

April 12, 1955

R. B. WILSON ET AL
EMBEDDED SPRINKLER SYSTEM

2,706,134

Filed Nov. 19, 1951

3 Sheets-Sheet 1

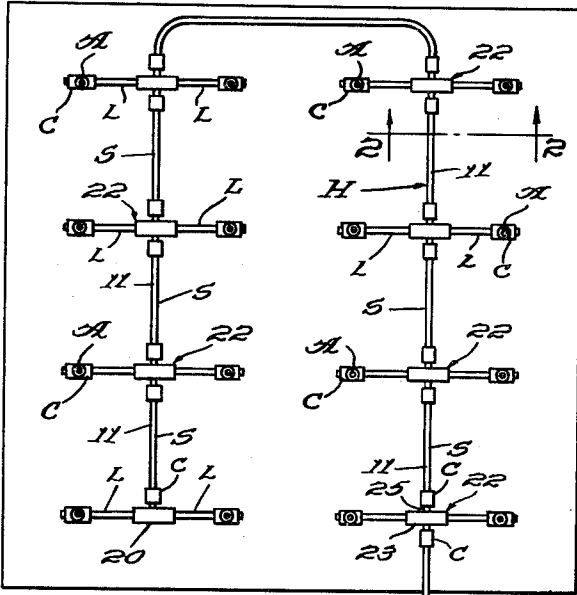


Fig. 1.

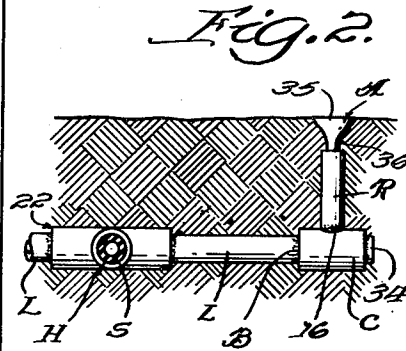


Fig. 2.

Fig. 3.

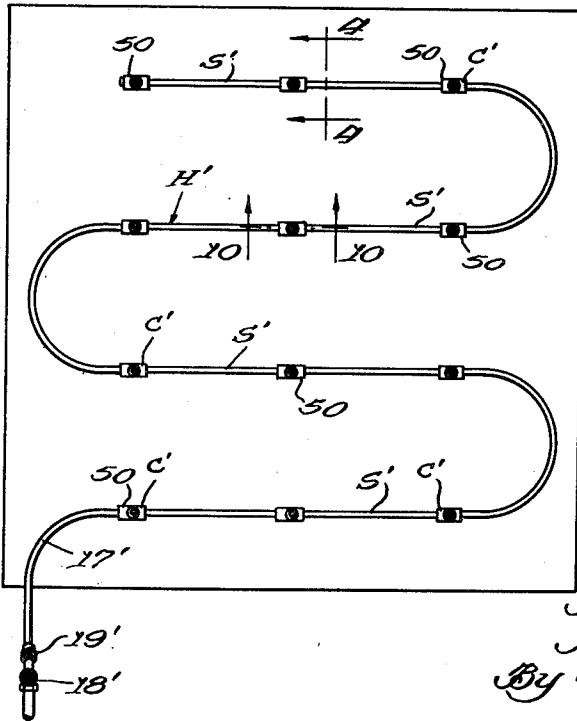


Fig. 4.

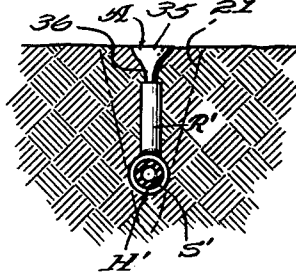
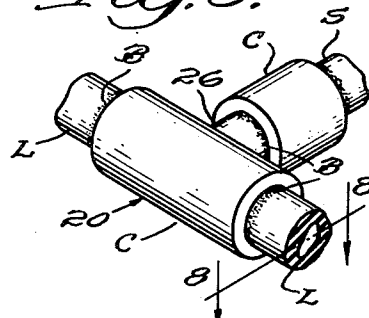


Fig. 5.



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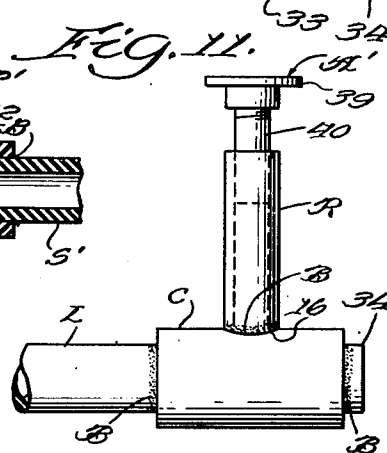
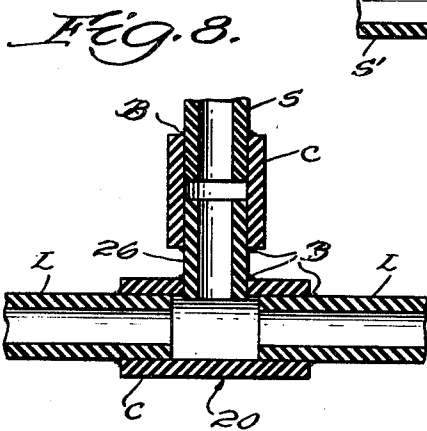
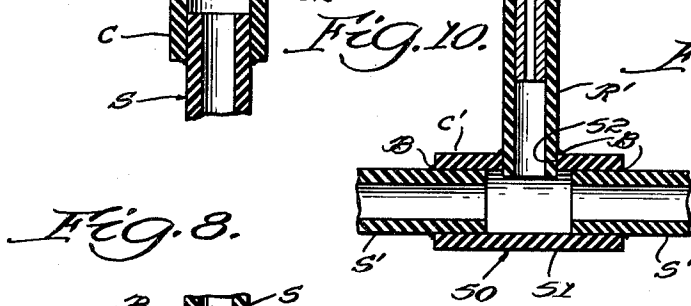
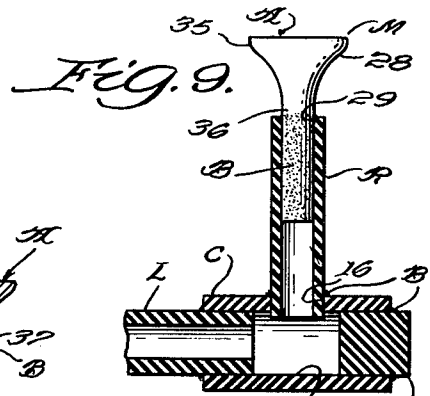
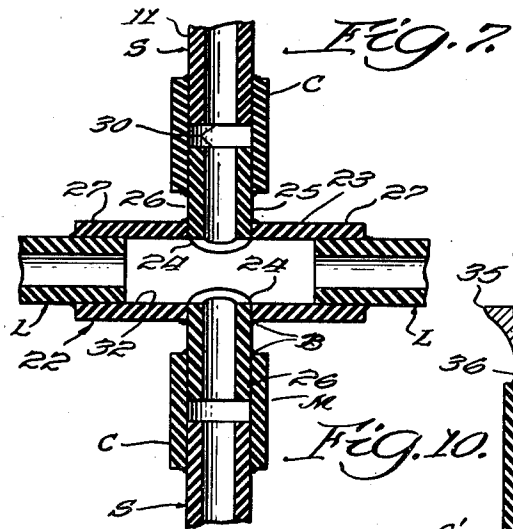
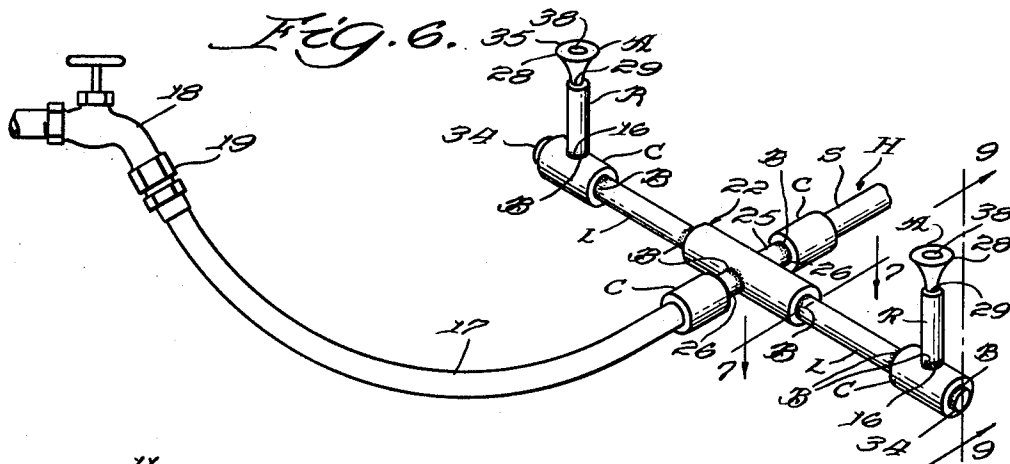
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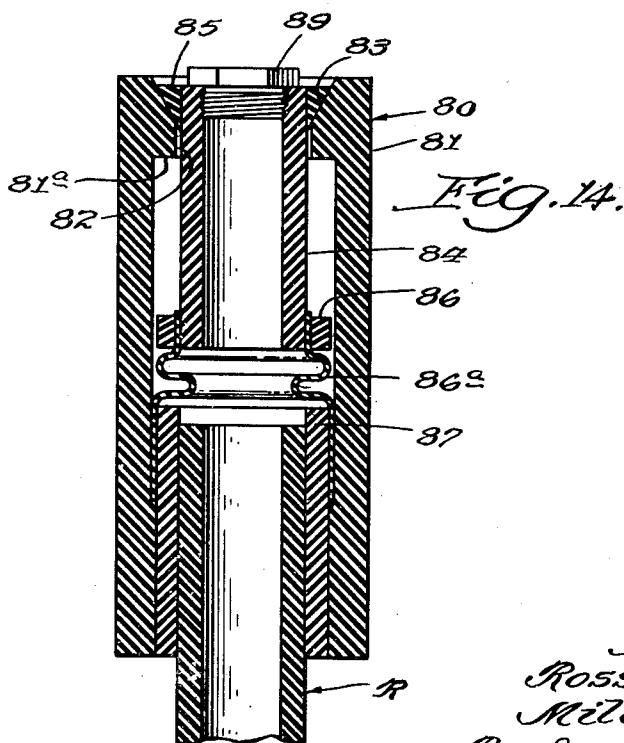
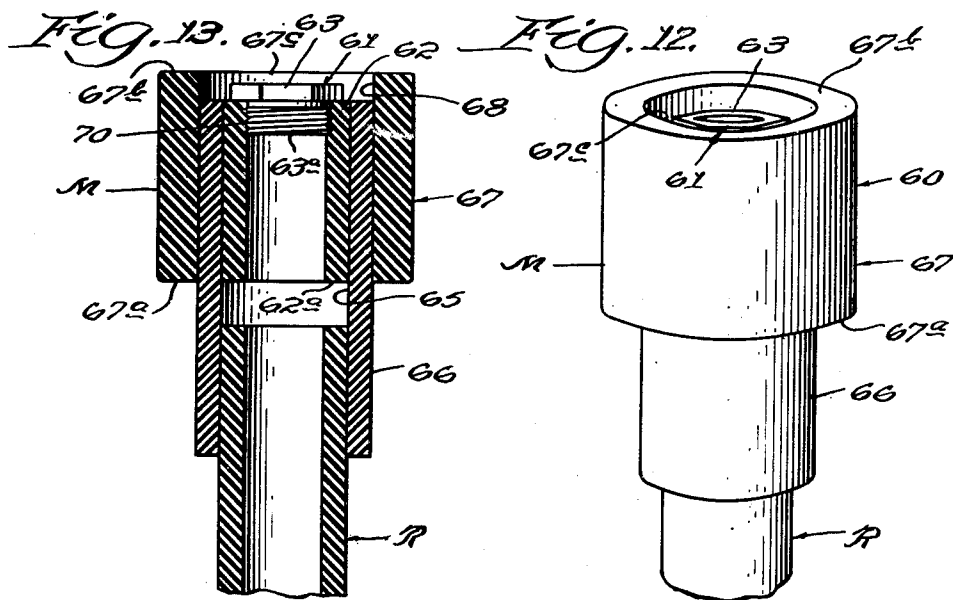
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EMBEDDED SPRINKLER SYSTEM

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Application November 19, 1951, Serial No. 257,008

12 Claims. (Cl. 299—60)

The present invention relates to the field of fluid spraying devices, and more particularly to a new and useful underground sprinkler system and method of assembling and installing same.

Sprinkling of lawns, parkways and such commercial projects as avocado groves is most satisfactorily achieved by the use of sprinkler heads permanently installed at the desired elevation and supplied with water from an underground piping system.

The conventional underground sprinkler systems are fabricated from threaded metallic pipe and fittings which can only be assembled by pipe fitters, plumbers, experienced sprinkler men, or persons skilled in effecting such installations. The cost of metallic pipe and fittings, as well as the costly labor factor involved in the installation of previously available sprinkler systems, frequently results in such an overall high cost as to be prohibitive to the average purchaser. In addition, such previously available sprinkler systems have been fabricated from material which frequently rusts or corrodes due to soil conditions, and as a result must be replaced from time to time.

The primary purpose in devising the present invention is to provide a sprinkler system that eliminates the disadvantages of the previously available systems.

A major object of the present invention is to provide a sprinkler system fabricated from resilient non-metallic tubular material impervious to rust or corrosion which may be bent or formed into any desired configuration, one that is not subject to electrolytic action or one that will augment the severity of an existing underground electrolysis condition, and one that does not require the use of highly skilled labor in its assembly.

Another object of the invention is to furnish a sprinkler system in which the various tubular fittings required therein, such as T's and crosses, may be fabricated on the job or at the time of installation from a multiple number of straight tubular sections.

A further object of the invention is to provide a sprinkler system which may be assembled by the use of ordinary hand tools.

A still further object of the invention is to provide a sprinkler system in which the component parts thereof may be adjusted both horizontally and vertically to permit accurate spacing and alignment of the sprinkler heads.

Yet another object of the invention is to provide a pipe system in which sprinkler heads may be installed and adjusted to the desired elevation without the use of tools.

These and other objects and advantages of our sprinkler system will become apparent from the following description of a preferred form thereof and from the drawings illustrating that form in which:

Figure 1 is a plan view of a sprinkler system that embodies our invention as installed;

Figure 2 is a fragmentary vertical cross-sectional view of one of the headers and one of the laterals connected to a sprinkler head taken on line 2—2 of Figure 1;

Figure 3 is a plan view of an alternate form of our invention as installed;

Figure 4 is a vertical cross-sectional view of a tubular header and riser extending upwardly therefrom to a sprinkler head taken on the line 4—4 of Figure 3;

Figure 5 is a fragmentary perspective view of the free end portion of the sprinkler system shown in Figure 1;

Figure 6 is a perspective view of the opposite end portion of our invention as shown in Figure 1 connected to a source of water;

Figure 7 is a horizontal cross-sectional view of one

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of the crosses shown in Figure 6 taken on line 7—7 thereof;

Figure 8 is a horizontal cross-sectional view of the free end of our invention as shown in Figure 1 taken on line 8—8 of Figure 5;

Figure 9 is a fragmentary vertical cross-sectional view of an assembled connector, lateral, riser, and sprinkler head taken on line 9—9 of Figure 6;

Figure 10 is a vertical cross-sectional view of two sections of the header held in communication one with the other by a connector from which a riser extends taken on line 10—10 of Figure 3;

Figure 11 is a side elevational view of an alternate form of lateral assembly;

Figure 12 is a perspective view of an alternate form of sprinkler head;

Figure 13 is a vertical cross-sectional view of the device; and,

Figure 14 is a vertical cross-sectional view of a pop-up type sprinkler head.

Referring now to the drawings for the general arrangement of our invention, it will be seen that the preferred form thereof as shown in Figure 1 comprises an elongate tubular header H disposed in the desired configuration from which a number of tubular laterals L extend and which are in communication with connectors C. The outwardly positioned connectors C have tubular risers R extending upwardly therefrom that terminate in sprinkler heads A. The alternate form of our invention as shown in Figure 3 includes an elongate tubular header H' disposed in such a manner as to have a number of parallel portions in which connectors C' are longitudinally spaced from which risers R' extend to the ground surface. Each of these systems, although considerably different in appearance, is fabricated in substantially the same manner. The tubular resilient materials used in the fabrication of the sprinkler systems of our invention, as well as the arrangement thereof, may be varied or adapted to each installation as desired. However, it has been found that a material M formed from reclaimed rubber combined with Neoprene or one of the other synthetic rubbers is most satisfactory, in that it may be extruded in the form of a resilient tubular product that suffers no appreciable deterioration over a long period of time.

The form of sprinkler system shown in Figure 1 is fabricated by cutting tubular material M into a number of sections S of slightly shorter length than that which will exist between the sprinkler heads when the system is installed. A number of the tubular connectors C are formed by cutting tubular material M into relatively short lengths, the internal diameter of which is of such size that tubular sections S may be inserted therein. Connectors C which may vary from 5" to 8" in length, have been found to be quite satisfactory when used with sections 11 that have an outside diameter of substantially 1½".

A number of tubular risers R are provided by cutting tubular material M into pieces of such length as to terminate below the ground surface when disposed as shown in Figure 2. Risers R normally have a smaller bore diameter than that of tubular members used in forming sections S and connectors C. The outside diameter of each of the risers R is such as to permit one of the end portions thereof to be slidably inserted in a transversely positioned bore 16 formed in one of the outwardly positioned connectors C. Water may be supplied to the system by use of a connection illustrated in Figure 6 in which a curved conduit 17 extends from the initial connector C to a valved outlet 18 to which it is connected by a conventional coupling 19. The conduit 17 is preferably formed of a corrosion resistant metallic material. The opposite end of the system terminates in a T connection 20 as shown in Figure 5 constructed in a manner which will be hereinafter described in detail.

The sprinkler system shown in Figure 1 as well as that illustrated in Figure 3, is installed in a slit trench 21 (Figure 4). The assembly and installation of the sprinkler system shown in Figure 1 may be accomplished by either prefabricating the assembly as an integral unit and placed in the slit trench 21, or by fabricating the

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system section by section and positioning in the slit trench as the installation progresses.

The assembly of the preferred form of our sprinkler system is readily accomplished by forming a number of crosses 22. Each cross embodies a length of tubular material 23 that has a transverse bore 24 extending there-through in which a second length of tubing 25 is disposed. Tubing 25 is coated with a bonding material B such as one of the M-3 type adhesives manufactured by the Minnesota Mining Company prior to insertion in bore 24, and after bonding, the tubing 25 within the confines of tubular member 23 is drilled out to form the cross 22. As will be seen in Figure 7, the cross 22 thus formed includes two pairs of oppositely disposed legs 26 and 27.

The elongate header H is comprised of sections S connected by crosses 22, with laterals L extending outwardly from each cross to permit passage of fluid to risers R. Each riser R has a spray head 28 disposed in the upper open end 29 thereof as may be seen in Figures 2 and 6. Sections S are placed in communication with the crosses 22 by engagement of the connectors C with the legs 26 and the end portions of the sections. Before the sections S and crosses 22 are joined, legs 26 and the end portions of sections S are coated with bonding material B. The coated legs 26 and section end portions are then slidably inserted within the confines of the connectors C. Bonding material B takes an appreciable length of time to set which permits ample opportunity to adjust the connectors C and crosses 22 relative to the sections. Such adjustment is of the utmost importance as it permits accurate longitudinal spacing of the crosses as the sections S are originally cut to approximate lengths. It will be apparent that by longitudinal adjustment of the sections S, connectors C, and crosses 22, the spacings 30 between the ends of the sections and the legs 26 may be varied as shown in Figure 7 to attain the desired spacing of the crosses before the bonding material B sets and the joints are made.

Legs 27 of the crosses are adapted to slidably receive the end portions of laterals L which are coated with bonding material B. The opposing end portions of laterals L are likewise coated with bonding material B and inserted in connectors C that have transversely positioned bores 16 formed therein (Figures 2 and 6). Sprinkler heads A are mounted on the upper ends of the risers R. By coating the lower end portions of the risers R with bonding material B and inserting them in bores 16 the sprinkler heads A are placed in communication with the outwardly positioned connectors C.

Thus the lateral spacing of the sprinkler heads S relative to the header H may be adjusted by movement of the laterals L relative to the legs 27, as well as relative movement of the outwardly positioned connectors C to the laterals L. However, in making such adjustments it is highly desirable that the inner end portions of the laterals are not moved to a position where they will obstruct flow of fluid through the bores 32 in crosses 22. Also the outer end portions of the laterals L should not be positioned so as to obstruct the flow of fluid through bores 16. The bore 33 in each of the outwardly positioned connectors C, as shown in Figures 6, 9 and 11, is closed by a plug 34. The plug 34 is coated with bonding material B before insertion in bore 33.

The sprinkler heads A are preferably formed as integral units from material M by a molding operation, and include upper conical portions 35 from which elongate tubular members 36 extend. Bores 37 extend longitudinally through members 36 in communication with spray forming devices 38 of conventional design in the conical portions 35. To mount the sprinkler heads A, tubular members 36 are coated with bonding material B and inserted in the upper portions of risers R, with the depth of the insertion controlling the positioning of the conical portions 35 relative to the ground surface. Vertical adjustment of the conical portions 35 to the ground surface is accomplished by moving the tubular tail members 36 relative to the risers before the bonding material sets.

Should it be desired, metallic sprinkler heads A' embodying conventional spray heads 39 that have nipples 40 connected thereto may be used. Sprinkler heads A' are used in our invention in the same manner as heads A.

The free end of header H terminates in either a cross

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22, one of the legs 26 of which has been plugged, or by use of a T connection 20 as shown in Figure 8, that has but one leg 26.

Thus it will be seen from the above description that the component parts of the sprinkler system of our invention may be horizontally and vertically adjusted during the assembly thereof, and when installed the system requires little or no maintenance attention due to the material M from which it is fabricated.

The alternate form of sprinkler system shown in Figure 3 includes an elongate header H' comprised of a number of tubular sections S' connected end-to-end by tubular T's 50. Sections S' may be identical to sections S. Water is supplied to the free end of header H' by a conduit 17' connected to a valved outlet 18' by means of a coupling 19'.

As in the preferred form of our invention, T's 50 are formed from lengths 51 of tubular material of such internal diameter that the end portions of sections S' may be slidably inserted therein. Lengths 51 have single transversely positioned bores 52 formed therein. After bonding material B has been applied to the lower end portions of the riser R', and the sprinkler heads A are mounted on the upper end portions thereof, the risers R' are inserted into bores 52.

Header H' is fabricated by coating the outer end portions of the sections S' with bonding material B, and inserting them into the end portions of lengths 51. Longitudinal adjustment of the spaces between sprinkler heads A is accomplished by varying the positioning of the section end portions relative to the T's 50 in substantially the same manner as in the assembly of the preferred form of our invention.

Header H' may be prefabricated as an integral unit and then disposed in slit trenches 21 of such a configuration or pattern as shown in Figure 3. However, if desired, or found to be more convenient, the assembly of the header and the excavation of the trench may be done concurrently at the place of installation. The free end of header H' terminates in a T 50 which has a plug mounted in the outer end thereof. It is possible to use either sprayer head A or A' in conjunction with risers R'.

The operation of the preferred and alternate forms of our invention is, of course obvious, as the sprinkler systems when installed are used in the same manner as presently available conventional sprinkler systems. However, each of these systems is adapted to be readily installed by unskilled labor and requires the use of ordinary hand tools in its installation.

Elbow fittings are not required or necessary in the fabrication of our sprinkler systems as the headers H or H' are simply bent to provide the necessary change in direction, which provides for a more economical installation as well as considerable saving in time. While we have described the manner of fabricating tubular fittings for use with our invention, it will be readily apparent that such fittings may be molded as integral units if desired.

Although the forms of sprinkler heads A previously described have been found to operate satisfactorily in our system, the alternate form of head 60 shown in Figures 12 and 13, has certain advantages. Due to the fact that all of this sprinkler head 60 may be fabricated from resilient, non-metallic material (it is not subject to corrosion after installation. Also due to its resilient construction, this form of the invention avoids accidental cuts or bruises in the event anyone should stumble or fall thereon.

Sprinkler head 60 is preferably fabricated by inserting a springer nozzle 61 in the open end of a tube 62 formed from material M. Nozzle 61 includes an upper portion 63 of angular cross section, which may be engaged by a wrench or other suitable tool. An externally threaded tubular member 63a extends downwardly from portions 63, and has a bore formed therein (not shown) through which fluid is discharged as a spray. The external diameter of member 63a is such that it may be slidably inserted in the upper portion of the bore in tube 62. Tube 62 is slidably inserted in the upper portion of a bore 65 formed in a second tube 66. The lower end of tube 62 provides an annular body shoulder 62a disposed at substantially the center of tube 66.

A third tube 67 of substantially the same length as tube 62 is provided. Tube 67 has a tapered bore 68 formed therein that decreases in diameter as it extends from the lower end 67a to the upper end 67b of the tube. Bore 68 at the lower end thereof is of such diameter that

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it slidably engages the upper end of tube 66. Tube 67 is moved downwardly over the external surface of tube 64 by application of pressure until it assumes the position shown in Figure 13. When so disposed, tube 67 has an upwardly extending annular lip 67c that shields the spray nozzle portion 63.

As previously mentioned, tube 67 is preferably fabricated from a resilient compound such as material M, and when disposed as shown in Figure 13, subjects tubes 62, 66 and nozzle portion 63a to compression due to the taper of bore 68. The compression exerted on tubes 62, 66 and nozzle 61 by tube 67 is sufficient to hold them together as an integral unit. Due to this compression threaded member 63a is pressed into the engaging surface of tube 62 to form permanent threads 70 therein, which prevent inadvertent displacement of nozzle 61 from head 60. Nozzle 61 is removed from head 60 by unscrewing portion 63a from thread 70. Replacement of nozzle 61 may be accomplished by screwing the threaded portion 63a into the threaded portion of tube 62.

The lower portion of tube 66 is not compressed by the positioning of tube 67 on the upper portion thereof. Bore 66 is of such diameter as to slidably engage the exterior surface of a tubular riser R which permits the alternate form of sprinkler head 60 to be employed in the sprinkler system of the present invention in substantially the same manner as sprinkler head A. It will be apparent that sprinkler head 60 may be vertically adjusted on riser R.

In addition to the alternate form of sprinkler head shown in Figures 12 and 13, the pop-up type sprinkler head 80 disclosed in Figure 14 may be used with our system if desired.

Sprinkler head 80 includes an elongate tubular member 81 which has an annular inwardly extending ring portion 81a formed at the upper end thereof. A bore 82 extends upwardly through the ring and terminates in an annular tapered seat 83. Tubular member 81, as well as the balance of the component parts forming head 80 are preferably fabricated from material M.

A second tubular member 84 is provided that is slidable within bore 82 and has a ring 85 of wedge-shaped cross section mounted on the upper end thereof adapted to engage seat 83. An annular stop 86 is disposed on the lower end of tubular member 84 from which a tube 86a formed from a strong resilient material depends downwardly. The lower end of tube 86a is disposed between the surface of bore 81a and the exterior surface of a tubular member 87 positioned in the lower portion of member 81. Tubular members 81 and 87 are sealed to one another, as is the lower engaging portion of tube 86. Tubular member 87 is adapted to be slidably adjusted on riser R and bonded in the desired position in the same manner as the previously described sprinkler heads. Tubular member 84 has a sprinkler nozzle 89 mounted in the upper end thereof which nozzle may be fabricated from either material M, hard rubber, or a suitable metal.

The operation of sprinkler head 80 is extremely simple. When water flows through tube 86 and tubular member 84 it encounters resistance in passing through nozzle 89. The resulting back pressure so set up is sufficient to move tubular member 84 upwardly until stop 86 encounters the lower surface of ring 81a. When the flow of water through riser stops, back pressure is relieved and the resiliency of tube 86 draws tube 84 downwardly until ring 85 is disposed on seat 83 as shown in Figure 13. Tube 84 remains so positioned until water is again admitted to the head and the above operation is repeated.

While the sprinkler systems and methods of assembling and installing same herein described are fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that they are merely illustrative of the presently preferred embodiments of the invention and that we do not mean to limit ourselves to the details of construction herein described other than as defined in the appended claims.

We claim:

1. A horizontally and vertically adjustable electrolysis-free underground lawn sprinkler system which includes: a plurality of tubular connectors, with each of said connectors in the shape of a cross; a plurality of pairs of tubular lateral members disposed on opposing sides of said connectors, with the adjacent end portions of said tubular lateral members slidably mounted in said connectors for adjustment purposes; a plurality of tubular

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risers in communication with the free ends of said lateral members, with the upper ends of said risers terminating below the ground surface when said lateral members are underground; a plurality of sprinkler heads; slidable tubular means telescopically connecting said sprinkler heads to said risers whereby said heads may be vertically adjusted relative to the ground surface; a plurality of tubular sections telescopically connected at their end portions to said connectors to form a continuous header that may be disposed underground, with said sections being formed from a non-metallic, non-electrical conducting material of sufficient resiliency to permit said sections to conform to any irregularities in the terrain of the ground in which they are disposed; means to connect one of the end conductors to a source of water; and means to seal the other end conductor whereby all fluid entering said header is forced outwardly through said sprinkler heads.

2. An electrolysis-free lawn sprinkler system that may be buried underground which includes: an elongated tubular header of a resilient non-metallic, non-electrical conducting material that may be adapted to any desired configuration, with said header sealed on one end and provided with means to connect it to a source of water on the other end; a plurality of longitudinally spaced tubular risers in communication with said header, with the open end of each riser being disposed below the ground surface when said header is buried at the desired depth; and a plurality of sprinkler heads connected to said risers, said heads being formed of a substantially resilient material that will not cut or harm a child who should accidentally fall thereon.

3. An electrolysis-free lawn sprinkler system that may be buried underground and transported to the site of installation in a coiled, compact condition which includes: a plurality of resilient tubular sections connected end-to-end by a plurality of longitudinally spaced tubular connectors to form an elongated header that may be adjusted to the desired configuration in the ground, with one end of said header sealed, and the other end thereof provided with means to connect it to a source of water; a plurality of tubular risers, each of which is in communication with the interior of one of said connectors terminating in an open end positioned below the ground surface when said header is buried at the desired depth; a plurality of sprinkler heads; and a plurality of vertically adjustable tubular members that connect said heads to said risers to permit adjustment of said heads relative to the ground surface, with said sections and risers formed from a corrosion-resistant, non-metallic, non-electrical conducting material.

4. A corrosion-resistant pop-up type sprinkler head which includes: a first tubular member formed from a non-metallic resilient material which has an annular seat formed in the upper confines thereof; a second tubular member formed from a non-metallic resilient material; an externally threaded spray nozzle disposed in the upper open end of said second tubular member; a stop ring mounted on the lower exterior surface of said second tubular member; a thin-walled resilient tube extending downwardly from said stop ring; and a third tubular member formed from a non-metallic resilient material which is mounted in the lower interior portion of said first tubular member to which the lower end of said tube is bonded whereby as fluid is admitted into said second tubular member said second member is moved upwardly until said stop ring engages said seat with said tube concurrently stretched to be under tension until said fluid ceases flowing which permits said tube to retract and return said second tubular member to its initial position.

5. A corrosion-resistant electrolysis-free lawn sprinkling system adapted for permanent underground installation in the form of an elongate header from which a plurality of longitudinally spaced laterals extend outwardly substantially normal thereto, with each of said laterals terminating in an upwardly extending riser that delivers water to a sprinkler head associated therewith, said header, laterals and risers being preformed of a tubular rubber material of such density and wall thickness as to substantially maintain the shape thereof in handling and when disposed underground, but being of sufficient resiliency to permit bending thereof to conform to terrain irregularities of the ground in which it is laid, and each of said preformed sprinkler heads comprising a substantially

cylindrically shaped body of a resilient non-metallic material that will not cause damage to objects accidentally coming into contact therewith.

6. A corrosion-resistant, electrolysis-free lawn sprinkling system adapted for permanent underground installation in the form of an elongate tubular header fabricated from a resilient non-metallic material that may be bent to any desired configuration when disposed underground to avoid obstacles and conform to the terrain irregularities of the ground in which it is buried, a plurality of longitudinally spaced tubular laterals extending outwardly from said header and in fluid communication therewith, a plurality of tubular risers extending upwardly from the outwardly disposed ends of said laterals and in communication therewith, said laterals and risers being fabricated from substantially the same material as said header, with said header, laterals and risers being of sufficient wall thickness as to substantially maintain their normal cross section when buried underground, but having sufficient resiliency to adapt themselves to moderate earth movement without damage thereto, and a plurality of sprinkler heads mounted on the upwardly extending ends of said risers, each head comprising a substantially cylindrically shaped body the upper surface of which is substantially flush with the lawn surface, with said bodies being fabricated from a resilient non-metallic material which will not cause damage to persons or tools when abruptly contacting same.

7. A corrosion-resistant, electrolysis-free lawn sprinkling system adapted for permanent underground installation in the form of an elongate header made up of tubular sections laid end-to-end, said sections being formed of a non-metallic, non-electrical conducting resilient material that permits bending of said sections to conform to terrain irregularities of the ground in which said header is buried, a plurality of tubular connectors formed from a non-metallic, non-electrical conducting material and of such internal diameter as to permit slidable engagement of adjacent ends of said sections, a plurality of tubular laterals extending outwardly from said connectors and in communication with the interior thereof, said laterals being formed from a non-metallic resilient material that permits said laterals to conform to terrain irregularities of the ground in which said laterals are buried, a plurality of tubular risers extending upwardly from the outwardly disposed ends of said laterals, and a plurality of sprinkler heads mounted on the upwardly extending ends of said risers, each of said heads comprising a substantially cylindrically shaped body the upper surface of which is substantially flush with the lawn surface, each body being fabricated from a resilient non-metallic material that will not cause damage to persons or tools when inadvertently contacting same.

8. A corrosion-resistant, electrolysis-free lawn sprinkling system adapted for permanent underground installation in the form of an elongate header made up of tubular sections laid end-to-end, said sections being formed of a non-metallic, non-electrical conducting resilient material that permits bending of said sections to conform to terrain irregularities of the ground in which said header is buried, a plurality of tubular connectors formed from a non-metallic material and of such internal diameter as to permit slidable engagement of adjacent ends of said sections, said sections and connectors capable of being bonded together by a waterproof adhesive material after said sections and connectors have been longitudinally adjusted relative to one another to provide a header of the desired length, a plurality of tubular laterals extending outwardly from said connectors and in communication with the interior thereof, said laterals being formed from a non-metallic resilient material that permits said laterals to conform to terrain irregularities of the ground in which said laterals are buried, a plurality of tubular risers extending upwardly from the outwardly disposed ends of said laterals, and a plurality of sprinkler heads mounted on the upwardly extending ends of said risers, each of said heads comprising a substantially cylindrically shaped body the upper surface of which is substantially flush with the lawn surface, with said bodies being fabricated from a resilient non-metallic material that will not cause damage to persons or tools when inadvertently contacting same.

9. A preformed, corrosion-resistant, electrolysis-free sprinkling system adapted to be transported to a site for underground installation in compact coil form, said sys-

tem comprising an elongate tubular header from which a plurality of longitudinally spaced tubular laterals extend outwardly, a plurality of tubular risers in communication with the free ends of said laterals, with said header, laterals and risers formed of a non-metallic, non-electrical conducting material of such resiliency that they maintain their shape during handling and substantially their normal internal cross section when buried under the lawn to be watered, and a plurality of sprinkler heads mounted on the free ends of said risers, each of said heads comprising a substantially cylindrically shaped body the upper surface of which may be disposed substantially flush with said lawn surface, with said bodies being fabricated from a resilient non-metallic material to prevent harmful effects to children who might accidentally come into abrupt contact therewith.

10. A preformed, corrosion-resistant, electrolysis-free sprinkling system adapted to be transported to a site for underground installation in compact coil form, said system comprising an elongate tubular header from which a plurality of longitudinally spaced tubular laterals extend outwardly, a plurality of tubular risers in communication with the free ends of said laterals, with said header, laterals and risers formed of a non-metallic, non-electrical conducting material of such resiliency that they maintain their shape during handling and substantially their normal internal cross section when buried under the lawn to be watered, and a plurality of sprinkler heads, with each of said heads having a portion formed therein for slidably engaging the upper portion of said riser to permit vertical adjustment of said heads to a position where the upper surface thereof is substantially flush with the lawn surface under which said system is buried, with said heads being fixedly bonded to said risers by an adhesive after said adjustment has been attained.

11. A corrosion-resistant electrolysis-free lawn sprinkling system adapted for permanent underground installation which includes: an elongate header comprising spaced tubular connectors having tubular sections fabricated from a non-electrical conducting material extending therebetween, the end portions of which are of such external diameter as to be slidably insertable within the bores of said connectors and capable of being bonded thereto by a non-water soluble adhesive; a plurality of laterals extending outwardly from said connectors; a plurality of risers extending upwardly from the free ends of said laterals and in fluid communication therewith; and a plurality of sprinkler heads mounted in the upwardly extending ends of said risers, with said sections, laterals, and risers being formed from a non-metallic material of sufficient rigidity that substantially the normal interior cross sections thereof are maintained when they are buried under the lawn to be watered, yet having sufficient resiliency to permit said sections, laterals and uprights to adapt themselves to the terrain irregularities.

12. A corrosion-resistant pop-up type sprinkler head which includes: a first vertically positionable tubular member fabricated from a non-metallic resilient material having an annular seat formed in the upper confines thereof; a second tubular member that is axially movable in the upper portion of said first member; a spray nozzle mounted in the upper open end of said second member; means connecting lower end of said first member to water under pressure; stop means affixed to said second member that engages said seat to limit the upward movement of said second member which movement is caused by pressure of said water passing through said nozzle; and resilient means associated with said second member which retracts it into the confines of said first member when water is not being discharged from said nozzle.

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