

United States Patent

[11] 3,566,982

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[21] Appl. No. **810,581**
[22] Filed **Mar. 26, 1969**
[45] Patented **Mar. 2, 1971**
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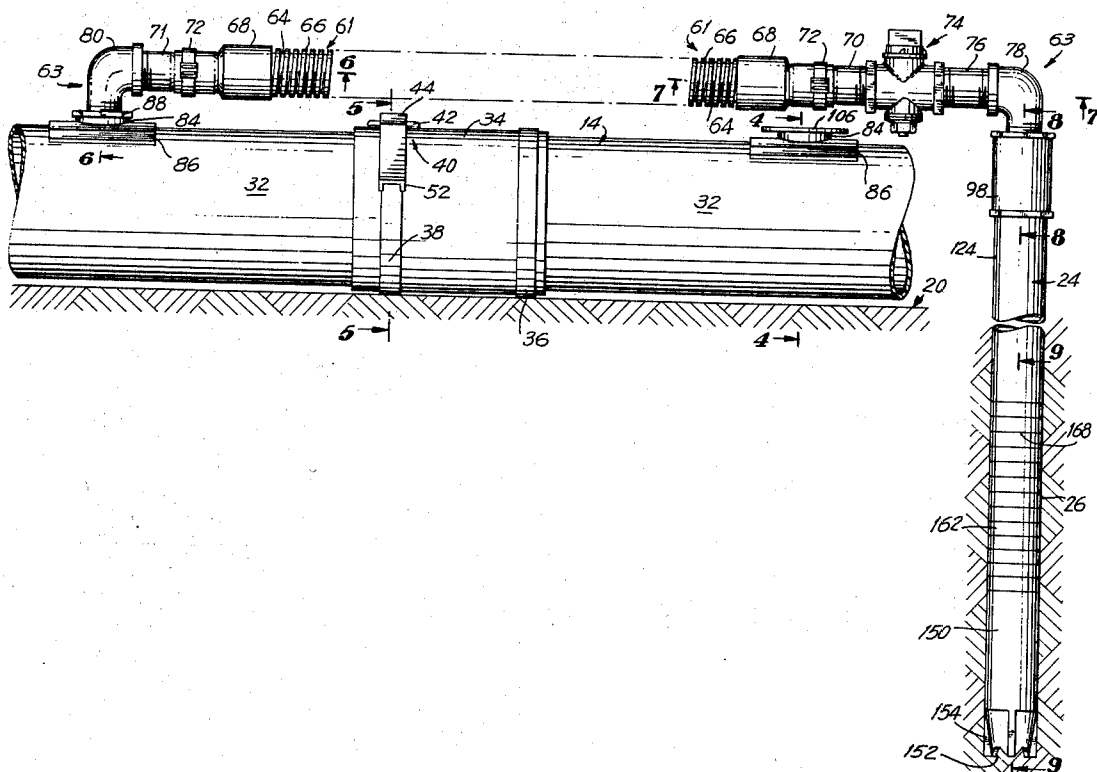
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[54] **WELL POINT SYSTEM**
15 Claims, 16 Drawing Figs.

[52] U.S. Cl..... **175/314,**
61/11, 285/351
[51] Int. Cl..... **E21b 39/00,**
E02b 11/00
[50] Field of Search..... **175/314;**
285/351, 420, 254; 61/11, 1, 10

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ABSTRACT: A well point system including snap-in coupling means between each of the connecting means and the header pipe unit and respective well point assembly. The coupling means includes a sleeve and an insert adapted to be disposed therein, said insert having an outer wall formed with at least one circumferential channel and including a resilient sealing member disposed in said channel for forming a fluid-type seal with said sleeve. The header pipe unit is provided with a sheath snugly receiving the adjacent ends of adjacent pipe sections, said sheath being pressingly engaged against each of said pipe section by means of bands disposed about the outer peripheral surface thereof. One of said bands is provided with clamp means for releasably securing said band to permit the assembly and disassembly of the header pipe unit. The well point assembly includes spaced inner and outer conduits, the outer conduits being formed with a plurality of axially spaced slits therethrough, each extending partially about the circumference thereof.



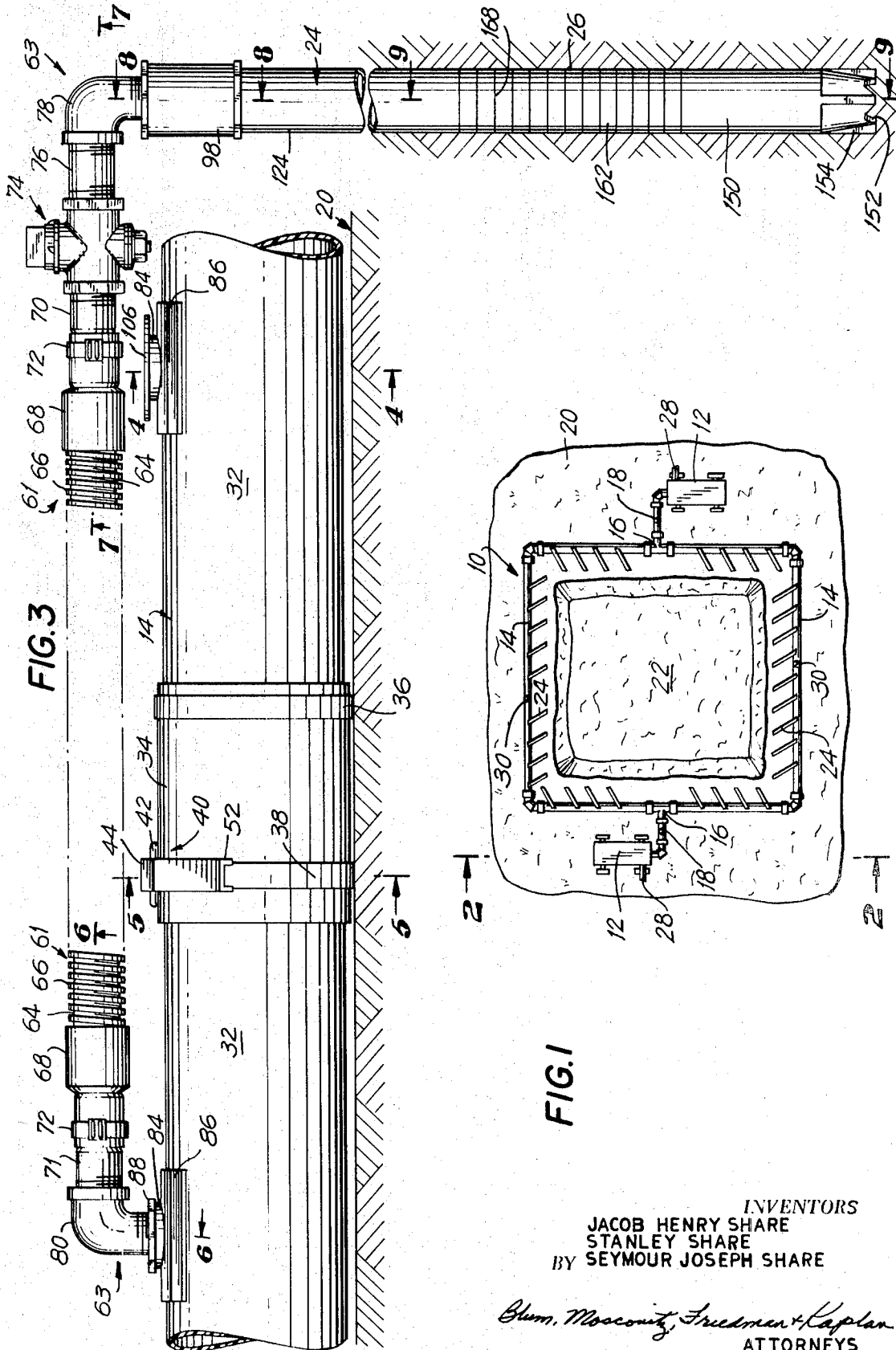


FIG. 1

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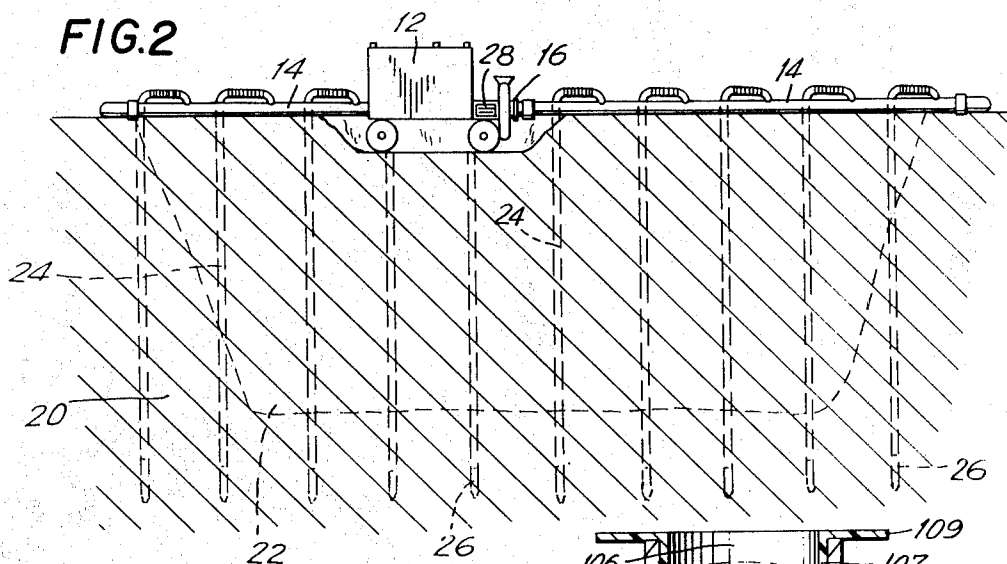


FIG. 4

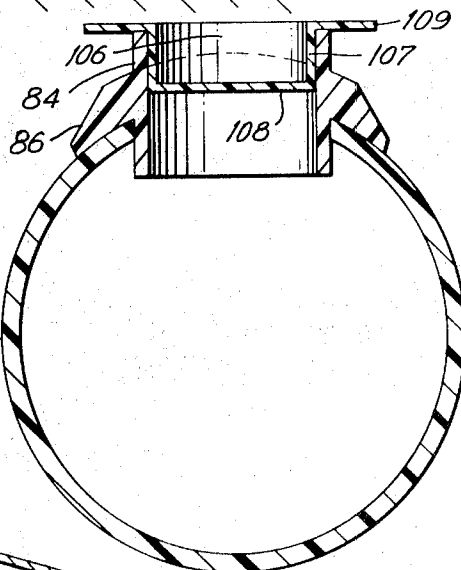
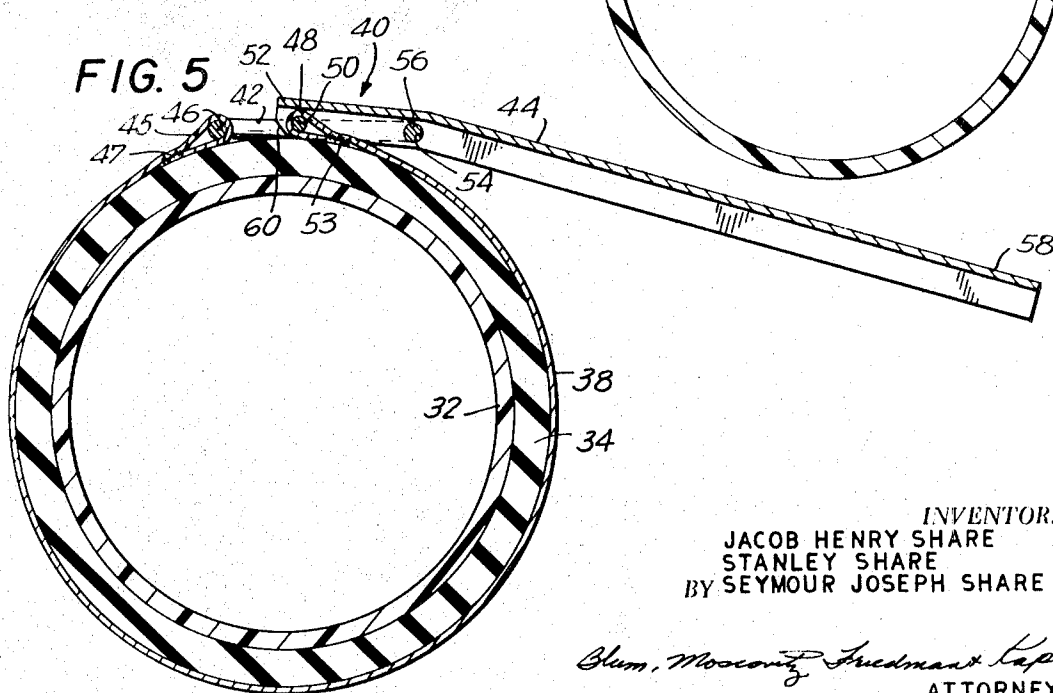


FIG. 5



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FIG. 8

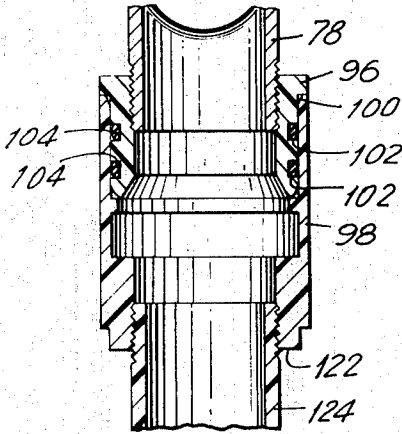


FIG. 13

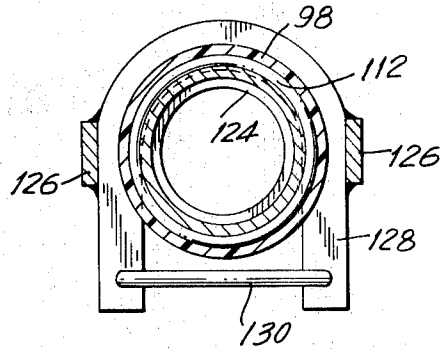


FIG. 12

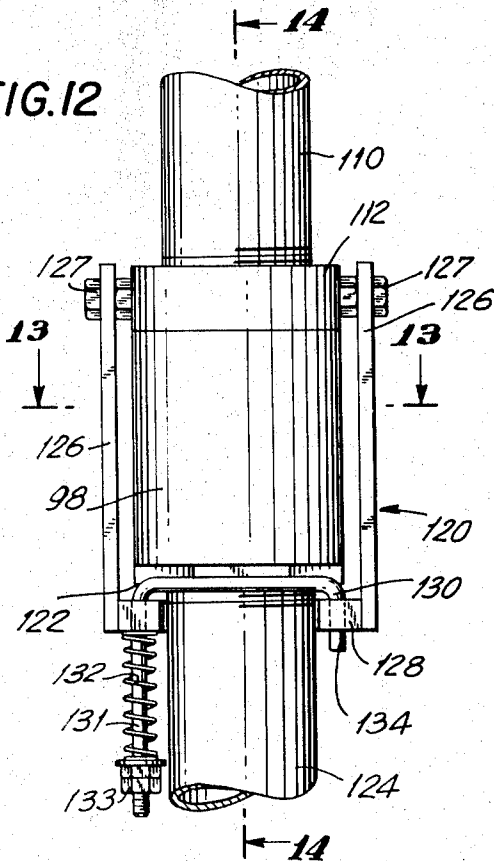
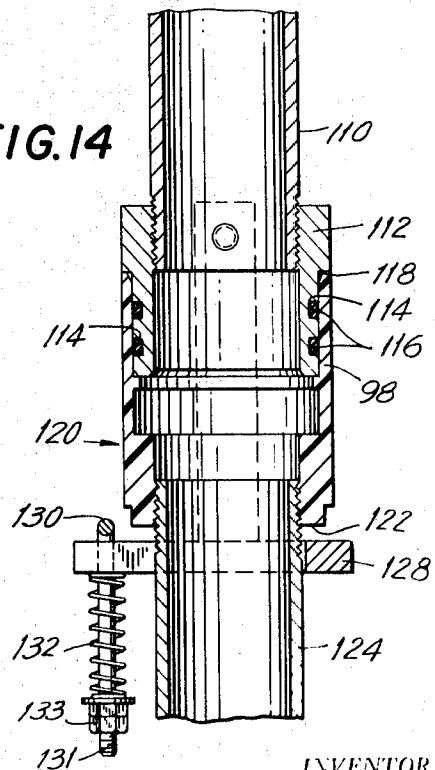


FIG. 14



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FIG. 9

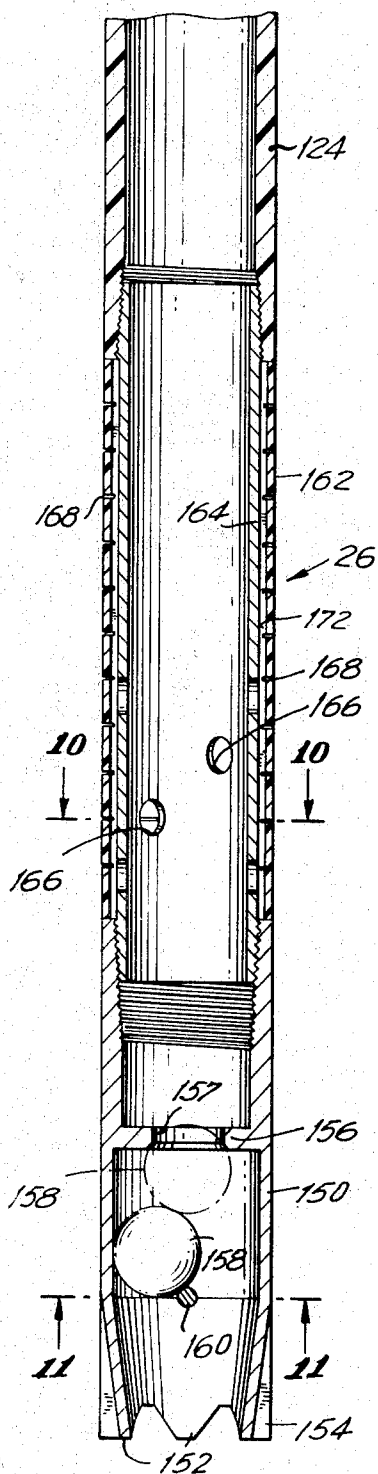


FIG. 10

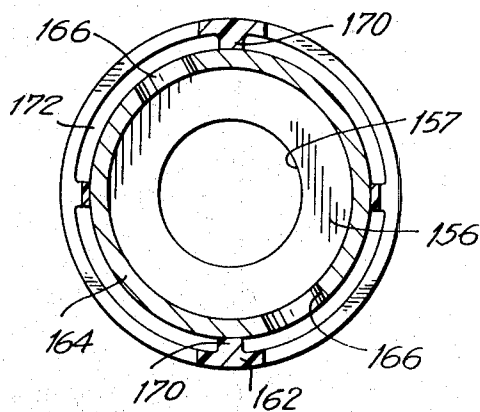
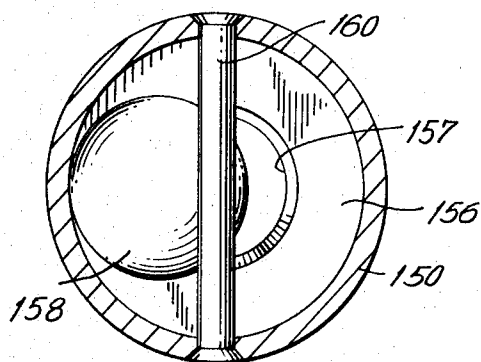


FIG. 11



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WELL POINT SYSTEM

BACKGROUND OF THE INVENTION

This invention relates generally to well point systems of the type used to drain the ground water from an excavation site. Such well point systems are generally characterized as including a plurality of well point assemblies driven into the ground along the periphery of said excavation site, a header pipe unit to which said well point assemblies are connected and a vacuum pump also connected to said header pipe unit to provide the vacuum necessary to draw the ground water through the well point assemblies and header pipe to lower the water table at the excavation site.

The known well point assemblies have been expensive and difficult to utilize because of their great weight and the time required to assembly and disassembly the various components where conventional threaded couplings are utilized. This is particularly important in the operation of well point systems since the well point assemblies must first be driven into the ground by means of a separate source of water under pressure and then connected to the header pipe unit. Also, if the header pipe or a well point assembly breaks, frequently the entire system must be shut down for the period required to make the repair. Accordingly, a quickly and readily assembled well point system would offer substantial advantages. Further, the existing well points tend to clog due to the sand or dirt in which they are placed, and therefore tend to operate inefficiently.

SUMMARY OF THE INVENTION

Generally speaking, in accordance with the invention, a well point system including a header pipe unit, a pumping unit operatively connected to said header pipe unit, a plurality of well point assemblies and a plurality of connecting means for providing fluidtight connection between said well point assemblies and said header pipe unit, is provided with improvements according to the invention which include snap-in coupling means between each of said connecting means and said header pipe unit and respective well point assemblies. Each of said coupling means includes a longitudinally extending sleeve having an inner wall, a longitudinally extending insert having an outer wall formed with at least one circumferential channel therein, and at least one resilient sealing member disposed and retained in said channel to provide a fluid tight seal with the inner wall of said sleeve.

The output end of the water conduit utilized to transmit the water under pressure to the well point assemblies for driving said assemblies into the ground is also formed with said insert. Further, said output end of said water conduit is also provided with retaining means to lock said output end to the sleeve defining the upper end of the well point assembly while water under pressure is being passed therethrough. Also provided is a grasping means adapted to grasp said well point assembly sleeve to permit removal of said well point assembly by means of a crane.

The header pipe unit according to the invention includes a sheath snugly receiving adjacent ends of adjacent pipe sections therein and first and second bands disposed about the outer peripheral surface of said sheath to pressingly engage said sheath against said pipe section. One of said bands is provided with clamp means for releasably securing same to permit the assembly and disassembly of said header pipe unit.

The well point assembly according to the invention includes concentric outer and inner conduits, said outer conduit being formed with a plurality of axially spaced slits therethrough, each extending partially about the circumference thereof. Said inner conduit is formed with a plurality of apertures therethrough adjacent the bottom end thereof.

Accordingly, it is an object of the invention to provide a well point system which is readily assembled, disassembled, installed and removed.

Another object of the invention is to provide a well point system wherein the well point efficiently drains the water from the excavation site throughout the period of excavation.

A further object of the invention is to provide a well point system wherein the various components thereof can be assembled by merely inserting one into the other without the necessity of threaded engagements and the use of special tools.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is had to the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a top view of an excavation site with a well point system disposed thereabout;

FIG. 2 is a sectional view taken along lines 2-2 of FIG. 2;

FIG. 3 is a partial side view of the well point system according to the invention with portions broken away;

FIGS. 4-9 are sectional views taken along lines 4-4, 5-5, 6-6, 7-7, 8-8, and 9-9 respectively of FIG. 3;

FIGS. 10 and 11 are sectional views taken along lines 10-10 and 11-11 respectively of FIG. 9;

FIG. 12 is a fragmented elevational view of the means for retaining the coupling between a conduit connected to a source of water under pressure and the well point assembly according to the invention;

FIGS. 13 and 14 are sectional views taken along lines 13-13 and 14-14 of FIG. 12;

FIG. 15 is a fragmented elevational view of the means for grasping the well point assemblies according to the invention for removal thereof from the ground by a crane; and

FIG. 16 is a sectional view taken along lines 16-16 of FIG. 15.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIG. 1, a well point system 10 is depicted installed at an excavation site for lowering the water table to permit excavation. The system generally includes vacuum pumps 12 and header pipe unit 14 connected at T-joints 16 through valves 18 to said vacuum pumps. Driven into the ground 20 along the periphery of excavation 22 are a plurality of well point assemblies 24 connected at their upper end to header pipe unit 14. The lower portion of each of said well point assemblies defines a well point 26 adapted to draw water from the ground into the well point assembly upon the operation of vacuum pump 12. The water is drawn through the well point assembly and header pipe unit to outlet line 28 which carries the water away from the excavation site. Valves 30 are provided to divide the system into two halves if both pumps are operating simultaneously.

Turning now to FIGS. 3-11, a section of header pipe unit 14 and one well point assembly 24 are depicted, showing the improvements thereof according to the invention. Header pipe unit 14 includes axially aligned lengths of pipe 32 preferably formed from a plastic to reduce the weight of the system, thereby facilitating handling and installation. Disposed about the adjacent ends of said lengths of pipe is a sheath 34 preferably formed of a resilient material such as rubber and sized to snugly engaged the outer peripheral surface of pipes 32. In order to insure an air and watertight seal between the sheath and pipes, bands 36 and 38 are tightly wrapped around the peripheral surface of sheath 34 to pressingly engage said sheath against the peripheral surface of pipes 32. Band 36 is preferably permanently clamped in position in a conventional manner. On the other hand, band 38 is

provided with a clamp 40 specifically adapted to permit the rapid tightening and loosening of band 38 whereby header pipe unit 14 may be readily assembled and disassembled.

As best shown in FIG. 5, clamp 40 includes link 42 and lever arm 44. One end of band 38 is folded over to define a loop 45 extending about side 46 of link 42. Said loop is closed by welding or other fastening means at 47 to secure the end of the band to said link. The other end of band 38 is also formed in a loop 48 which extends about pin 50 mounted at end 52 of lever arm 44 to define a hinged mounting of said band on said lever arm. The end of band 38 defining loop 48 is also welded or otherwise secured at 53. Lever arm 44 has a channel-shaped cross section and is formed with laterally aligned apertures 54 in the side walls thereof spaced from end 52. Side 56 of link 42 extends through said apertures to define a hinged mounting between said link and lever arm 44. The space between apertures 54 and end 52 is selected to permit end 52 to extend into the central opening in link 42 without interference by side 46 of said link. The other end 58 of lever arm 44 defines a handle for the operation of clamp 40. The inner corner 60 of end 52 is rounded to define a pivot point for said lever arm.

Clamp 40 is shown disposed in the closed position of FIG. 5. To release the band to permit separation of pipes 32, end 58 of lever arm 44 is raised away from said pipe to pivot end 52 about corner 60. Because of the eccentric location about said corner of apertures 54 as compared to pin 50 of said lever arm, band 38 is first tightened and then released during the opening operation. Since force must be exerted on the clamp to effect the initial tightening of this operation, the clamp is retained in its closed position. Sheath 34 is formed of a resilient material to absorb this initial tightening. In like manner, to close clamp 40, end 58 of lever arm 44 is disposed towards the pipe to pivot said lever arm about corner 60. Additional force must be applied to end 58 to carry the clamp through the point of maximum tightening to the rest position shown in FIG. 5. Lever arm 44 is bent slightly in the region of apertures 54 so that, in the region of maximum tightening of band 38, end 58 substantially defines a tangent with the peripheral surface of sheath 34 at the point of contact of corner 60. The force applied by a user grasping end 58 is thus applied in a direction substantially normal to pipes 32 in said region of maximum tightening. In this manner, the effort required to secure or release clamp 40 is minimized.

Means are provided for connecting well point assembly 24 and header pipe unit 14, said means including flexible tubing 61. Said flexible tubing includes a continuous portion 62 formed with a threadlike projection 64 on its outer peripheral surface. Strip 66 is wound in thread 64 and secured at the ends of the flexible tubing by retaining members 68. Said strip serves to strengthen the pipe without interfering with its flexible nature. The flexible pipe is secured at each end to connecting members 70 and 71 respectively by means of bands 72. The other side of connecting member 70 is threaded and secured to valve 74 which operates in a conventional manner to regulate the flow to well point assembly 24. A further connecting member 76 threaded at both ends interconnects said valve and elbow 78. In like manner, connecting member 71 is also threaded at one end and connected to elbow 80.

In order to couple each of the connecting means 63 with header pipe unit 14, said header pipe unit is provided with a plurality of spaced apertures 82 in the peripheral wall thereof. Disposed within each of said apertures is tubular sleeve 84 provided with a peripheral flange 86 extending from the outer surface thereof, by means of which said sleeve is secured to pipe 32. Disposed within said sleeve is insert 88 formed with internal thread for the mounting of said insert on the correspondingly threaded end of elbow 80. The outer wall of insert 88 is formed with a pair of circumferentially extending channels 90 each having a resilient O-ring disposed therein. Insert 88 is also formed with a shoulder 94 adapted to engage the peripheral edge of sleeve 84 to limit the inward passage of said insert into said sleeve. O-rings 92 extend slightly from

channels 90 and insert 88 and sleeve 84 are dimensioned so that said O-rings engage the inner surface of said sleeve in fluidtight relation. The resulting coupling is readily engaged and disengaged without the necessity of the use of a wrench, as in the conventional screw couplings, while providing an adequate seal for proper operation of the well point system.

A similar coupling means is provided between connecting means 63 and well point assembly 24, as best shown in FIG. 8. Thus, insert 96 is formed with an internal threaded opening adapted to engage a similarly threaded end of elbow 78. The upper end of well point assembly 94 is defined by sleeve 98. Insert 96 is provided with step shoulder 100 to engage the peripheral edge of sleeve 98, and circumferential channels 102 adapted to receive O-rings 104 therein. Said O-rings provide fluidtight seal between said insert and the inner wall of sleeve 98. This coupling means between said connecting means and the well point assembly functions in the same manner as the coupling between the said connection means and the header pipe unit.

These two coupling means permit the rapid assembly and disassembly of the well point system and the replacement of any parts which may have been damaged during operation. In this manner substantial savings in cost can be realized.

One substantial advantage of the coupling means according to the invention is the flexibility it affords in performing the plurality of steps involved in the operation of a well point system. Thus, sleeves 84 disposed within apertures 82 of header pipe unit 14 may be readily sealed by means of plug 106 if a well point assembly is not connected thereto. Said plug consists of a tubular portion 107 sized to snugly fit within sleeves 84, a laterally extending end wall 108 sealing tubular portion 107 and a laterally extending flange 109 adapted to limit the travel of said plug into said sleeve. Plug 106 is preferably formed from a soft plastic which readily seals sleeve 84 without loss of vacuum in the line. Further, the insertion and removal of the plug is readily accomplished.

Still a further advantage of the coupling means is shown in FIGS. 12-14. Well point assemblies are driven into the ground before excavation by forcing water under pressure through the well point assembly and out a nozzlelike arrangement at the end thereof. The jet of water passing through this nozzlelike arrangement drills through the earth permitting the insertion of the well point assembly to the desired depth. Generally, the well point assemblies are sequentially driven into the ground, with one or two conduits 110 being provided to carry the water under pressure from the source thereof to a well point assembly 24. Said conduit is provided with an insert 112 which is sized to correspond to insert 96, and thereby adapted to cooperate with sleeve 98 connected to the input end of said well point assembly. Insert 112 is formed with a pair of circumferential channels 114 in the outer wall thereof in which O-rings 116 are disposed for fluidtight engagement with the inner wall of sleeve 98. Step shoulder 118 is provided in insert 112 to engage the peripheral edge of sleeve 98 to limit the inward travel of said insert.

Since the water under pressure passing through conduit 110 to well point assembly 24 would tend to disconnect the coupling between inserts 112 and sleeve 98, retaining means 120 is provided to prevent such disconnection. Said retaining means takes advantage of the fact that the lower peripheral edge of sleeve 98 defines a shoulder 122 with the adjacent pipe 124 of the well point assembly. Retaining means 120 includes a pair of support arms 126 hingedly mounted at one end on insert 112 by means of bolts 127. Secured to the other end of said support arms is a U-shaped stop member 128 adapted to receive pipe 124 between the legs thereof and to abut shoulder 122.

In order to lock the U-shaped member in place, lock member 130 is provided to releasably interconnect the legs of said U-shaped member. Said lock member is formed with a long leg 131 which extends through an aperture in one leg of U-shaped member 128 and is retained therein by means of spring 132 and nuts 133, and a short leg 134 which extends

through a corresponding aperture in the other leg of said U-shaped member. Lock member 130 is released by being raised against the bias of spring 132 to remove short leg 134 from the aperture in said U-shaped member and then being pivoted about the axis defined by long leg 131. To remove conduit 110 lock member 130 is released in the manner described above and retaining means 120 is pivoted about bolts 127 until U-shaped member 128 no longer abuts shoulder 122. The foregoing arrangement provides a rapid means for connection and disconnection of conduit 110 with each of the well point assemblies 24 and results in a substantial reduction in the time required to drill the well point assemblies into the ground.

Still a further advantage of the coupling means according to the invention is that the structure of sleeve 98 also facilitates the removal of the well point assemblies 24 upon the completion of the excavation. As shown in FIGS. 15 and 16, grasping means 138, taking advantage of shoulder 122 defined between sleeve 98 and pipe 124, may be secured to the upper end of each well point assembly 24, whereby said well point assembly may be removed from the ground by a crane. Grasping means 138 includes a frame 140 sized to fit about sleeve 98. The bottom wall 141 of frame 140 is formed with a slot 142 therein adapted to receive pipe 124 with said bottom wall abutting shoulder 122. Extending upwardly from the central portion of top wall 143 of said frame is eye 144 adapted to receive a crane hook. Door 145 is pivotably mounted on bottom wall 141 by means of bolt 146 and nut 147 and is adapted to extend across the open end of slot 142 to retain pipe 124 therein. Pin 148 is mounted on brackets 149 for vertical displacement into and out of aligned apertures in frame bottom wall 141 and door 145. The upper end of pin 148 is bent to limit the downward displacement thereof and to provide a handle for the manipulation thereof. In operation, grasping means 138 is disposed about sleeve 98 and door 145 is locked by pin 148. Each of the well point assemblies can thus be readily removed from the ground by means of a crane connected to eye 144.

Turning now to FIGS. 3 and 9—11, the well point according to the invention is more particularly shown. Each well point assembly includes a fluid line defined by pipe 124 and a well point 26 secured to the lower end of said pipe. Well point 26 is formed with jetting head 150 at the lower end thereof. Said jetting head is serrated to facilitate excavation, having circumferentially spaced teeth 152 and wings 154 to strengthen said teeth. Midway of its length, jetting head 150 has a partition 156 with a central aperture 157 forming a seat for a ball valve 158. Ball 158 blocks aperture 157 when the well point assembly is connected to vacuum pump 12, moving upwardly to the position indicated by dashed lines in FIG. 9 to engage partition 156. A cross wire or pin 160 limits the downward movement of ball 158 away from partition 156 when the water under pressure flows through the well point.

Extending between pipe 124 and jetting head 150 are outer conduit 162 and inner conduit 164 disposed in concentric spaced relation. Inner conduit 164 is threaded at both ends to permit attachment to said jetting head and pipe, the upper end of said inner conduit defining the upper head of said well point. Said inner conduit is formed with a plurality of apertures 166 in the lower end thereof adjacent said jetting head. Outer conduit 162 is formed with a plurality of axially spaced slits 168 therethrough partially extending about the circumference thereof. Spaced about the inner wall of said outer conduit and extending axially therealong are spacers 170 which serve to maintain the spacing between said inner and outer conduits. In operation, well point 26 is forced into the ground by means of the jetting of water under pressure therethrough. In this mode, the water passes through aperture 157 and out the end of jetting head 150. When the well point assembly is connected to the header pipe unit and vacuum pump, aperture 158 is closed by ball 158 and the ground water is drawn through slits 168 into the space 172 between the inner and outer conduits, and drawn from space 172 through apertures 166 into the chamber defined by said inner conduit and partition 156. The ground water is then drawn through the well

point, well point assembly and header pipe for disposition away from the excavation site. The thin slit construction in outer conduit 162 permits a maximum of drainage while being extremely difficult for the sand or earth to clog. Taken together, the well point system according to the invention offers substantial advantages both in speed of assembly and disassembly, and efficiency of operation.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above constructions without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

We claim:

1. In a well point system having a header pipe unit, a pumping unit operatively connected to said header pipe unit, a plurality of well point assemblies, a plurality of connecting means for providing a fluidtight connection between said well point assemblies and said header pipe unit, a source of water under pressure and at least one water conduit means having an inlet end connected to said source of water and an outlet end adapted for connection to the upper end of each of said well point assemblies whereby said well point assembly may be driven into the ground, the improvement which comprises snap-in coupling means between each of said connecting means and said header pipe unit and respective well point assembly, each of said coupling means including a longitudinally extending sleeve having an inner wall; a longitudinally extending insert having an outer wall formed with at least one circumferential channel therein; and at least one resilient sealing member disposed and retained in said channel with a portion extending beyond said insert outer wall, said insert being adapted to be removably disposed within said sleeve with said insert outer wall and said sleeve inner wall in facing relation, said sealing member being in fluidtight relation with said sleeve inner wall, one of said sleeves being secured to and defining the upper end of each of said well point assemblies, the corresponding inserts defining the end of each of said connecting means associated with a well point assembly, said water conduit means outlet end being defined by a longitudinally extending insert having an outer wall formed with at least one channel therein and including at least one further resilient sealing member disposed and retained in said channel with a portion extending beyond the outer wall of said conduit means insert, said water conduit means insert being adapted to be removably disposed within each of said well point assembly sleeves with said further sealing member in fluidtight relation with said sleeve inner wall.

2. A well point system as recited in claim 1, wherein said sleeve inner wall and said insert outer wall are substantially cylindrical and concentric, said resilient member being in the form of an O-ring.

3. A well point system as recited in claim 1, wherein said header pipe unit is formed with a plurality of longitudinally spaced apertures in the wall thereof, one of said sleeves being disposed in each of said apertures in fluidtight relation to define an inlet therein, the corresponding inserts defining the end of said connecting means associated with said header pipe unit.

4. A well point system as recited in claim 1, including means for retaining said conduit means insert within a well point assembly sleeve upon the flow of said water under pressure therethrough.

5. A well point system as recited in claim 4, wherein each of said well point assembly sleeves extends in a radial direction a greater distance than the respective adjacent portions of said

well point assemblies whereby the lower peripheral edge of each of said sleeves defines a shoulder with its respective adjacent well point assembly portion, said retaining means including stop means for removably abutting said shoulder, support means hingedly mounting said stop means to the conduit means outlet end and lock means for releasably retaining said stop means in abutting relation to said shoulder.

6. A well point system as recited in claim 5, wherein said stop means comprises a substantially U-shaped member adapted to receive between the legs thereof the portion of said well point assembly adjacent said sleeve while abutting said shoulder, said lock means interconnecting the legs of said U-shaped member to releasably retain said adjacent portion of said well point assembly.

7. A well point system as recited in claim 6, wherein said support means includes a pair of support arms hingedly mounted at one end to said conduit means outlet end and having said U-shaped member fixedly secured to the other end thereof.

8. A well point system as recited in claim 1, wherein said well point assembly includes a fluid line and a well point, said well point having an upper head for connection to said fluid line; a jetting head for discharge of fluid under pressure to remove soil from beneath the well point; an inner conduit interconnecting said heads formed with a plurality of apertures at least in the region thereof adjacent said jetting head; an integral outer conduit disposed concentrically about said inner conduit and formed with a plurality of axially spaced slits therethrough, each extending at least partially about the circumference thereof; spacing means circumferentially spaced intermediate said inner and outer conduits and extending axially substantially between said upper and jetting heads for maintaining said inner and outer conduits in spaced relation; an apertured partition dividing said jetting head into an upper chamber connected with the interior of said inner conduit and a lower jetting chamber; and movable valve means controlling flow through said partition aperture.

9. In a well point system having a header pipe unit, a pumping unit operatively connected to said header pipe unit, a plurality of well point assemblies and a plurality of connecting means for providing a fluidtight connection between said well point assemblies and said header pipe unit, the improvement which comprises snap-in coupling means between each of said connecting means and said header pipe unit and respective well point assembly, each of said coupling means including a longitudinally extending sleeve having an inner wall; a longitudinally extending insert having an outer wall formed with at least one circumferential channel therein; at least one resilient sealing member disposed and retained in said channel with a portion extending beyond said insert outer wall, said insert being adapted to be removably disposed within said sleeve with said insert outer wall and said sleeve inner wall in facing relation, said sealing member being in fluidtight relation with said sleeve inner wall, one of said sleeves being secured to and defining the upper end of each of said well point assemblies, the corresponding inserts defining the end of each of said connecting means associated with a well point assembly, each of said well point assembly sleeves extending in a radial direction a greater distance than the respective adjacent portions of said well point assemblies, the lower peripheral edge of each of said sleeves defining a shoulder with its respective adjacent well point assembly portion; and means for grasping each of said well point assemblies for removal thereof from the ground by a crane, said grasping means being removably mountable on said well point assembly upper end with a portion thereof abutting said shoulder and being adapted to receive a crane hook at a portion disposed above said well point assembly.

10. A well point system as recited in claim 1, wherein said header pipe unit includes at least two axially aligned pipe sections, a resilient sheath snugly receiving the adjacent ends of

said two pipe sections therein, first and second bands disposed about the outer peripheral surface of said sheath, one of said bands pressingly engaging said sheath against the outer peripheral surface of one of said adjacent pipe sections, and quick-release clamp means for releasably securing at least one of said bands to permit the assembly and disassembly of said header pipe unit, said clamp means including a link secured at one side to one end of said band and having a central aperture therethrough, and a lever bar having the outer end of said band hingedly mounted to a first end thereof, said link being hingedly mounted on said lever bar at a point spaced from said first end a distance permitting said first end to extend into said link aperture for the tightening of said band, the other end of said lever arm defining a handle for the manipulation of said clamp means.

11. A well point system as recited in claim 10, wherein said pipe sections are formed from plastic.

12. In a well point system having a header pipe unit, a pumping unit operatively connected to said header pipe unit, a plurality of well point assemblies and a plurality of connecting means for providing a fluidtight connection between said well point assemblies and said header pipe unit, the improvement which comprises said header pipe unit including at least two axially aligned pipe section, a resilient sheath snugly receiving the adjacent ends of said two pipe sections therein, first and second bands disposed about the outer peripheral surface of said sheath, one of said bands pressingly engaging said sheath against the outer peripheral surface of each of said adjacent pipe sections, and quick-release clamp means for releasably securing at least one of said bands to permit the assembly and disassembly of said header pipe unit, said clamp means including a link secured at one side to one end of said band and having a central aperture therethrough, and a lever bar having the other end of said band hingedly mounted to a first end thereof, said link being hingedly mounted on said lever at a point spaced from said first end a distance permitting said first end to extend into said link aperture for the tightening of said band, the other end of said lever arm defining a handle for the manipulation of said clamp means.

13. The well point as recited in claim 12, wherein said pipe sections are formed from plastic.

14. In a well point system having a header pipe unit, a pumping unit operatively connected to said header pipe unit, a plurality of well point assemblies and a plurality of connecting means for providing a fluidtight connection between said well point assemblies and said header pipe unit, said well point assembly including a fluid line and a well point, said well point having an upper head for connection to said fluid line and a jetting head for discharge of fluid under pressure to remove soil from beneath the well point, said jetting head having an apertured partition dividing said jetting head into an upper chamber connected with the interior of said fluid line and a lower jetting chamber and movable valve means controlling flow through said partition aperture, the improvement which comprises an inner conduit interconnecting said upper and jetting heads, said inner conduit being formed with a plurality of apertures at least in the region thereof adjacent said jetting head; an integral outer conduit disposed concentrically about said inner conduit and formed with a plurality of axially spaced slits therethrough, each extending partially about the circumference thereof; and spacing means circumferentially spaced intermediate said inner and outer conduits and extending axially substantially between said upper and jetting heads for maintaining said inner and outer conduits in spaced relation.

15. A well point system as recited in claim 4, wherein said spacing means comprises a plurality of axially extending ribs circumferentially spaced about and formed integrally in the inner wall of said outer conduit.

Disclaimer

3,566,982.—*Jacob Henry Share*, Albertson, N.Y., *Stanley Share*, Ormand Beach, and *Seymour Joseph Share*, Daytona Beach, Fla. WELL POINT SYSTEM. Patent dated Mar. 21, 1971. Disclaimer filed June 5, 1974, by the assignee, *Stanley-Jackson Corp.*

Hereby enters this disclaimer to claims 1-8 and 10-15 of said patent.

[*Official Gazette November 19, 1974.*]