

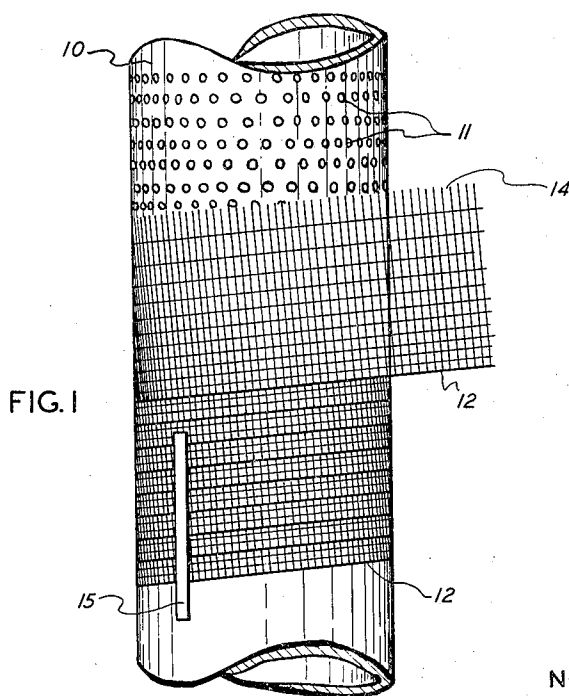
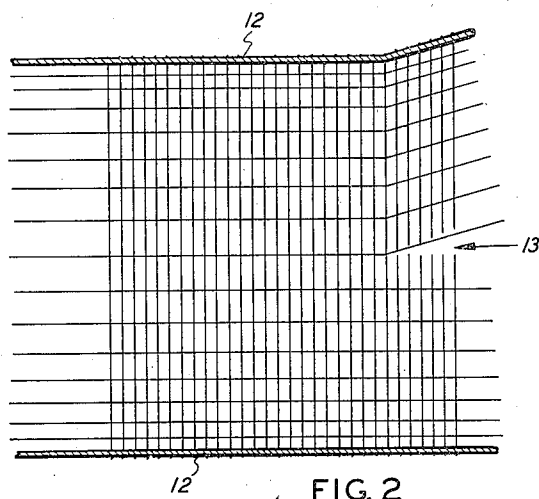
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SCREEN WRAPPED PERFORATED LINER PIPE

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SCREEN WRAPPED PERFORATED LINER
PIPE

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5 Claims. (Cl. 166-7)

The object of the invention is to provide an improved screen or strainer pipe for lining productive oil or water wells, for excluding sand and other detritus from the flow stringer pump.

5 The invention may best be understood with reference to the attached drawing, in which

Fig. 1 illustrates the manner in which the spiral screen wrapping is applied to the perforated pipe, and

10 Fig. 2 illustrates the method of weaving and splitting the strip screen which may have varying wire spacings in one direction.

Referring to the drawing: 10 is a liner pipe provided through part of its length with perforations 11. These are illustrated as round, but rectangular slots may be used if preferred.

15 The perforated or slotted pipe is spirally wrapped with the special strip wire mesh screen of which a fragment is shown in Fig. 2. This screen may be woven between two heavy steel wires spaced to make two strips of screen. For example, the strips may be 8" wide, in which case the wires are spaced 16" and the finished strip is split down the middle as at 13, forming

20 two 8" strips having a wire along one side only. This method of forming the strips is suggestive only, but it is important that the reinforcing wire be along only one side of the finished strip.

25 In weaving the screen strip the lateral or weft wires are equally spaced but the longitudinal or warp wires may be spaced relatively closely at the edges of the double width strip, adjacent the reinforcing wires, and the spacing is gradually increased as the center line of the strip is approached. For example, the spacing of a few warp wires adjacent the edges may be equal to the spacing of the weft wires, yielding a square mesh, while at the center of the double strip, i. e., at the unbound edge of the strips after severing, the warp

30 spacing may be from two to four times the weft spacing. It is also possible, and in some instances desirable, to use even spacing for both warp and weft wires.

35 In applying the screen strip to the pipe, it is laid on helically with the unbound edge of the strip directed away from the part which is being wrapped, as indicated at 14 in Fig. 1. Thus when the wrapping is completed, the reinforcing wires are outside, and beneath these are as many layers of screen as are indicated by the relation of the pitch of the spiral to the width of the screen strip. For example, using an 8" screen strip and a spiral of 1" pitch, there would be eight layers of screen throughout the length of the wrap ex-

cept in the eight inches at each end, which would be on imperforate pipe.

It will also be seen that as the size of the mesh openings increases toward the unbound edge of the strip, which lies adjacent the pipe, the area 5 of the openings through the completed wrap increases from the outside inwardly, an arrangement which has the strongest possible tendency toward stopping sand and other particles on the outer surface of the wrapping rather than within 10 its thickness, and thus toward the maintenance of unimpaired filtering value over long periods of use.

The wrapping is done with the reinforcing wire under considerable tension so as to draw the 15 screen cloth close to the pipe, and as a final step the loose end of the wrap is welded or brazed to the pipe. The device is now ready for use, though to prevent damage in transportation and particularly in running into the hole it is desirable to weld or braze a plurality of longitudinal metal strips over the wrap, a portion of one such strip being indicated at 15.

As a further protection against damage to the wire mesh in transit, I prefer to coat and 25 saturate the wrapping with melted asphalt. This material should be of a reasonably hard and tough consistency at atmospheric temperature and should have a flow point not higher than the temperature at the bottom of the well in 30 which the liner is to be placed in order that the asphalt may be displaced and washed away from the wire mesh by the oil produced by the well.

I claim as my invention:

1. A screen wrapped strainer for oil and water 35 wells, comprising: a perforated pipe and a helical wrapping of wire mesh screen thereon, one edge of said screen being reinforced with a heavy wire and the other edge being unbound, said screen being arranged in a plurality of overlapping 40 layers with the reinforcing wire on the outside.

2. A strainer substantially as and for the purpose set forth in claim 1, in which the strip of screen constituting said wrapping has its warp 45 wires spaced progressively farther apart in a direction away from said reinforcing wire.

3. A strainer substantially as and for the purpose set forth in claim 1, in which the spacing of the warp wires adjacent the reinforcing wire is 50 equal to the spacing of the weft wires and the spacing of said warp wires adjacent the unbound edge is substantially greater than said weft spacing.

4. A screen wrapped strainer for oil and water wells, comprising: a perforated pipe and a strip 55

of wire screen wrapped thereon helically in a plurality of overlapping layers, the portion of said strip of screen adjacent the outer edge thereof being tightly woven and the portion of said strip adjacent the inner edge thereof having the warp wires spaced more widely than the warp wires adjacent said outer edge.

5. A screen wrapped strainer for oil and water wells, comprising: a perforated pipe and a strip

of wire screen wrapped thereon helically in a plurality of overlapping layers, said strip of screen having those warp wires near the outer edge spaced substantially the same distance apart as the weft wires are spaced and having those warp wires toward the inner edge spaced a greater distance apart.

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