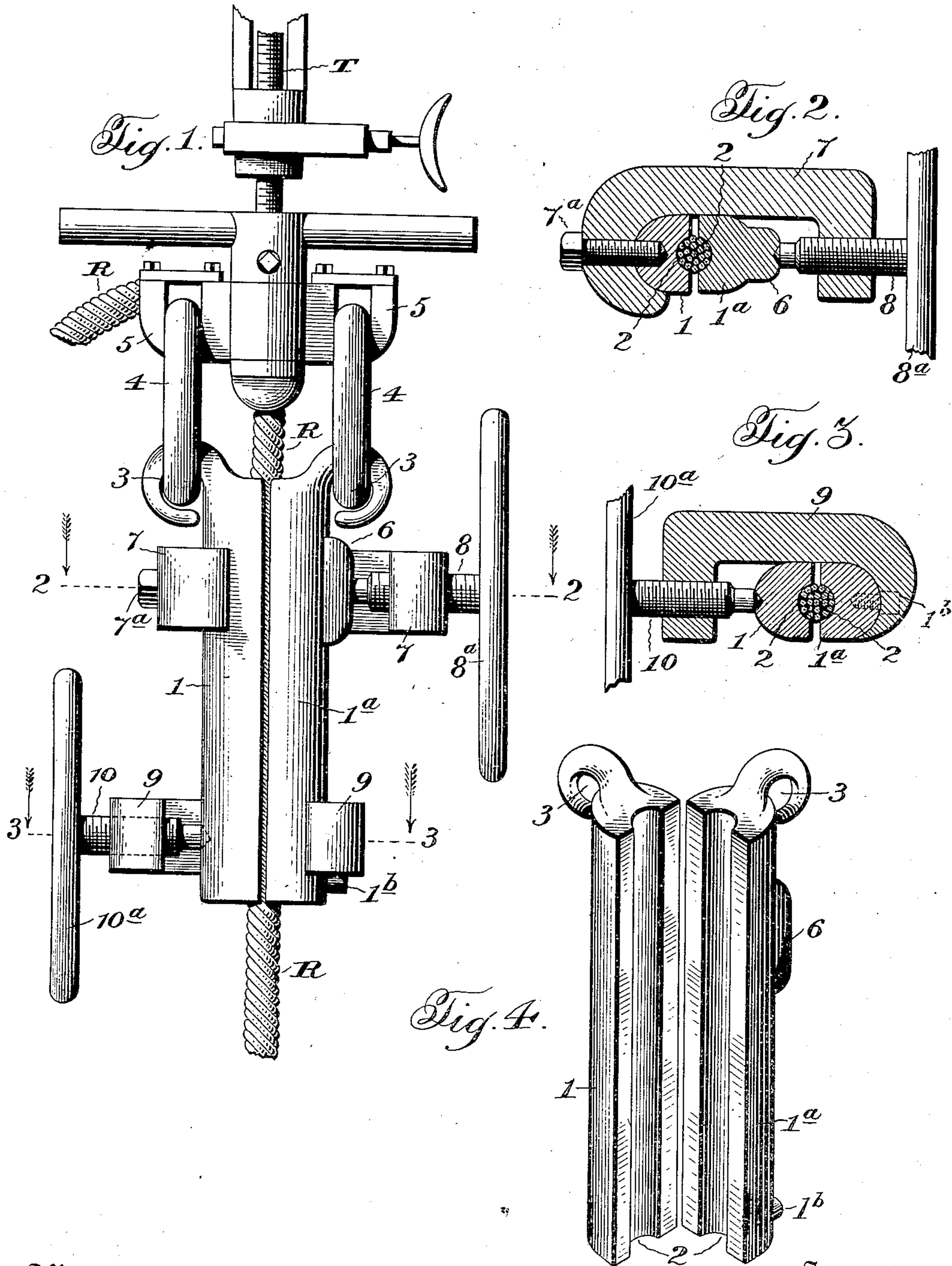


No. 835,545.

PATENTED NOV. 13, 1906.

P. H. MACK.  
TEMPER SCREW CLAMP.  
APPLICATION FILED JAN. 18, 1906.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## TEMPER-SCREW CLAMP.

No. 835,545.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed January 18, 1906. Serial No. 296,717.

*To all whom it may concern:*

Be it known that I, PATRICK H. MACK, a citizen of the United States, residing at Independence, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Temper-Screw Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of devices employed in drilling oil and Artesian wells or for like purposes commonly termed "temper-screw clamps," the purpose of which is to effectively grip and detachably hold the wire rope or cable, whereby the drills and other tools are suspended and reciprocated in the drilling operations, and has for its object the production of a simple and effective clamp readily adjustable and detachable and one adapted to secure and hold a wire drill-rope of any make by a friction-grip against movement within the clamp without distortion of the rope or cable, so that any change in the twist of the strand or injury to the individual wires of the rope or cable is avoided.

This class of devices, as is well understood by those skilled in the art of drilling deep wells, forms the connection between the temper or feed screw and the drill-rope and is subjected not only to the weight of the drill-rope, but also its load or string of tools, which is frequently several thousand pounds, and to the jar of the drill-stroke and the reaction jerk or "whip" of the drill, all of which tend to cause the slip or frictional movement of the wire rope or cable within the clamp, which slip, if not overcome, results in reduced efficiency in the drill-tools, as well as rapid deterioration of the rope or cable.

In the case of manila drill ropes or cables, wherein the common practice has been to employ short straight bore-clamp sections with a single centrally-disposed C clamp or yoke secured to one of said sections, the slipping of the rope within the clamp may be controlled by wrapping the rope, by wedging, and by similar means; but the same is ineffective for wire drill-ropes or cables, which have largely superseded the manila drill-ropes, for the reason that in the case of

a wire drill-rope the clamp-sections are deficient in holding power, invariably spring apart except at the point of application of the C clamp or yoke, and as a result the wear of the rope is augmented. Heretofore to obtain an effective hold in the case of wire drill ropes or cables the interior of the clamp-sections have been corrugated—as, for instance, with spiral corrugations to correspond with the strands of the rope or with plain curves to form an irregular rope-seat, and thus increase the hold of the clamp thereon; but while such constructions have been found more or less effective for the purpose it has been at a heavy cost in the way of injury to the rope, as in the case of corrugations the individual wires are frequently unequally drawn and the metal set, while in the case of spiral corrugations or rope-seats, that are necessarily limited to a single make of wire rope, there is a tendency to a change in the twist of the strand under the weight and stretch of the rope, and where plain curves are employed to form the grip the bends thereby formed in the wire rope remain when released from the clamp, and when the rope is subsequently straightened out there frequently results a drawn, set, and weakened condition of some individual wires of the rope.

To overcome the several objections hereinbefore noted as pertaining to the present construction of temper-screw clamps for wire drill ropes or cables, I combine with a plurality of extended clamp-sections having rope-seats formed of cylindrical surfaces a plurality of clamp-yokes so disposed with relation to the clamp-sections as to obviate the springing, spreading, or deflection of said sections, one or more of said clamp-yokes being preferably detachable from the clamp-sections, and such a construction embodies the main feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

In the drawings forming a part of this specification and illustrating the application of my invention, Figure 1 is a view in side elevation of a temper-screw clamp embodying my invention and the lower portion of a temper-screw or feed-screw and swivel-bar, as well as a portion of the wire drill rope or cable which suspends the drill-tools. Fig. 2



is a transverse sectional view on the line 2 2, Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3, Fig. 1. Fig. 4 is a detached view of the clamp-sections, said sections being opened to show the rope-seat.

Like symbols refer to like parts wherever they occur.

I will now proceed to particularly describe the embodiment of my invention shown in the drawings, so that others may apply said invention.

In the drawings, 1 1<sup>a</sup> indicate two similar longitudinal clamp-sections constituting the rope-clamp, each of which sections has a longitudinal groove or rope-seat 2 of cylindrical shape and each of which is provided with a suitable hook or link eye 3 for the reception of a link 4, whereby the said clamp-sections 1 1<sup>a</sup> are independently secured to the swivel-bar 5 of the temper-screw T, so that said sections may be separated laterally when desired to insert, remove, or adjust the drill rope or cable R. These sections 1 1<sup>a</sup> may be of any desired length, but, preferably, for efficiency, as well as for convenience, are about sixteen (16) inches long, and one of said clamp-sections 1<sup>a</sup> adjacent to its link-eye 3 is usually provided with a plate or raised seat 6 for the reception of the inner end of the screw of the upper clamp-yoke, and the opposite clamp-section 1 is provided with a threaded opening for the reception of a set-screw for securing the upper clamp-yoke thereto.

7 indicates the upper clamp-yoke, which is of general C form, one curved end of which encircles one of the longitudinal clamp-sections 1 and is secured thereto by a screw-bolt 7<sup>a</sup> or its equivalent, while through a threaded opening in the opposite end of the clamp-yoke is inserted a clamp-screw 8, whose inner end is adapted to engage the plate or raised seat 6 on the clamp-section 1<sup>a</sup>, while its outer end is provided with a hand-bar 8<sup>a</sup> for operating the clamp-screw 8.

Adjacent to its lower end one of said clamp-sections 1<sup>a</sup> is provided with a lug 1<sup>b</sup>, which, as shown in the drawings, is a threaded stub screwed thereinto, and said lug 1<sup>b</sup> supports and controls the position of the lower clamp-yoke of the temper-screw clamp and is preferably located on the same clamp-section which carries the raised seat 6, so that the upper and lower clamp-yokes 7 and 9 are reversely disposed, which will prevent the interference of the hand-bars 8<sup>a</sup> 10<sup>a</sup> of the clamp-screws.

9 represents the lower clamp-yoke, which is similar to the upper clamp-yoke, except

that it is devoid of any set-screw for securing it to the clamp-sections and is therefore readily detachable therefrom when its clamp-screw 10 has been withdrawn. As before noted, this clamp-yoke is supported upon the clamp-sections 1 1<sup>a</sup> and its position with relation thereto controlled by means such as the lug 1<sup>b</sup>.

With clamp-sections 1 1<sup>a</sup> of approximately sixteen (16) inches in length, as hereinbefore suggested, the clamp-yokes will preferably be located about seven (7) inches apart, and when so placed two will be found to be sufficient to control the spring of the clamp-sections 1 1<sup>a</sup> and produce an effective temper-screw clamp; but, if desired, the length of the clamp-sections 1 1<sup>a</sup> may be further extended and one or more intermediate clamp-yokes employed, in which case additional lugs 1<sup>b</sup>, corresponding in number and location to the additional clamp-yokes, should be provided, and the additional yokes will be detachable from the clamp-sections 1 1<sup>a</sup>, as in the case of lower clamp-yoke 9.

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

1. A temper-screw clamp having in combination a plurality of clamp-sections provided with rope-seats having cylindrical surfaces, and a plurality of clamp-yokes.

2. A temper-screw clamp having in combination a plurality of clamp-sections provided with rope-seats having cylindrical surfaces, and a plurality of clamp-yokes, one of which is independent of and detachable from the clamp-sections.

3. A temper-screw clamp, having a plurality of clamp-sections provided with rope-seats having cylindrical surfaces, and a plurality of clamp-yokes, said clamp-yokes being reversely disposed with relation to each other and the clamp-sections.

4. A temper-screw clamp having in combination a plurality of clamp-sections provided with rope-seats having cylindrical surfaces, one of said sections having a lug for supporting a detachable clamp-yoke, and a plurality of clamp-yokes, one of which is independent of and detachable from the clamp-sections.

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

PATRICK H. MACK

Witnesses:

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JAMES ROURKE.