March 6, 1934. G. E. WILLERS 1,950,202

TERMINAL COUPLING FOR WELL STRAINERS

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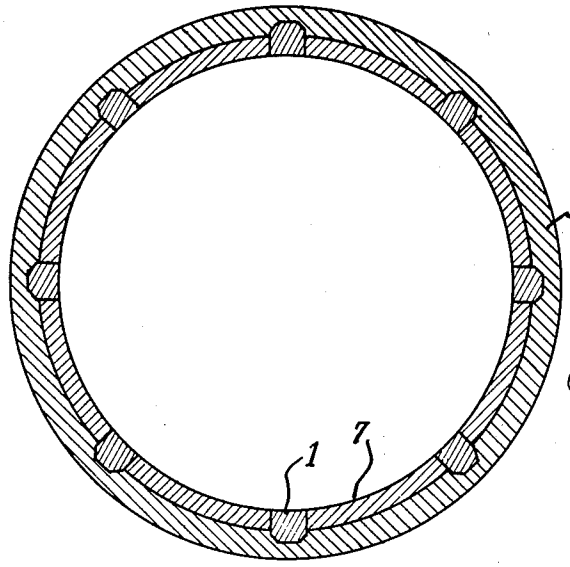


Fig. 2.

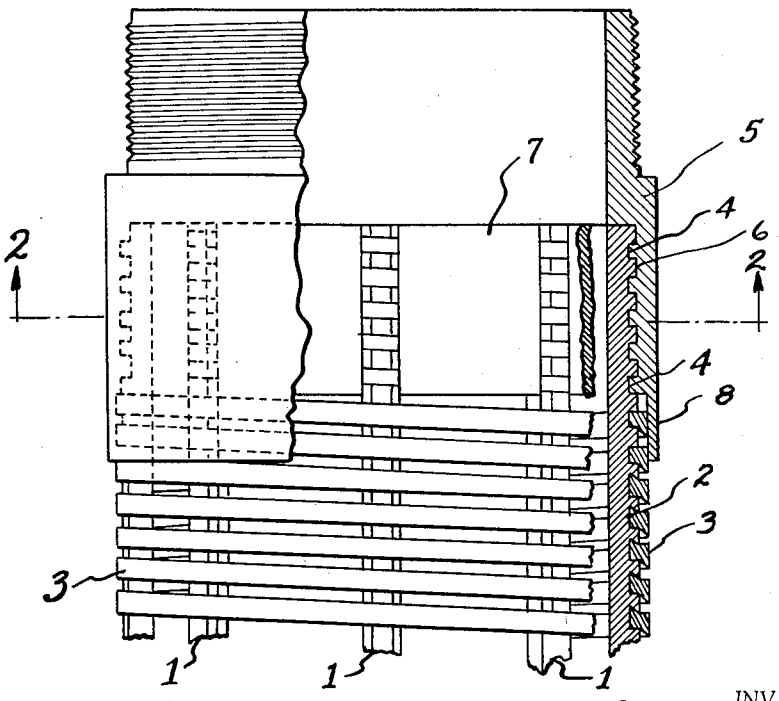


Fig. 1.

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TERMINAL COUPLING FOR WELL STRAINERS

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12 Claims. (Cl. 166—8)

My invention relates to terminal couplings for deep well strainers, in which coupling members are provided with means for attachment to other suitable connections and as end supports for well strainers. In my Patent No. 1,862,838, of June 14th, 1932, I have described a well strainer and coupling with a ring inside the strainer for use with a strainer coupling, which is required to be flush with the outside of the strainer.

It often becomes desirable for the driller of a well to develop the well by means of working a close fitting plunger inside of the strainer. This makes the use of a strainer having internal flanges or rings undesirable.

It is, therefore, the object of my invention to provide a strainer coupling in which the inside diameter of the strainer and coupling will be uniorm throughout its entire length.

Another object of my invention is to provide a strainer of uniform inside diameter in which the ends of the helical strainer wires are protected on the outside.

Another object is the provision of a coupling in which reinforcement is provided for the bar supporting the strainer windings by means of segmental plates wedged between the supporting bars, thereby providing a strong and durable strainer assembly.

Referring to the drawing, in which I have illustrated a preferred type of construction embodying the principle of my invention:

Figure 1 is a side elevation with parts in section.

Figure 2 is a cross section along the lines 2—2 of Figure 1.

I have indicated a plurality of supporting bars 1 which have square cut threads 2 which extend around the bars in a spiral direction. Windings 3 are placed in the notched threads, and the windings may be secured within the threads by calking, welding or soldering.

The ends of the bars 1 project beyond the end of the winding wire, but the square notched thread is continued throughout the length of the bars, as indicated at 4. A terminal coupling 5 is internally threaded as indicated at 6, with threads which match the spiral thread in the supporting bars 1, so that the coupling may be threaded in the position as indicated in Figure 1.

Pieces 7 of segmental shape are fitted between the side edges of the bars 1, so that they provide a brace extending between the bars. The pieces 7 are so fitted between the bars that they will not project beyond the inner faces of the bars nor beyond the bottom of the notched thread 4 on the outer faces of the bars 1.

When the terminal coupling 5 is secured in position it has a recessed flanged portion 8 which extends down over the first one or two windings of the screen wire 3.

After assembling the reinforcing segments 7 between the ends of the bars 1, and after assembling these parts within the terminal coupling 5, the whole assembly is sweated in thus firmly attaching the terminal couplings to the ends of the strainer.

It will be observed that with this construction there will be no shoulders on the inside of the strainer, and the inside diameter will be uniform throughout its entire length, so that a close-fitting plunger may be worked inside of the strainer.

It will further be noted that the end of the winding wire is protected on the outside by means of the internally recessed flange 8.

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

1. In combination, a well strainer having circumferentially spaced bars with helically wound wire secured externally of said bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface.

2. In combination, a well strainer having circumferentially spaced bars with helically wound wire secured externally of said bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, and said coupling, bars and pieces joined into an integral self-sustaining assembly.

3. In combination, a well strainer having circumferentially spaced bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, said bars being provided exter-

nally with threads, and helically wound wire seated within said threads.

4. In combination, a well strainer having circumferentially spaced bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, said bars being provided externally with threads, and helically wound wire seated within said threads, portions of said bars extending beyond the end of the helically wound wire having continuations of the threads in said portions, and said coupling having threads engaging said threads of said bar portions.

5. In combination, a well strainer having circumferentially spaced bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, said bars being provided externally with threads, and helically wound wire seated within said threads, said coupling having an annular recessed portion housing the end turns of the wire.

6. In combination, a well strainer having circumferentially spaced bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, said bars being provided externally with threads, and helically wound wire seated within said threads, said coupling having an annular recessed portion housing the end turns of the wire, the outer surfaces of said reinforcing pieces lying in the same cylindrical surface as the inner surfaces of the threads in the bars.

7. In combination, a well strainer having circumferentially spaced bars and having arcuate reinforcing pieces secured therein and extending between the bars, a coupling having an internally flanged recess into which said bars extend, the inner surfaces of the bars, the inner surfaces of the reinforcing pieces and the inner surface of the coupling lying in the same cylindrical surface, said bars being provided externally with threads, and helically wound wire seated within said threads, said coupling having an annular recessed portion housing the end turns of the wire, the thickness of the reinforcing pieces being equal to the distance from the base of the threads in the rods to the inner surfaces of said rods.

8. In combination with a well strainer having supporting bars and wire wound and secured outside the bars in a helical formation, an end coupling piece having an internal annular recess receiving the ends of the bars in the internal bore thereof and arcuate reinforcing pieces extending between sides of said bars, the depth of the internal annular recess in said coupling being equal to the thickness of said pieces.

9. In combination with a well strainer having supporting bars and wire wound and secured outside the bars in a helical formation, an end coupling piece having an internal annular recess receiving the ends of the bars in the internal bore thereof and arcuate reinforcing pieces extending between sides of said bars, the depth of the internal annular recess in said coupling being equal to the thickness of said pieces, said bars having external threads, said internal annular recessed portion of said coupling having threads engaging the threads of said bars.

10. In combination with a well strainer having supporting bars and wire wound and secured outside the bars in a helical formation, an end coupling piece having an internal annular recess receiving the ends of the bars in the internal bore thereof and arcuate reinforcing pieces extending between sides of said bars, the depth of the internal annular recess in said coupling being equal to the thickness of said pieces, said bars having external threads, said internal annular recessed portion of said coupling having threads engaging the threads of said bars, said coupling having a sleeve extending down over the end turn of said helically wound wire.

11. In combination with a well strainer having supporting bars and wire wound and secured outside the bars in a helical formation, an end coupling piece having an internal annular recess receiving the ends of the bars in the internal bore thereof and arcuate reinforcing pieces extending between sides of said bars, the depth of the internal annular recess in said coupling being equal to the thickness of said pieces, said bars having external threads, said internal annular recessed portion of said coupling having threads engaging the threads of said bars, said coupling having a sleeve extending down over the end turn of said helically wound wire, and said parts sweated together into a self-sustaining assembly.

12. In combination with a well strainer comprising bars spaced around a circle and having notches in their outer edges in helical series and wire helically disposed and occupying the bar notches except notches near adjacent ends of the bars, a coupling having internal threads screwed into said notches near said ends of the bars, and having a terminal unthreaded substantially smooth sleeve portion closely embracing terminal portions of the wire to hold said terminal portions securely in the notches.

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