Dec. 3, 1929. W. A. SUTFIN 1,738,332

SPRINKLER HEAD

Filed Oct. 12, 1926

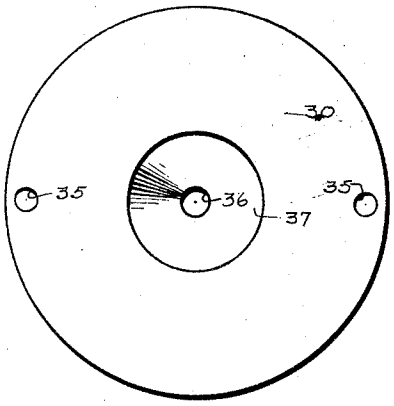

FIG. 1

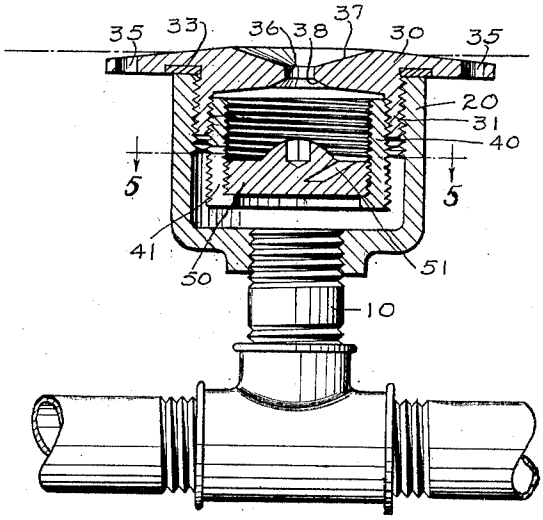

FIG. 2

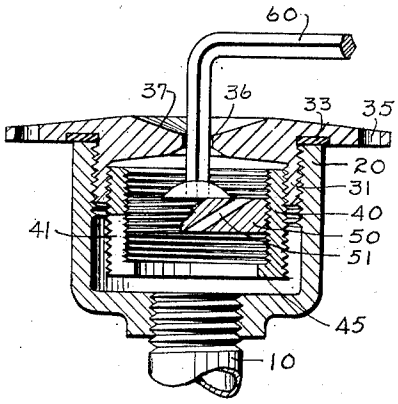

FIG. 3

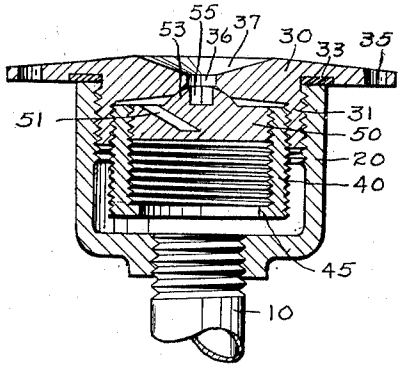

FIG. 4

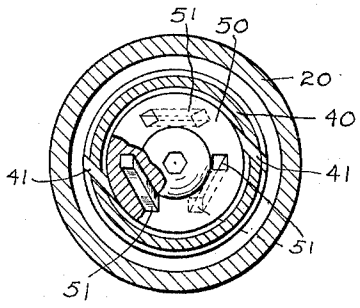

FIG. 5

Inventor

Willard A. Sutfin

By Parks, Macklin, Gobrecht & Hearz

Attorneys

Patented Dec. 3, 1929 1,738,332

UNITED STATES PATENT OFFICE

WILLARD A. SUTFIN, OF SOUTH EUCLID, OHIO

SPRINKLER HEAD

Application filed October 12, 1926. Serial No. 141,077.

This invention relates to a head or nozzle, primarily intended for permanently installed lawn sprinkler systems, although the head may be used in other connections. The objects of the invention are to provide a sprinkler head in a form which may be cheaply constructed and still be very efficient in service, which may be readily adjusted to regulate the flow or may shut off the flow entirely, and may be readily removed for cleaning whenever desired. My sprinkler head is illustrated in a preferred form in the drawings hereof and is hereinafter more fully explained and its essential novel features are summarized in the claims.

In the drawings, Fig. 1 is a plan of the sprinkler head as installed on a lawn; Fig. 2 is a vertical axial section of the head so installed; Fig. 3 is a vertical section of the head proper, adjusted to give a comparatively fine spray; Fig. 4 is a corresponding view with the head, adjusted to shut off the water entirely; Fig. 5 is a horizontal section as indicated by the line 5—5 in Fig. 2.

As shown in Figs. 2, 3 and 4, 10 indicates an upstanding pipe section of a suitable supply pipe. One member of my sprinkler head comprises an outer casing 20 in the form of a reducing nipple, the smaller threaded opening of which is downward and embraces the upper end of the pipe section 10, and the upper cylindrical internally threaded portion of which carries the top member 30, which preferably considerably overhangs the casing and is chamfered toward its periphery as shown.

The top member 30 has a downwardly extending annular flange or skirt 31 externally threaded to engage the internal threads on the casing 20. A suitable annular gasket 33 may be mounted in an annular groove on the under side of the top member and abut the top of the casing 20 to make a tight connection. Spanner holes 35 in the top member provide means by which it may be suitably engaged to be screwed tightly into position. The top member has a central discharge orifice 36 continued at the top by a shallow conical cavity 37 as shown. On underside, around the opening 36 is a tapered or spherical portion 38 providing a valve seat for coaction as hereinafter described.

The downward skirt 31 of the top plate has an internal thread and screwing into such thread is the externally threaded sleeve 40. This sleeve has also an internal thread, screwing into which is the adjustable plug 50. This plug has a plurality of spiral openings 51 through it, three of such openings being shown in the drawings. The effect of these spiral openings is to cause water passing from below through the openings to be whirled within the chamber between the adjustable plug and the top plate, and thus emit a spray through the opening 36.

To vary the amount of flow of the water, I provide openings through the lower portion of the cylindrical wall of the sleeve 40, which openings are uncovered when the plug 50 is screwed downwardly and thus, when the plug is in one of its lower positions, may discharge water around the plug directly into the chamber above it. I have shown two of these openings at 41. They comprise vertical saw slots made through the wall of the sleeve member from the bottom upwardly; preferably they extend tangentially.

When the plug 50 is in the position shown in Figs. 3 or 4, it is above the top of the slots 41 so that the slots are idle and the water passes only through the openings 51. When however, the plug is screwed downwardly into such position as shown in Fig. 2, the water passes not only through the openings 51, but also through the openings 41, into the space beyond the plug, and thus an increased quantity of water is emitted to the whirling chamber and a heavier spray is produced.

On the upper face of the plug 50, I form a boss 53, preferably of spherical character, which when the plug is raised to its highest position, snugly abuts the valve seat 38 on the underside of the top member 30 and thus entirely closes the sprinkler head.

To enable the plug to be readily turned in its thread for adjustment, I make an angular cavity 55 in the center of the boss 53. A correspondingly angular bar may thus be inserted through the discharge opening 36 and

act as a wrench to rotate the plug. I have indicated such bar at 60 in Fig. 3 as simply an L-shaped piece of hexagonal stock adapted to fit the hexagonal opening 55. To form a limit for the plug in its lowermost position, I preferably form an inwardly extending flange 45 at the lower end of the sleeve which the plug may abut, as shown in Fig. 2.

The parts described may be cheaply constructed by casting and machining. In installing the device, the plug 50 is first screwed into the sleeve 40 and then this sleeve is turned tightly into place within the skirt of the top plate 30. This engagement is snug enough so that the rotation of the plug by the wrench will not loosen the sleeve in the skirt. Then the structure is placed as a unit within the installed upwardly facing casing member 20 and screwed down until the top plate makes a tight connection with the top of the casing.

When installed, the device is not likely to clog, but should clogging occur, it may be very readily removed for cleaning. The amount of spray may be easily regulated as required by the small hand wrench, and by this same wrench any head may be entirely closed when spray from it is not desired.

I claim:

1. The combination of an internally threaded casing having an inlet, a cover plate having an outlet and having an externally threaded skirt screwing into the casing, said skirt having also internal threads, an external threaded sleeve screwing into the skirt and depending to a greater depth to leave an annular space between the casing and sleeve near the lower end of the sleeve, said sleeve being open at its top and also near its bottom, said sleeve also having internal threads, an externally threaded plug screwing into the sleeve, said plug having an oblique opening through it, the lower portion of said sleeve being provided with one or more tangential openings positioned so that the upper face of the plug may be adjusted to a position below the upper portion of the openings whereby the upper portions may be closed or uncovered by the plug.

2. A sprinkler head comprising a casing having an inlet, a closure member therefor having an outlet, a sleeve carried by the closure member and spaced therefrom to provide an annular chamber, an inlet opening through the lower portion of the wall of the sleeve, said sleeve being internally threaded and a plug screwing into the sleeve having one or more oblique openings through it, said plug having on its upper side means for engagement of a wrench bar adapted to be passed through said outlet, the said inlet opening being of such size that it may be variably uncovered by said plug to permit fluid to run through the opening to the outlet side of the plug.

3. A sprinkler head comprising a casing having an inlet, a top member secured thereto and having a discharge opening, a sleeve within the casing spaced therefrom to provide an annular chamber and removably secured to the top member and having an inlet opening adjacent the bottom, and an adjustable plug within the sleeve having an oblique passage through it, said plug having a central boss on its upper surface adapted to coact with a seat on the under surface of the top member, said inlet opening being so positioned that it may be variably uncovered by the plug to permit fluid to flow to the outlet side of the plug.

4. A sprinkler head comprising a casing having an inlet, a closure member secured thereto and having an outlet, a sleeve within the casing spaced from it to provide an annular chamber and secured to the closure member, a plug screw threaded into the sleeve and having an oblique passage through it, there being one or more tangential openings through the wall of the sleeve, the said inlet opening being positioned so that the upper face of the plug may be adjusted to a position below the upper portion of the openings.

5. A sprinkler head comprising a casing having an inlet, a closure member secured thereto and having a discharge opening, a removable sleeve within the casing, spaced therefrom to provide an annular chamber and screw threaded to the closure member, said sleeve having an opening through the wall communicating with said annular chamber, and an adjustable plug within the sleeve having an oblique opening through it, said sleeve opening being so positioned that its communication with the interior of the sleeve on the outlet side of said plug may be varied by movement of said plug.

6. In a device of the character described, the combination of a casing provided at one end with pipe coupling means and having at the other end an internally threaded cylindrical wall, a top plate having an externally threaded cylindrical skirt screwed into said threaded end of the casing, the top plate having a central opening surrounded by a valve seat, and the skirt being also internally threaded, a sleeve externally threaded and screwed into said skirt, and spaced from the wall of said casing to provide an annular chamber, in communication with the lower portion of said casing, said sleeve being also internally threaded, an externally threaded plug screwed into the sleeve and having a central boss adapted to fit said valve seat on the top plate, said boss having a central non-circular cavity for the reception of a wrench rod passing through the discharge opening, said plug having one or more oblique openings through it. said

sleeve having one or more tangential openings through its wall, the effective discharge from said tangential openings being varied by the position of the plug.

In testimony whereof, I hereunto affix my signature.

WILLARD A. SUTFIN.