaskets.

5. A coupling for rotary drills including two tubular members beveled to form long overlapped portions, and having means for interlocking them, said overlapped portions being provided with seats, and elastic tubular gaskets fitted in the seats and tapered to provide diagonally arranged faces to conform to the beveling of the members and provided at their diagonal engaging faces with elliptical metallic face plates spaced from the inner edges of the engaging faces to expose the gasket to provide a tight joint.

6. A coupling for rotary drills including two tubular members beveled to form long tapered overlapped portions and having means for slidably interlocking them and provided in their beveled faces with seats, tubular gaskets fitted in the seats and beveled to provide diagonally arranged faces to conform to the diagonal faces of the said members, and metallic elliptical face plates having tongues and embedded in the gaskets and securing the said plates to the diagonal faces of the same.

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

LAWRENCE MASSA.

Witnesses:

ELLA I. JENKINS,
KENNETH DONNELLAN.