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L. KLUCK

2,622,684

RIB TYPE CASING CENTRALIZER

Filed Jan. 26, 1950

Fig. 1.

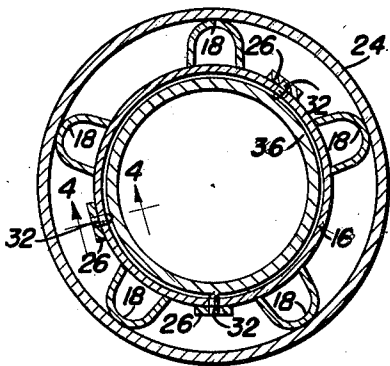
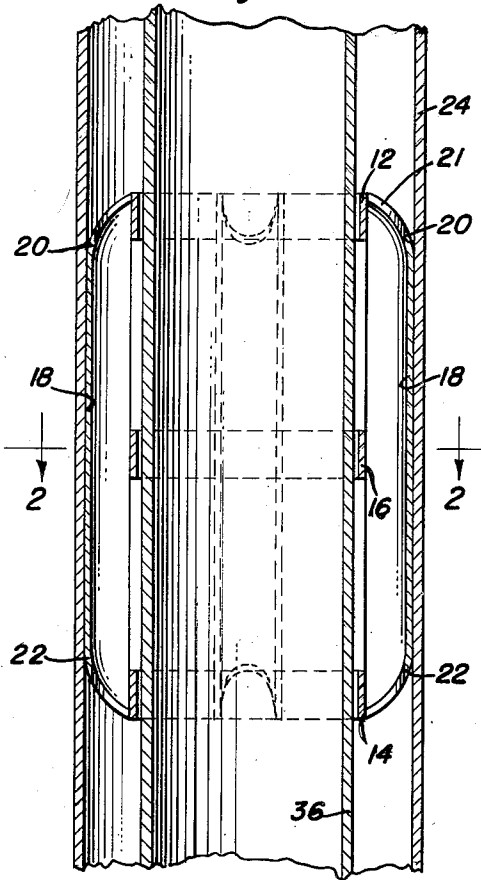


Fig. 2.

Fig. 3.

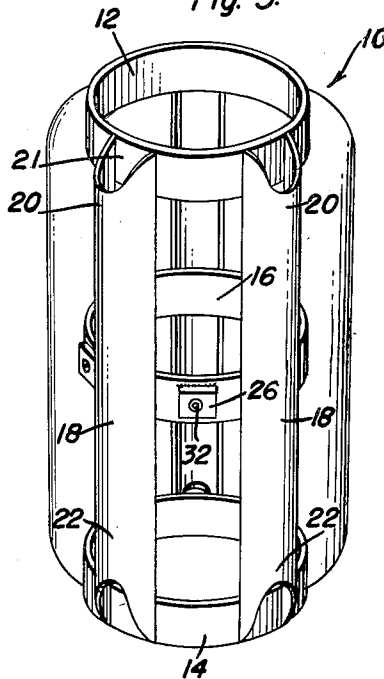
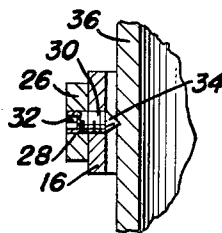


Fig. 4.



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RIB TYPE CASING CENTRALIZER

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5 Claims. (Cl. 166-4)

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This invention relates to new and useful improvements in centering devices and the primary object of the present invention is to provide a device for use in centering a casing within an outer casing or hole during cementing of the first mentioned casing.

Another important object of the present invention is to provide a centering device for casings, during the cementing of casings with a hole or another casing and which will eliminate the trial-and-error or hit-or-miss guess work in the centering of a casing in the cementing process.

A further object of the present invention is to provide a centering device of the aforementioned character that eliminates the costly expense of having to be welded to a casing by using set screws to hold the device firmly in position on a casing.

A still further aim of the present invention is to provide a centralizer that is extremely small and compact in structure, strong and reliable in use, efficient and durable in use, inexpensive to manufacture, convenient to install, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Fig. 1 is a longitudinal vertical sectional view showing an inner casing centered within an outer casing through use of the present invention;

Figure 2 is a horizontal sectional view taken substantially on the plane of section line 2-2 of Figure 1;

Figure 3 is a perspective view of the present invention per se; and,

Figure 4 is an enlarged detail sectional view taken substantially on the plane of section line 4-4 of Figure 2.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the centering device generally, including an upper ring 12, a lower ring 14 and an intermediate ring 16.

A plurality of elongated, circumferentially spaced, ribs 18 are suitably and permanently secured to the outer circumferences of the rings 12, 14 and 16. The ribs 18 are substantially concavo-convex in transverse section, include rounded or convex end portions 20 and 22, and the ribs 18 are also hollow and are open at their

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ends as indicated at 21 to permit cement or the like to pass therethrough.

The rounded end portions of the ribs will permit the device to be moved through an outer casing 24 or hole without jamming against an obstruction.

A plurality of circumferentially spaced reinforcing and strengthening nuts 26 are welded or otherwise fixed to the outer circumference of the intermediate ring 16 and include threaded openings 28 that register with apertures 30 in the intermediate ring 16.

Set screws 32 are threaded in the registering openings 28 and the apertures 30 and are formed with conical inner end portions 34 for bearing against the outer surface of an inner casing 36 in order to retain the device against sliding on the inner casing 36 during insertion of the inner casing into the outer casing 24.

In practical use of the present invention, the device 10 is slipped onto the inner casing 36 and the set screws 32 are tightened against the casing 36. Then, the casing 36 and the device 10 are inserted into the outer casing 24 and lowered to a predetermined depth. Next, cement is poured into the outer casing and between the inner and outer casings. The cement will pass through to ribs 18 to permanently anchor the inner casing centrally within the outer casing.

Obviously, any suitable number of the devices 10 may be employed depending on the length of the inner casing. Further, the rings 12, 14 and 16, as well as the thickness of the ribs 18 depend upon the diameter of the inner casing, also the internal diameter of the inner casing and may, therefore, be varied in proportion to the casings they are used with.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A device for centering an inner casing within an outer casing, said device comprising a plurality of spaced parallel rings for embracing a casing, a plurality of circumferentially spaced

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elongated hollow ribs extending across and secured to the outer peripheries of said rings and retaining the rings spaced from each other, and fastening means carried by one of said rings for retaining the rings and the ribs upon a casing, said ribs being open at their ends to permit cement to enter the ribs to permanently secure the ribs to an outer casing in which the device is inserted.

2. The combination of claim 1 wherein said ribs include convex end portions to prevent the ribs from hanging or jamming on an obstruction.

3. The combination of claim 1 wherein said means includes a plurality of set screws having conical inner end portions.

4. A centering device comprising a plurality of rings including an upper ring, a lower ring and an intermediate ring, a plurality of elongated circumferentially spaced channel shaped ribs having their flanges secured to the outer periphery of each of said rings and retaining the rings spaced from each other, said ribs being hollow and open at both of their ends to permit the passage of cement therethrough, a plurality of circumferentially spaced reinforcing nuts fixed to the outer circumference of the intermediate ring, said nuts having threaded openings therein and said intermediate ring having apertures in registry with said openings, and set screws

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threaded in said openings and said apertures and having conical inner ends for bearing against a casing embraced by said rings.

5. A device for centering an inner casing within an outer casing, said device comprising an upper ring, a lower ring and an intermediate ring, said rings being of similar diameter, a plurality of circumferentially spaced longitudinally extending open ended channel shaped ribs having their longitudinal edges permanently fixed to the outer peripheries of the rings, said ribs having smoothly rounded substantially convex end portions, and circumferentially spaced fasteners carried by the intermediate ring and alternating with the ribs to provide a fastener between adjacent ribs, said fasteners being manually adjustable to extend radially inwardly from the inner periphery of said intermediate ring.

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