

No. 696,829.

Patented Apr. 1, 1902.

P. H. MACK.
TEMPER SCREW CLAMP.

(Application filed Jan. 31, 1901.)

(No Model.)

Fig. 1.

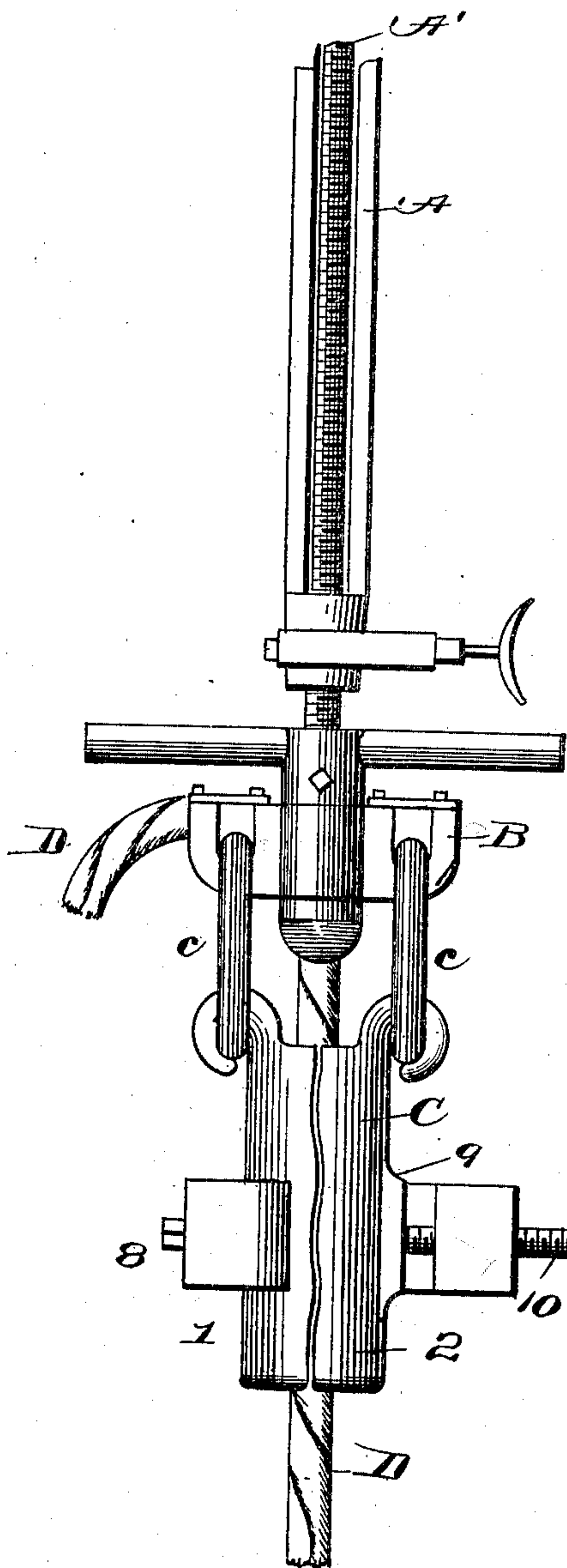


Fig. 2.

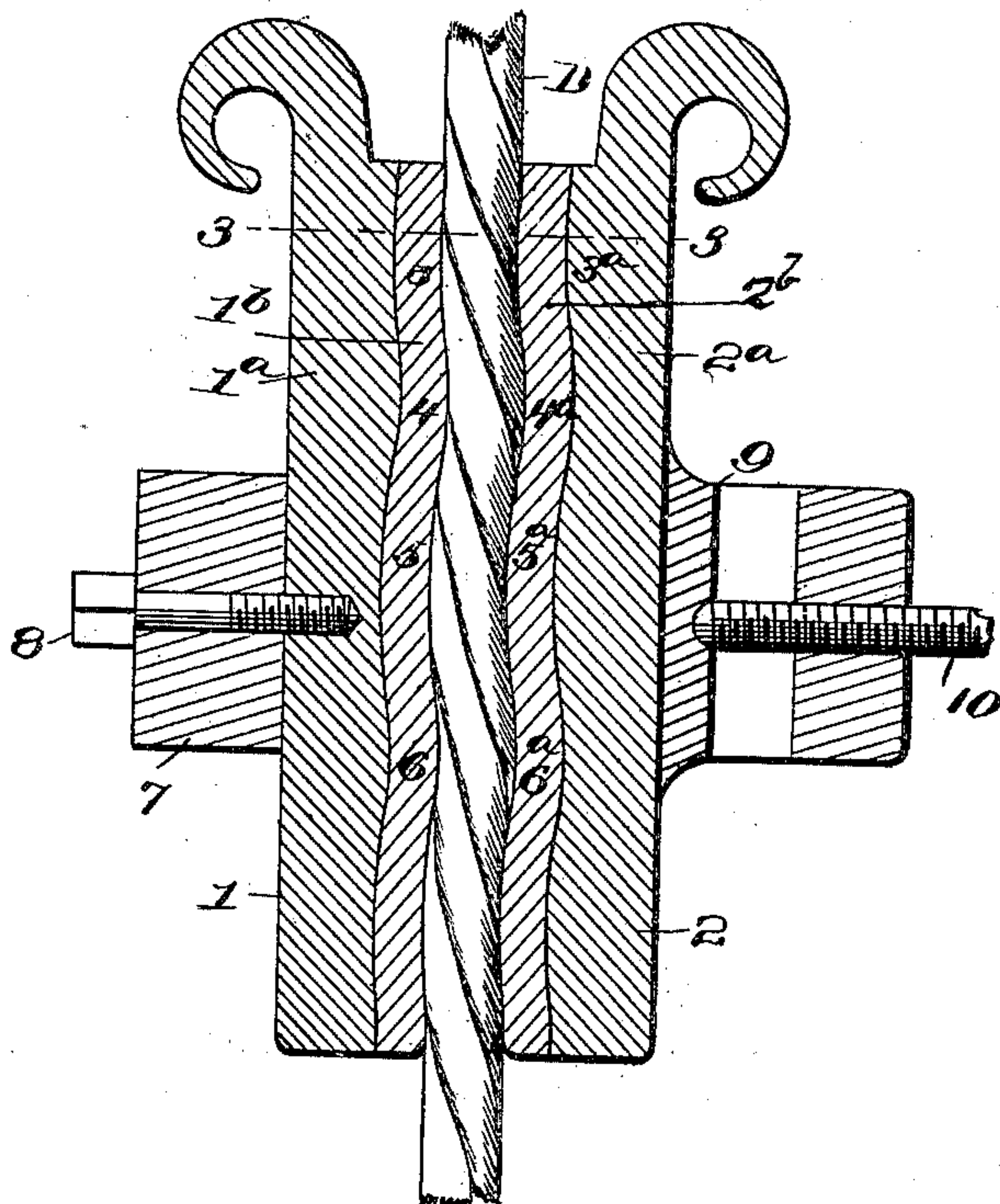
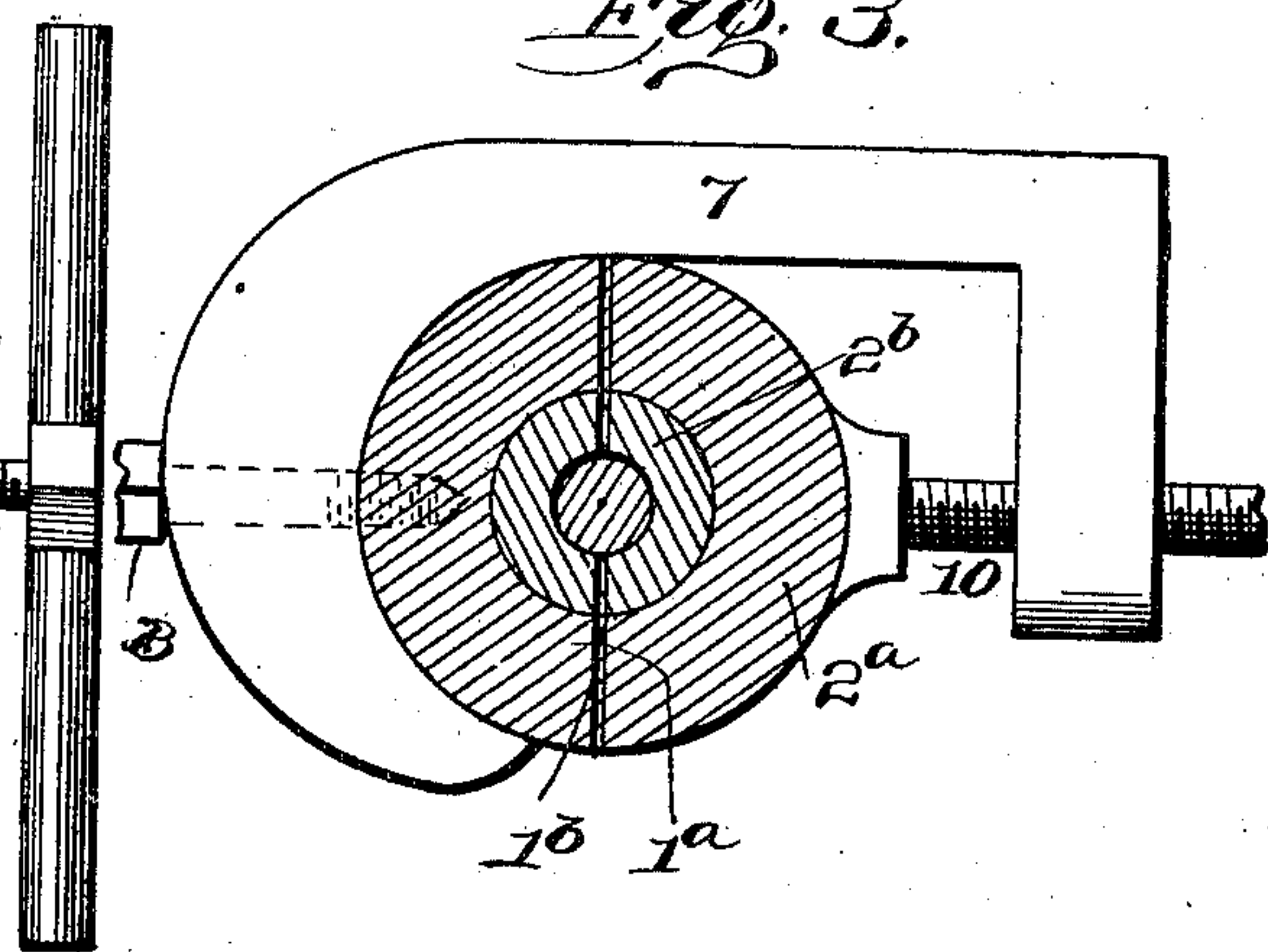


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

PATRICK H. MACK, OF BRADFORD, PENNSYLVANIA, ASSIGNOR TO THE OIL WELL SUPPLY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TEMPER-SCREW CLAMP.

SPECIFICATION forming part of Letters Patent No. 696,829, dated April 1, 1902.

Application filed January 31, 1901. Serial No. 45,454. (No model.)

To all whom it may concern:

Be it known that I, PATRICK H. MACK, a citizen of the United States, residing at Bradford, in the county of McKean, State of Pennsylvania, have invented certain new and useful Improvements in Temper-Screw Clamps; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a view in elevation of the lower portion of a temper-screw provided with a drill-cable clamp embodying my invention, showing the connection between the temper-screw and temper-screw clamp. Fig. 2 is a vertical central section of the clamp, showing the sinuous grip or cable-groove of the clamp; and Fig. 3 is a transverse section on the line 3 3, Fig. 2.

Like symbols refer to like parts wherever they occur.

The object of my present invention is the production of a simple and efficient clamp for connecting the drill-cable with the temper-screw used in drilling oil and Artesian wells.

In the drilling of deep wells the drill-tools, drill-cable, &c., will weigh several thousand pounds, which weight is carried by the temper-screw and must through the drill-cable be so connected with the temper-screw as to be readily detached to permit of the withdrawal of the drill-tools and the use of the bailer and sand-pump. Moreover, the character of the clamp must be such as will prevent any slipping of the drill-cable—a thing difficult to accomplish in view of the constant lift and drop of the load, the jar due to the stroke of the drill, and the tendency of the cable to elongate, especially if the same be of manila or vegetable fiber, or to cut out the clamp if a wire cable be used.

Heretofore several forms of clamp have been devised to effect the purpose desired—as, for instance, the ordinary plain or smooth bore sectional clamp with which a cone wrapping upon the cable above the clamp is used, straight-bore clamps with inserted wedges forced inward by set-screws to clamp the drill-cable, and clamps having spiral corrugations

within the bore corresponding to the strands of the cable to enter into and between the strands of the cable—all of which have proved more or less inefficient (and especially so in the case of wire ropes) by reason of the wear upon the cable or the destructive cutting of the gripping-faces of the clamp due to the slipping of the cable in the clamp.

To overcome the several objections hereinbefore pointed out and secure an efficient clamp, I construct the clamp of longitudinal sections having on their interior a plain rope-seat formed of a series of reverse curves, said curves being equal and oppositely placed on the coating sections of the clamp, whereby the rope is repeatedly and reversely deflected from a right line and held as in “snubbing,” and such a construction embodies the main feature of my invention.

The clamp-sections having the sinuous grip comprised of reverse curves equal and oppositely placed upon the several sections are preferably link-suspended from the temper-screw and are closed by means of a clamp-yoke detachably connected with one clamp-section, which, together with other features of construction, that will hereinafter more fully appear, constitute other and minor features of my invention.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates a portion of the frame or reins of the temper-screw, by means of which the same is attached to the walking-beam; A', the screw; B, the swivel-bar of the temper-screw, and C a sectional rope-clamp embodying my invention, the same being flexibly connected with or suspended from the swivel-bar C of the temper-screw by the links c c or in other suitable manner.

The clamp C, which embodies my invention, is preferably composed of two longitudinal sections 1 and 2, which may be of any suitable material, but in order to obtain the best results should be composed of the outer portions or shells 1^a 2^a, of iron, and the inner portions, bushings 1^b 2^b, of Babbitt metal

or its equivalent, of a more ductile character than iron, and therefore better adapted to secure a conforming friction-grip on the drill-cable. Each of said longitudinal clamp-sections 1 and 2 is suspended from the swivel-bar of the temper-screw by a link *c* or equivalent means, which will permit the sections to swing apart laterally to release the rope or drill-cable when the clamp-yoke is loosened.

10 The interior of each of the clamp-sections 1 and 2, whether of iron, Babbitt, or other suitable metal, is provided with a rope-seat for the reception of the drill-cable *D*, said seat being smooth and arc-shaped in cross-section, (see Fig. 3,) but sinuous from end to end, or longitudinally—that is to say, formed with a series or plurality of reverse curves 3 4 5 6 3^a 4^a 5^a 6^a, &c., within the body of the clamp, said curves being equal and oppositely placed on the respective clamp-sections 1 and 2, so that the rope or drill-cable when gripped between the sections will be reversely forced from a right line at a plurality of points within the clamp and will assume a sinuous direction made up of a series of curves, which curves, though as a whole less than a complete circle or “hitch,” will, by their number, effectually “snub” the rope and hold it rigidly against movement in or through the clamp.

30 7 indicates a clamp-yoke, preferably of *C* form, which may be detachably connected with one section of the clamp 1 by means of the set-screw 8 or in other suitable manner, the opposite clamp-section 2 being provided with a plate 9 or its equivalent, against which the inner end of the hand-screw 10 of the clamp-yoke bears, said hand-screw 10, together with the yoke, being the preferred means by which the clamp-sections 1 and 2 are forced together and caused to grip the drill-cable *D*.

As before noted, the clamp-sections 1 and 2 may be formed integral or without the lining or bushing 1^b 2^b, if desired, but are preferably provided with Babbitt metal or a similar lining or bushing, in which case the shell will be formed and the lining or bushing in-

serted by first shaping up the shells by drop-forging under dies, (or a suitable metal casting may be used,) subsequently inserting a suitable sinuous core and sinuous division-plates between the shell-sections thus formed, the same being clamped and held between the shell-sections, and finally casting the Babbitt metal or other bushing in the cavities thus formed between the shell-sections and the sinuous core and division-plates.

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

1. A rope-clamp for temper-screws, comprising a plurality of longitudinally-separable clamp-sections having a sinuous rope-seat therein made up of a series of reverse and equal curves oppositely placed in the coacting clamp-sections, substantially as and for the purposes specified.

2. A rope-clamp for temper-screws, comprising a plurality of longitudinally-separable sections each section having an outer shell and a bushing, the bushings of the clamp-sections provided with sinuous rope-seats made up of a series of reverse and equal curves oppositely placed on the coacting clamp-sections, substantially as and for the purposes specified.

3. The combination with a temper-screw, of a rope-clamp comprising longitudinally-separable sections, provided with a sinuous rope-seat therein, said rope-seat having a plurality of equal and reverse curves oppositely placed in the coacting clamp-sections, flexible connections between the clamp-sections and the swivel-bar of the temper-screw, and means for confining the coacting clamp-sections, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of December, 1900.

PATRICK H. MACK.

Witnesses:

R. GOE,

WALTER B. SHAW.