Oct. 9, 1945. M. H. KANARY 2,386,473

RECOUPING BUCKLE

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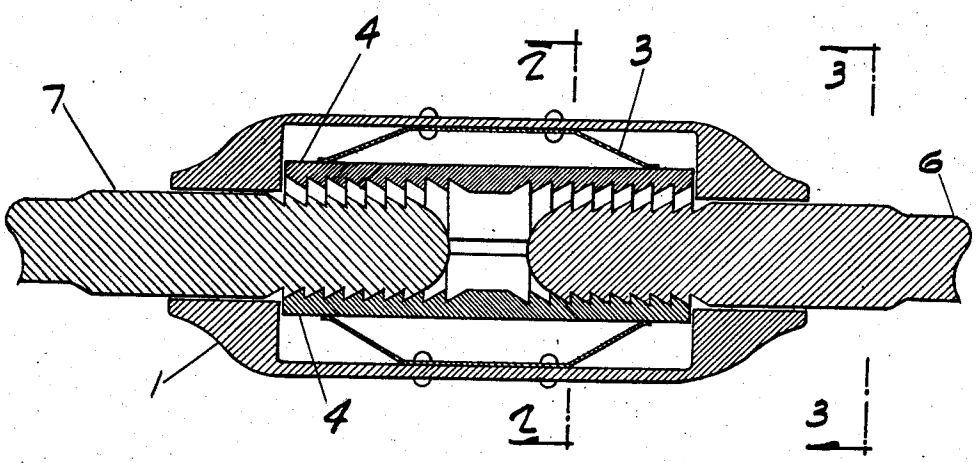


FIG. 1

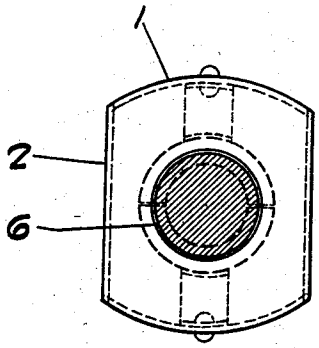


FIG. 3.

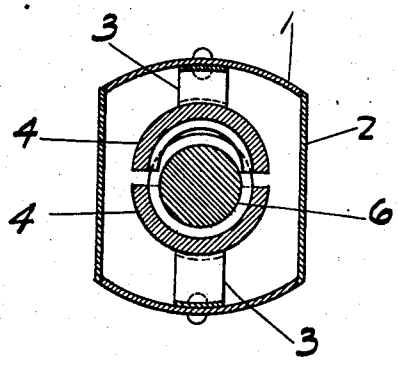


FIG. 2.

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RECOUPING BUCKLE

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3 Claims. (Cl. 72—114)

The invention relates to concrete reinforcing bars and contemplates more specifically apparatus for preventing cracks in concrete tanks and reservoirs. In use today for the purpose of the present invention is the conventional system and the prestressed system of placing rods with turn buckles or wire bands around the walls of tanks and reservoirs, while the concrete is curing and tightening.

While prestressed tank construction results in the least quantity of cracks, it also has had costly repairs. While we have been cognizant of the fact that if it was possible for us to place the re-enforcing bars in such a manner that the ratio of ten to one between steel and concrete while curing would synchronize, it would eliminate all doubt about cracks in the concrete.

One form of the invention is illustrated in the accompanying drawing. Figure 1 is a horizontal open section of the buckle. Figure 2 is a vertical open section of the buckle. Figure 3 is the vertical closed end of the buckle.

The buckle No. 1 is a steel forging, designed to resist the tensile stress required of rods 6 and 7. The inside ends are machined to allow No. 4 pawl to slide in and out of the groove of the 6 and 7 bars. On the inside top and bottom of the buckle is secured a No. 3 flat compression spring cut to the curvature of No. 4 pawl, which allows the 6 and 7 bars to recoil to the center of buckle. While the concrete is curing it is also shrinking, causing compression in 6 and 7 rods in the same ratio as the shrinking concrete and reversing the stresses which tend to molecule separation of the concrete.

The No. 4 pawl has teeth cut right and left formed to the diameter of the rods 6 and 7 and split through the center, which allows the pawl to open and shut on the recoiling rods 6 and 7. The bars have teeth cut the same as the No. 4 pawl.

While the concrete is curing it is also shortening the circumference of the tank or reservoir and furnishes the energy which opens and closes the pawls to take up the slack in the rods, preventing molecular separation of the concrete.

Figure 2 shows the vertical upper section of the buckle with the No. 4 pawl raised by the energy of the shrinking concrete acting on rods 6 and 7.

The lower section, showing the rods 6 and 7 in a continuous creeping action in and out of the grooves while the concrete is curing, prevents cracks.

Figure 3 is the end view of the closed buckle. No. 2 is the housing cover required for the assemblage of bars 6 and 7 and to prevent particles of concrete from entering the buckle.

The pitch of the grooves in both pawls and rods shall be as small as possible so that at the end of the shrinking period the slack will be removed from the rods. To accomplish this, the walls of the tanks and reservoirs must be free and full floating, and the base of the walls must rest on poured asphaltum, and the rods to have a coat of oil to prevent attachment of concrete while in the curing stage.

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

1. A recouping buckle comprising a body member, a reinforcing bar, the ends of which are serrated and slidable in said body member through holes provided at each end thereof, a split tube serrated at both ends of the inner wall to engage the serrations on the ends of the reinforcing bar, and flat compression springs fixedly mounted in opposed position in the body member.

2. A recouping buckle comprising a body member open at both ends and having opposite sides open, a space for receiving a split tube with inner wall serrated ends, and flat compression springs fixedly mounted in opposed position in the body member, said springs having ends curved to conform to and engage the outer surface of the split tube.

3. A recouping buckle comprising an open ended body member having opposite sides open, cover plates for said side openings attachable to said body member, a reinforcing bar the ends of which are serrated and loosely slidable in said body member through the open ends thereof, a split tube serrated at both ends to engage with and expandible over the serrated ends of the reinforcing bar, flat compression springs fixedly mounted in opposed position in the body member, the ends of which are curved to conform to and engage the outer surface of the split tube, all coacting to compensate for the ratio of shrinkage between various materials and steel while curing or setting is taking place in new construction work.

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