No. 736,219. PATENTED AUG. 11, 1903.

M. J. CLARK.

MEANS FOR CLEARING WELL STRAINERS.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.

Fig. 2.

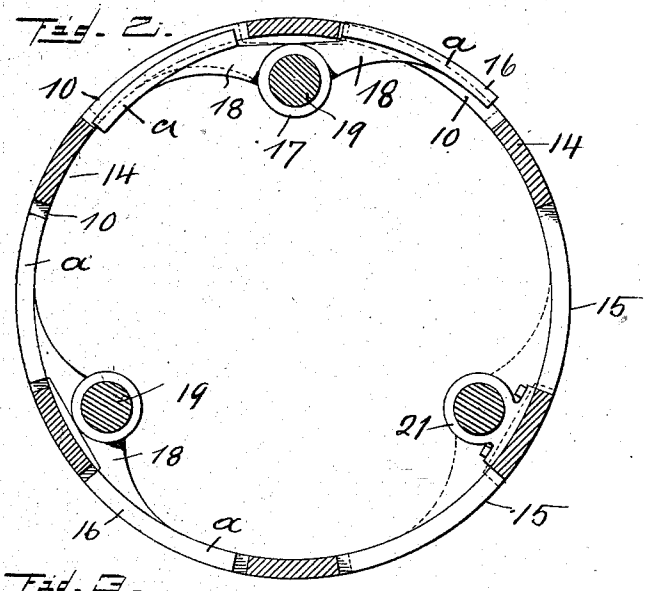


Fig. 1.

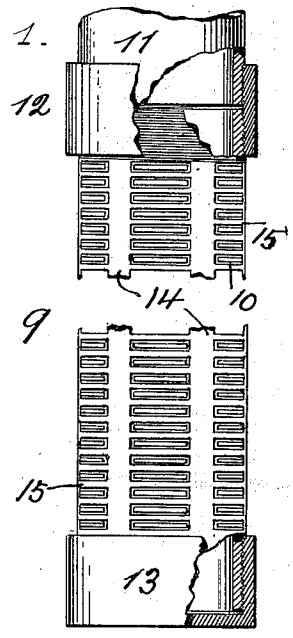


Fig. 3.

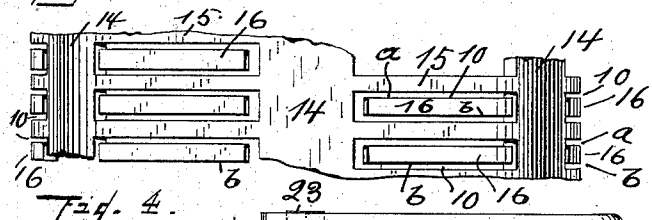


Fig. 4.

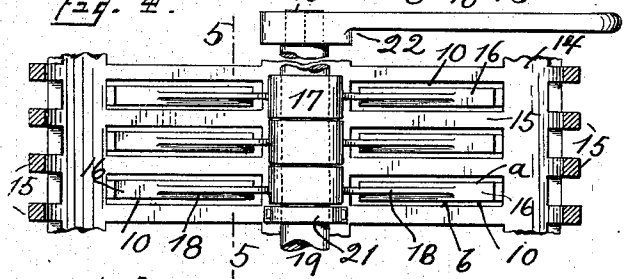


Fig. 5.

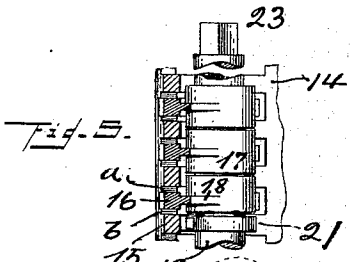


Fig. 6.

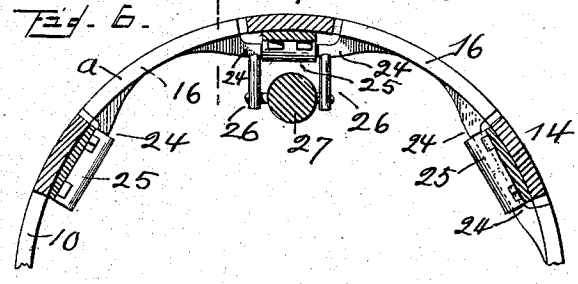
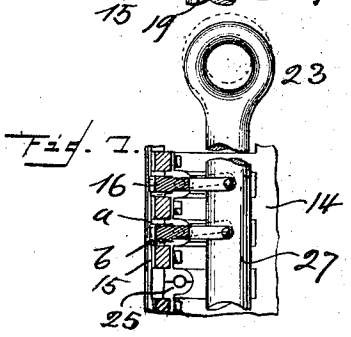


Fig. 7.



Witnesses

R. R. Whiting

Arthur Kline

Inventor

Matthew J. Clark

by C. Spengel Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 736,219. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

MATTHEW J. CLARK, OF COVINGTON, KENTUCKY, ASSIGNOR TO CLIFFORD SHAW, OF CINCINNATI, OHIO.

MEANS FOR CLEARING WELL-STRAINERS.

SPECIFICATION forming part of Letters Patent No. 736,219, dated August 11, 1903.

Application filed March 21, 1903. Serial No. 148,842. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW J. CLARK, a citizen of the United States, residing at Covington, Kenton county, State of Kentucky, have invented certain new and useful Improvements in Means for Clearing Well-Strainers; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in well-strainers, which are devices admitting water to the wells and tubes of suction-pumps, the water entering through orifices of limited size, whereby surrounding sand and gravel are held back and solid impurities kept out. These wells consist of tubes which in sections of suitable lengths are attached to each other in sufficient numbers to reach down to the water-bearing level. These tubes at the same time constitute the strainers—that is, such of them which are opposite any water-bearing levels have their wall provided with the orifices above mentioned. If the water is taken only from the lower part of the well, then only the lowermost section or tube would serve also as a strainer and from it the orifices would extend up as far as required to correspond to the thickness of the water-bearing strata. If there are additional water-bearing strata, inlet-orifices are also provided in intermediate sections of the tubing. These orifices in course of time become more or less clogged up, thus reducing the receiving capacity of the well to an extent corresponding to the obstructed area. When this area exceeds certain limits, it becomes necessary to remove these obstructions which by reason of difficult access is not readily done and therefore also expensive and interrupts the service of the well for the time being.

The object of my invention is therefore to provide means whereby such cleaning may be accomplished without requiring direct access to the particular parts nor without interrupting the service of the pump.

In the following specification, and particularly pointed out in the claims following, is found a full description of the invention, together with its manner of use, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows an outside view of such a strainer-section constructed as contemplated by my invention and with parts broken away. Fig. 2 is an enlarged horizontal cross-section of the same. Fig. 3 is part of an elevation, and Fig. 4 is part of a vertical section of it. Fig. 5 is a vertical section through the wall, taken on line 5 5 of Fig. 4. Fig. 6, in part of a view similar to Fig. 2, shows a modified construction, and Fig. 7 shows this construction in a vertical section through the wall and similar to Fig. 5.

In Fig. 1 of the drawings, 9 indicates one of the tube-sections provided with strainer-orifices 10, while 11 indicates one without such openings, the two connected to each other in a suitable manner—as, for instance, by a coupling 12. The lower open end of the tubing must be closed against sand and gravel, and such is usually accomplished by the rock into which such lower end is set. When the lower end does not reach into a rock bed, a separate cap or shoe 13 may be used. The inlet-orifices, in form of elongated narrow slits, are arranged in vertical rows or tiers, as most plainly shown in Fig. 1, a portion or strip 14 of the wall being left intact between these rows to insure the necessary stability of the tube. These solid portions 14 between the rows are laterally connected to each other by the portion of the wall horizontally between the openings 10. However, only alternate ones of these particular portions of the wall, as shown at 15, are thus integral with the wall, while the other portions (indicated by 16) are not, and consist of independent pieces, but are so supported as to normally occupy their proper position in line with the other adjacent parts of the wall surrounding them. This support is, further, of such a kind as to permit these parts to be also moved independently of the intact parts of the wall. Since each of these independent wall portions 16 forms the lower margin or edge *a* of one orifice and the upper edge *b* of the orifice next below, it is clear that there is in each opening at least one edge movable with reference to the other ones, which movement is sufficient to loosen and dislodge ob-

structions in the orifices between these edges, so that thereafter they may be readily carried away by the water.

To simplify the construction and operation, the movable wall portions of at least one vertical row or tier are all connected for simultaneous movement, and where the size and arrangement permit it two of such rows may be connected.

The movement is a limited one, partaking more of the character of vibrations, and may be in different directions. In Figs. 2, 4, and 5 it is shown in a horizontal one, and in Figs. 6 and 7 it is shown in a vertical one. The support is therefore constructed according to this direction of movement. In the horizontal movement hubs 17 are provided, to which one or, as shown in this case, two of these movable pieces 16 are attached by means of arms 18. These hubs for one set of members 16 are all alined and mounted upon rods 19, which are held in position by means of suitable bearings 21, connected to the solid parts of the wall of the tube. The upper ends of these rods are fitted for the reception of an implement 22, as shown at 23 in Figs. 4 and 5, whereby they may be rocked, so as to actuate the members 16, connected thereto in the manner shown in Fig. 2. In the vertical movement shown in Figs. 6 and 7 these members 16 have at each end a trunnion-journal 24, which journals are mounted in boxes 25, secured to the solid portion of the wall. Arms 26 project from members 16, and those of one or, as shown, two tiers are all connected to a rod 27. By slightly reciprocating this rod in the direction of its length the movable members are vibrated. In either case the movement is sufficient to loosen obstructions in a manner which permits the water to carry them away. The agitating-rods 19 and 27 are carried up sufficiently high to be accessible at their upper ends, so that they may be actuated from time to time. The strainer-openings may thus be readily cleared from time to time without expense and no interruption of the pump-service takes place.

Members 16 need not necessarily be considered as forming disconnected parts of the wall of the strainer-section, and they need not necessarily be of the same thickness as such wall; but, it may be assumed, the inlet-orifices being of sufficient size, that these members 16 are simply inserted in a manner to be movable with respect to the edge of the opening surrounding them and in this manner serve to dislodge obstructions.

Having described my invention, I claim as new—

1. A well-strainer having inlet-orifices in its wall, independent members within these orifices of a size to leave a space between them and the edges of the orifices and means whereby these members are supported in a manner to render them movable with reference to the edges of these orifices.

2. A well-strainer having narrow, elongated inlet-orifices arranged in rows in its wall, the parts of this wall separating these orifices consisting of integral and of separated portions, which are alternatingly arranged, bearings whereby the separated portions of the wall are pivotally supported on the integral wall portions and between adjoining orifices in a manner which leaves them free to be moved with respect to one of the edges of each of these orifices on either one of their sides and means for moving these separated portions of the wall.

In testimony whereof I hereunto set my signature in the presence of two witnesses.

MATTHEW J. CLARK.

Witnesses:
C. SPENGEL,
ARTHUR KLINE.