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J. H. McEVOY, JR

PROCESS OF FORMING WELL STRAINERS

Filed Nov. 17, 1925

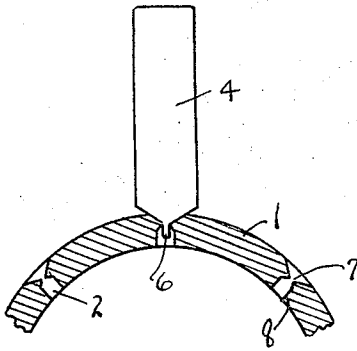


Fig. 2.

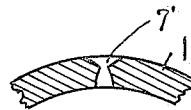


Fig. 3.

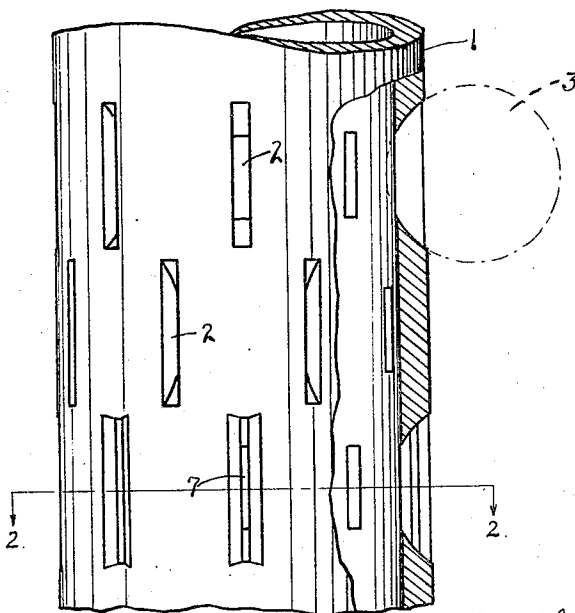


Fig. 1.

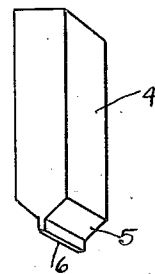


Fig. 4.

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UNITED STATES PATENT OFFICE.

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My invention relates to well strainers to be employed in filtering fluid which is obtained from deep wells for water, oil, gas and the like.

5 In the present type of well strainer, it is usually desired by the operator of the well that the screen be made with a constricted passage toward the outside of the strainer pipe, said passage widening toward the interior of
10 the pipe. This is supposed to have the advantage that it will not easily clog with sand or other similar foreign material, due to the fact that the foreign material may easily be carried away by the fluid in the interior flowing from
15 the constricted gap or opening toward the open interior.

It is an object of my invention to provide a strainer wherein the straining openings are cut directly in the well pipe and thereafter
20 operated upon to constrict the outer side of the passage. It is desired that a screen of this desired formation of opening may be made with a minimum amount of operation upon the pipe, so that the strainer may be efficient
25 in construction and economical to manufacture.

Referring to the drawings herewith, Fig. 1 illustrates a broken side elevation of a strainer pipe, employing thereon my improved method
30 of forming the strainer openings. Fig. 2 is a broken transverse section on the plane 2—2 of Fig. 1. Fig. 3 is a small detail in transverse section of a pipe having a slightly modified form of opening. Fig. 4 is a perspective view
35 of a tool which may be employed in finishing the strainer opening in the pipe. Like numerals of reference are employed to designate like parts in all the views.

In the drawing, I have illustrated a short
40 section of strainer pipe 1, which is adapted to be connected as a strainer to well pipe, said pipe having openings therein positioned in the pipe adjacent the producing stratum. I have shown this pipe as being slotted vertically, as seen in 2, with openings formed in
45 the pipe from the outside thereof, said openings being cut with parallel sides, the length of which may be greater on the outer face than on the inner.

50 It is contemplated that these openings, or slots, in the pipe will be formed by means of a milling cutter or by any other well known means for cutting openings in pipes of this nature, and when said openings are formed
55 by a milling cutter, the said openings will be of longer size on the outer face of the pipe.

This is due to the shape of the milling cutter, shown in dotted lines at 3 in Fig. 1. When the slots are thus cut in the pipe, it is
60 contemplated that they will be cut in rows about the circumference of the pipe, the rows having the slots cut in a position alternating with that of the cuts in the adjacent rows, so that the openings will be staggered, as shown
65 in Fig. 1. While this is a preferred method of cutting the slots, it is obvious that the invention is not confined to this particular positioning of the openings.

When the openings have thus been cut in the pipe, the outer portion of the slotted opening will be upset preferably by a tool such as
70 shown at 4, in Fig. 4. This tool has a forward end 5 formed by faces inclined inwardly to form a blunt end. Centrally of this forward end of the tool is a forwardly extending
75 lip 6, the purpose of which is to register the tool with the opening 2 into which it is desired to fit. This tool is fitted within an air hammer or other similar means of
80 operating the same, and in operation the forward point 6, which is intended to determine the width of the opening at its narrowest point, is fitted within the outer face of the
85 slot, as shown in Fig. 2. The operation of the tool will serve to work the metal on the outer face of the slot downwardly and inwardly against the forward lip 6 of the tool. The slots or openings will shortly have the
90 appearance shown in Fig. 2, in which there is a constricted opening 7, which diverges somewhat within the said opening, and then has the parallel sides 8, as in the original slot. The straining openings may be thus formed in the ordinary steel pipe.

The pipe may, however, be made of brass
95 or other metal which will flow somewhat more easily under pressure than in case of the steel, and in Fig. 3 the slot is shown as it would appear in brass or other somewhat softer metal. The opening is very much the
100 same as in the steel pipe disclosed in Fig. 2, except that the metal below the constricted passage 7' is pushed forwardly so that the interior of the slotted passage diverges from the constricted opening toward the interior
105 of the pipe with comparative regularity.

It will be noted that the pipe may be slotted by my method in a most economical manner. Slots in the pipe may be cut from the outside
110 with a minimum amount of manipulation and rapidly. When thus formed, the outer portion of the openings may be constricted

by the use of the tool 4 in a very short time, and when the opening has been thus constricted the pipe is ready for use. The advantages of this method of forming the strainer openings will be understood by those skilled in the art without further description.

What I claim as new and desire to protect by Letters Patent is:

10 A method of forming strainer openings in well pipe comprising cutting longitudinal

slots in said pipe, inserting a gauge of the desired width in said slots, and then upsetting the sides of said slots from the outer side to work the metal of the pipe inwardly to constrict the width of the slot about said gauge, said gauge acting to regulate the width of the constricted opening thus formed. 15

In testimony whereof I hereunto affix my signature this 12th day of November, A. D. 1925. 20

JOSEPH H. McEVOY, Jr.