June 14, 1932. G. E. WILLERS 1,862,838

DEEP WELL STRAINER

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Fig. 1.

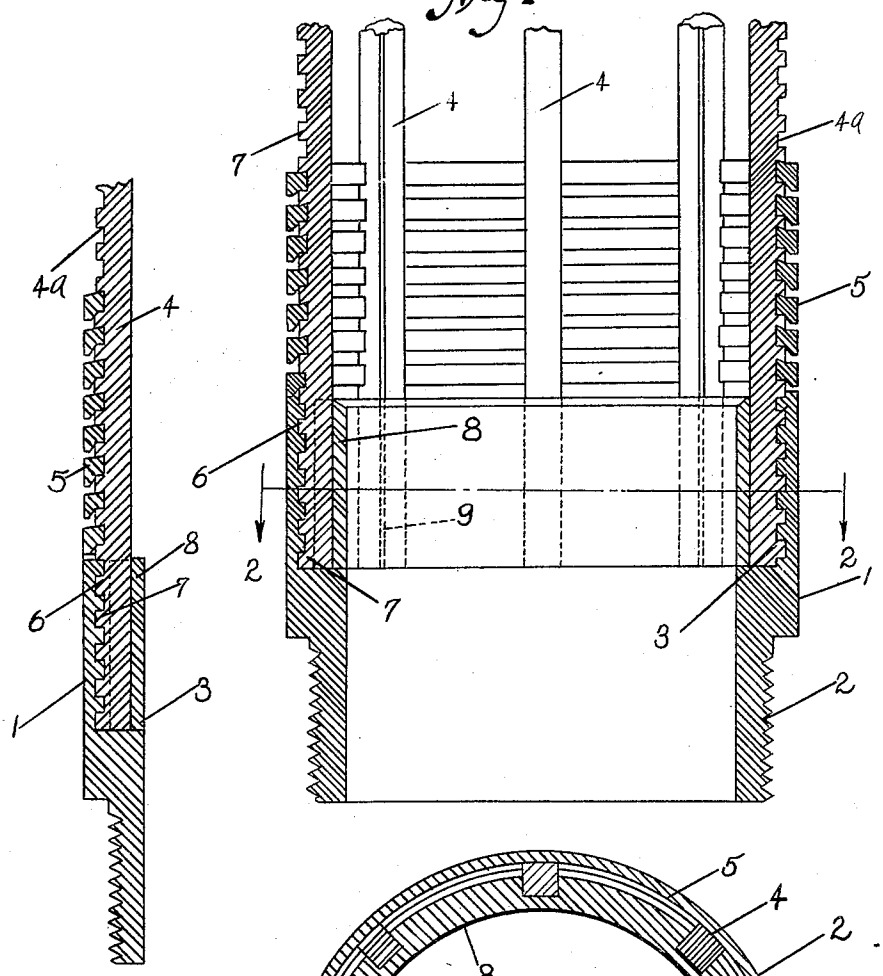

Fig. 3.

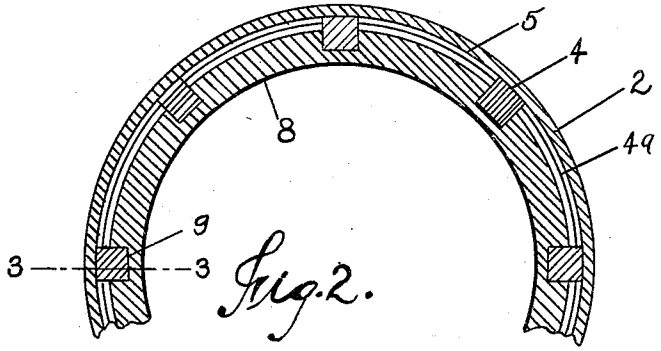

Fig. 2.

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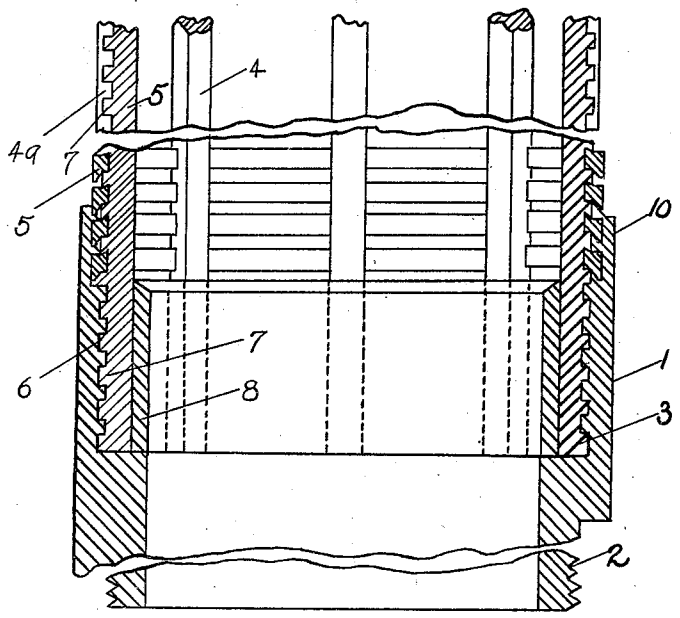

Fig. 4.

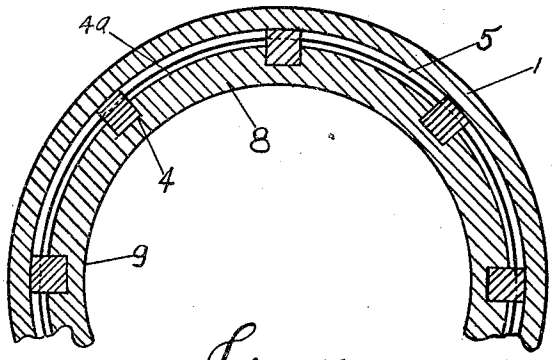

Fig. 5.

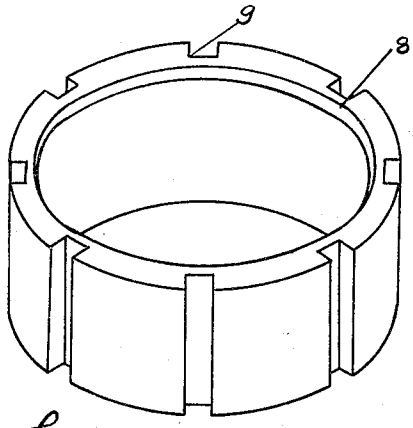

Fig. 6.

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UNITED STATES PATENT OFFICE

GEORGE E. WILLERS, OF LAWRENCEBURG, INDIANA, ASSIGNOR TO A. D. COOK, INC., OF LAWRENCEBURG, INDIANA, A CORPORATION OF INDIANA

DEEP WELL STRAINER

Application filed January 8, 1931. Serial No. 507,351.

My invention relates to deep well strainers and particularly to strainers having coupling members connected therewith for the attachment of other suitable connections and as end supports for the strainers.

In my Patent No. 1,763,996, issued June 17, 1930, I have described a process for making a strainer wherein a mandrel is used for supporting a series of supporting rods which are first spirally grooved and then filled with strainer wire forming a compact, strong assembly.

I may prefer to utilize the process disclosed in this heretofore noted patent for making the construction described herein, but my invention in this case relates to a particularly strong and durable strainer assembly regardless of the particular method of manufacture.

Broadly, it is the object of my invention to provide a strainer having spaced longitudinal supports on which the screening wire is wound and calked or welded, in which the ends of the strainer are securely reinforced against twisting strain.

The above and other objects to which reference will be made in the ensuing disclosure, I accomplish by that certain combination and arrangement of parts of which I have shown several preferred embodiments.

Referring to the drawings:

Figure 1 is a vertical section through a strainer assembly in which the outer surface of the coupling member lies flush with the outer surface of the strainer wire.

Figure 2 is a horizontal section through the assembly shown in Figure 1 taken from the position indicated by the lines 2—2 in Figure 1.

Figure 3 is a detail vertical sectional view of one of the supporting rods taken from the position indicated by the lines 3—3 in Figure 2.

Figure 4 is a vertical sectional view of an assembly in which the outer surface of the outer coupling extends beyond the outer surface of the screen wire, and overlaps and protects the several end turns of the strainer wire.

Figure 5 is a horizontal sectional view of the assembly shown in Figure 4.

Figure 6 is a perspective view of one type of internal sleeve support.

Referring first to Figures 1 to 3, the coupling member 1 is provided with threads 2 for attachment to any desired pipe connection or cap. The coupling member is internally recessed, terminating in an annular shoulder 3. The shoulder forms a seat for the ends of a series of supporting rods 4 which are grooved spirally as indicated at 4*a* and then filled in with the strainer wire 5 which is calked or welded within the grooves. The internal periphery of the coupling 1 is internally threaded as indicated at 6 to fit the ribs 7 between the grooves 4*a* of the rods 4, which thus act as threads to engage the internal threads of the coupling. Within the coupling there is provided a sleeve 8 having spaced longitudinal grooves 9 within which the supporting rods seat, thereby providing a support which resists twisting strain on the strainer supporting rods during the interval when they are threadably secured within the coupling.

In the modification shown in Figures 4 and 5, the structure of the rods, strainer wire and internal sleeve is the same, but it will be noted that the coupling piece in this modification has an upwardly extending recessed flange 10 which encloses several of the lower spiral turns of strainer wire. This modification thus avoids the likelihood of leakage developing along the top rim of the coupling.

While I have illustrated and described only two modifications of strainer constructions, other modifications may occur, and I do not wish to be understood as being limited to the specific examples shown.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a well strainer, the combination of supporting rods having spirally formed grooves therein, a strainer wire wrapped within a portion of the spiral grooves, and an end support for said rods having internal threads to screw into another portion of the spiral grooves.

2. In a well strainer, the combination of supporting rods having spirally formed

grooves therein, a strainer wire wrapped within a portion of the spiral grooves, an end support for said rods having internal threads to screw into another portion of the spiral grooves, and an internal support having longitudinal grooves to receive the ends of said rods.

3. A well strainer having supporting rods arranged in a cylindrical formation with spirally arranged grooves and ribs therein having strainer wire seated within said spiral grooves and terminating short of the ends of the grooves, and an end support provided with internal threads to engage in the end parts of the grooves.

4. A well strainer having supporting rods arranged in a cylindrical formation with spirally arranged grooves and ribs therein having strainer wire seated within said spiral grooves and terminating short of the ends of the grooves, an end support provided with internal threads to engage in the end parts of the grooves, and reinforcing means within said strainer to support the ends of the supporting rods.

5. A well strainer having supporting rods arranged in a cylindrical formation with spirally arranged grooves and ribs therein having strainer wire seated within said spiral grooves and terminating short of the ends of the grooves, and an end support provided with internal threads to engage in the end parts of the grooves, said end support having a flanged member extending as a protective cover over the end of the strainer wire.

6. A well strainer having longitudinal reinforcing rods on which strainer wire is spirally wrapped, the end parts of said rods having spiral grooves therein, and an end support for the strainer having internal threads to engage in the spiral grooves of the end portions of the rods.

7. A well strainer having longitudinal reinforcing rods on which strainer wire is spirally wrapped, the end parts of said rods having spiral grooves therein, an end support for the strainer having internal threads to engage in the spiral grooves of the end portions of the rods, and a sleeve within the strainer assembly spacing and preventing twisting strains on said rods.

8. A well strainer having longitudinal reinforcing rods on which strainer wire is spirally wrapped, the end parts of said rods having spiral grooves therein, an end support for the strainer having internal threads to engage in the spiral grooves of the end portions of the rods, and a sleeve within the strainer assembly spacing and preventing twisting strains on said rods, said end support having an internal annular flange against which said sleeve abuts.

9. A well strainer having longitudinal reinforcing rods on which strainer wire is spirally wrapped, the end parts of said rods having spiral grooves therein, an end support for the strainer having internal threads to engage in the spiral grooves of the end portions of the rods, and a sleeve within the strainer assembly spacing and preventing twisting strains on said rods, said end support having an internal annular flange against which said sleeve abuts, said support comprising a coupling member provided with threads for attachment to other desired fittings.

GEORGE E. WILLERS.