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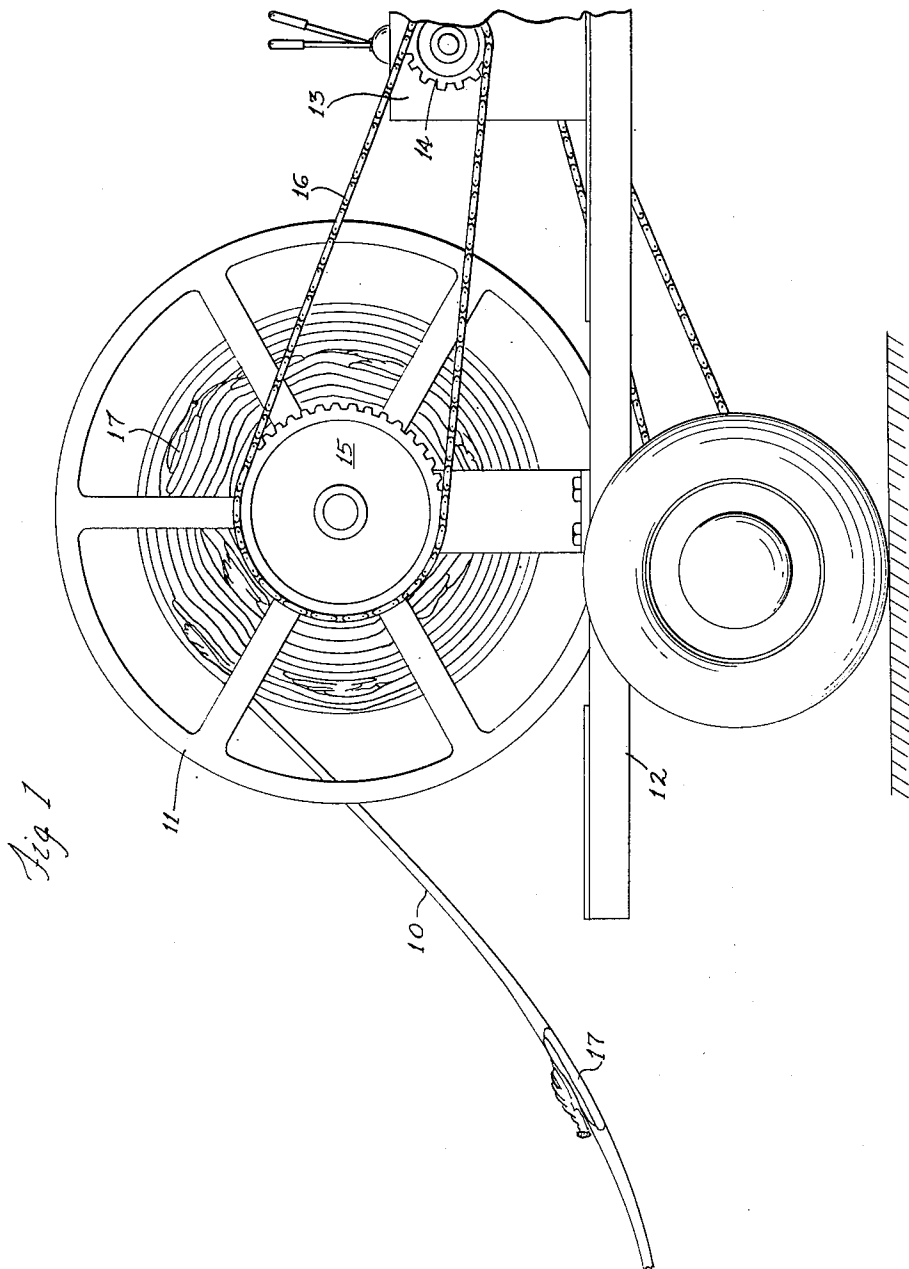
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2,811,388

HYDRAULICALLY SUPPORTED SPRINKLER RISER AND STAND

Filed June 21, 1954

3 Sheets-Sheet 1



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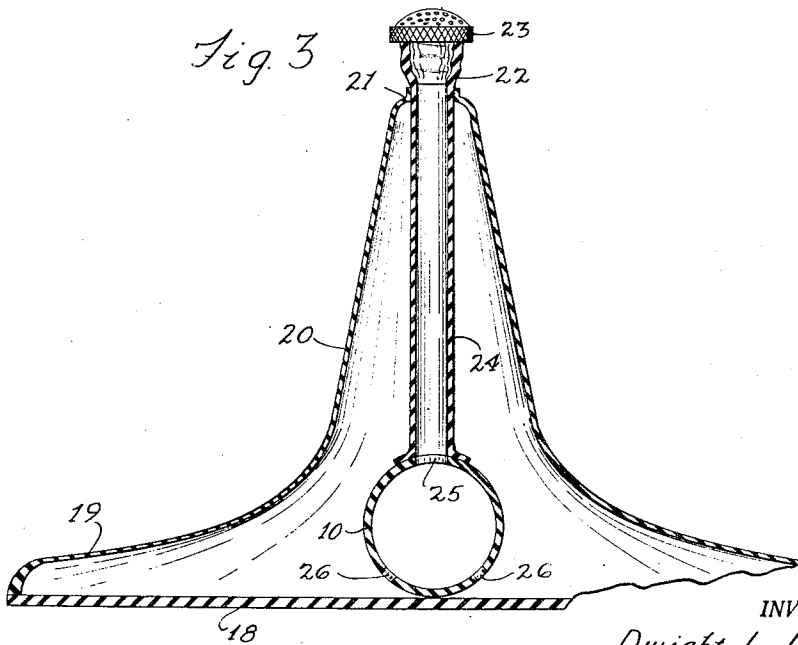
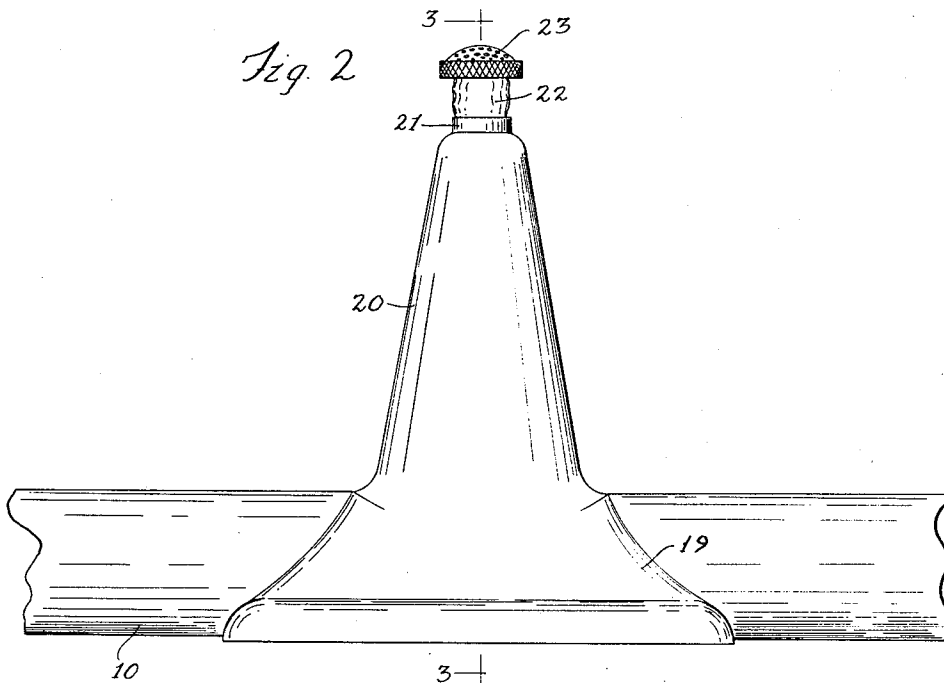
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3 Sheets-Sheet 2



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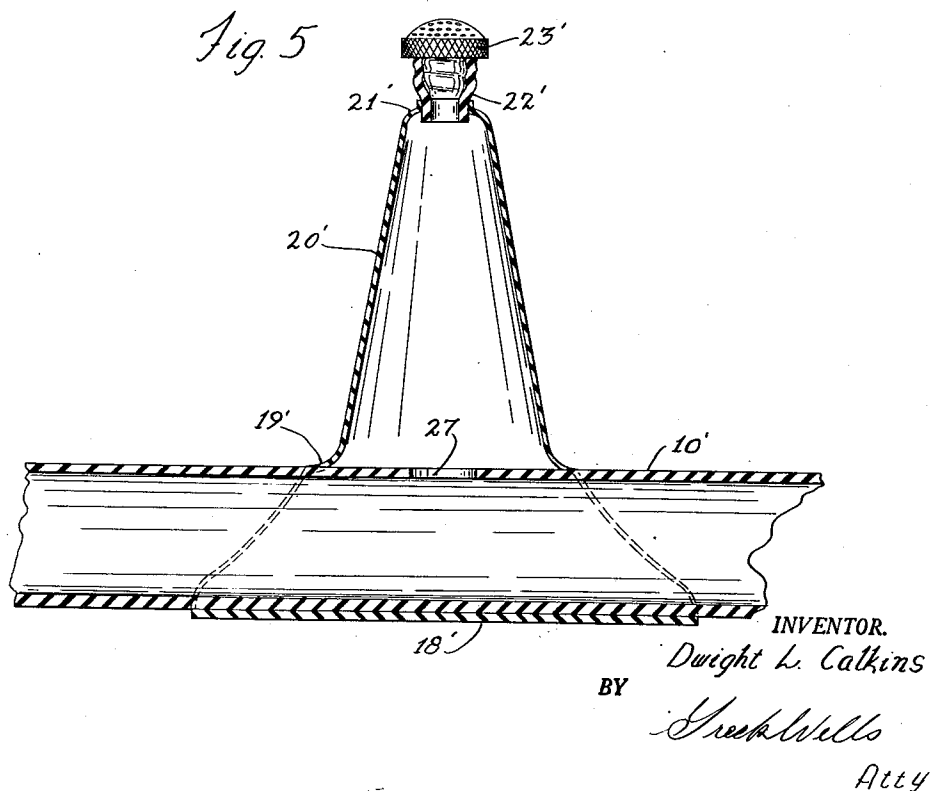
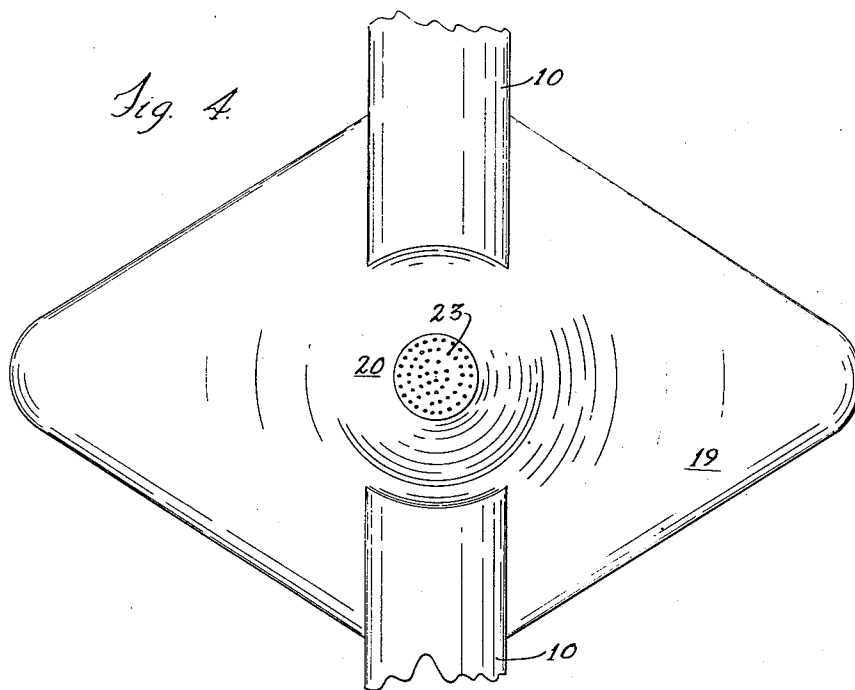
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3 Sheets-Sheet 3



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HYDRAULICALLY SUPPORTED SPRINKLER RISER AND STAND

Dwight L. Calkins, Spokane, Wash., assignor to Calkins Manufacturing Company, Spokane, Wash.

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5 Claims. (Cl. 299—64)

My invention relates to a hydraulically supported sprinkler riser and stand adapted for use in an irrigation sprinkler. In sprinkler irrigation systems one of the most difficult problems exists in the provision of a suitable means for moving a length of conduit and providing a suitable riser and support for holding the sprinkler head sufficiently high above the ground to clear the adjacent foliage. It is the purpose of my invention to provide a hose which can be wound upon a reel with a riser and stand for the sprinkler head which will support the sprinkler head at the desired elevation above the ground while water under pressure is supplied to the hose and sprinkler heads and which will collapse so that it can be wound on a reel with the hose when the hose is not filled with water under pressure.

The nature and advantages of my invention will appear more fully from the following description and the accompanying drawings which illustrate a preferred form of the invention. The drawings and description are not intended to limit the scope of the invention except insofar as it is limited by the claims.

In the drawings:

Figure 1 is a somewhat diagrammatic view showing a hose used in sprinkler irrigation with my invention applied thereto, the hose being partially wound upon a reel;

Figure 2 is a view in side elevation of a hose section with a sprinkler head being supported above the hose according to my invention;

Figure 3 is a sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a plan view looking down on the construction shown in Figure 2; and

Figure 5 is a sectional view taken lengthwise of the hose illustrating a modified construction.

Referring now to the drawings and particularly to Figure 1, this figure illustrates a hose 10, partially wound on a reel 11 which is supported on a truck 12. The reel 11 is power operated from a suitable power unit 13 on the truck by means of sprocket wheels 14 and 15 and a sprocket chain 16. At intervals throughout its length, the hose is provided with stand and sprinkler head mounts 17 which embody my invention. These sprinkler head mounts 17, as illustrated in Figures 2, 3 and 4, comprise a hollow shell which is made up of a bottom wall 18 that extends substantially tangentially from the hose 10 on both sides of the hose. The bottom wall 18 preferably is constructed of relatively heavy rubber or similar water proof material which is flexible and resilient. The shell is completed by a top wall 19 which is joined to the bottom wall 18 along its periphery and which is joined to the hose 10 where it meets with the hose. This top wall 19 may be composed of the same material as the bottom wall 18 but it is relatively thin when compared with the bottom wall 18 so that it may collapse readily under its own weight. The top wall 19 has a central portion 20 which is elongated upwardly and which decreases in cross sectional area toward its tip 21. The laterally extending portions of the walls 18 and 19 taper outwardly to provide broad V-

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shaped supports to rest on the ground and hold the central portion 20 upright when the shell is filled with fluid under pressure. The tip 21 of the portion 20 has a sprinkler head mount 22 sealed to it. The mount 22 carries a sprinkler head 23 of any suitable design. The water from the hose 10 is supplied to the sprinkler head 23 by a tube 24 which extends down from the mount 22 and opens into the hose 10 at 25.

In order to supply fluid under pressure to inflate the central portion 20 and to make the hollow shell rigid enough to support the sprinkler, the hose 10 is provided with suitable apertures 26 within the shell formed by the top and bottom walls 19 and 18. As soon as water is supplied to the hose 10 and builds up pressure therein, the pressure within the shell lifts the top wall 19 and inflates the shell so as to extend the central portion 20 upward so as to form a riser for holding the sprinkler head 23 at the desired level. The water pressure also inflates the V-shaped laterally extending portions of the shell so that they will support the riser in upright position.

In operating a sprinkler system utilizing my invention, the hose can be unreeled from the reel 11 across a field to be sprinkled and then connected to a main water supply to inflate the several risers 20 and start the sprinkling. When the desired amount of sprinkling has been accomplished, the water is cut off and allowed to drain from the hose 10. This will also drain the water through the openings 26 from the space between the top and bottom walls 19 and 18. The riser portion 20 of the top wall will then collapse under the weight of the sprinkler head as illustrated in Figure 1, so that the hose can be wrapped around the reel 11. It is contemplated that in use a plurality of these hose units will be employed so that the operator may utilize the same reel for transporting one unit to its new location while other units are sprinkling. The unit may be left after it is turned off, long enough for complete drainage and partial drying of the ground before it is moved in order to avoid muddy conditions that are present immediately after the hose is turned off.

Figure 5 of the drawing is similar in all respects to the preferred form of the invention with the exception that in this instance the central tube 24 is done away with. The sprinkler head mount 22' is secured directly in the tip 21' of the riser portion 20'. The hose 10' has only one aperture 27 therein and this aperture supplies water to the hollow shell between the bottom wall 18' thereof and the top wall 19'. For most riser portions 20', the additional support provided by the tube 24 is unnecessary. The construction in Figure 5 is less costly than the construction embodying the tube 24.

It is believed that the nature and advantages of my invention will be apparent from the foregoing description.

Having thus described my invention, I claim:

1. In an irrigation sprinkler, a flexible hose, an inflatable riser and stand joined to said hose and comprising a hollow flexible resilient shell through which the hose extends, said shell having a bottom wall extending transversely of the hose on opposite sides of the hose and having a top wall joined to the bottom wall along the peripheries of said walls, said top wall extending across the hose and being sealed to the hose at the extremities of said portion of the hose, said top and bottom walls forming hollow laterally extended supports, the top wall having an upwardly elongated collapsible central portion over the hose, said central portion having a sprinkler head mount at its tip, the hose having an aperture therein opening into said shell whereby fluid under pressure in said hose inflates the shell and elevates the sprinkler head mount above the hose for sprinkling and the shell collapses, when the hose is not filled with fluid under pressure, for winding on a reel.
2. In an irrigation sprinkler, a flexible hose, an inflat-

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able riser and stand joined to said hose and comprising a hollow flexible resilient shell through which the hose extends, said shell having a bottom wall extending transversely of the hose on opposite sides of the hose and having a top wall joined to the bottom wall along the peripheries of said walls, said top wall extending across the hose and being sealed to the hose at the extremities of said portion of the hose, said top and bottom walls forming hollow laterally extended supports, said supports decreasing in width and depth from the hose outwardly to their tips, the top wall having an upwardly elongated collapsible central portion over the hose, said central portion having a sprinkler head mount at its tip, the hose having an aperture therein opening into said shell whereby fluid under pressure in said hose inflates the shell and elevates the sprinkler head mount above the hose for sprinkling and the shell collapses, when the hose is not filled with fluid under pressure, for winding on a reel.

3. In an irrigation sprinkler, a flexible hose, an inflatable riser and stand joined to said hose and comprising a hollow flexible resilient shell through which the hose extends, said shell having a bottom wall extending transversely of the hose on opposite sides of the hose and having a top wall joined to the bottom wall along the peripheries of said walls, said top wall extending across the hose and being sealed to the hose at the extremities of said portion of the hose, said top and bottom walls forming hollow laterally extended supports, the top wall having an upwardly elongated collapsible central portion over the hose, said central portion having a sprinkler head mount at its tip, provided with a flexible tube extending to the hose and opening into the hose, the hose having an aper-

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ture therein opening into said shell whereby fluid under pressure in said hose inflates the shell and elevates the sprinkler head mount above the hose for sprinkling and the shell collapses, when the hose is not filled with fluid under pressure, for winding on a reel.

4. In an irrigation sprinkler, a flexible hose, an inflatable riser and stand joined to said hose and comprising a hollow flexible shell having the hose extending through it, the shell having an upwardly elongated tapered, collapsible central portion over the hose, said central portion having a sprinkler head mounted on its tip, the hose having an opening within the shell, whereby fluid under pressure in said hose inflates the shell and elevates the sprinkler head above the hose for sprinkling, and the shell collapses, when the hose is not filled with fluid under pressure, for winding on a reel.

5. In an irrigation sprinkler, a flexible hose, an inflatable flexible riser and stand joined to said hose and comprising a hollow flexible collapsible shell, said shell having a wide base portion secured to the hose, said shell including a hollow sprinkler head supporting means movable under internal pressure from a collapsed position on the shell to an upwardly extended position to hold a sprinkler head above the hose, and the hose having an opening therein to the interior of the shell for inflating the shell and extending said means.

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