

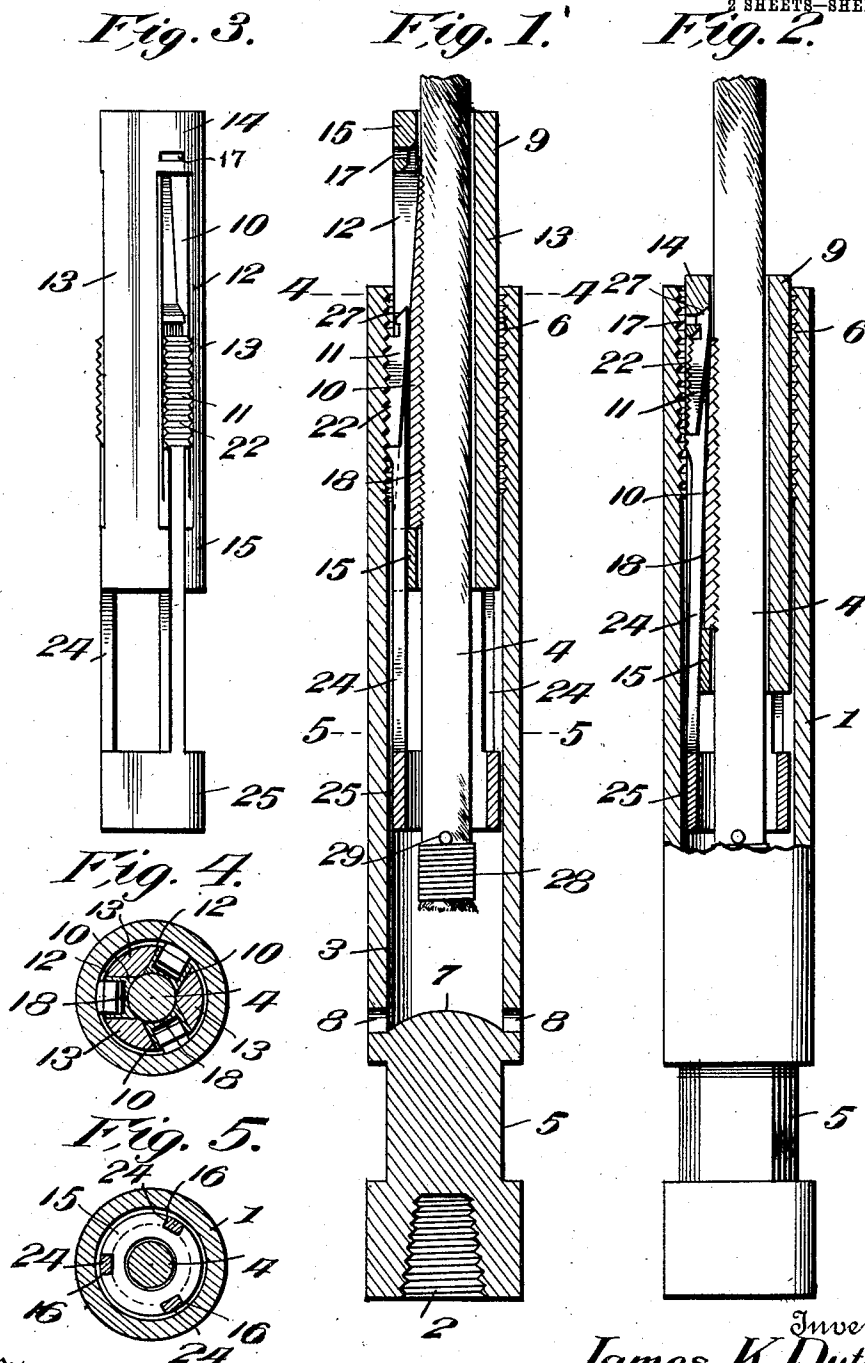
No. 833,548.

PATENTED OCT. 16, 1906.

J. K. PUTNAM.
ROPE SOCKET.

APPLICATION FILED NOV. 29, 1905.

2 SHEETS—SHEET 1.



Witnesses

Thos. W. Ring
C. H. Griesbauer

By

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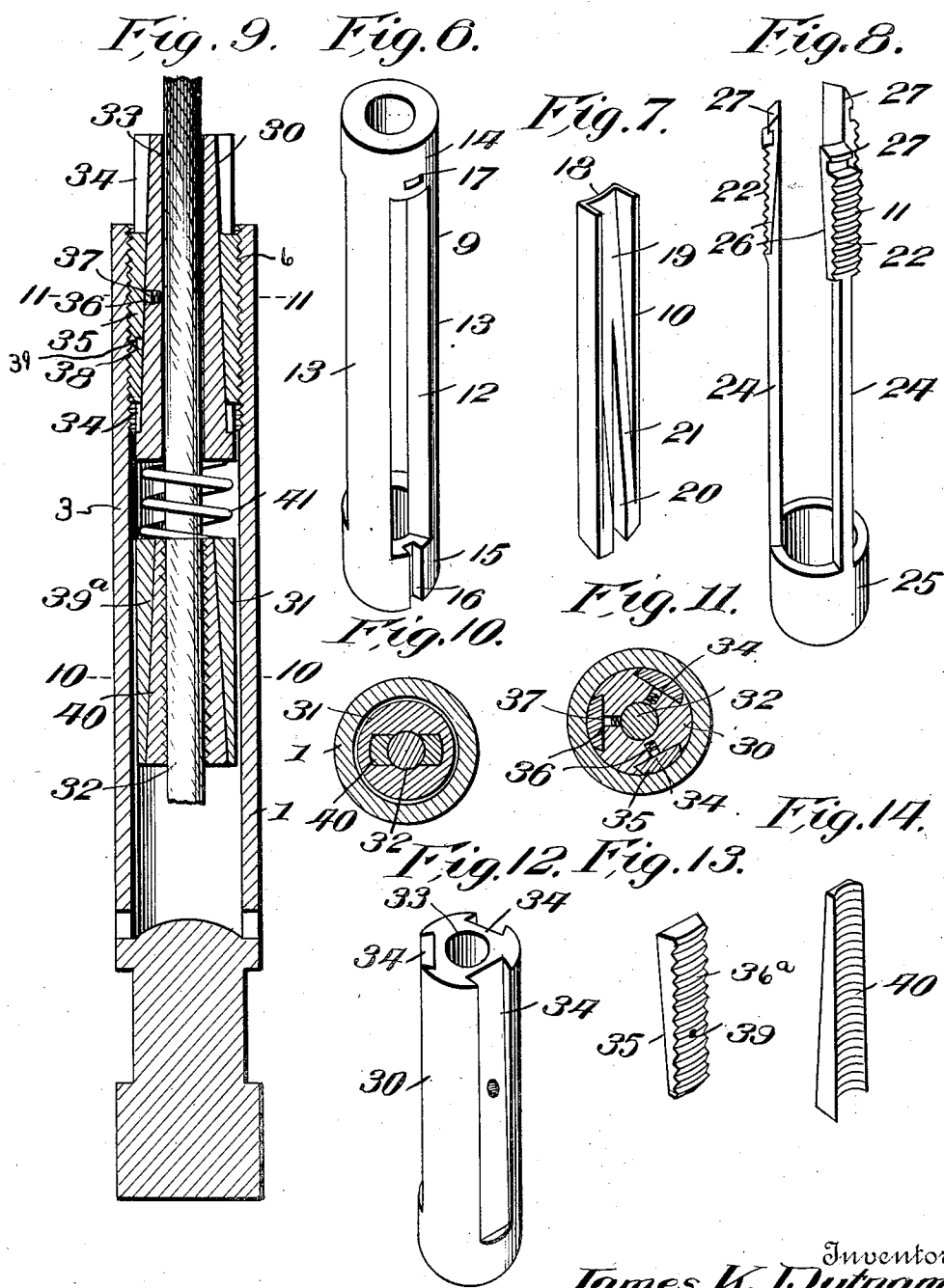
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UNITED STATES PATENT OFFICE.

JAMES K. PUTNAM, OF MONTPELIER, INDIANA.

ROPE-SOCKET.

No. 833,548.

Specification of Letters Patent.

Patented Oct. 16, 1906.

Application filed November 29, 1905. Serial No. 289,622.

To all whom it may concern:

Be it known that I, JAMES K. PUTNAM, a citizen of the United States, residing at Montpelier, in the county of Blackford and State of Indiana, have invented certain new and useful Improvements in Rope-Sockets; and I do 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 improvements in rope-sockets; and it consists in the novel construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

One object of the invention is to provide a simple and efficient device of this character by means of which rope or cable may be securely, but detachably, fastened to tools used in digging wells and the like.

A further object of the invention is to improve and simplify the construction and operation of devices of this character, and thereby render the same more efficient and durable in use and less expensive to manufacture.

The above and other objects, which will appear as the nature of the invention is better understood, are accomplished by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view through a rope-socket constructed in accordance with my invention, showing the parts in clamped position ready for use. Fig. 2 is a view, partly in elevation and partly in section, of the body portion of the socket, showing the parts in disengaged position ready for removal of the rope. Fig. 3 is a side elevation of the clamping members of the device, showing the same assembled. Figs. 4 and 5 are transverse sectional views through the same, taken, respectively, on the planes indicated by the lines 4 4 and 5 5 of Fig. 1. Fig. 6 is a perspective view of the casing or holder in which the rope and socket engaging jaws are mounted. Fig. 7 is a perspective view of one of the rope-engaging jaws. Fig. 8 is a perspective view of the bearing carrying the socket-engaging jaws. Fig. 9 is a longitudinal sectional view through my improved socket, showing a modified form of rope-clamping means which is especially adapted for securing a wire rope or cable in the socket. Figs. 10 and 11 are transverse sec-

tional views taken, respectively, on the lines 10 10 and 11 11 in Fig. 9. Fig. 12 is a perspective view of the block or holder for the socket-engaging jaws which is rigidly secured by the latter in the outer end of the socket shown in Fig. 9. Fig. 13 is a similar view of one of the socket-engaging jaws shown in Figs. 9 and 11, and Fig. 14 is a similar view of one of the wire rope or cable engaging jaws shown in Figs. 9 and 10.

Referring more particularly to Figs. 1 to 8, inclusive, of the drawings, the numeral 1 denotes the body of my improved rope-socket, which, as shown, is of cylindrical form and has at one of its ends a screw-threaded socket 2, to receive the usual well-drilling tool or any other part or element, and at its opposite end a cylindrical bore or socket 3, in which one end of a rope or cable 4 of any description is adapted to be detachably secured. A portion of the body 1 between its ends is reduced and formed with a polygonal face 5, adapted to receive a wrench or similar tool to facilitate the application and removal of the drilling-tool or other element screwed into the end 2. The socket proper, 3, has formed upon the inner face of its outer end radially-arranged corrugations 6, which prevent the rope-clamping members from being pulled out of the same. The inner end or bottom 7 of the socket 3 is preferably convex, as shown, and transverse openings 8 are formed in the wall of the socket in order to permit sand and sediment falling into the socket to discharge or drop out of the same, so that it will not become clogged.

When a hemp or manila rope or cable 4 is to be secured in the socket 3, the parts shown in Figs. 6, 7, and 8 of the drawings are employed. These parts are a casing or holder 9, a series of rope-engaging jaws 10, and a series of socket-engaging jaws 11, which latter are united, as seen in Fig. 8. The holder 9 is in the form of a cylindrical tube, which has an outer diameter of sufficient size to permit it to be readily slipped into the socket 3 and an inner diameter slightly greater than that of the rope 4. This cylindrical holder 9 is formed with longitudinally-extending slots 12, which are preferably three in number and which form longitudinally-extending arms 13, connected at their ends by integral rings 14 and 15. In the outer face of the ring 14, which is at the inner end of the holder, are formed longitudinally-extending recesses or grooves 16, which are disposed centrally with

respect to the slots or openings 12, and similarly arranged in the ring 15 or outer end of the holder 9 are transverse openings 17, as clearly shown in Fig. 6 of the drawings.

5 The slots or openings 12, of which there are preferably three, as shown, are adapted to receive the rope-engaging jaws 10. The latter have concave inner faces 18 to frictionally engage the rope 4, and in their outer faces are
10 formed two longitudinally-extending channels or recesses 19 20. The channel 20, which is of less width than the channel 19, is arranged centrally at the inner end of the jaw 10 and extends from said end to about the
15 center of the jaw, where it terminates in the channel 19. The latter extends from the outer end of the jaw and is of gradually-decreasing depth, so that wedge-surfaces 21 are formed at the central and inner portions of
20 the jaw upon each side of the small inner channel 20, as will be readily seen upon reference to Fig. 7. The socket-engaging jaws 11 have their outer faces corrugated, as at 22, to engage the corrugations 6 in the outer end of the socket 3, and they are formed upon arms
25 24, which project longitudinally from an integral band or rim 25. The jaws 11 are curved transversely and correspond in width to the width of the channels 19 in the jaws
30 10, in which latter they are adapted to seat and slide. Said jaws 11 are also tapered longitudinally, so that they are wedge-shaped, and their inclined inner faces 26 are adapted to ride upon the wedge-surfaces 21 upon the
35 jaws 10. The arms 24 are adapted to seat in the grooves or recesses 16 in the inner end of the holder 9, and they are sufficiently resilient to permit the jaws 11 to be sprung over said end 14 of the holder when the parts are
40 assembled as shown in Fig. 3 of the drawings. At the outer ends of the jaws 11 are formed hook-shaped catches 27, which are adapted to spring into the transverse slots or seats 17, formed in the outer end of the
45 holder 9, as presently explained.

In assembling the parts as shown in Fig. 1 of the drawings the rope 4 is passed through the holder 9 from its outer end, and the jaws 10 are then seated in the slots 12 in said
50 holder, so that the channels 20 will be at the inner end of the latter and in alinement with the grooves 16 therein. The jaws 11 are then sprung over the end 14 of the holder, so that the arms 24 enter the channels or
55 grooves 16 20 and the jaws 11 enter the channels 19. The end of the rope projecting through the inner end 14 of the holder 9 is wrapped with twine or other suitable material 28, and a nail, pin, or the like 29 is driven
60 transversely through the rope, as shown. The parts when thus assembled, as shown in Fig. 3, are inserted in the socket 3 of the body 1, so that when the rope is drawn upon the holder 9, and hence the jaws 10, will be moved
65 outwardly to a slight extent. This move-

ment will cause the wedge-surfaces of the jaws 10 to coact with the wedge-surfaces 26 on the jaws 11 to cause the corrugations 22 in the latter to firmly engage the corrugations 6 in the socket 3 and to cause the curved inner
70 inner faces 18 of the jaws 10 to firmly clamp the rope between them. When it is desired to detach the rope from the socket, the holder 9 is moved inwardly, so that the wedge-surfaces 21 and 26 ride downwardly
75 off of each other until the catches 27 upon the jaws 11 spring out of the slots or seats 17 in the holder. When this takes place, the parts are released sufficiently to permit them to be removed from the socket 3, and they
80 will be retained in such position, as will be readily understood.

In the embodiment of my invention shown in Figs. 9 to 14, inclusive, of the drawings I employ a socket-body 1 similar to the one
85 previously described and insert in the socket 3 in the latter two cylindrical blocks or bodies 31, by means of which a wire rope or cable 32 may be securely fastened in said socket. The outermost block 30 is formed
90 with a longitudinally-extending bore 33, through which the wire rope 32 is adapted to slide, and in its outer face are formed longitudinally-extending dovetail channels or
95 grooves 34, which are of gradually-decreasing depth from the outer end of said block to a point adjacent to its inner end. These dovetailed grooves or seats 34 receive and retain dovetail socket-engaging jaws 35, which are wedge-shaped longitudinally and have their
100 outer faces corrugated, as at 36^a, to engage the corrugation 6 in the socket 3. The block 30 is of slightly less diameter than that of the socket 3, and the jaws 35 are of such size that when they are disposed in the outer portions
105 of the grooves or seats 34 their corrugations 35 lie beneath the outer surface of the body. In order to retain the jaws 35 in this position for a purpose presently explained, I provide in recesses 36 in said grooves or seats 34
110 spring-projected studs 37, which are adapted to enter seats or recesses 38, formed in the inner sides of the jaws 35, as shown. In order to permit the latch-studs 37 to be disengaged from their seats 38, so as to release the jaws
115 35, I form in the latter in alinement with said seats 38 apertures 39, in which a nail or other pointed instrument may be inserted to depress said latch-studs, as will be readily understood. The inner block 31 is also of cy-
120 lindrical form and is formed with a longitudinally-extending bore or opening 39^a, which is wedge shape, as shown, to receive two similar-shaped rope-engaging jaws 40, the inner faces of which are concaved and corrugated
125 or roughened to cause them to firmly clamp the inner end of the wire rope 32. I preferably employ a cushion 41 between the opposing ends of the blocks 31 32. This cushion may be of any suitable kind. For the
130

purpose of this specification it is here shown as a coiled spring. In assembling the parts of this embodiment of the invention the end of the wire rope 32 after being passed through the bore 33 of the block 30 and the coiled spring 41 is secured in the block 31 between the two wedge-shaped jaws 40. The block 31 is then inserted in the socket 3 and the block 30 dropped into the outer portion of said socket. When the rope 32 is drawn upon the block 31, it will be drawn outwardly and will cause the spring 41 to shift the block 30 outwardly to a slight extent, so that the jaws 35 will ride up upon the inclined bottoms of the grooves or seats 34 and their corrugations 36^a will be caused to firmly engage the corrugations 6 in the socket 3. The block 31 will thus be retained in the socket 3, and the spring 41 will serve as a cushion between the rope and the tool connected to the socket-body 1. When it is desired to disconnect the rope 32 from the socket-body, the block 31 is moved inwardly, so that the jaws 35 ride downwardly into the deep outer portions of the seats 34 until the latch-studs 37 spring into the seats or recesses 38 in said jaws 35, so that the latter will be held in their retracted positions and the block 30 may be readily removed from the socket.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to within the scope of the appended claims without departing from the principle or sacrificing any of the advantages of the invention.

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

1. The combination of a body having a socket formed therein with corrugations in its outer portion, a holder slidably mounted in said socket, a socket-engaging jaw carried by said holder to force said jaw into engagement with the corrugations of said socket, and means for retaining a rope or the like in said holder.

2. The combination of a body having a socket formed in one of its ends, corrugations in the outer portion of said socket, a holder slidable in said socket, a socket-engaging jaw, means carried by said holder for moving said jaw into engagement with the corrugations in said socket, means for holding said jaw out of engagement with the corrugations in said

socket, and means for retaining a rope or the like in said holder.

3. The combination of a body having a socket in one end, a tubular holder slidable in said socket, rope-engaging jaws seated in said holder, and socket-engaging jaws carried by said holder, said jaws having coacting means to move them into and out of engagement with the rope and socket body by the sliding movement of said holder.

4. The combination of a body having a socket in one end, a tubular holder slidable in said socket, rope-engaging jaws seated in said holder, and socket-engaging jaws carried by said holder, said jaws having coacting wedge-surfaces to operate them when said holder is moved.

5. The combination of a body having a socket in one end, a tubular holder slidable in said socket, rope-engaging jaws carried by said holder, said jaws having coengaging surfaces and catches for retaining said jaws in disengaged position.

6. The combination of a body having a socket in one of its ends, corrugations in the outer portion of said socket, a tubular holder slidable in said socket and formed with longitudinally-extending slots and grooves in alignment with said slots, rope-engaging jaws seated in said slots and formed in their outer faces with longitudinally-extending channels and wedge-surfaces, socket-engaging jaws having corrugated outer faces to engage the corrugations in said socket, and spring-arms connecting said jaws and adapted to seat in the grooves in said holder.

7. The combination of a body having a socket in one of its ends, corrugations in the outer portion of said socket, a tubular holder slidable in said socket and formed with longitudinally-extending slots and grooves in alignment with said slots, rope-engaging jaws seated in said slots and formed in their outer faces with longitudinally-extending channels and wedge-surfaces, socket-engaging jaws having corrugated outer faces to engage the corrugations in said socket, spring-arms connecting said jaws and adapted to seat in the grooves in said holder, and catch-hooks carried by said socket-engaging jaws and adapted to engage recesses in said holder, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES K. PUTNAM.

Witnesses:

THOS. D. HUNRATTY,
ELMER TEWKSBURY.