

Dec. 13, 1927.

J. H. McEVOY, JR

1,652,208

METHOD OF FORMING SLOTTED SCREEN PIPE

Filed Feb. 27, 1926

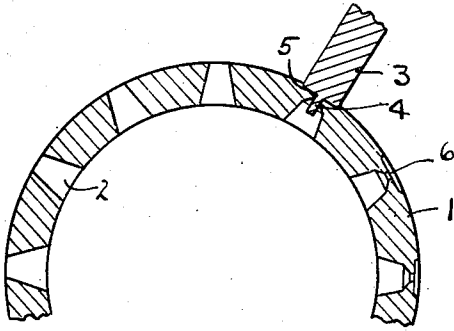


Fig 1

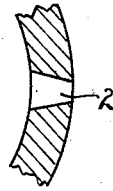


Fig. 3

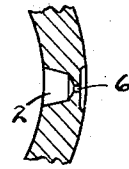


Fig. 6.

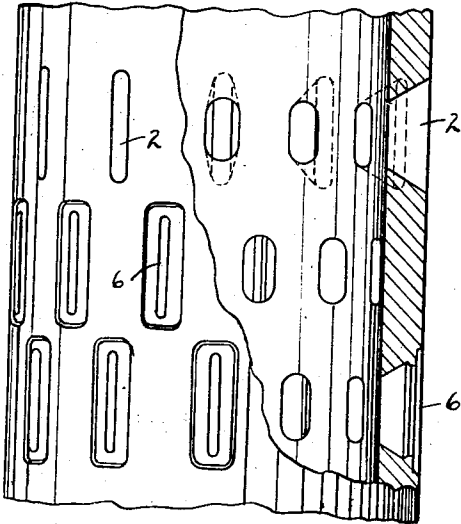


Fig. 2.

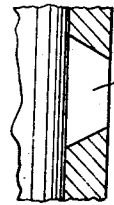


Fig 4

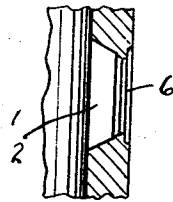


Fig. 7.

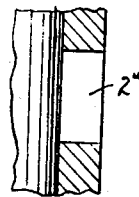


Fig 5

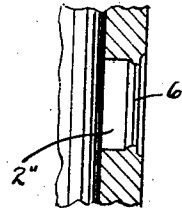


Fig. 8.

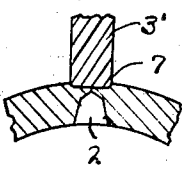


Fig. 9.

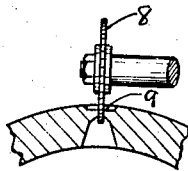


Fig. 10.

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# UNITED STATES PATENT OFFICE.

JOSEPH H. McEVROY, JR., OF HOUSTON, TEXAS.

METHOD OF FORMING SLOTTED SCREEN PIPE.

Application filed February 27, 1926. Serial No. 91,016.

My invention relates to the construction of screen pipe, such as is ordinarily used in deep well operations, for filtering the fluid coming into the well. It pertains particularly to pipe having slotted openings therein through which the fluid finds entrance to the pipe from the well, the invention consisting particularly in the manner in which the slots are formed in the pipe. In the construction of screen pipe, various widths of straining opening are necessary, each width of slot being adapted for a particular kind of formation, the width of the slot depending upon the size of the particles which are to be filtered out of the fluid.

It is an object of my invention to provide a method of slotting pipe wherein the openings may be most economically and effectively formed so as to obtain the desired size of opening. It is desired that the slots may originally be constructed of uniform, or practically uniform, widths in any desired manner, and the slotted opening through which the fluid enters be thereafter reduced to the size desired by my improved methods of operation.

Referring to the drawing herewith, wherein I have illustrated means and methods by which the slots may be formed, Fig. 1 is a broken transverse section through a piece of screen pipe, illustrating the formation of the constricted filtering passage therein; Fig. 2 is a side view, partly in elevation and partly in longitudinal section, illustrating the openings in various stages of completion; Fig. 3 is a broken transverse section of pipe, illustrating the slotted opening as originally formed; Fig. 4 is a longitudinal section showing the same slot; Fig. 5 is a longitudinal section similar to Fig. 4, illustrating a slightly different form of slot; Figs. 6, 7, and 8 illustrate the slots shown in Figs. 3, 4, and 5 respectively after the filtering opening has been constricted to its proper width; Fig. 9 is a transverse section through a strainer pipe, illustrating a variation of the first operation in forming the filtering opening; and Fig. 10 is a similar section showing the cutting of the slot to its desired width. Like numerals of reference are employed to designate like parts in all the views.

In illustrating my invention, I have shown the application thereof to strainer pipe having various forms of openings therein, the object being to illustrate the

manner in which the invention may be applied to any desired strainer slot. In Fig. 1 a strainer pipe 1 is shown as having openings 2 formed therein, said openings having an inner side thereof of greater width than the outer side. These openings may be of the form shown in Fig. 2 at the upper end thereof and in this particular form the openings are cut of practically uniform cross-sectional area from the outer to the inner side of the pipe, the outer opening being longer and narrower than is the opening on the inner side of the pipe, which is shorter but wider. The invention is, however, independent of the original shape of the opening. Taking a pipe having openings thus formed therein, either with a cutting tool, such as a milling cutter or by means of a blow-torch, or other similar means, I narrow the outer end of the opening by the use of a punch 3, or similar tool, as is shown in Fig. 1. In the tool 3 I have shown a blunt-ended tool having a narrow fin 4 on the forward end. The fin is adapted to fit longitudinally into the opening and is of the desired width of the slot which is to be formed. The tool is hammered against the pipe so as to bring the lower shoulders 5 of the tool against the pipe along the edges of the opening 2. The effect will be to drive the walls of the opening inwardly so that they will tend to meet along the full length of the slot. The fin 4 upon the tool will prevent the edges from meeting so as to leave the slot of the same width as is the fin 4 on the tool. When completed, the opening will be as shown at 6 in Fig. 1. There will be a depression in the outer wall of the pipe the width of the tool 3. The inner wall of the opening will be swaged inwardly toward the slot 6 previously mentioned. This result is shown more in detail in Figs. 3 and 6.

In Figs. 9 and 10 is shown a modification of the method just described. The tool 3' in this modification has a blunt point 7 having no fin or other projection thereon. It is used to upset the walls of the openings 2 so as to drive them inwardly to contact with each other centrally of the opening, the effect thus being to entirely close said opening for its full length. I then contemplate taking a cutting tool, such as is shown at 8 in Fig. 10, and cutting the slot 9 of the desired width. The varying of the width of the slot may be obtained by employing cutters 8 of

different thicknesses. This method is an advance over attempting to cut the slot through the full thickness of the pipe with a milling cutter 8, from the fact that the cutters will not be materially endangered by cutting a thin thickness of metal, whereas cutters of this kind cannot in practical operation cut entirely through the walls of a heavy screen pipe. If therefore the openings 2 are first formed and then the outer edges of the openings are closed to form a thin outer wall to the opening, this thin wall may be slotted down the line of contact between the two upset edges with ease and facility with ordinary types of cutters and the operation will be simple and economical.

It will be obvious that this method of forming the slotted opening in the screen may be employed as shown in the various figures on any type of slot independently of whether the walls of said slot converge or diverge from the outer side to the inner side,

or whether the end walls are parallel as shown in Fig. 5. I make no claim to the particular contour or shape of the original openings. My invention resides, therefore, in the method of closing the outer end of the opening and forming in the closed end a slot of the desired width.

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

A method of forming slotted openings in strainer pipe, comprising cutting openings in said pipe each of a width greater than that of the desired slot, upsetting the sides of said opening to bring said sides together at the outer side of the pipe, and then cutting the wall formed by the upset sides to the desired width and length.

In testimony whereof I hereunto affix my signature this 19th day of February, A. D. 1926.

JOSEPH HENRY McEVOY, JR.