

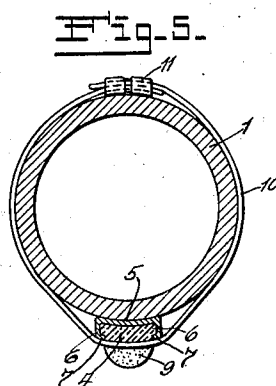
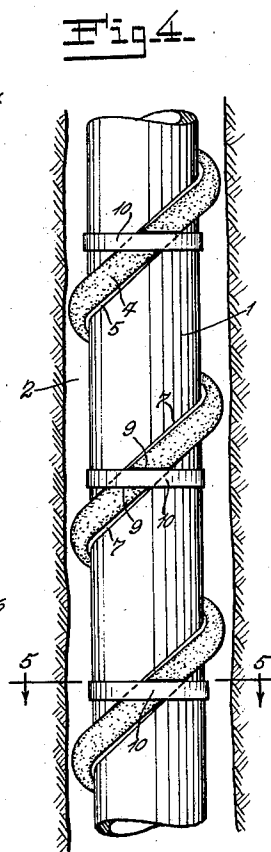
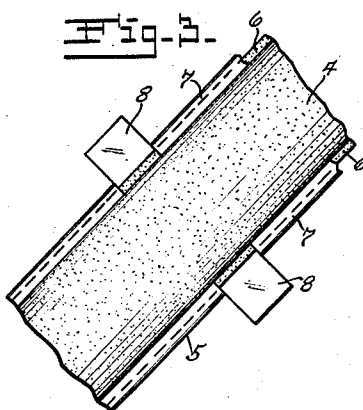
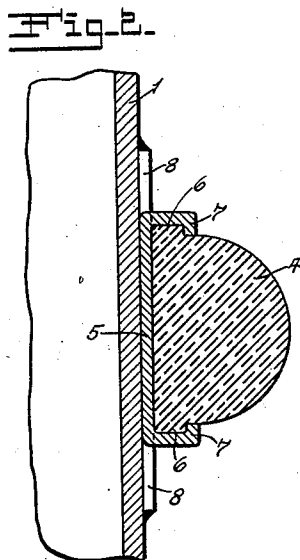
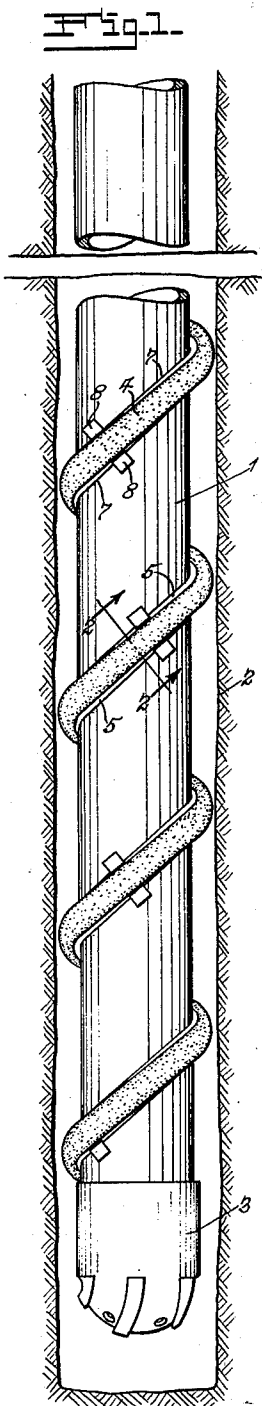
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1,959,367

WELL CASING

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UNITED STATES PATENT OFFICE

1,959,367

WELL CASING

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Application September 24, 1932, Serial No. 634,633

3 Claims. (Cl. 166-4)

This invention relates to the art of well casing.

In the drilling of wells, particularly oil wells, it is the common practice to drill a certain amount of open hole. A string of casing is then run in and cement is pumped through the casing and out through a shoe located on the bottom of the casing in such a manner as to force the cement in the space between the outer wall of the casing and the wall of the open hole. This cementing anchors the casing and prevents water encroachment. In actual practice, the casing is not truly centered in the hole but, due to the fact that the well is not drilled straight or true to the vertical and the fact that the casing when being cemented is in tension, which allows the casing to flex, the tendency is for the bottom of the string to lay against one side of the hole rather than remain in the center.

One of the objects of this invention is to provide spacing means which will space the casing from the wall of the hole in order to provide ample room on all sides of the casing for running in the cement.

Another object of the invention is to provide means which will so direct or baffle the flow of cement as will cause it to be positioned uniformly about the casing, and thus prevent voids and jetting.

Another object of the invention is to provide novel means for attaching a rubber spacing member to the outside wall of a casing.

Other objects will be apparent from the following detail description, taken in connection with the accompanying drawing, in which—

Fig. 1 is an elevation of a string of casing with the device of the invention secured in position. Fig. 2 is a detail section on the line 2—2 of Fig. 1.

Fig. 3 is a detail plan view of a piece of the spacing member.

Fig. 4 is an elevation of a section of casing with a modified form of attaching means.

Fig. 5 is a cross-section on the line 5—5 of Fig. 4.

A string of casing 1, as shown in Fig. 1, is adapted to be inserted in an open drill hole 2. The common practice is to set a 7-inch (outside diameter) casing inside of a 9 $\frac{1}{8}$ -inch hole, or an 8-inch casing inside of an 11-inch hole. It is desirable, in order to get cement distributed about the casing, that the casing be spaced from the walls of the hole and that it be positioned as near as possible centrally of the hole. In order to secure this result, I place a spiral spacing member about the casing for a considerable dis-

tance, preferably twenty-five feet or more, above the bottom of the casing or the usual casing shoe 3.

The spacing member comprises an elongated strip of live rubber 4 clamped in a metallic strip 5. The rubber strip 4 is preferably of the section shown in Fig. 2, that is semi-cylindrical with outwardly extending flanges 6 at each side. The metallic strip 5 has upwardly extending overhanging flanges 7 which clamp against the side flanges 6 of the rubber strip.

In the embodiment illustrated in Figs. 1, 2 and 3, outwardly extending lugs 8 are formed from the metallic strip by cutting such pieces away from the flanges 7. In such an embodiment, the spacing member may be readily secured to the casing by welding the lugs 8 thereto.

In the embodiment illustrated in Figs. 4 and 5, the rubber strip 4 is cut away, as shown at 9, sufficiently to receive a metallic strap 10 which bears against the top of the flange 7. The strap 10 may be fastened by a clamp 11 which is crimped in position. Means for jacking the strap 10 to position and applying the clamp 11 are well known in the metal working arts and need not be described in detail.

The amount of air pressure used in forcing the cement through the casing and between the casing and the well bore is very high, and this has a tendency to cause air voids and also a jetting effect, with the result that the casing is not entirely surrounded by cement. The use of the spacing member in spiral form has a baffling effect upon the cement and causes it to circulate uniformly about the wall of the casing and to be evenly distributed.

According to present practice, it is impossible to land the casing within 100 feet of the bottom of the hole because, in running in the casing, the shoe hits the side walls of the open hole, causing shale and various formations to cave and fall into the drilled hole. With the use of the spacing member, the casing will not touch the side of the hole and will not gouge out the wall. Since the spacing member is round and of live rubber, it tends to compress and smooth the wall of the hole rather than to gouge out the formation and cause it to cave. It will, therefore, be seen that the invention accomplishes its objects.

Various changes in the details of construction may be made within the scope of the appended claims without departing from the spirit of this invention.

I claim:—

1. In combination with a well casing, an elon-

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gated spacing member wound spirally about the casing and secured thereto, said member comprising a strip of rubber and an underlying metallic strip having overhanging clamping flanges at its sides adapted to secure the rubber strip to the metallic strip.

2. In combination with a well casing, an elongated spacing member wound spirally about the casing, said member comprising a strip of rubber and an underlying metallic strip having overhanging clamping flanges at its sides adapted to secure the rubber strip to the metallic strip and having outwardly extending lugs, said lugs being

welded to the casing.

3. In combination with a well casing, an elongated spacing member wound spirally about the casing, said member comprising a strip of rubber, having at its top a substantially semi-cylindrical cross-section and at its bottom outwardly extending flanges, and an underlying metallic strip having at its sides upwardly extending flanges overhanging and clamping the flanges of the rubber strip, and means for securing said member to the casing.

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15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150