

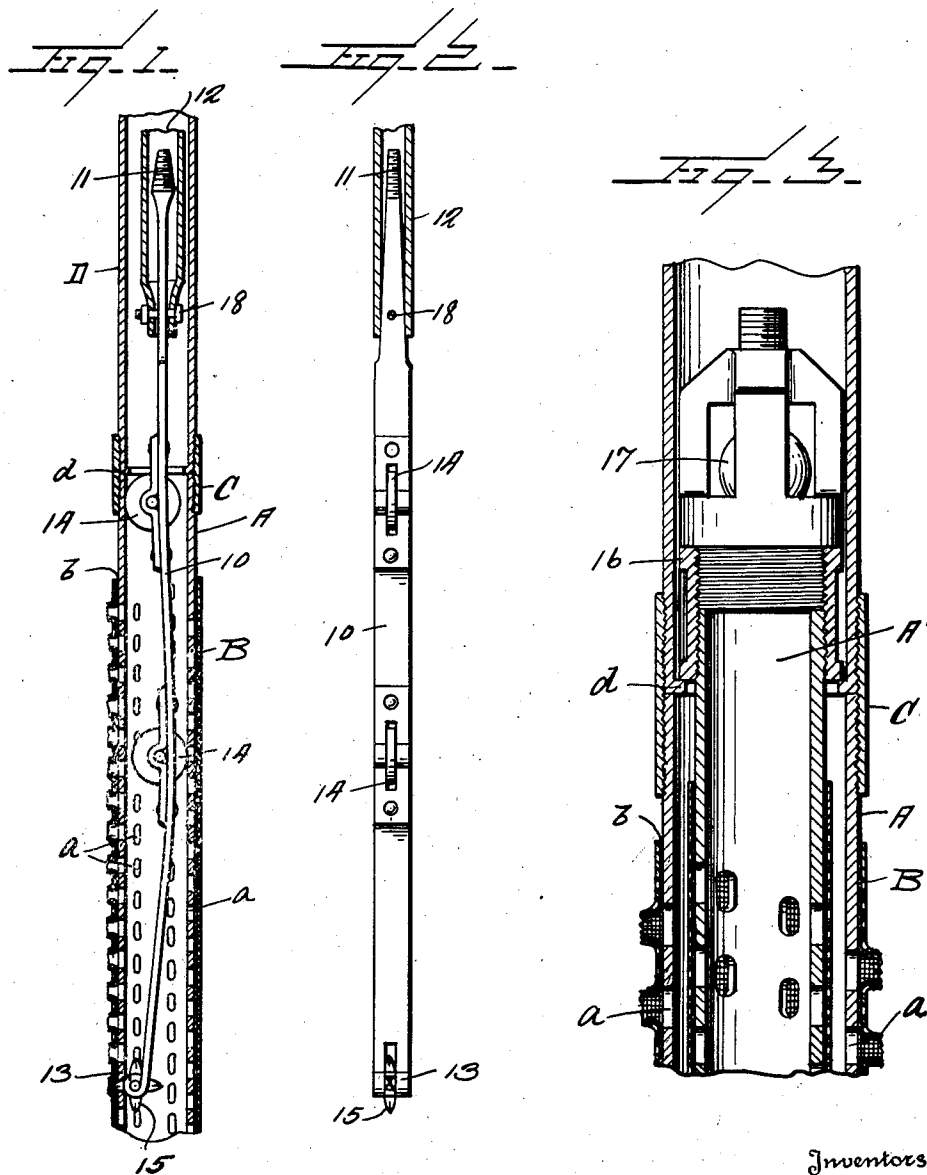
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METHOD OF REPAIRING WELLS HAVING CORRODED SAND POINTS

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METHOD OF REPAIRING WELLS HAVING
CORRODED SAND POINTSAnthony Clasen and Frank X. Scholtes,
Kilgore, Nebr.Original application May 8, 1934, Serial No.
724,597. Divided and this application May 21,
1935, Serial No. 22,645

2 Claims. (Cl. 166—21)

This invention relates to methods of repairing wells having corroded sand points. In old wells which have been in use for a number of years, the screen of the sand point becomes corroded and also becomes stopped up so that the water cannot get through the perforations in the sand point pipe. Furthermore, where the screen has become corroded, the meshes are eaten away and the screen no longer acts as a screen. This means that the pipe of the well must be pulled and a new pipe inserted with a new sand point, and sometimes it means that a new well must be dug, particularly in deep wells, as pulling and replacing sand points in deep wells is rarely a success.

The present invention is a division of our pending application, Ser. No. 724,597, filed May 8, 1934, on Sand point punchers for wells, and the general object of the present invention is to provide a method of repairing wells which comprises inserting a tool into the old sand point and puncturing the outer screen of the sand point through the perforations in the inner tube of the sand point, then withdrawing the tool and inserting within the old and now punctured sand point a smaller sand point in which, of course, the screen is perfect, and supporting this new sand point in position within the old sand point.

A mechanism for carrying out this method is shown in our prior application above referred to and is illustrated in the accompanying drawing wherein:

Figure 1 is a longitudinal sectional view through a corroded sand point showing our means for opening the sand point;

Figure 2 is a side face elevation of the punching tool with a sectional view of the pipe connection thereto;

Figure 3 is a fragmentary vertical section of a sand point after having been opened by the use of the tool and showing a second sand point inserted within the first.

Referring to this drawing, A designates an old sand point and B the perforated metal screen thereof, it being understood that ordinarily there is a screen of wire gauze or like material designated b between the main screen B and the pipe A. The pipe A is perforated with a plurality of relatively large apertures a disposed in vertical rows and in more or less staggered relation to each other.

The sand point A with its screen is engaged at its upper end by a coupling C which in turn engages the pipe D. The lower end of the pipe D is formed with a shoulder d. So far, we have

described the ordinary and common construction of a sand point, it being understood that the pipe D extends upward to the surface of the ground and is connected to a pump.

When the screen composed of a perforated sheet B and the inner wire fabric b becomes corroded and clogged, the passage of water into the interior of the sand point is obstructed or prevented entirely. Under these circumstances, our invention is used for the purpose of opening apertures through the screen B, b, at the perforations a.

The implement which we have devised for this purpose consists of a relatively heavy strip of resilient metal designated 10. This strip at one end is provided with screw threads 11 whereby it may be engaged with a pipe section 12. The opposite end of the strip is longitudinally slotted and formed with eyes 13. The strip 10 carries upon it preferably a number of rollers 14 engaging against the inner face of the sand point pipe A.

Disposed within the slot is a star-shaped punching wheel or rowell designated 15, the points of which are sharpened. The strip 10 may be sinuous or formed with a single arcuate bend so that when this strip is inserted within the sand pipe A, the strip of metal is placed under such tension that the rowell is forced with considerable force against the wall of the sand pipe A. Under these circumstances, if the cleaning tool or implement be reciprocated, the points of the rowell, which points are spaced apart the ordinary distance of the perforations a in the sand point, will enter these perforations and will puncture the screen B, b, in the manner shown in Figure 1. After the tool has been shifted longitudinally downward for the full length of the sand point and has reached the lower unperforated end thereof, it may be given a turn equal to the circumferential distance between one row of perforations a and the next adjacent row and then again reciprocated and so on until all of the perforations of the several rows have been entered by the spurs of the rowell and the screen B, b, punched out.

Of course, this sand point with its punched out strainer is no longer capable of properly functioning and, therefore, after the withdrawal of the cleaning tool, we lower into the well a new sand point designated A' which is of the same character as the sand point A but is smaller than this sand point. This sand point A is also formed with perforations and with a screen over the perforations and at its upper end is pro-

vided with a head or coupling 16 which is adapted to rest upon the shoulder d. A check valve 17 is engaged with the coupling 16 or disposed on top thereof in the usual manner and, of course, the piston of the pump operates above this check valve which acts as a standing valve.

It will be seen, therefore, that an old and corroded sand point may be punched out and a new sand point inserted so that the well can function properly with very slight expense and without the necessity of pulling the well pipe.

While we have described a certain mechanism for carrying out this method, it is to be understood that this method might be carried out by other mechanisms and that the mechanism might be varied in many ways without departing from the spirit of the invention as defined in the appended claims.

While we have illustrated the upper end of the element 10 as being screw threaded at 11 for engagement with a pipe section 12, we may also use the pipe section 12, as shown in Figure 1, that is, fitting the shank of the element 10 and simply bolted thereto by the bolt 18.

What is claimed is:—

1. The method of repairing wells having sand points the outer fine wire screen of which is cor-

roded, comprising inserting a tool into the sand point and puncturing the outer fine wire screen of the sand point through the perforations in the inner tube of the sand point to thus destroy the action of the exterior fine wire screen, withdrawing the tool, and inserting a smaller sand point having an exterior fine wire screen within the old sand point, and supporting it in position therein.

2. The method of repairing wells having sand points comprising an inner perforated tube and an outer layer of fine wire mesh, the fine wire mesh being corroded, the corroded sand point being connected to the tube of the well by a coupling having an inwardly projecting flange; consisting in inserting a tool into the sand point and puncturing the outer fine wire screen of the sand point through the perforations in the tube of the sand point to thus render the outer screen entirely ineffective, withdrawing the tool and inserting a smaller sand point having an inner perforated tube and an outer screen of fine wire mesh within the old sand point and supporting it upon the inwardly projecting flange of the coupling.

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