

No. 764,684.

PATENTED JULY 12, 1904.

C. SHAW.

MEANS FOR CLEANING WELL STRAINERS.

APPLICATION FILED OCT. 5, 1903.

NO MODEL.

Fig. 1

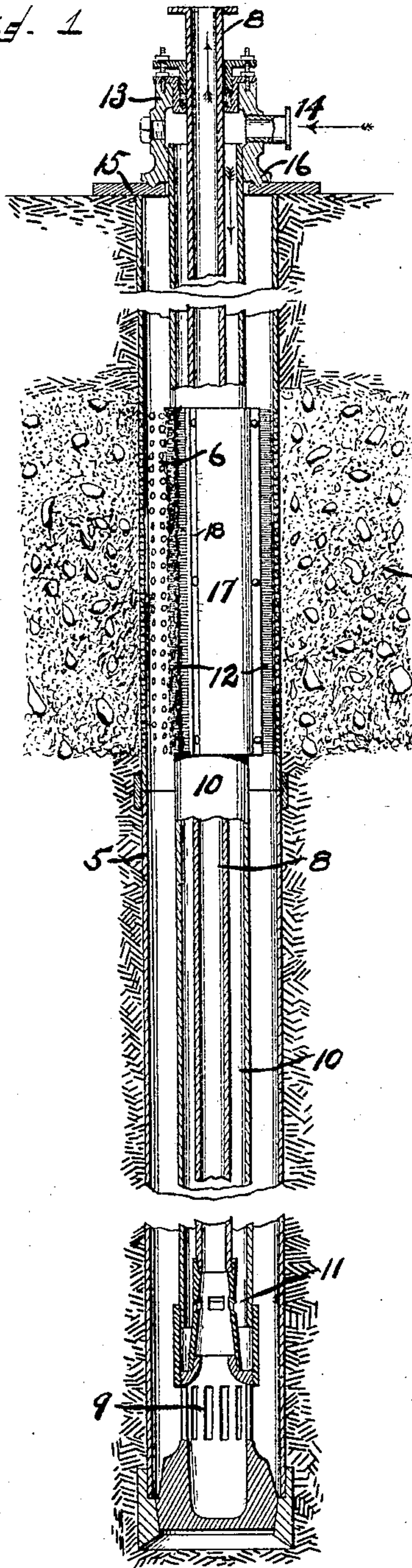


Fig. 2

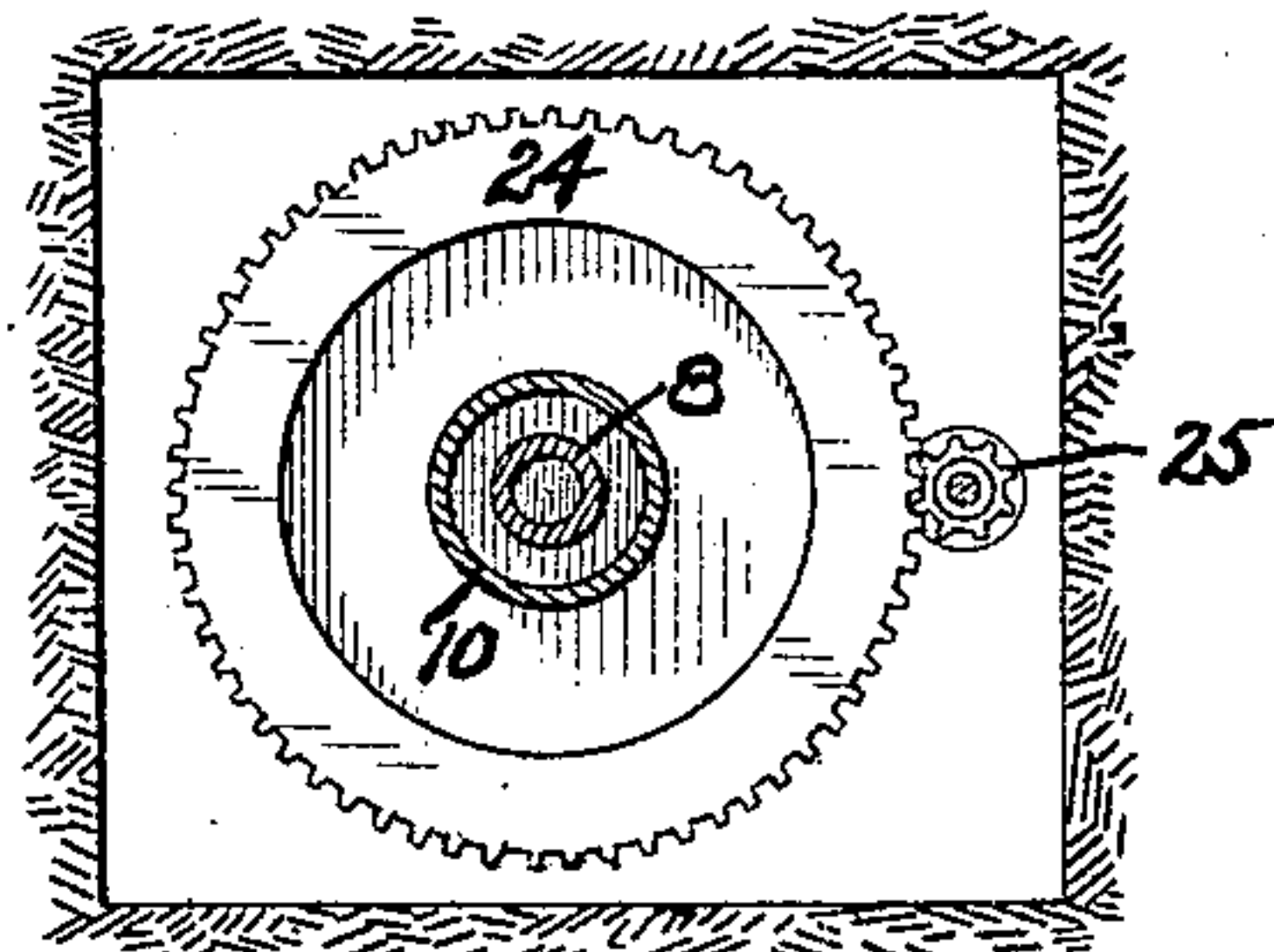
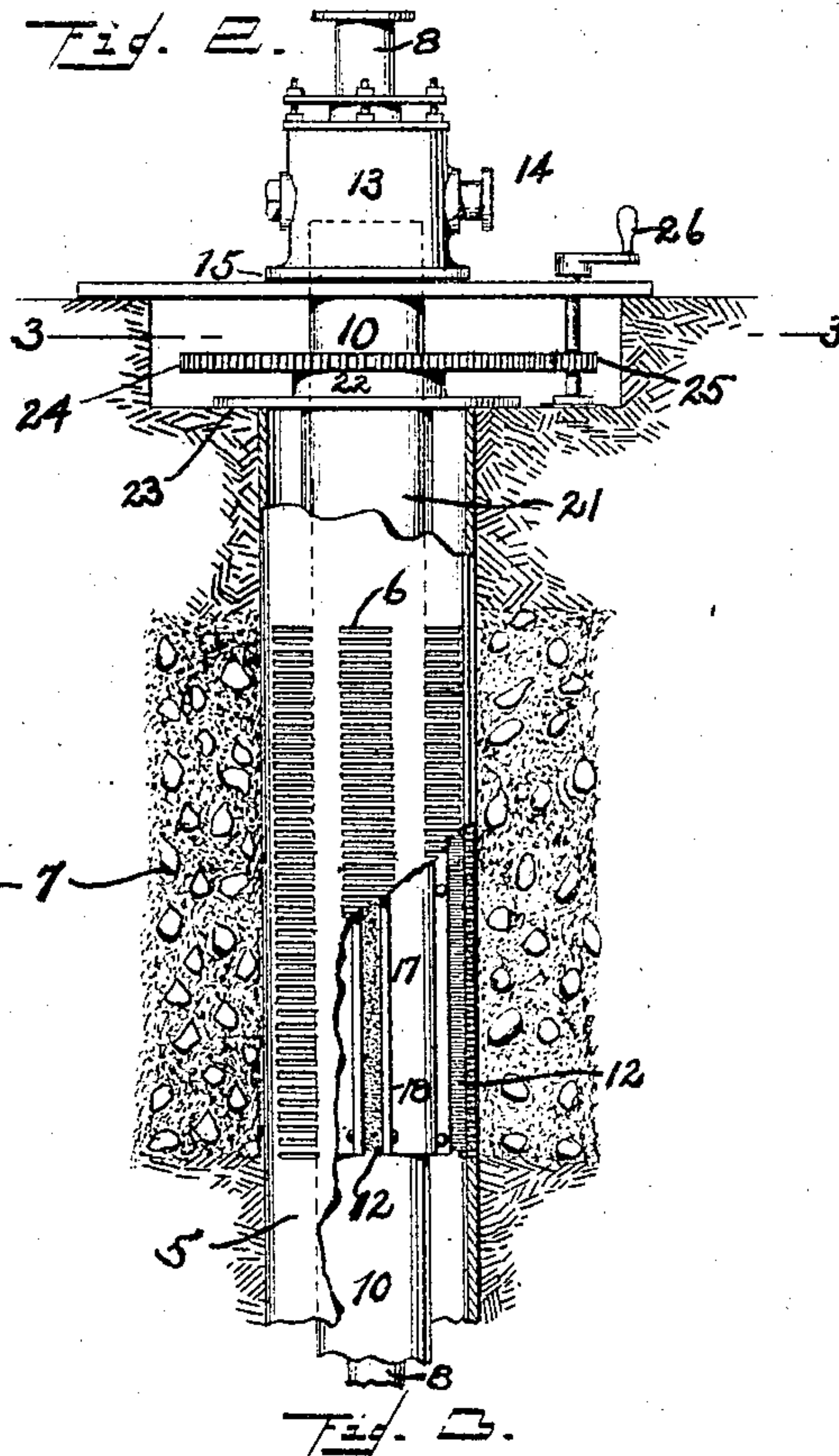
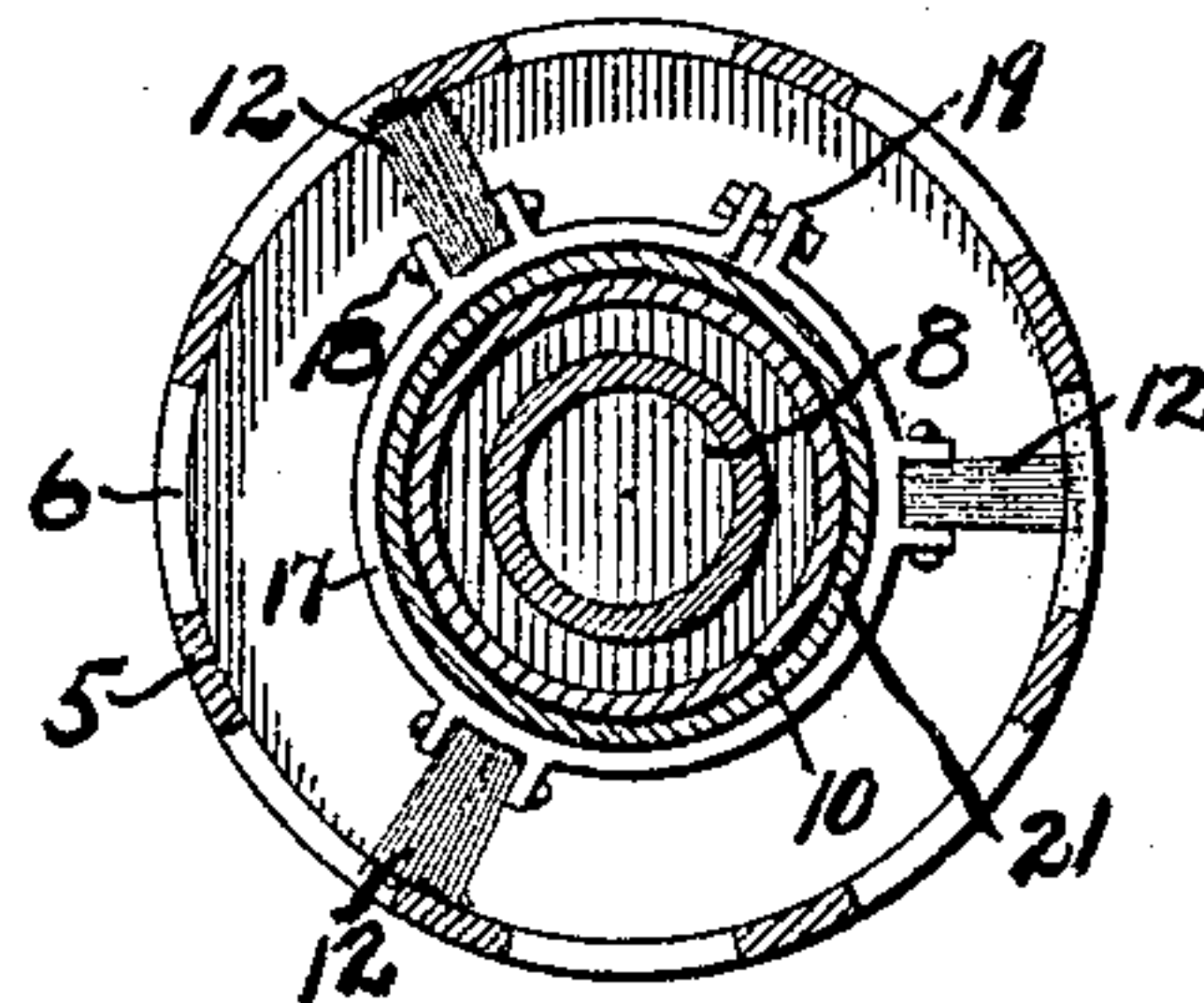


Fig. 4



Witnesses
Albert A. Hoeber
Arthur Kline

Inventor
Clifford Shaw
by C. Spengel atty

UNITED STATES PATENT OFFICE.

CLIFFORD SHAW, OF CINCINNATI, OHIO.

MEANS FOR CLEANING WELL-STRAINERS.

SPECIFICATION forming part of Letters Patent No. 764,684, dated July 12, 1904.

Application filed October 5, 1903. Serial No. 175,780. (No model.)

To all whom it may concern:

Be it known that I, CLIFFORD SHAW, a citizen of the United States, residing in the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Means for Cleaning 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 means for cleaning obstructions out of the openings which admit water to wells where they are lined with tubes and the walls of which are provided with these openings. These latter may be round, but are more often in form of narrow slits, and their area is in most cases quite limited, so that they act at the same time as strainers to prevent entrance of sand, gravel, and other matter not desirable in the well. In time these orifices clog up more or less, thereby reducing the receiving capacity of the well to an extent corresponding to the obstructed area. When this obstructed 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. It also interrupts the service of the well for the time being.

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

My invention is specifically intended for use on such wells from which the water is raised by means of a so-called "air-lift" device of the kind illustrated in one of my former patents numbered 572,850. In such devices there are internal tubes, one being used to carry air down into the well, while in another the water is forced up. These internal tubes form part of the means and construction whereby my present invention is carried out.

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 con-

struction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a vertical elevation of such a well-tube provided with an air-lift device for raising the water, parts broken away and shown in section. Fig. 2 in a view similar to the previous one shows the upper part of such a well-tube with my invention modified. Fig. 3 is a horizontal section of the preceding figure and on line 3 3 thereof. Fig. 4 is an enlarged horizontal section of the well-tube at a depth where the cleaning devices are located, which is at the part where the perforations are provided and opposite the water-bearing strata.

5 is the well-tube proper, having orifices 6 to admit the water. These orifices may be circular, as shown in Fig. 1, but more usually they are narrow slits, as shown in Figs. 2 and 4. Their office is to admit the water while holding back the sand and gravel which surrounds this well-tube. They may be provided all over the well-tube, but are only required opposite the water-bearing strata shown at 7. In the center of this well-tube there is supported a pipe 8, through which the water rises up, it being admitted from the well-tube through openings 9. The water is lifted by air introduced through another pipe 10, surrounding pipe 8, air entering this latter through openings 11. This pipe 10 I utilize as a support for my cleaning device, which consists, substantially, of one or more brushes 12, arranged opposite the inner side of the well-tube and the orifices therein. By arranging this tube in a manner that it may be rotated and providing that the brush projects sufficiently to bear against the inner side of the well-tube it is clear that the orifices may be readily cleaned whenever necessary and without requiring direct access to them nor causing any extended interruption in the service.

The upper end of pipe 10 is connected to a head 13, to which also the air-supply pipe 14 attaches. The upper end of pipe 8 joins here also the water-delivery pipe. By disconnecting these attached pipes head 13 becomes free and may now be rotated for the purpose of

operating brushes 12. To facilitate this rotation, this head 13 is supported on a plate 15, it being provided with an annular projection 16 on its under side seated in a groove in said plate. A suitable implement or chain-wrench may be used for rotating head 13. Brushes 12, preferably of wire, may be attached to pipe 10 in any suitable way serving the purpose. As shown, I use a tube 17, having flanges 18, between which the brush material is held. On one side this tube is open and provided with flanges 19, whereby it is clamped around pipe 10. In Fig. 2 I show a modified arrangement, using this inner pipe 10 merely as a central support, about which the brush-carrier 17 may rotate and whereby it is centered. The brush-carrier is clamped around a cylinder 21 of suitable light material, like sheet or boiler iron. It is extended upwardly and attached to a collar 22, which rests upon plate 23, whereby the entire structure is held suspended at proper height, so as to maintain the brushes opposite the water-inlet openings. To this collar there is attached a gear-wheel 24, which may be rotated by means of a pinion 25. The pinion may be operated in any suitable way to suit location and circumstances. As shown, I use a crank-handle 26, carried at the upper end of the pinion-shaft, which latter extends above the surface.

The entire operating mechanism might, however, be arranged above the surface. Any number of brushes may be used, and each may extend through the entire height of the perforated part of the well-tube, or they may be arranged that one extends only partly so, but all being so spaced that collectively they sweep the entire area. Any other means having an equivalent rubbing or scraping effect may

take the place of the brushes. By this I also mean to include a plain scraper.

Having described my invention, I claim as new—

1. In combination with a well-tube having water-inlets in its side, a tube concentrically within the same, cleaning devices carried by this tube and in contact with the inner side of the perforated part of the well-tube and a head to which the upper end of this tube is attached, said head being supported so as to be free for rotation.

2. The combination with a well-tube having water-inlets in its side and an air-lift device within to raise the water, such air-lift device consisting of concentrically-arranged tubes, of brushes supported on the tubes of this air-lift device and in contact with the inner side of the well-tube where the same is perforated and means to rotate these brushes so that they sweep around over the inside of the well-tube.

3. The combination with a well-tube having water-inlets in its side and an air-lift device within to raise the water, such air-lift device consisting of concentrically-arranged tubes which are supported at their upper ends in a manner permitting them to be rotated, of brushes attached to the outside of these air-lift tubes and in contact with the inner side of the well-tube where the same is perforated so that when these air-lift tubes are rotated the brushes are caused to sweep around over the inside of the well-tube.

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

CLIFFORD SHAW.

Witnesses:

C. SPENGEL,
ALBERT A. MOEBUS.