

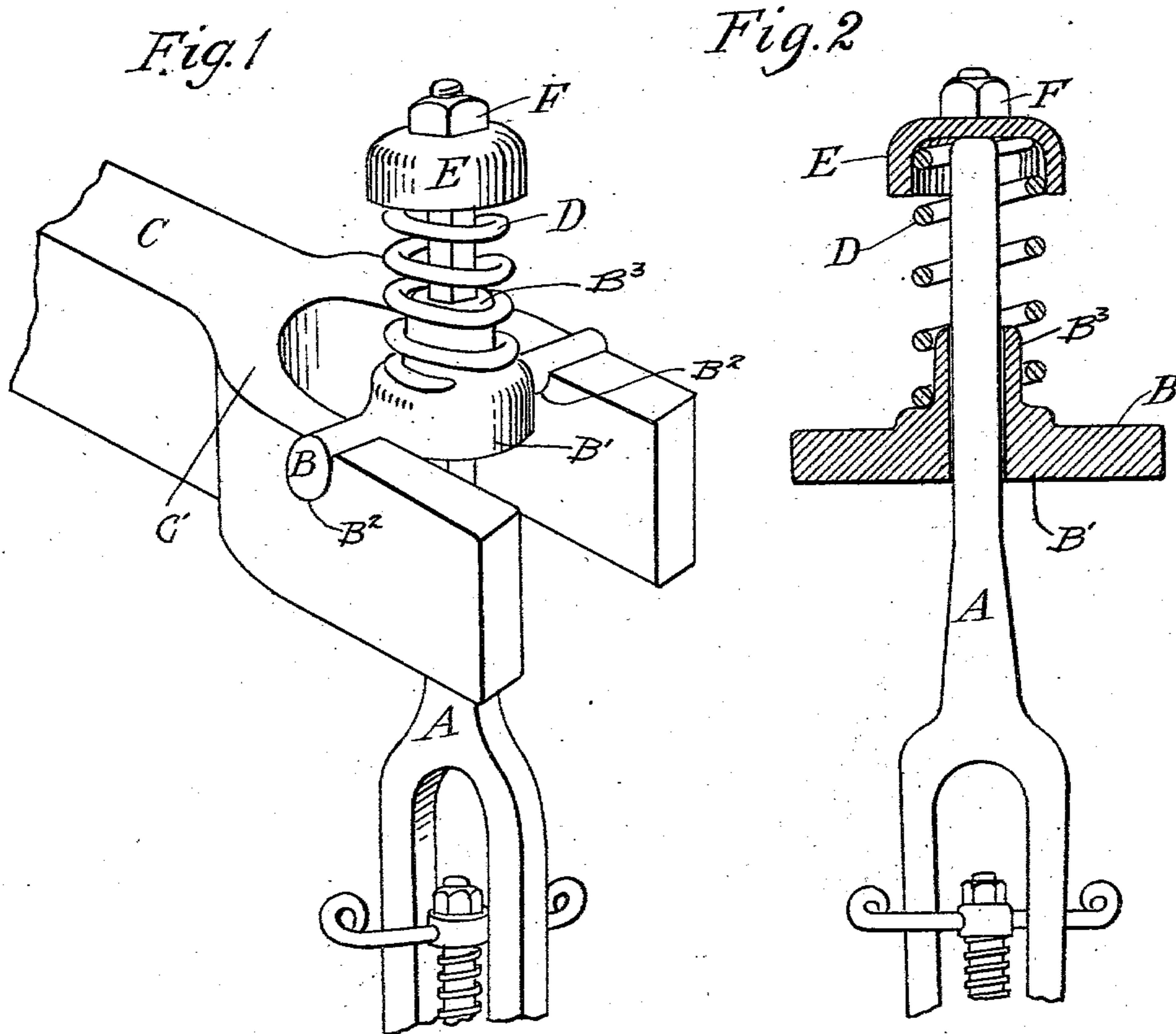
No. 743,639.

PATENTED NOV. 10, 1903.

L. A. HARDISON.
DRILL ATTACHMENT.

APPLICATION FILED NOV. 29, 1901.

NO MODEL.



Witnesses.
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UNITED STATES PATENT OFFICE.

LEWIS A. HARDISON, OF SANTA PAULA, CALIFORNIA.

DRILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 743,639, dated November 10, 1903.

Application filed November 29, 1901. Serial No. 84,137. (No model.)

To all whom it may concern:

Be it known that I, LEWIS A. HARDISON, a citizen of the United States, residing at Santa Paula, in the county of Ventura, State of California, have invented new and useful Improvements in Drill Attachments, of which the following is a specification.

My invention relates to attachments for attaching drills to the walking-beam to be used in drilling oil and water well holes; and the object thereof is to provide means for drilling such holes which will permit of the use of wire cable in place of rope.

Heretofore in drilling oil and water well holes in which the drilling is done by dropping the drill upon the material at the bottom of the hole to pulverize it rope has been used to operate the drill, as the stretch or resiliency in the rope gives the necessary striking force to the drill to cause it to pulverize the rock or hard earth at the bottom of the hole. In many places owing to the character of the earth drilled the hole fills or must be filled with water and the drilling must be continued with the hole full of water, which permeates the drilling-rope and renders it very heavy, especially so in deep wells.

With my improvement in drill attachments I am able to use wire cable in the place of the drill-rope, which does not absorb water and slips up and down in the water in the hole with very much less friction than a rope, and therefore requires less power to be used in drilling such wells than is required when a rope is used.

My improved attachment is described herein and illustrated in the accompanying drawings, forming a part hereof, as applied to the upper portion of the temper-screw.

Figure 1 is a perspective view of a temper-screw embodying my improvements. Fig. 2 is a vertical section of the same with parts shown in elevation.

In my preferred construction, as shown in the drawings, A is the stem of the temper-screw, below which the temper-screw is of ordinary construction. This stem is preferably square. A bearing or sleeve B' is provided with oppositely-projecting arms B B, which arms are received and firmly held in recesses B² B², formed in the forked end C' of the walking-beam, the bearing being suspended

in the space between the fork. The bore of this bearing is preferably square, but may be of any other desirable shape to correspond with the shape of the stem of the temper-screw, which stem is slidably received within the bore and is guided thereby in its reciprocation. The bearing or sleeve is surmounted by an annular shoulder B³, preferably integral therewith, to afford greater strength thereto and constituting an additional guiding means for the stem of the temper-screw. Supported by the shoulder and surrounding the stem is a coiled spring D, and upon the upper end of the stem a cap E is removably secured by means of a nut F, which cap provides a housing in and against which the opposite end of the spring bears.

In the operation of the preferred form of my device, as illustrated herein, the screw-arms are attached to the walking-beam in the usual manner, and a wire cable (not shown) is attached to the bit-stock and to the temper-screw in any suitable manner in place of the ordinary drilling-rope. As the walking-beam moves up and down it lifts and drops the drill in the usual manner. The spring around the upper part of the stem of the temper-screw permits the drill to give the same striking impact on the material at the bottom of the hole that the stretch or resiliency of the rope gives. It also yields to prevent any undue jar or strain on the cable. It is obvious that as the stem is slidably mounted in the supported bearing and a spring interposed between the arms and the cap on the top of the stem the construction forms a sliding joint with a spring interposed between the moving parts and that other forms of attaching a drilling wire cable to this temper-screw may be used without departing from my invention, which consists in interposing between the walking-beam and the wire cable a sliding joint with a spiral spring interposed between the moving parts.

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

1. The combination with a walking-beam, having one end formed into a fork, of a support, arms formed thereon, the arms carried on the forked end of the walking-beam, the support located in the space between the

fork, a temper-screw, the stem of which is slidably received within the support, an abutment carried by the end of the stem and a resilient member located between the support
5 and the abutment.

2. The combination with the stem of a temper-screw and a walking-beam, of a suitable support, the stem passing loosely through the support, an abutment carried by the stem
10 above the support and a resilient member located between the abutment and the support and contacting therewith.

3. The combination with a walking-beam, of a support carried thereby and provided
15 with an angular bore, a temper-screw having an angular stem slidably received in the bore, an abutment located on the stem of the screw, and a resilient member located between and engaging the abutment and support.

20 4. The combination with a support having a bore, arms projecting from the support, and

suitable means for engaging the arms, of a temper-screw, the stem of which is slidably received in the bore, an abutment secured to the stem and a resilient member located be- 25 tween and engaging the abutment and support respectively.

5. The combination with a suitable elongated support, of a temper-screw, the stem of which is loosely received in the support, a 30 cap removably secured to the stem and a coiled spring surrounding the stem, the spring engaging the support and the cap, the latter serving as a housing for the spring.

In witness that I claim the foregoing I have 35 hereunto subscribed my name this 19th day of November, 1901.

LEWIS A. HARDISON.

Witnesses:

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MATTIE MCGINNIS.