

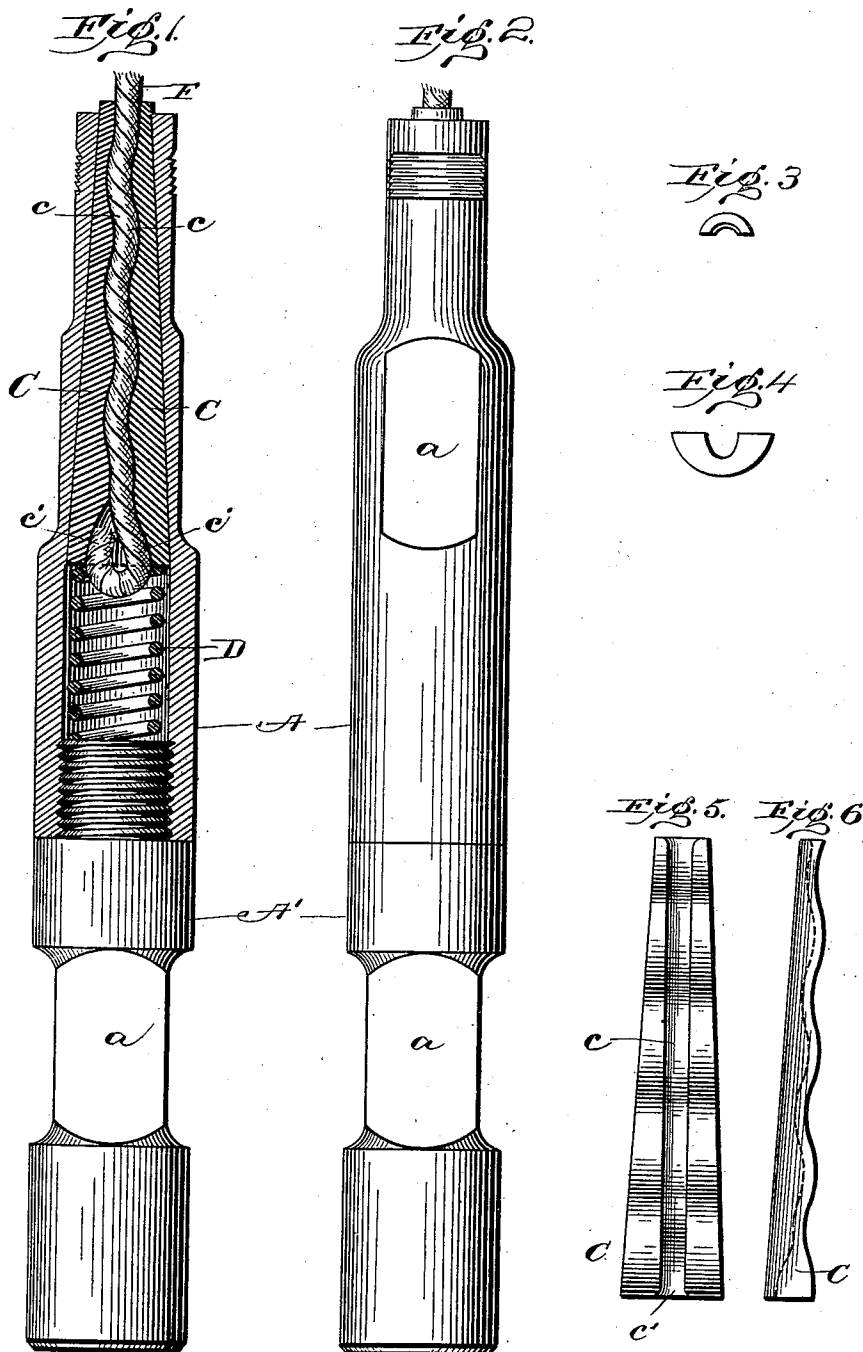
No. 689,326.

Patented Dec. 17, 1901.

L. C. SANDS, JR.
ROPE SOCKET.

(Application filed June 24, 1901.)

(No Model.)



Witnesses:
J. M. Fowler Jr.
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Att.

UNITED STATES PATENT OFFICE.

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ROPE-SOCKET.

SPECIFICATION forming part of Letters Patent No. 689,326, dated December 17, 1901.

Application filed June 24, 1901. Serial No. 65,842. (No model.)

To all whom it may concern:

Be it known that I, LOUIS C. SANDS, JR., a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rope-Sockets; 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, partly in longitudinal section, of a rope-socket embodying my invention. Fig. 2 is a view in elevation of the rope-socket shown in Fig. 1, and Figs. 3, 4, 5, and 6 are detached views of one of the wedges, Figs. 3 and 4 being opposite end views of the wedge, Fig. 5 an inner face view thereof, and Fig. 6 a side elevation, the sinuosity of the rope seat or channel being indicated in dotted lines, Fig. 6.

Like symbols refer to like parts wherever they occur.

My invention is applicable to rope-sockets in general, though the same has been especially devised for use in connection with wire-rope drill-cables and drills or like tools employed in drilling oil, gas, and Artesian wells. It pertains more directly to that class of rope-sockets wherein the cable or wire rope is held by a wedge-grip; and my invention may be generally stated to consist in the combination, with a tubular socket or including-section, of a plurality of included coacting wedges having sinuous grip-faces made up of a series of reverse curves oppositely placed on the coacting wedge-sections, whereby the rope is reversely deflected at intervals and the wedges themselves are held against unequal movement under the strain of the rope. There are other minor features of invention, all as will hereinafter more fully appear.

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 the tubular or including section, and A' the solid section or closure of a rope-socket, the two parts being united by the usual box-and-pin or threaded joint or in other suitable manner, and, if de-

sired, provided with wrench-seats *a* and whatever other well-known features may be necessary to adapt it to its special object. The tubular section A or including member of the socket will be provided with a bore or wedge chamber of tapering form, adapted to cause the gradual approach of the included wedge-grips under the strain of the rope.

C C indicate wedge-grips contained within the tapering bore of the socket-section A. These wedge-grips, which may be two in number, are counterparts, their cross-sections each being something less than a semicircle and each provided with a rope-seat *c*, the cross-section of which at any point will be the arc of a circle, while the seat longitudinally will be sinuous (see dotted lines, Fig. 6)—that is to say, made up preferably of a series of equal and opposite curves, oppositely placed on the coacting sections, whereby the included rope is gripped, held, and alternately deflected in reverse direction by smooth surfaces which equally support the rope at all points. At the lower extremities of the rope-seats *c* the same are widened out, as at *c'*, to permit the end of the rope to be folded on itself to form a knot or an enlargement, which will prevent the possibility of the rope being drawn through the rope-seat of the wedge-grips. If preferred, the opposite edges of the wedges may be straight, but preferably are corrugated or sinuous and may be made up of curves corresponding with those of the rope-seat *c*.

D indicates a spiral spring inserted in the bore of the socket, one end resting upon the inner ends of the wedge-grips C C and its opposite end upon the pin of the solid section A or joint, so as to exert and maintain a continuous upward or outward pressure upon and between the wedge-grips at all times and under all circumstances.

The devices being substantially such as hereinbefore pointed out the rope will be secured in the socket by first unscrewing the joint or separating the solid section A' from the tubular section A and withdrawing the spring D and wedge-grips C C, after which the end of the rope is passed through the bore of

tubular section A, the wedge-grips C C applied to the rope, its free end being folded over, as indicated in Fig. 1 of the drawings, to fill the enlarged portion c' of the rope-seat, the end of the rope and applied wedge-grips C C drawn or forced back into the bore of the tubular section A, the coiled spring D inserted, and, finally, the solid section A' of the socket applied and screwed home, so as to seat the spring D on the ends of the wedges C C with the desired pressure. Thereafter strain on the rope or cable will only tend to draw forward the wedge-grips C C and increase their hold on the rope, the sinuosity of the grip-faces causing them to travel equally and the spring guarding against any relaxation of the grip.

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

1. The combination in a rope-socket, of a tubular section having a tapering bore, a plurality of included wedge-sections having sinuous rope-seats made up of a series of opposite or reverse curves oppositely placed on the co-acting wedge-sections, and a spring which

bears on the included wedge-sections, substantially as and for the purposes specified.

2. The combination in a rope-socket, of a tubular section and a plurality of included wedges having sinuous grip-faces or rope-seats of increased depth at their inner ends, substantially as and for the purposes specified.

3. The combination in a rope-socket, of a tubular section having a tapering bore, a plurality of included wedge-sections having sinuous rope-seats made up of a series of reverse and equal curves oppositely placed on the co-acting sections, a closure for the tubular section, and an included spring which bears on the closure and on the included wedge-sections, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 22d day of June, 1901.

LOUIS C. SANDS, JR.

Witnesses:

EMMA H. GOODWIN,
JOHN EATON.