April 29, 1952 F. M. GIST 2,594,551

CENTRALIZER AND METHOD OF ATTACHING

Filed March 15, 1950

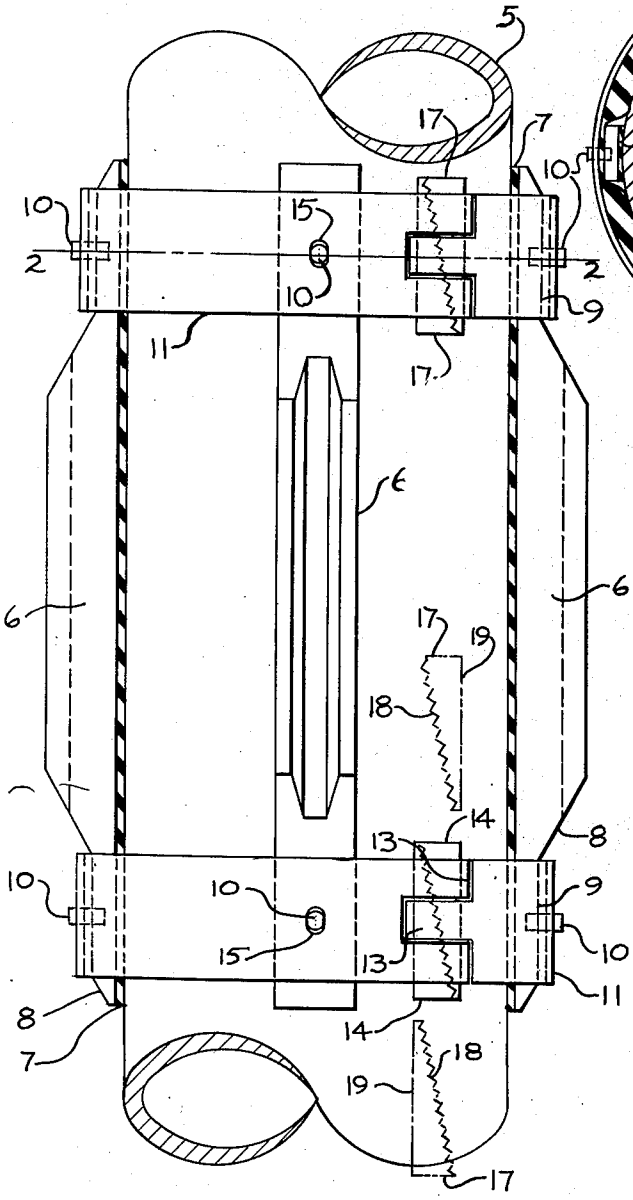


FIG. I

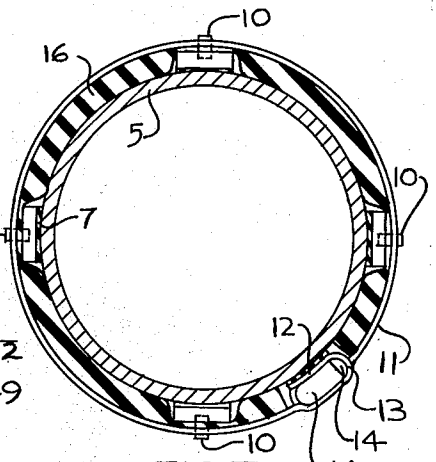


FIG. II

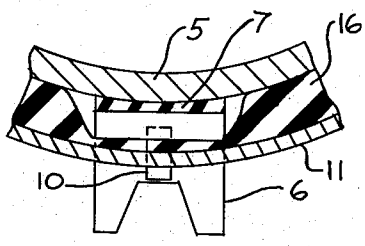


FIG III

INVENTOR.
FRED M. GIST
BY Geo Waldrop
atty

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CENTRALIZER AND METHOD OF ATTACHING

Fred Morgan Gist, Monahans, Tex.

Application March 15, 1950, Serial No. 149,686

2 Claims. (Cl. 166—4)

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This invention relates to centralizers for pipe used in the bores of oil and other wells and includes novel features for securing such centralizers to the well pipes and insulating them from damaging electrical forces encountered underground.

The invention will be understood from the following description together with the accompanying drawings in which:

Fig. I is an elevation of a section of a well pipe with my centralizer assembled thereon.

Fig. II is a section along line 2—2 of Fig. I.

Fig. III is an enlarged section in perspective of well pipe, centralizer, and retaining band.

Proceeding now with the description, like references depict similar parts in the several views wherein 5 is a well pipe having rigid centralizers 6 whose bases 7 are composed of a distortable insulating material, spaced about its periphery. The ends of the centralizers have reduced end sections 8 and sections 9 which are substantially parallel with their bases 7. Projecting outwardly from the bases 7 of the centralizers beyond sections 8 and 9 are pins 10 engaging bands 11 comprised of spring steel or other such strong material and having inwardly turned ends 12 to form eyes 13 which may be brought into registry to receive the tapered lock pins 14—14. Bands 11 have preferably elongated slots 15 for movably receiving pins 10 when the band 11 is assembled about the centralizers and the well pipe. Band 11 is faced with distortable insulating material 16 which is preferably, although not necessarily of thicker section between the slots 15 as is clearly shown in Figs. II and III. Tapered lock pins 14—14, shown also in exploded position 17—17, Fig. I, have serrated mating faces 18 and substantially parallel bases 19. The distortable insulating material 7 and 16 may be a rubber compound of resilient material having high dielectric strength which may be bonded to the centralizers 6 and the bands 11 by vulcanization.

The operation is as follows:

Centralizers 6 having been suitably formed and the distortable resilient dielectric material having been bonded thereto and forming their bases and pins 10 having been erected thereon; and bands 11 having been suitably formed and faced with distortable, resilient dielectric material, the assembling operation proceeds. A centralizer is brought into place on the pipe, slot 15 in the band is passed over pin 10 and so on until the desired number of centralizers are thus engaged about the pipe whereupon the eyed ends

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13 of the bands are brought into registry and tapered lock pins 17 are snugly engaged therein. Another band is similarly assembled around the opposite ends of the centralizers and over pins 10 thereon, and the lock pins assembled as before. The lock pins are now driven toward each other in the respective eyes and as their tapered mating faces progressively engage the bands are brought more tautly about the centralizers distorting the resilient material both on the bases 7 of the centralizers and the faces 16 of the bands. The serrated faces of the lock pins 17 engage each other to resist movement in the opposite direction. The distorted resilient material continuously seeks to return to its original undistorted positions and thus maintains the assembly in a secure position about the pipe which may now be introduced into the well bore and manipulated as desired in any cementing or similar operation.

Elongated openings 15 permit of ready conformity of the parts to position in the assembly, and if desired the pins 10 may be distorted after assembly as by a suitable hammer blow to prevent undesired or accidental disassembly while bringing the parts together.

I have shown my centralizers as being formed of rigid material altho they may be of spring steel sections curved away from the pipe at their mid-section, such as are shown in my co-pending application Serial No. 149,687, filed March 15, 1950.

The shape of my locking pins 17 permits of the engagement of their bases 19 with the full area of the eyes 13 of the bands, altho a cam or other action might also be employed to bring the bands tautly about the assembly. It will be noted that by turning the ends of the bands inwardly in forming eyes 13 they are secured against displacement between the body of the band and the pipe.

What I claim is:

1. A pipe centralizer comprising a plurality of rigid members annularly spaced and longitudinally disposed on the pipe, said members having bases of resilient dielectric material and having reduced end portions with extending pins, a pair of retaining bands faced with resilient dielectric material and having openings for receiving the pins, and means whereby the bands are secured about the reduced ends and the pipe and tensioned by distorting the resilient material.

2. A pipe centralizer comprising a plurality of rigid members annularly spaced and longitudi-

nally disposed on the pipe, said members having bases of resilient dielectric material and having reduced end portions with extending pins, a pair of retaining bands faced with resilient dielectric material and having openings for receiving the pins and having intermeshing eyes on the band ends, and a pair of triangular shaped lock pins adapted to wedge in the eyes of each band whereby the bands are secured about the reduced ends and the pipe and tensioned by distorting the resilient material.

FRED MORGAN GIST.

REFERENCES CITED

The following references are of record in the file of this patent:

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2,318,878	Miller	May 11, 1943