May 2, 1944. C. S. CRICKMER 2,347,885

WIRE LINE GUIDE

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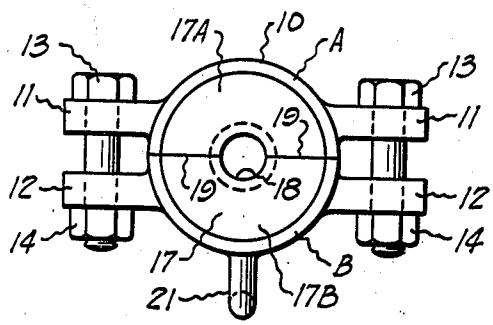


Fig. 1.

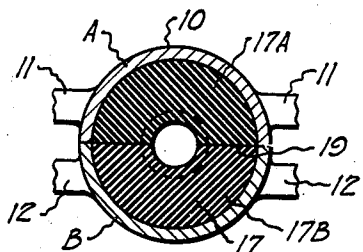


Fig. 3.

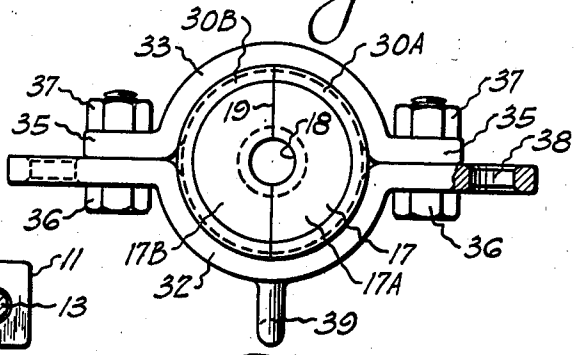


Fig. 4.

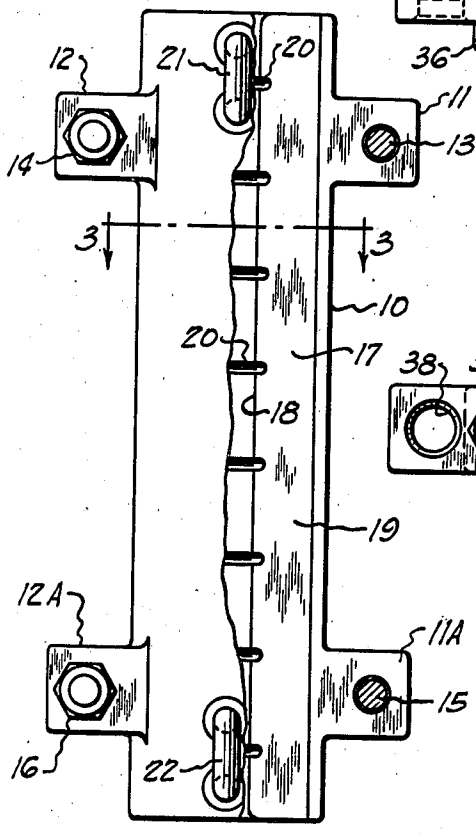


Fig. 2.

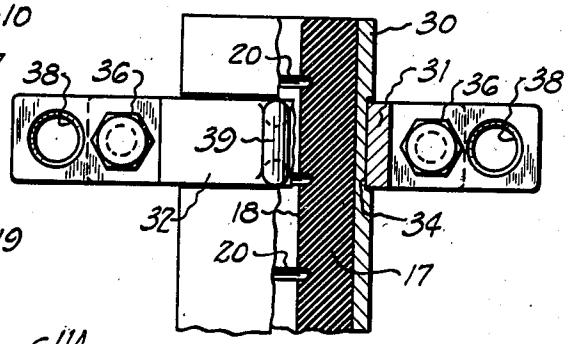


Fig. 5.

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WIRE LINE GUIDE

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2 Claims. (Cl. 254—190)

This invention relates to new and useful improvements in wire line guides.

One object of the invention is to provide an improved guide which may be readily applied to a wire line, cable, or other flexible element such as is in common use in oil well operations and which will efficiently and accurately guide said line in its movement.

An important object of the invention is to provide an improved wire line guide which is constructed of a minimum number of parts and which is so inexpensive in manufacturing that the entire device may be discarded when the resilient guiding element becomes worn, thereby eliminating the expense and increased labor which is required to make the resilient element removable.

Another object of the invention is to provide an improved wire line guide which includes a split casing or shell having the resilient guide element molded, or otherwise permanently secured therein, whereby all removable parts or members are eliminated, which minimizes manufacturing costs.

A further object of the invention is to provide an improved guide having a resilient guide sleeve molded therein and being constructed so that the necessary supporting and retaining cables may be attached thereto, whereby the mounting of the guide within the derrick is facilitated.

The construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, as an example of the invention is shown, and wherein:

Figure 1 is a plan view of a guide, constructed in accordance with the invention,

Figure 2 is a side elevation of the device, with a portion thereof broken away to more clearly illustrate the invention,

Figure 3 is a horizontal, cross-sectional view, taken on the line 3—3 of Figure 2,

Figure 4 is a plan view of a modified form of the invention, and

Figure 5 is a view partly in section and partly in elevation of this modified form.

In the drawing, the numeral 10 designates a cylindrical shell or casing which is of considerable length and which may be constructed from a section of pipe. The shell is split longitudinally thereof so as to provide two semi-circular sections A and B which are adapted to fit together to provide the cylindrical casing.

The section A is provided with outwardly extending ears or lugs 11 at its upper end and the section B is formed with complementary ears or lugs 12, the latter lugs being disposed in substantially the same plane as the lugs 11 of the section A. The lugs are suitably secured, as by welding, to the exterior surface of the shell and when the sections are placed together, the lugs 11 are spaced from the lugs 12 as is clearly shown in Figure 1. A bolt 13 passes through each lug 11 and through the complementary lug 12 and receives a nut 14 on its outer end. Manifestly, the bolt 13 securely fastens the sections A and B to each other at their upper ends. The lower ends of the sections A and B of the shell 10 are secured together by bolts 15 and nuts 16. The bolts pass through ears or lugs 11A which are secured to the lower portion of the section A and also through lugs 12A which are secured to the lower end of the section B. It will be obvious that the bolts 13 and 15 securely fasten the sections A and B to each other to form the cylindrical shell 10.

An elongate, cylindrical bearing or guide sleeve 17 is disposed within the bore of the shell 10, being molded or otherwise permanently secured to the wall of the shell. The sleeve 17 is constructed of rubber, rubber compound or other resilient material and is provided with a central axial bore 18 which extends entirely therethrough. As is clearly shown in Figure 2, the bearing sleeve 17 extends throughout the length of the shell 10. The sleeve 17 is constructed of two sections 17A and 17B, each section being substantially semi-circular in cross section. When the sections A and B of the shell 10 are placed together, the longitudinal faces 19 of the sections 17A and 17B of the sleeve 17 abut or engage each other to provide a continuous annular sleeve.

The bore 18 of the guide or bearing sleeve 17 is of a diameter to snugly receive the flexible line or cable (not shown). A plurality of annular grooves 20 are formed within the bore of the sleeve 17 and are spaced throughout the length of the sleeve as is clearly shown in Figure 2. These grooves are adapted to receive a suitable lubricant and as the line or cable moves through the bore, said lubricant serves to lubricate said line or cable.

A loop or eye 21 may be welded or otherwise secured to the upper portion of the shell on the exterior thereof and a suitable supporting cable may be fastened to this eye to support the entire assembly. A similar loop or eye 22 extends outwardly from the lower portion of the shell 10 and is adapted to receive an anchor cable or line for

tying the device down to the derrick floor or other support.

In using the device, the two sections A and B are separated. Since the bearing sleeve 17 is split or made in two sections and since each section is molded or otherwise secured to one of the sections of the shell, it is evident that separation of the sections of said shell will result in a separation of the semi-circular sections of the flexible bearing sleeve. The device may be engaged around the wire line or cable (not shown) and the bolts 13 and 15 passed through the lugs 11, 11A and 12, 12A. When the nuts 14 and 16 are tightened on the bolts, the sections A and B of the shell are drawn together as are the sections 17A and 17B of the sleeve. In this manner, the sleeve may be readily engaged around the wire line or cable.

A suitable supporting line is connected to the eye 21 so as to suspend the device within the derrick and a suitable anchor line is connected to the eye 22 to prevent an undue swinging of the lower portion of the shell. The bolts 13 and 15 may be utilized to receive the ends of lateral cables which may pass over pulleys provided within the derrick. Ordinarily these side cables, which are not shown, pass over a pulley and receive a suitable weight, whereby a certain amount of transverse movement of the shell may occur as the wire line or cable moves through the bore 18 of the bearing sleeve 17. By arranging the ears 11, 11A, 12, and 12A in the manner shown and described, the bolts may be utilized to receive the lateral cables and the necessity of providing additional eyes for this purpose is eliminated.

The construction of the device is very simple and the unit comprises a minimum number of parts. This makes it possible to manufacture the device so inexpensively that the entire assembly may be discarded when the flexible bearing sleeve 17 becomes worn. By molding or otherwise permanently fastening the sleeve 17 within the bore, it is not necessary that various removable parts for supporting this sleeve be provided. Thus the cost of manufacture is minimized.

In Figures 4 and 5, a modified form of the invention is shown. In this form, a shell or casing 30 is formed of an elongate section of pipe which is split longitudinally so as to provide two halves or sections 30A and 30B. The split bearing sleeve 17 is molded or otherwise bonded within the shell 30 in the same manner as hereinbefore described.

For clamping the two halves or sections of the shell 30 together, a pair of clamps 31 are provided. Only one of said clamps is shown in Figure 5, this clamp being located at the upper end of the shell but it is pointed out that a similar clamp is disposed adjacent to the lower end of said shell. The clamp 31 is in the form of a split collar and includes two semi-circular sections 32 and 33, which sections are adapted to engage in an annular groove 34 which is formed in the outer surface of the shell 30. The sections of the clamp are provided with complementary flanges or lugs 35 which are adapted to be secured together by bolts 36 and nuts 37. The lugs of one section of the clamp are extended outwardly and an opening 38 is formed in this extended portion, as is clearly shown in Figures 4 and 5. The extensions provide means whereby lateral cables may be secured to the clamps, and thus to the shell. The clamp is also provided with an outwardly extending loop or eye 39, similar to the eyes or loops 21 and 22 of the first form.

Manifestly, the form shown in Figures 4 and 5 provides a cheaper construction than the first form. When the flexible bearing sleeve 17 becomes worn, the sleeve and shell 30 may be discarded and replaced with new parts and it is not necessary to replace the clamps.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A wire line guide including, an elongate shell formed of two substantially semi-circular sections, and a single resilient semi-circular bearing element permanently bonded to the inner surface of each section, each element extending throughout the entire length of the section and having its ends terminating in the same plane as the ends of the section, said bearing elements co-acting with each other when the sections of the shell are placed together to form an annular elongate guide sleeve through which the wire line extends, outwardly extending lugs on one section of the shell, complementary lugs on the other section of said shell and spaced from the first mentioned lugs when the sections are placed together, and fastening bolts extending between and engaging the lugs for securing the sections together, said bolts providing supports for the attachment of alining cables to the device.

2. A wire line guide including, an elongate shell formed of two substantially semi-circular sections, and a resilient semi-circular bearing element permanently bonded to the inner surface of each section, each element extending throughout the entire length of the section, said bearing elements co-acting with each other when the sections of the shell are placed together to form an annular elongate guide sleeve through which the wire line extends, the shell having annular grooves formed in its external surface at the upper and lower ends thereof, and a split clamp engageable within each groove and encircling the shell for fastening the sections of the shell together, each clamp having openings therein for attachment of aligning cables to the device.

CHARLES S. CRICKMER.