

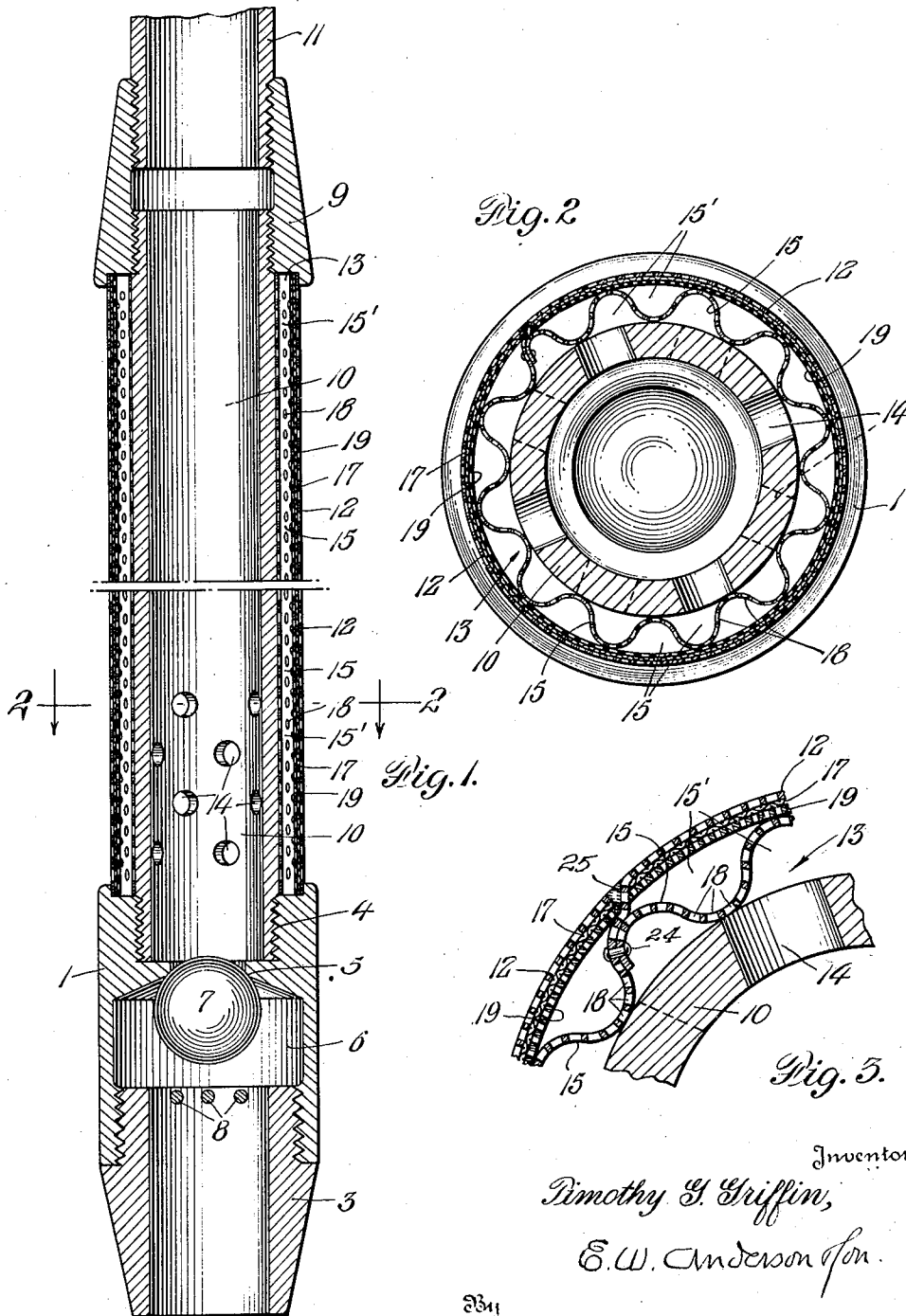
March 24, 1936.

T. G. GRIFFIN

2,035,313

WELL POINT

Filed Oct. 2, 1934



UNITED STATES PATENT OFFICE

2,035,313

WELL POINT

Timothy G. Griffin, Yonkers, N. Y.

Application October 2, 1934, Serial No. 746,591

2 Claims. (Cl. 166—5)

The invention has relation to apparatus for draining water containing soil, and particularly to devices commonly known as well points, of the self jetting type, adapted to jet the soil by water under pressure, whereby the device is gradually sunk in the hole thus formed, and when sunk to the proper depth adapted for withdrawing the water from the soil by suction, preparatory to construction or other work.

It is an object of the invention to provide certain improvements on the device of my application for patent Serial Number 738,132, filed August 2, 1934, which has resulted in Patent No. 2,011,518, dated August 13, 1935, to increase the drainage capacity and reduce friction of the water being drained, in its passage through the well point, thereby increasing efficiency. Another object is to increase the stiffening, reinforcing and bracing action of the spacers located between the cylindrical pipe and the outer tubular screen to thereby provide a stronger device. Another object is to adapt the outer tubular screen and said spacers to be formed of a single sheet of perforated metal. Another object is to avoid necessity of connecting said spacers to said cylindrical pipe. Another object is to form said spacers collectively into a single unit or element of the well point. Another object is to form said outer tubular screen and said spacers into a single unit or element of the well point. Other objects and advantages will appear hereinafter.

The invention consists in the novel construction and combinations of parts, as hereinafter set forth in the claims.

In the accompanying drawing illustrating the invention,

Figure 1 is a central vertical section of the well point, partly broken away.

Figure 2 is a section on the line 2—2, Figure 1, and

Figure 3 is a detail fragmentary sectional view.

In the drawing, the numeral 1 designates the lower head of the well point, including a valve seat 5, and a valve chamber 6 located below said seat and wherein works a valve 7, adapted to engage said seat. The lower head 1 is provided with a nozzle 3, shown as of the single jetting stream type, although obviously other types of nozzles may be used. The nozzle 3 is provided with a stop 8, located below the chamber 6, and whereon the valve 7 will rest during the jetting operation.

An upper head 9, is located above and in line with the lower head 1, and concentric with and having threaded connection 4 with the two heads

is a cylindrical pipe 10. Surrounding the pipe 10 and concentric therewith is a tubular cylindrical screen 12, spaced from said pipe by an annular drainage space 13.

The pipe 10, has at the lower end portion only thereof adjacent said valve, a plurality of perforations 14, establishing direct communication for the drainage water from said annular space to the interior of said pipe, said perforations having a total area which is restricted so as not to be too large with respect to the cross-sectional area of the interior of said pipe, and said valve chamber communicating directly with the opening of the lower end of said pipe through said valve seat, whereby suction applied to the upper head will be confined to the lower end portion of said pipe adjacent said valve and be effective to close said valve and draw water being drained through said pipe perforations.

The upper head 9 has connected thereto a riser pipe 11, in one or more sections as required, and extending to the surface of the ground.

In order to space the screen 12 from the cylindrical pipe 10, and to stiffen and reinforce the construction, a longitudinally corrugated pipe 15, is located within said annular drainage space 13 between pipe 10 and screen 12, and is provided with alternating hollow ridges and hollow valleys dividing said annular space into an inner and outer series of longitudinal drainage channels 15' for the water. The pipe 15 is of such strength due to its corrugated construction that it is adapted to be perforated throughout as in the case of the screen 12, without undue sacrifice of its bracing and reinforcing action. The perforations 18 of the corrugated pipe 15 establish communication between the drainage channels and the perforations of the cylindrical pipe, and also establish intercommunication between the drainage channels adapted to maintain circulation of drainage water in all of said channels and to keep said channels clear. The corrugated pipe 15 being adapted to be perforated throughout as in the case of the screen 12, drainage capacity is increased and friction of the water being drained through the well point is reduced.

An inner fine mesh tubular screen 17 is located between the screen 12 and the pipe 15, and in case there should be danger of injury to the fine mesh screen and to add strength, an inner tubular screen 19 may be used as a backing for the fine mesh screen between the same and the corrugated pipe 15.

A portion of the water used in the jetting op-

eration passes outwardly through the perforations of the screen 12 and acts to lubricate the well point in its downward passage in the ground and to clear the perforations of the screen or
 5 screens of any accumulation of solid matter, and in the present case, due to the perforations of the pipe 10 being located opposite the screen 12, and the large number of perforations in the corrugated pipe 15, the passage of the water outwardly to and through the screen 12 is facilitated.

In the process of manufacture of the screen 12 and the corrugated pipe 15, a single sheet of perforated metal is adapted to have one portion thereof formed with the longitudinal corrugations, after which the corrugated portion may be rolled around a tubular pipe or former of the same diameter as that of the pipe 10, to produce the corrugated pipe 15, the abutting edge portions being adapted to be secured together at
 15 24 to hold said pipe 15 in form, and finally the balance of said sheet may be rolled around the corrugated pipe to produce the screen 12, the abutting edge portions of which may be secured
 20 together at 25 to hold said screen in form, the result being a single unit or element of the well point. Or the corrugated pipe 15 may be formed as a single unit or element of the well point, to take the place of the separate spacers commonly
 25 employed which are separately secured to the cylindrical pipe.

The manufacture may in this way be much simplified and accomplished with considerable saving of time and cost, also resulting in a stronger construction.

In the process of manufacture and prior to said rolling, the fine mesh screen 17 in sheet form may be secured along one edge portion thereof to the uncorrugated portion of said perforated sheet as a backing therefor, and after
 30 rolling of both sheets around the corrugated pipe 15 formed in the initial rolling, the outer tubular screen and the fine mesh tubular screen backing therefor, thus completed may be secured together at 25, this securing means acting to hold
 35 both the outer tubular screen and the inner fine mesh tubular screen in form.

In case the inner tubular screen 19 is to be used, this screen in sheet form may be secured along one longitudinal edge thereof to the fine mesh screen and the outer perforated sheet prior to rolling, after which all three sheets may be rolled around the corrugated pipe 15, to thereby form the three tubular screens in one operation,
 40 the securing means 25 acting to hold the three screens in form.

I claim:—

1. In a well point having upper and lower tubular spaced heads, a tubular cylindrical screen located between and concentric with said heads, and a cylindrical pipe located within and spaced
 5 from said screen by an annular drainage space and concentric with and connecting said heads, said lower head having a nozzle and a valve seat, a valve chamber below said seat, and a valve in said chamber adapted to engage said seat, said
 10 cylindrical pipe having at the lower end portion only thereof adjacent said valve a plurality of perforations, said valve chamber communicating directly with the opening of the lower end of said
 15 pipe through said valve seat; a longitudinally corrugated pipe located within said annular drainage space and having alternating hollow ridges and hollow valleys dividing said drainage space into an inner and an outer series of longitudinal drainage channels and provided with
 20 perforations establishing communication between said channels and the perforations of the cylindrical pipe and also establishing intercommunication between said channels adapted to maintain circulation of drainage water in all channels
 25 and to keep said channels clear.

2. In a well point having upper and lower tubular spaced heads, a tubular cylindrical screen located between and concentric with said heads, and a cylindrical pipe located within and spaced
 30 from said screen by an annular drainage space and concentric with and connecting said heads, said lower head having a nozzle, a valve seat, a valve chamber below said seat and a valve in said chamber adapted to engage said seat, said
 35 cylindrical pipe having at the lower end portion only thereof adjacent said valve a plurality of perforations, said valve chamber communicating directly with the opening of the lower end of said
 40 pipe through said valve seat; a longitudinally corrugated pipe located within said drainage space and having alternating hollow ridges and hollow valleys dividing said drainage space into an inner and an outer series of longitudinal
 45 drainage channels and provided with perforations establishing communication between said channels and the perforations of said cylindrical pipe and also establishing intercommunication between said channels adapted to maintain circulation of drainage water in all channels and
 50 to keep said channels clear, said tubular screen and said corrugated pipe being formed of a single sheet of perforated metal.

TIMOTHY G. GRIFFIN.

55