Feb. 3, 1953 H. C. HETTINGER 2,627,315

WELL POINT CORE

Filed May 9, 1951

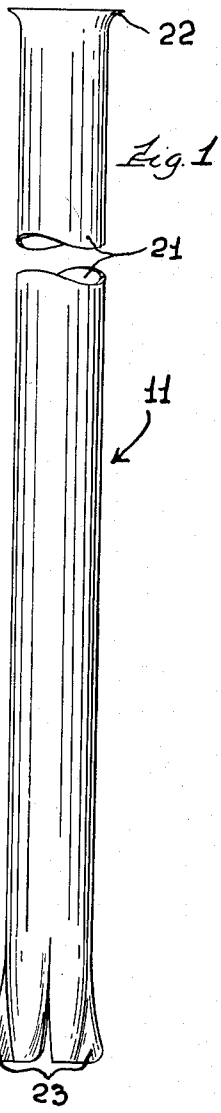


Fig. 1

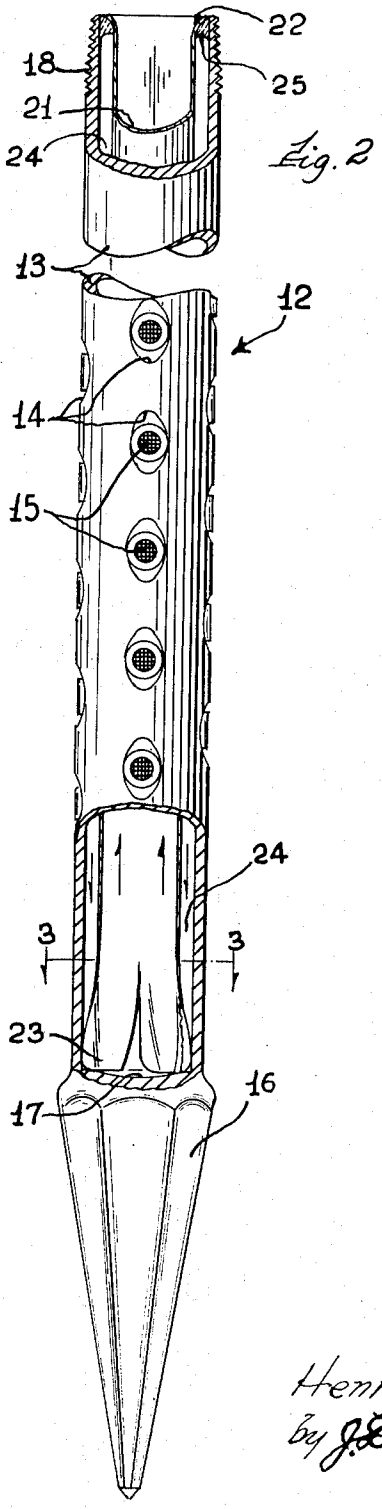


Fig. 2

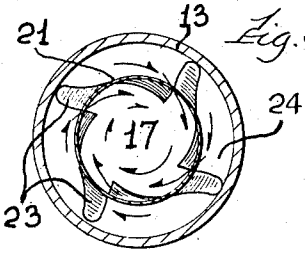
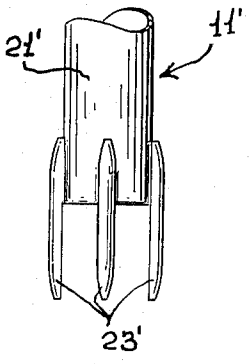


Fig. 3

Fig. 4.



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WELL POINT CORE

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4 Claims. (Cl. 166—5)

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This invention relates to a novel well point core.

It is generally known in this art that by the use of the customary well point embedded in a layer of water-bearing material, such as sand and silt, the usual screened perforations or inlet openings in the tubular wall portion of the well point will admit some silt and fine particles therethru, which particles become lodged within said wall portion and gradually pile up from the lower tip end against the inside of the wall and its perforations; and that after continued use of such well point the perforations will eventually become covered and the well point finally rendered ineffective for the proper flow of water therethru. It furthermore appears that even where such well point may have been equipped heretofore with an inner tube for conducting the water upwards therethru, as indicated by the patent to Berky, No. 1,004,528, such inner tube had its inlet openings positioned a distance upward from its lower end and away from the well point tip, thus still permitting sand and silt to get lodged upon such bottom tip, inside the tubular wall of the well point, and thus gradually diminish the flow of water therethru.

It is the essential object of this invention to provide means for overcoming such deficiency in the customary type of well point, by providing an improved tubular insert or core arranged for mounting within such type of well point, and so constructed as to direct the flow of liquid, that enters thru said perforations and travels between said core and the wall of the well point, to flow with a rapid surge inwards upon the upper face of said tip and therefrom to surge upwards within said tubular core, in such a manner as to prevent any silt from getting started to lodge within the well point thus equipped with this novel core.

A more particular object of this invention is to provide such an improved tubular core which is equipped with improved inlet means at its lower end, all constructed and arranged so as to direct the flow of the incoming liquid in a spiral or swirling stream over said tip and therefrom deflect it with a rapid surge upwards thru this tubular core.

These and various other objects and advantages are attained with this invention, as will become apparent from the following description, taken in connection with the accompanying drawing wherein the invention is shown in its preferred form, it being evident that other arrangements and modifications may be resorted to

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for accomplishing the purposes of this invention.

In the drawing:

Fig. 1 is an elevational view of the tubular core comprising this invention, being shown partly broken away.

Fig. 2 is an elevational view showing a known form of well point containing this core mounted in its operative position therein, both shown partly broken away.

Fig. 3 is a slightly enlarged cross-sectional view of the well point and core therein, taken on line 3—3 of Fig. 2.

Fig. 4 is a partial view showing the lower end of a modified form of core, containing spaced legs instead of the curved wings.

In the drawing this invention is shown in its preferred form, comprising a tubular core 11 which is arranged to be readily mountable in a known type of well point 12 for use therewith. Such a well point 12 is shown herein as including the tubular wall or casing 13 which contains the customary perforations or inlet openings 14 having screening means 15 mounted thereacross; and this tubular wall 13 contains on its lower end the solid tip 16, the top face 17 of which forms the bottom of the wall 13. The upper end of this wall 13 comprises the threaded end part 18 adapted for connection with the usual well tubing thereabove, as is all well known.

This improved core 11 as illustrated herein comprises a tubular main portion or body 21 which is imperforate and is of such a shape and size as to fit within the tubular wall 13 of the well point 12, and to be spaced slightly inwardly from the interior surface of said wall. This core comprises upper spacing means 22 and lower spacing means 23, extending outwardly from the upper part and from the lower part of said body 21, respectively, so as to space said body a slight distance inward from the interior of the wall 13 and thereby provide a fluid space or chamber 24, in the shape of a thin cylindrical chamber between said body and wall.

This core 11 is preferably constructed in the form of one unitary member, and the upper spacing means 22 is arranged as an outwardly extending flange, adapted to provide a driving fit within the upper end of the wall 13 of the well point. Said flange means 22 may also be brazed or welded into said upper end of the well point; and solder 25 may be added to this flange means 22 to provide a permanent fluid-tight connection with said wall.

The spacing means 23 at the lower end of this

tubular body 21 is arranged in the form of curved wings, and it is preferably provided by splitting the tube a short distance upward from the bottom end and bending the several split end parts into the shape of curved wings, substantially like propeller blades; and in such a form as to direct the liquid and all substance, that enters thru the perforations and comes down thru chamber 24, to flow and surge in a swirling and spiral stream over the top face 17 on said tip 15, and thence up within said tubular core, during the pumping operation. These curved blades or wings 23 are thus seated upon said face 17 within the bottom end of said wall 13, and support the core in its properly spaced relation at this end, and they will impart a fast circular twisting or swirling motion to the fluid traveling and impinging upon said face 17 in its travel up thru said tubular core.

It should also be noted that with the use of this tubular core mounted in such a well point, the well point will operate effectively when immersed in shallow water in the well; and that even if the water stands only up to the upper parts of these short bottom wings 23 of this core, the pump equipped with this well point and core therein can still operate efficiently.

Fig. 4 discloses a modified form of core 11', wherewith the lower spacing means 23' are provided in the form of legs positioned in spaced relation around the lower end of the tubular body 21', and serve as the spacing and supporting means for the core in the well point, as more fully described and claimed in my co-pending application for Core for Well Point, Serial No. 121,079, filed October 13, 1949.

I claim:

1. A core for a well point including a lower tip and a tubular wall thereabove provided with inlet openings, said core comprising a tubular body fitting loosely within said tubular wall, means at the upper end of said body to mount it spaced inward of and fluid-tight within said wall, and a plurality of spaced apart elements at the lower end of said body extending downwardly and outwardly thereof, to provide a flow chamber between said body and wall and to support the body upon the bottom of said chamber, said elements being positioned below said inlet openings and arranged at a slant downwardly to cause the substance flowing from said chamber between said elements, during the pumping operation, to flow with a swirling motion over said lower tip, in its travel upwards in said body.

2. A core for a well point including a lower tip and a tubular wall thereabove provided with screened inlet perforations, said core comprising an imperforate tubular body fitting loosely within said wall, means on the upper end of said body to mount it spaced inward of and fluid-tight within said wall, and a plurality of propeller-like curved wings extending downwardly and outwardly from the lower end of said body, to space said end from the wall and the tip and provide a flow chamber between said body and wall, said perforations being positioned above said wings and said tip, thereby causing the substance that flows thru said chamber, during the pumping operation, to travel with a swirling motion from said wings over said tip and thence upward in the body, to prevent lodging of silt and substance upon said tip.

3. The subject matter set forth in claim 2, and wherein the core consists of one unitary member, its upper end means comprises an outwardly curved flange, and the wings are in the form of blades integral with and curved outwardly and downwardly from the lower end of the body.

4. In a well point containing a lower tip and a perforated tubular wall above the tip, a core comprising an imperforate tubular body mounted within said wall, spacing means around the upper end of said body securing it spaced inward of and fluid-tight within said wall, blades integral on the lower end of said body, extending curved downwardly and outwardly at said end and bearing upon the top face of said tip, the perforations in said wall being positioned above said blades and said tip, causing the substance that flows thru said wall during the pumping operation to be directed by said blades with a swirling motion over said tip and up in said body.

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REFERENCES CITED

The following references are of record in the file of this patent:

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