Nov. 19, 1935. C. O. WILSON 2,021,710

NOZZLE

Filed Jan. 22, 1934

Fig. 2

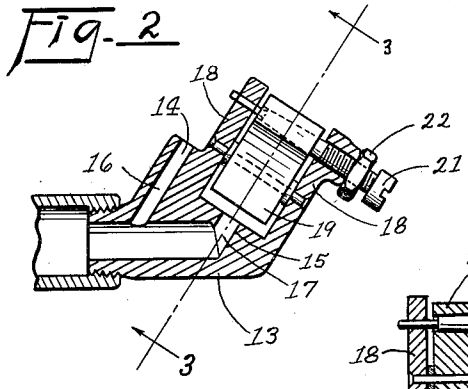
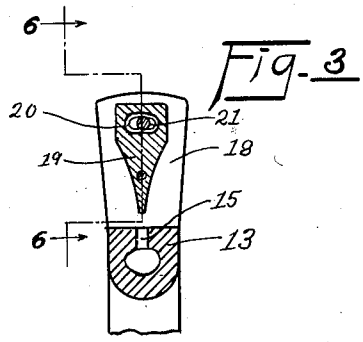


Fig. 3



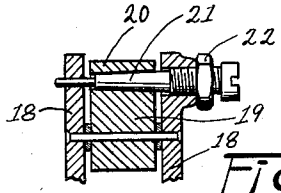


Fig. 6

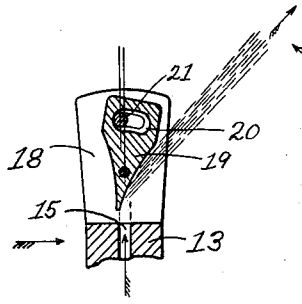


Fig. 4

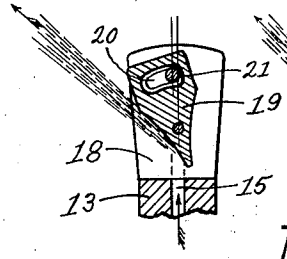


Fig. 5

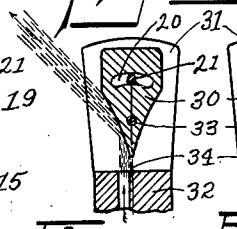


Fig. 7

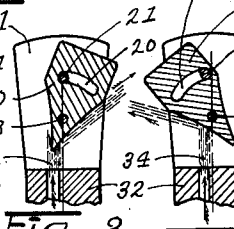


Fig. 8

Fig. 9

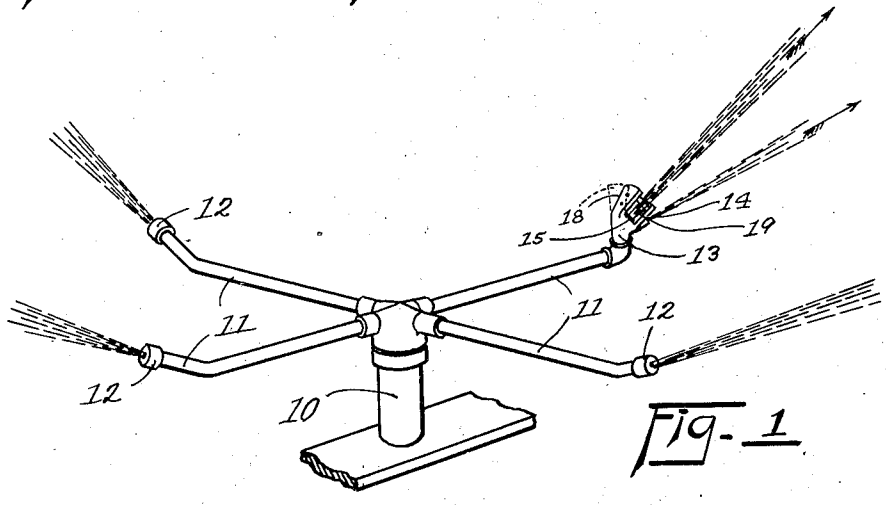


Fig. 1

Witness:
Geo. L. Chapel

Inventor
Charles O. Wilson

By Rice and Rice

Attorneys

Patented Nov. 19, 1935 2,021,710

UNITED STATES PATENT OFFICE

2,021,710

NOZZLE

Charles O. Wilson, Muskegon, Mich.

Application January 22, 1934, Serial No. 707,669

8 Claims. (Cl. 299—69)

The present invention relates to nozzles and more particularly to vibrating sprinkler head nozzles.

The principal objects of the invention are to provide a revolving or rotary sprinkler head particularly adapted for use in the watering or irrigating of large surface areas such as parks, golf courses, or the lawns of large estates; to provide such a sprinkler head having positive vibrating means assuring positive rotation of the sprinkler head at slow speeds; and, to provide such a rotary sprinkler head whose speed of rotation and consequent amplitude of water emitted may be adjustably controlled.

Illustrative embodiments of the invention are shown in the accompanying drawing, wherein:

Figure 1 is a perspective view of a conventional type of rotary sprinkler head but having a nozzle of the instant invention employed therewith;

Figure 2 is a longitudinal central sectional view of one form of the nozzle of the invention;

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

Figure 4 is a sectional view similar to that of Figure 3 but showing the water diverting vane oscillated in one direction;

Figure 5 is a sectional view similar to that of Figure 4 but showing the water diverting vane oscillated in its opposite direction;

Figure 6 is a sectional view of the pivotally supported oscillating vane and the adjustable means for limiting the oscillating movement of the vane on line 6—6 of Figure 3; and

Figures 7, 8 and 9 are modified forms of the nozzle showing the axis of the oscillating vane offset from that of the nozzle orifice.

Referring to the drawing, and particularly to Figures 1 to 6 inclusive, wherein like parts of the device are designated by the same numerals in the several views, the rotary sprinkler head, generally designated 10, is provided with a plurality of laterally projecting equally spaced conduits 11, three of which have nozzles 12 of the conventional type all turned at substantially the same angle.

The fourth nozzle 13 has dual flow emitting orifices 14, 15 whose lead conduits 16, 17 respectively are preferably disposed in parallelism as best shown in Figure 2. This nozzle is provided with a bifurcated end portion 18 on opposite sides of the orifice 15 and a vane 19 pivotally supported therebetween is adapted to oscillate by the flow emitted from the orifice 15 as best shown in Figures 4 and 5.

The vane 19 is here shown as provided with a tapered slot 20 and a screw threaded tapered pin 21 is longitudinally adjustably carried by the bifurcated end portion 18 within the slot 20 parallel with but laterally offset from the axis of the vane support. The nut 22 provides means for adjustably limiting the oscillating movement of the vane whose tapered slot contacts the offset side of the pin during each alternate oscillating movement of the vane. The sprinkler head is thus vibrated when in operation assuring positive rotation at slow speeds. The taper of the pin, while very slight, is sufficient to materially change the oscillating amplitude of the vane and the resulting amplitude of the water emitted. The position of the nozzle 13 may be rotated as indicated in dotted lines in Figure 1 to adjustably fix the rotating speed of the sprinkler head.

In the modified form shown in Figures 7, 8 and 9, the vane 30 is supported by the bifurcated end portion 31 of the nozzle 32 and its axis 33 is offset from the axis of the emitting orifice 34 adapting the vane to be oscillated by the flow emitted further toward one side as shown in Figure 9 than toward its opposite side as shown in Figure 8. This uneven oscillation likewise effects a vibration which assures positive rotation of the sprinkler head at slow speeds.

It will thus be seen that a rotary sprinkler head having positive vibrating means assuring positive rotation at slow speeds and having means for controlling the speed of rotation with consequent amplitude of water emitted has been herein shown and described which is particularly well adapted for use in watering parks, golf courses, lawns of large estates, or other areas in large radii.

While but several embodiments of this invention have been herein shown and described, it will be understood that details of the construction may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In a device of the class described, a nozzle having a bifurcated end portion, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through the nozzle, and a pin carried by the bifurcated end portion disposed parallel with but offset from the axis of the vane support and passing through said slot for limiting the oscillating movement of the vane.

2. In a device of the class described, a nozzle having a bifurcated end portion, a vane having a slot therein pivotally supported by the bifur-

cated end portion and adapted to be oscillated by the flow emitted through the nozzle, and a tapered pin longitudinally adjustably carried by the bifurcated end portion disposed through said slot for adjustably limiting the oscillating movement of the vane.

3. In a device of the class described, a nozzle having a bifurcated end portion, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through the nozzle, and a tapered pin longitudinally adjustably carried by the bifurcated end portion disposed parallel with but offset from the axis of the vane support and passing through said slot for adjustably limiting the oscillating movement of the vane.

4. In a device of the class described, a nozzle having a bifurcated end portion, a vane pivotally supported by the bifurcated end portion having a tapered bore and adapted to be oscillated by the flow emitted through the nozzle, and a tapered pin longitudinally adjustably carried by the bifurcated end portion disposed within said tapered bore for adjustably limiting the oscillating movement of the vane.

5. In a device of the class described, a nozzle having dual flow emitting orifices, said nozzle having a bifurcated end portion on opposite sides of one of said emitting orifices, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through one of the orifices, and a pin carried by the bifurcated end portion disposed parallel with but offset from the axis of the vane support and passing through said slot for limiting the oscillating movement of the vane.

6. In a device of the class described, an adjustably rotatably mounted nozzle having dual flow emitting orifices, said nozzle having a bifurcated end portion on opposite sides of one of said emitting orifices, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through one of the orifices, and a pin carried by the bifurcated end portion disposed parallel with but offset from the axis of the vane support and passing through said slot for limiting the oscillating movement of the vane.

7. In combination with a rotary sprinkler head having a plurality of radially extending conduits, a nozzle secured to each of said conduits, one of said nozzles being adjustably rotatably secured to its conduit and having a bifurcated end portion, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through the nozzle, and a pin carried by the bifurcated end portion and passing through said slot for limiting the oscillating movement of the vane.

8. In combination with a rotary sprinkler head having a plurality of radially extending conduits, a nozzle for each of said conduits, one of said nozzles being adjustably rotatably secured to its conduit and having an angularly disposed bifurcated end portion, a vane having a slot therein pivotally supported by the bifurcated end portion and adapted to be oscillated by the flow emitted through the nozzle, and a pin carried by the bifurcated end portion and passing through said slot for limiting the oscillating movement of the vane.

CHARLES O. WILSON.