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J. H. McEVOY, JR

METHOD OF MAKING STRAINER PLUGS

Filed Feb. 6, 1926

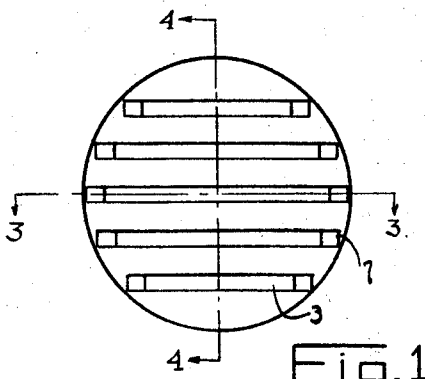


Fig. 1.

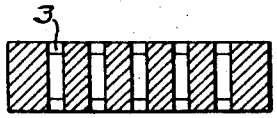


Fig. 4.

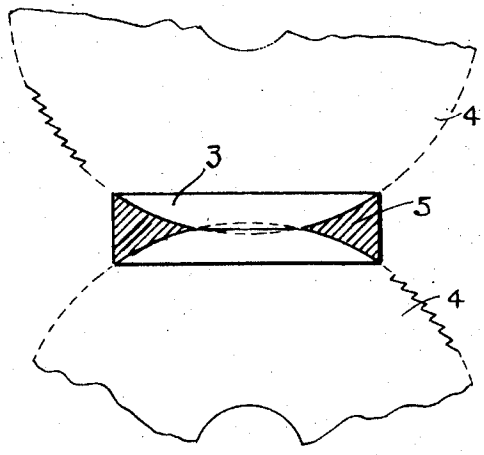


Fig. 2.

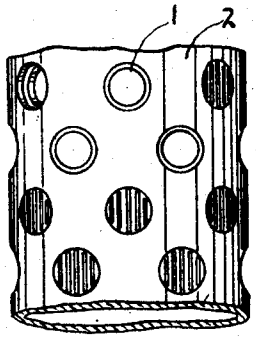


Fig. 5.

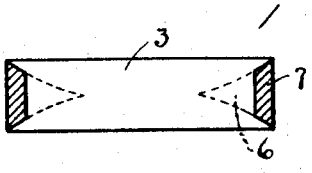


Fig. 3

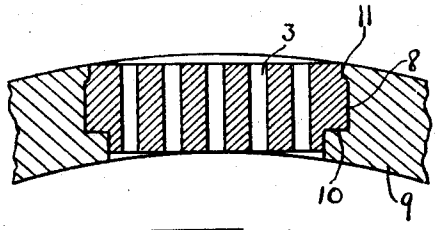


Fig. 6.

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Patented June 14, 1927. 1,632,090

UNITED STATES PATENT OFFICE.

JOSEPH HENRY McEVOY, JR., OF HOUSTON, TEXAS.

METHOD OF MAKING STRAINER PLUGS.

Application filed February 6, 1926. Serial No. 86,446.

My invention relates to strainer plugs for use in forming the filtering openings in sections of pipe or tube employed for well strainers and the like.

Such strainers are now formed by cutting openings, preferably circular, in a pipe and fitting the plugs therein, said plugs having filtering openings, usually in the form of slots, the widths of which may be varied to suit the sand or other material in the formation which contains the fluid which enters the well.

It is an object of the invention to provide a strainer plug which is of maximum strength for the thickness of the same. It is also desired that the plug be formed by a most economical and rapid process, so that the commercial cost may be decreased.

Referring to the drawing herewith, Fig. 1 is a top plan view of a strainer plug formed according to my invention; Fig. 2 is a transverse section through a plug, illustrating the cutting of the strainer slots therein; Fig. 3 is a transverse section on the plane 3—3 of Fig. 1; Fig. 4 is a similar section on the plane 4—4 of Fig. 1; Fig. 5 is an elevation of a section of pipe with strainer openings therein, the same being shown on a reduced scale; and Fig. 6 is a section similar to that shown in Fig. 4 with the periphery of the plug slightly modified, the said plug being seated within a section of pipe. Like numerals of reference designate like parts in all the views.

In forming my strainer plug according to the present invention, I employ a flat cylindrical disk, such as brass or steel, adapted to fit within openings 1 cut within the strainer pipe 2. The blank is first cut with slots 3 on opposite sides thereof, the outer and inner slots of the plug registering to form continuously slotted openings through the body of the blank. In Fig. 2, I have illustrated how the said slots 3 may be formed. Milling cutters, illustrated at 4, may be employed to cut the slot part way through the blank. When the slots are cut to meet at a point centrally of the blank, as shown in Fig. 4, there is left at each end of the slots a section illustrated at 5, the walls of which converge inwardly. A series of parallel slots are cut in the plug with cutters of varying diameter, the plug appearing approximately as shown in Fig. 1, except that each slotted passage is narrowed by the shape of the portion 5.

The slots 3 are then cut through their full length through the plug by stamping out the triangular portion indicated at 6 in dotted lines in Fig. 3. A flat punch, or similar tool, may be used to drive this metal through the plug so as to remove the metal, indicated at 6, leaving end walls of the slots 7 parallel with the outer walls of the blank. It will be noted, therefore, that the slots 3 are formed by three steps, the outer and the inner sides of each slot being cut with milling cutters. The ends of the slots are then removed to make them of the proper length by stamping the material from the blank.

It is contemplated that a blank of this kind will be fitted within an opening in the pipe and held in position in the usual manner employed with strainer plugs of this nature. In Fig. 6, the outer periphery of the plug is shown as modified to fit within an opening 8 cut within the pipe 9 in such manner that it may not be easily moved and allow the slots 3 to extend through the plug, the body of the plug adjacent the slots being the full thickness of the pipe. To best accomplish this purpose, the pipe is formed with an annular shoulder 10 in the openings and the periphery of the plug is formed with the inner side recessed to fit upon said shoulder, as disclosed in Fig. 6. The plug is, therefore, prevented from moving inwardly and is firmly seated. The outer end of the plug may be reduced slightly in diameter, as shown at 11, and the metal on the wall of the plug may be upset or riveted inwardly about the reduced end to hold it against removal from the pipe. In Fig. 5, the pipe is shown with plugs already seated in some of the openings, while in the others the seats are formed to receive the plugs.

While I have described the outer portion of the slots as being formed with milling cutters, I contemplate that they may be formed by any similar or equivalent device and when the slots have thus been cut the material at the ends, therefore, may be removed to form the plug, as shown in Fig. 3, by any desired means, and I do not wish to be limited entirely to the means disclosed.

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

1. A process of forming strainer plugs comprising forming a plane metal disk of the desired thickness, milling a series of parallel slots from each side of said disk, the

slots on one side being registered with those on the other side, and punching out the material at each end of each of the slots to leave end walls of the character described.

2. A process of forming strainer plugs, comprising forming a circular disk of metal, cutting a series of parallel slots on each side of said disk, positioning the cutters so that the slots on one side will register with those on the other, and then removing the material at each end of the slots to leave end walls to said slots of the thickness desired.

3. A process of forming strainer plugs for well strainer pipes, comprising stamping disks with parallel faces, milling parallel strainer slots in said disk, and stamping out the remaining metal in said slots to leave end walls to said slots of the desired thickness.

4. A process of forming strainer plugs for well strainer pipes, comprising forming circular metal disks, milling arcuate meeting slots from opposite sides of said disk, and then removing the metal at the ends of the slots to leave end walls to said slots of the desired thickness.

5. A process of forming strainer plugs for well strainer pipe, comprising stamping disks of the desired size, cutting parallel slots therein with milling cutters, and then stamping out the material of the disk left in the cutting process to leave end walls to the slots in the manner described.

6. A process of forming filter openings in a strainer member, comprising cutting parallel slots in said member with a cutting tool, and then stamping out the material of the slots left by the cutting tool, thereby extending the slots completely through said member, for the purpose described.

In testimony whereof I hereunto affix my signature this 26th day of December, A. D. 1925.

JOSEPH HENRY McEVOY, Jr.