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D. W. SNOW,
WIRE ROPE SOCKET.
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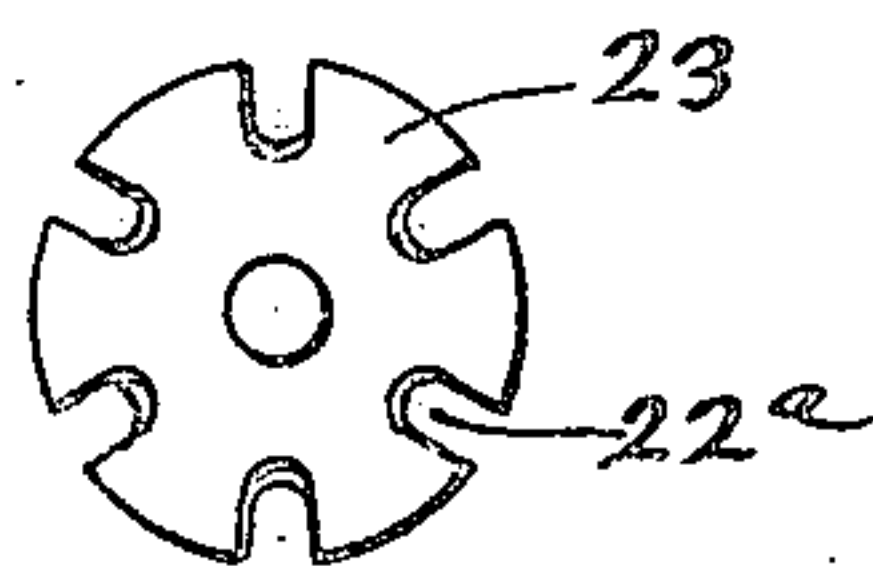
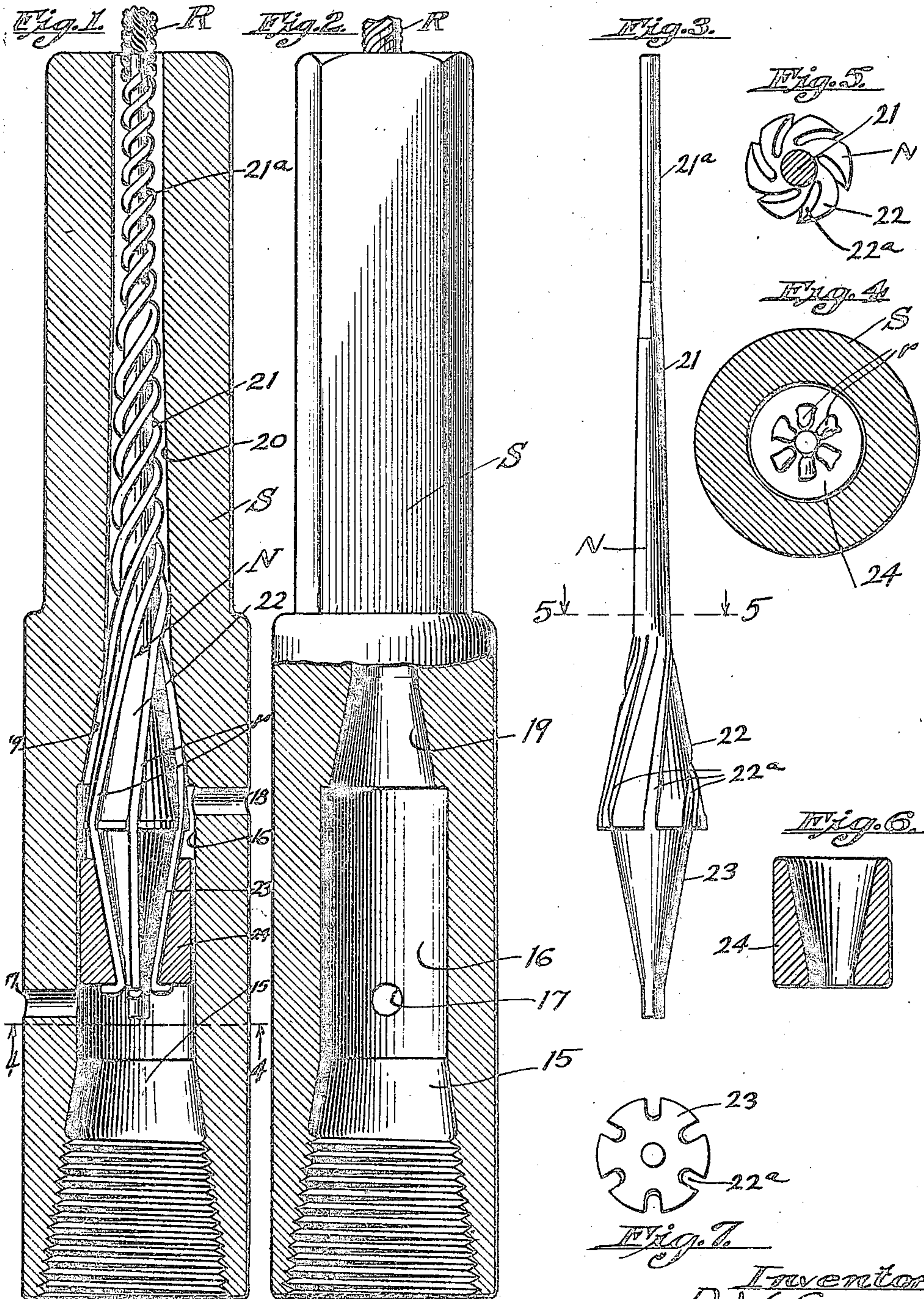


Fig. 7.

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WIRE-ROPE SOCKET.

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To all whom it may concern:

Be it known that I, DANIEL W. SNOW, a citizen of the United States, residing at Fillmore, in the county of Ventura and State of California, have invented new and useful Improvements in Wire-Rope Sockets, of which the following is a specification.

My invention relates to wire rope sockets, and a purpose of my invention is the provision of a wire rope socket including a grooved mandrel head of conical form adapted to receive in the grooves the several strands comprising a wire rope and to hold such strands in contacting position with a conical socket, the head and socket co-operating to effectively secure the strands and consequently the rope against displacement from the socket.

It is also a purpose of my invention to provide a wire rope socket in which the mandrel head is provided with a conical extension adapted to receive the free ends of the rope strands and co-operating with a locking sleeve for securing the strands against displacement from the head and thereby serving to retain the strands within the heads within the grooves of the mandrel head.

Although I will describe only one form of wire rope socket embodying my invention and point out the novel features thereof in claims, it is to be understood that various changes and modifications may be made herein without departing from the spirit and scope of such claims.

In the accompanying drawings,

Figure 1 is a view showing in vertical longitudinal section one form of wire rope socket embodying my invention.

Fig. 2 is a view showing partly in elevation and partly in section the socket shown in Fig. 1.

Fig. 3 is a detail view showing in side elevation the mandrel comprised in the socket shown in the preceding views.

Figs. 4 and 5 are transverse sectional views taken on the lines 4—4 and 5—5, respectively, of Figs. 1 and 3.

Fig. 6 is a sectional view of the locking sleeve shown in Fig. 1.

Fig. 7 is a bottom plan view of the mandrel shown in Fig. 3.

Similar reference characters refer to similar parts in each of the several views.

Referring specifically to the drawings, my invention, in its present embodiment, comprises a socket casing designated generally at

S which is provided with a drill shank receiving bore 15. This bore 15 merges into a bore 16 of uniform diameter from end to end and which communicates with vent openings 17 and 18 through which water and sand finds its way out of the casing as will be understood. The bore 16 communicates with a frusto-conical socket or bore 19, and this socket merges into a relatively long bore 20 of sufficient diameter to receive a wire rope.

As clearly shown in Fig. 1, the socket casing S is adapted to receive a mandrel designated generally at N. As clearly shown in Fig. 3, this mandrel comprises a tapered shank 21 having an extension 21^a of uniform diameter provided at one end of the shank, and the mandrel head 22 formed at the other end of the shank. The head 22 is of conical form and is provided at circumferentially spaced intervals with longitudinally extending spiral grooves 22^a. Formed on the large end of the head 22 is a gripping head 23, this head being of conical form but reversely arranged with respect to the head 22. Upon this locking head 23 is adapted to be slidably fitted a locking sleeve 24, and this sleeve is provided with a conical bore as clearly shown in Fig. 6.

In practice, a wire rope R is adapted to be inserted into the bore 22 of the socket casing S and in such manner that the shank 21 and the extension 21^a extend axially of the rope with the strands *r* entwined about these members. At the head 22 the strands *r* are placed within the several grooves 22^a in the manner clearly shown in Fig. 1, with the free ends of the strands extending below the head 22 and contacting with the head 23 so that they can be extended between the head 23 and the sleeve 24 when the latter is in released position. The locking sleeve 24 is adapted to be forced upon the locking head 23 and because of the conical form of the two, it will be clear that the free ends of the strands are securely locked against displacement from the mandrel. It is to be understood that the application of the rope to the mandrel takes place before the mandrel is inserted into the socket casing S, and that after having been inserted and the drill shank applied to the socket 15 that the weight of the drill and shank acting on the socket casing will force the mandrel head 22 upwardly into the socket 19 thereby effecting a wedging of the rope strands *r* within the grooves 22^a.

This obviously effects a secure locking of the rope within the socket so that when in use the possibility of the rope becoming disengaged from the socket is positively prevented.

When it is desired to disconnect the rope from the socket, the rope can be severed at a point at which it passes out of the socket casing whereupon, the mandrel is free to be pulled downwardly from the socket casing so that the remaining portion of the rope can be disengaged from the mandrel.

What I claim is:

1. A wire rope socket comprising a socket casing having a bore formed with a conical portion, a mandrel including a shank about which the strands of rope are adapted to be arranged, and a conical head formed on the shank and provided with spiral grooves adapted to receive the several strands of said rope, said head being adapted to fit within the conical portion of said bore and in such manner that the strands of rope are wedged between the casing and head.
2. A wire rope socket comprising a socket casing having a bore formed with a conical portion, a mandrel including a shank about which the strands of rope are adapted to be arranged, a conical head formed on the shank and provided with spiral grooves adapted to receive the several strands of said rope, said head being adapted to fit within the conical portion of said bore and in such manner that the strands of rope are wedged between the casing and head, a locking head formed on the grooved head, and a locking sleeve associated with said head for securing the free ends of the rope strands against displacement from said grooves.
3. A wire rope socket comprising a socket casing having a bore formed with a conical portion, a mandrel including a shank about which the strands of rope are adapted to be arranged, a conical head formed on the shank and provided with spiral grooves adapted to receive the several strands of said rope, said head being adapted to fit within the conical portion of said bore and in such manner that the strands of rope are wedged between the casing and head, a locking head of conical form for receiving the free ends of said rope strands, and a locking sleeve having a bore of conical form adapted to be applied to said locking head for securing the rope strands thereon.

4. A wire rope socket comprising a socket casing having a bore including a conical portion and a straight portion, a mandrel including a tapered shank mounted in the straight portion of said bore and about which the strands of a rope are adapted to be arranged, and a conical head formed on one end of the shank and mounted in the conical portion of said bore, said head being formed with spirally arranged grooves adapted to receive the strands of said rope.

5. A wire rope socket comprising a socket casing having a bore including a conical portion and a straight portion, a mandrel including a tapered shank mounted in the straight portion of said bore and about which the strands of a rope are adapted to be arranged, a conical head formed on one end of the shank and mounted in the conical portion of said bore, said head being formed with spirally arranged grooves adapted to receive the strands of said rope, a locking head formed integral with and depending from the first head, said locking head being of conical form and reversely disposed with respect to the first head, and a locking sleeve having a conical bore fitted on the locking head and co-acting with the latter to secure the free ends of the rope strands on said head.

6. A mandrel for wire rope sockets comprising a tapered shank, a conical head formed on one end of the shank and provided with circumferentially spaced spiral grooves, a locking head formed integral with and depending from the first head, said locking head being of conical form and reversely disposed with respect to the first head, and a locking sleeve having a conical bore for receiving the locking head.

7. A mandrel for wire rope sockets comprising a socket casing having a bore formed with a conical portion and a straight portion, a mandrel including a stem of tapered form arranged within the straight portion of said bore and about which the strands of a wire rope are adapted to be trained, and a conical head formed at one end of the shank and arranged within the conical portion of said bore, said head being adapted to receive the strands of said rope so that the latter will be wedged between the head and socket.

In testimony whereof I have signed my name to this specification.

D. W. SNOW.