Sept. 2, 1930. D. C. SHERMAN 1,774,616

ROPE GUIDE

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Fig. 1.

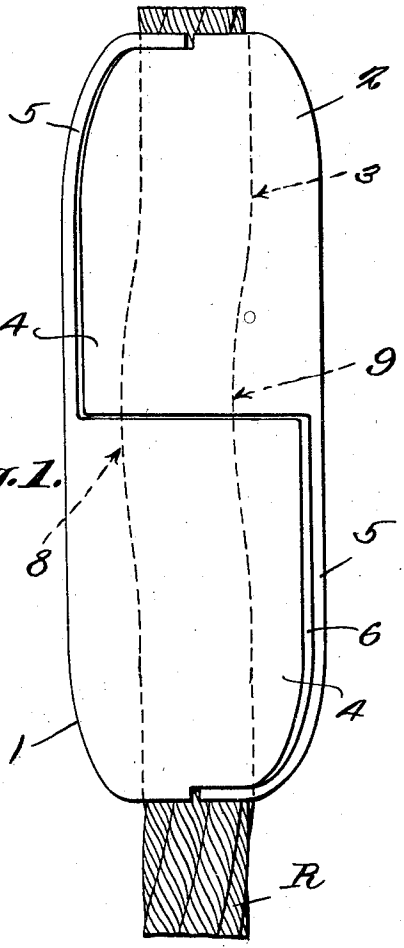



Fig. 2.

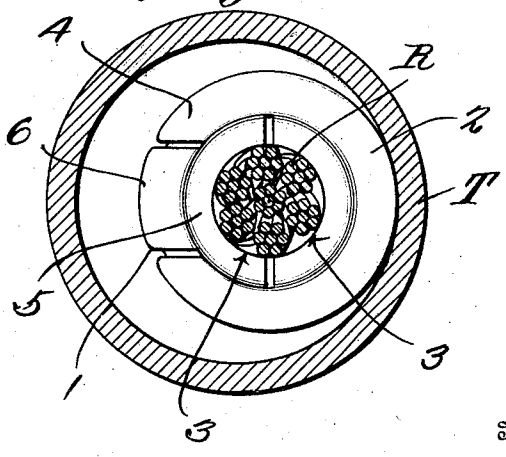
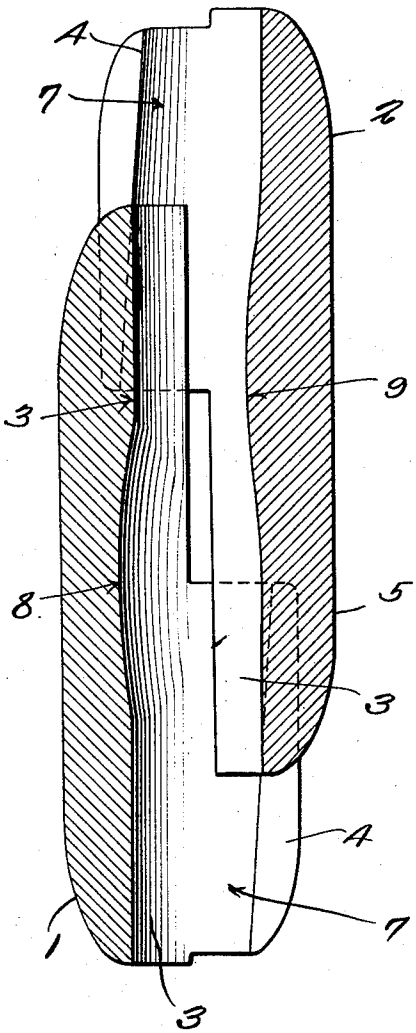



Fig. 4.




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Fig. 3.

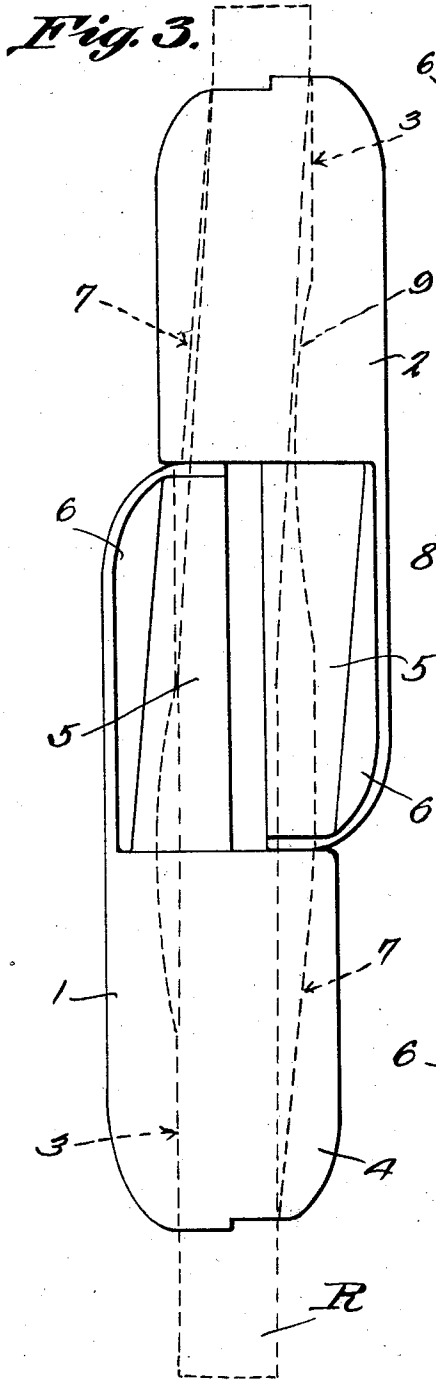



Fig. 5.

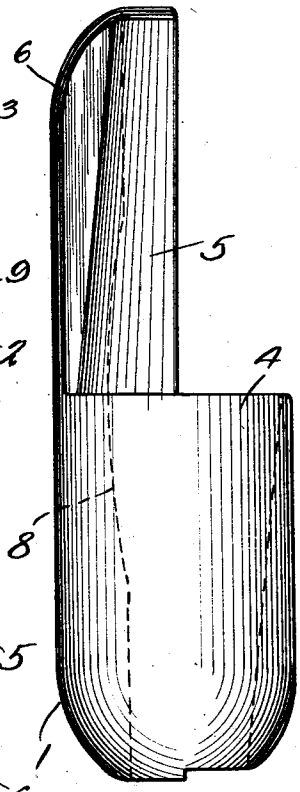



Fig. 6.

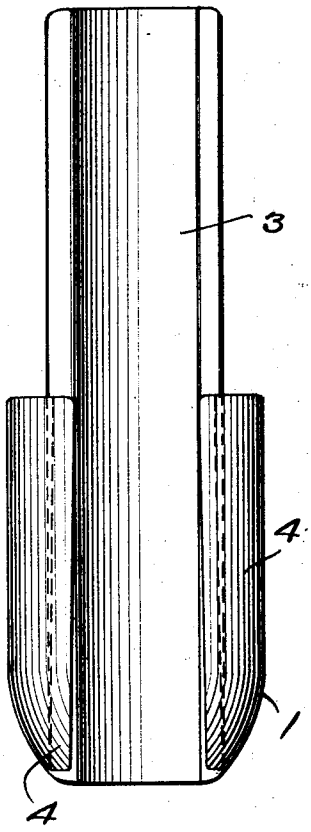
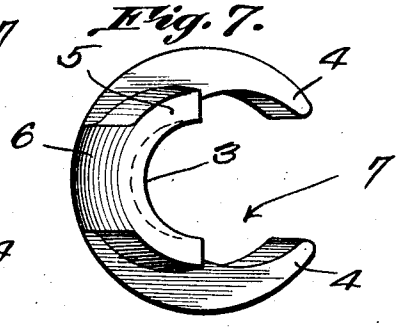



Fig. 7.




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Patented Sept. 2, 1930 1,774,616

# UNITED STATES PATENT OFFICE

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## ROPE GUIDE

Application filed September 27, 1928. Serial No. 308,863.

This invention relates to a rope guide designed primarily for use in connection with the pump line or rope employed in oil wells although it is to be understood that the guide can be used wherever it is desired to hold a rope out of contact with a tubing or other structure in which it is mounted for movement.

As is well known to those skilled in the art a pump used in an oil well consists of a working barrel, a traveling valve, and a standing valve. The working barrel is secured to the end of the tubing which is lowered into the casing. Wells of considerable depth are not straight as a general rule and if a wire rope is used to operate the pump it will bear against the wall of the tubing at different points and soon become worn and unfit for use.

It is an object of the present invention to provide a simple and efficient form of guide which can be applied to the rope at any point desired without the necessity of threading the rope through the guide.

Another object is to provide a guide made up of opposed members which are substantial duplicates adapted, when properly assembled, to tightly grip the rope therebetween, the weight of the rope and the parts supported thereby tending to subject the parts of the guide to radial pressures whereby said parts of the guide are caused to bind tightly together and to thereby prevent separation of the parts of the guide and also cause the said parts to properly grip the rope and remain in the proper positions thereon.

A still further object is to provide a guide made up of the minimum number of parts and which does not require the use of any special fastening means for holding the parts properly assembled.

A further object is to provide a guide which is adjustable to different thicknesses of the rope, thereby taking care of any ordinary inaccuracies and imperfections of manufacture occurring in the rope.

With the foregoing and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings,

Figure 1 is a side elevation showing the guide applied to a rope.

Figure 2 is an end view of the guide, the same being shown in a tube illustrated in section.

Figure 3 is a side elevation showing the parts of the guide in superposed relation prior to being interlocked, the position of a rope between the members being indicated by broken lines.

Figure 4 is a longitudinal section through the guide showing the members partly interlocked or, in other words, in a position midway between that illustrated in Figure 1 and that illustrated in Figure 3.

Figure 5 is a side elevation of one of the members of the guide.

Figure 6 is a face view thereof.

Figure 7 is a plan view of said member.

Referring to the figures by characters of reference, 1 and 2 designate the respective members of the guide. Each of these members is channeled longitudinally at one side as shown at 3 to receive the rope to be gripped. Opposed arcuate wings 4 are extended from one end of each member to a point at or near the center thereof, these wings being spaced apart a sufficient distance to permit the lateral insertion therebetween of the rope to be gripped. The remaining portion of each of the members 1 and 2 has its side portions cut away to provide a tapered wedging element 5 reinforced longitudinally by a rib 6 the width of which is slightly less than the space between the longitudinal edges of the wings 4. It will be noted that the wings 4 converge toward the end of the member adjacent thereto so that they thereby provide a tapered space 7.

As before stated two opposed members 1 and 2 are provided. These members are

substantial duplicates with one exception. The member 1 has the wall of its channel 3 recessed longitudinally inwardly from the ends thereof as indicated at 8 while the wall of the channel 3 in the member 2 is bulged longitudinally at points inwardly from the ends of the channel as shown at 9, this bulged portion being so proportioned and located that, when the two members 1 and 2 are assembled, the said bulged portion will be positioned opposite to the recessed portion 8.

In practice the rope R adapted to work, for example, in the tube T is fitted at desired points with the guide constituting this invention. Each guide is applied by first assembling the two members 1 and 2 with the rope between them and with the members oppositely disposed and out of engagement. These members, positioned as shown in Figure 3, can then be forced toward each other radially so that the small ends of the reduced portions 5 can be inserted longitudinally into the tapered spaces 7 between the wings 4 of the adjacent member. After the members have thus been disposed, they are shifted longitudinally toward each other and the tapered portion 5 of each member will slide between the wings 4 of the opposed member as shown in Figure 4, this action causing the two members to shift radially toward each other to tightly grip the rope. The longitudinal recess 8 and the longitudinal bulge 9 will be brought to position substantially opposite each other so as to produce a bend or kink in the gripped rope when the members 1 and 2 are fully assembled as shown in Figure 1. Obviously, therefore, the weight of the rope and of any structure supported thereby which naturally tends to straighten out the rope will cause the bent or kinked portion of said rope to press radially upon those portions of the members 1 and 2 in engagement therewith, thereby causing the interfitting parts of the members to bind tightly against each other and prevent them from shifting apart.

Each guide can be made of a material having good wearing properties and will furthermore present a smooth and relatively large wearing surface to the tube or other structure in which the guide is mounted to work.

Importance is attached to the fact that after the members of the guide have once been assembled they will not become separated even though special fastening means are not provided. This is due to the radial pressure exerted by the rope where it is held offset by the cooperating portions 8 and 9 of the members.

What is claimed is:

1. A guide of the class described including opposed substantially duplicate rope embracing members, and cooperating means on said members for clamping them upon an embraced rope therebetween when the members are shifted longitudinally relative to each other.

2. A guide of the class described including opposed substantially duplicate rope embracing members, cooperating means on the members for offsetting a portion of the embraced rope when the members are clamped upon the rope, and cooperating means on said members for clamping the members upon the embraced rope therebetween when the members are shifted longitudinally relative to each other.

3. A guide of the class described including opposed substantially duplicate rope embracing members, cooperating means on said members for clamping the members upon an embraced rope therebetween when the members are shifted longitudinally relative to each other, and means on the said members for receiving radial thrust from the embraced rope when subjected to a load, thereby to bind the members together and hold them against relative movement.

4. A guide of the class described including opposed members each having a longitudinal rope receiving channel, opposed wings upon one end portion of each member providing a tapered space therebetween, there being a rope receiving slot between said wings opening into said space, and a tapered portion at the other end of each member, the tapered portion of each member being insertable between the wings of the opposed member thereby to shift the members radially to bind upon an interposed rope within the channels.

5. A guide of the class described including opposed members each having a longitudinal rope receiving channel, opposed wings upon one end portion of each member providing a tapered space therebetween, there being a rope receiving slot between the wings opening into said space, a tapered portion at the other end of each member, the tapered portion of each member being insertable between the wings of the opposed member thereby to shift the members radially to bind upon an interposed rope within the channels, and means carried by the members for offsetting a portion of the engaged rope while the members are being assembled on the rope.

6. A guide of the class described including opposed interfitting substantially duplicate members for receiving a rope therebetween, and means operated by a gripped rope for subjecting the members to radial pressure thereby to bind the members together and hold them against relative displacement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

DELMAR C. SHERMAN.