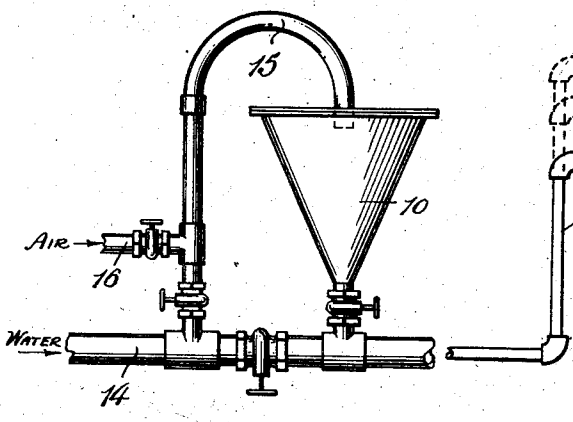
Sept. 15, 1936. T. G. GRIFFIN 2,054,748

METHOD OF INSTALLING A BED OF FILTER MATERIAL AROUND A WELL POINT

Filed Dec. 6, 1934



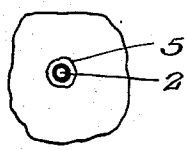


Fig. 2.

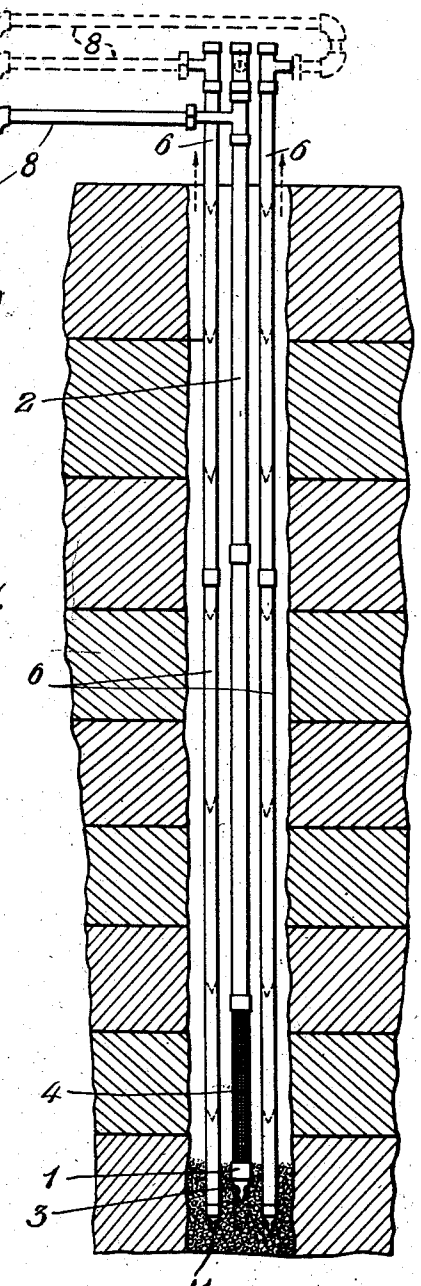


Fig. 1.

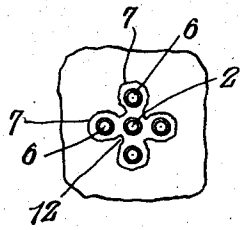


Fig. 3.

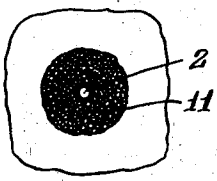


Fig. 4.

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UNITED STATES PATENT OFFICE

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METHOD OF INSTALLING A BED OF FILTER MATERIAL AROUND A WELL POINT

Timothy G. Griffin, Yonkers, N. Y.

Application December 6, 1934, Serial No. 756,347

1 Claim. (Cl. 166—21)

The invention has relation to a method of installing a charge or bed of filter material around a well point or around a well point and its riser pipe in ground being drained, having for an object to facilitate the access of water in water-containing soil to the well point, so that the latter is enabled to operate at all times at full capacity and with increased efficiency.

The invention consists in the novel associated steps as hereinafter set forth in the claim.

In the accompanying drawing illustrating an apparatus for carrying out the invention,

Figure 1 is a side view of an apparatus for carrying out the invention, as applied, with parts broken away, the soils strata being shown in section, and the pipe 8 being shown in full lines as connected to the riser pipe 2, and in dotted and dot and dash lines as connected to the pipes 6.

Figure 2 is a detail cross sectional view of a well point located in the ground and having a space opened around it.

Figure 3 is a similar view showing the surrounding pipes also having spaces opened around the same.

Figure 4 is a similar view with filter bed installed, and the surrounding pipes removed.

In this drawing, the numeral 1 designates a well point of the self-jetting type, adapted to jet the soil by water under pressure to thereby become gradually sunk in the ground.

Such a well point is shown in my pending application for Patent Serial Number 746,591, filed October 2, 1934, a riser pipe 2 being connected thereto and comprising one or more sections as required to extend to the surface of the ground.

The lower head of the well point is provided with a nozzle 3, which may be of the single jetting stream type, or the "drive and jet" nozzle of my pending application for Patent Serial Number 709,217, filed January 31, 1934.

In sinking or driving the well point into the ground, a portion of the water used in the jetting operation passes outwardly through the perforations of the outer tubular screen 4 to lubricate the well point during its downward passage in the ground and to clear the perforations of said screen of any accumulations of solid matter, said water passing upwardly in whole or in part around the well point and its riser pipe to the surface of the ground, thereby loosening the soil around the well point and opening a space 5 around the well point and its riser pipe.

In order to enlarge said space around the well point so that it will have a cross sectional area much greater than that of the well point and to fill said enlarged space with a charge or bed of filter material, a pipe 6, is driven in the ground adjacent and parallel to the well point and its riser pipe, said pipe 6 having a lower nozzle which may be of the single jetting stream type or the "drive and jet" nozzle of my said application for patent, as may be required, the water being jetted under pressure as in the case of the well point itself.

In driving through hard pan, gravel, or other hard subsoil suitable means is used such as repeated taps of a hammer delivered upon the top of the well point, the riser pipe, or the pipe 6 as the case may be.

In driving or sinking the pipe 6 in the ground, the water used in the jetting operation passes upwardly in whole or in part around said pipe to the surface of the ground, thereby loosening the soil around said pipe and opening a space 7 around said pipe, which space is in communication with the space 5 around the well point or around the well point and its riser pipe.

The jetting hose or pipe 8, supplying the pipe 6 with water under pressure may be connected with a sand or gravel placer, comprising a tank 10 for the sand or gravel or both; a pipe 14 to a pressure water line with which said tank communicates at its lower end, said pipe having a by-pass 15 to the top of said tank, said by-pass having connection at 16 with the air line to a compressor (not shown); and suitable valve controls, whereby water or air under pressure may be blown down the pipe 6, either directly, or indirectly through the tank 10.

The charge of sand or gravel is blown down the pipe 6 by fluid under pressure, first into the space 7, around pipe 6, and therefrom into the space 5 around the well point or around the well point and its riser pipe, the pipe 6 being gradually withdrawn to the surface of the ground as the filter charge is placed and resulting in the gradual filling of the spaces 7 and 5 and of the space initially occupied by the pipe 6, with the aforesaid charge.

In practice a single pipe 6 is driven or sunk in the ground a sufficient number of times around the well point to open a plurality of spaces 7 equally spaced from each other, said spaces being in communication with each other or being spaced apart by soil partitions 12, depending upon the proximity of the openings 7 to each other, that is to say upon the number of openings 7. On the other hand a plurality of pipes 6 may be driven or sunk in the ground as shown in Figures 1 and 3.

In the gradual filling of the spaces 7 around

the pipe 6, successively driven or sunk in the ground as stated, and the space initially occupied by said pipe, and the space 5 around the well point with the charge or charges of filter material, any loose soil remaining in the spaces 7 and 5 and any soil partitions 12 between spaces 7, will not interfere, said partitions if any being broken down during such operation, and resulting in the installation of a substantially homogeneous filter bed 11 immediately around the well point and its riser pipe and of much greater area cross sectionally than that of the well point.

I claim:—

A method of installing filter material around a well point and its riser pipe, comprising first jetting a well point downwardly to water containing soil and thereby opening a space surrounding the well point and said riser pipe to the surface of the ground; second jetting another pipe downwardly to open another space in the ground adjacent and parallel to and of the same length as that of said first named space; and third gradually withdrawing said other pipe to the surface of the ground and simultaneously discharging therefrom filter material into said other space and therefrom into said first named space surrounding the well point and its riser pipe to completely fill both spaces to the surface of the ground.

TIMOTHY G. GRIFFIN.