Aug. 31, 1948. L. SCHOTT 2,448,472

WATER ATOMIZING ARRANGEMENT

Filed March 3, 1945

Fig. 2

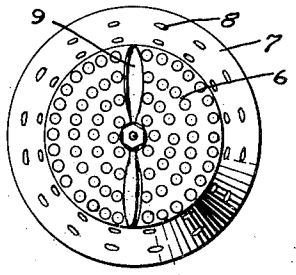


Fig. 1.

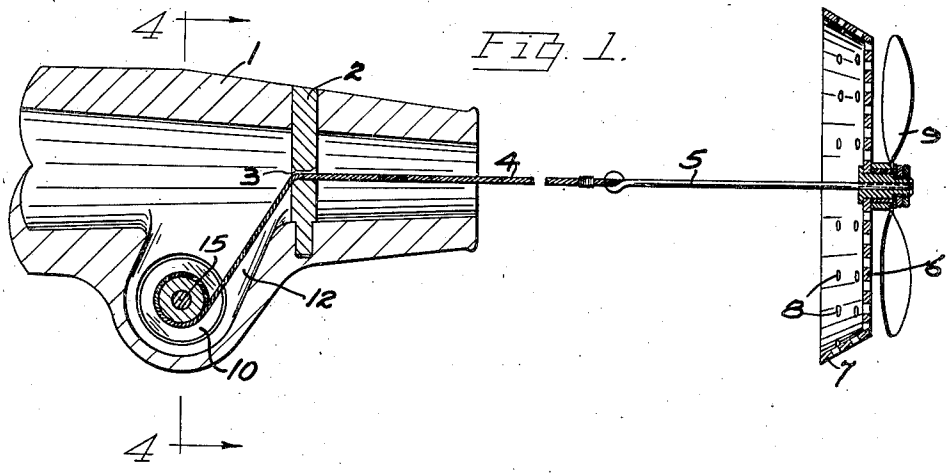


Fig. 4

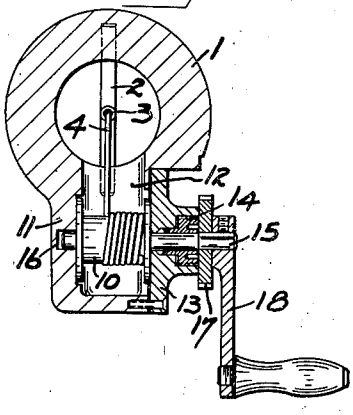
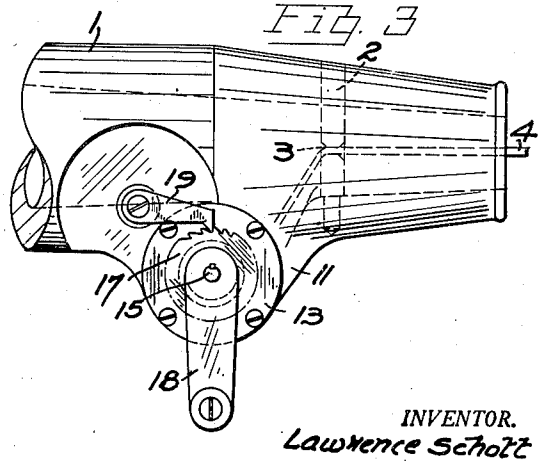


Fig. 3



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WATER ATOMIZING ARRANGEMENT

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2 Claims. (Cl. 299—130)

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This invention relates to improvements in water atomizing arrangements, and refers primarily to such an arrangement for use in combination with the nozzle of a hose for spraying purposes, and may be employed either on a fire hose, or on such other equipment as lawn sprinklers.

It is an object of the invention to provide a water atomizing arrangement including an apertured plate to be held spaced in front of a nozzle so that a stream of water flowing from the latter under pressure is broken up into a fine spray upon striking it, and wherein the plate is so formed that the stream of water retains it substantially in axial alignment with the nozzle.

Another object of the invention is to provide such a water atomizing arrangement wherein an element extends from within the nozzle to support the plate so that not only does the stream of water retain the element substantially in axial alignment with the nozzle, but when the water is first turned on the pressure of the latter flowing from the nozzle raises both the element and the plate into their substantially axially aligned positions.

A further object of the invention is to provide such a water atomizing arrangement wherein means are provided on the nozzle for adjusting the distance which the element projects in front of the nozzle and thus the spacing of the plate in front of the latter.

Another object of the invention is to provide a water atomizing arrangement wherein the recoil caused by the stream of water flowing at high pressure from the muzzle is to a large extent offset by the water striking the plate so that the effort required to hold the nozzle is considerably reduced.

Figure 1 is a longitudinal sectional view of a portion of a nozzle and a plate in front of the latter.

Figure 2 is an end view of the plate and a rotary member supported in front of the latter.

Figure 3 is a side view of the nozzle, and

Figure 4 is a section on the line 4—4 of Figure 1.

Referring to the drawing, 1 designates a nozzle having a supporting bar 2 extending transversely across the bore thereof. Formed through the bore 2 substantially coaxial with the nozzle 1 is an opening 3 for the passage of a flexible element 4, one extremity of which projects forwardly beyond the said nozzle and has a rod 5 secured thereto. Mounted on the rod 5 is a perforated plate 6 having an annular outwardly and rear-

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wardly inclined marginal portion 7 which is also apertured or perforated as shown at 8, 9 denotes a rotary member, in the form of a fan or whirler, mounted on the front extremity of the rod 5 in front of the plate 6. Water from the nozzle 1 strikes the plate 6 and is broken up so that it leaves the latter in an atomized or spraylike form; and again the rotary member 9 further breaks up any water which passes through the perforations in the plate 6.

It is found in practice that by supporting the element 4 centrally of the bore of the nozzle and within the latter that water flowing through the said nozzle under pressure will raise the element 4, and the rod 5 and plate 6 into their substantially aligned positions relative to the nozzle 1. Again once the plate 6 is raised to operative position water pressure from the nozzle will under normal conditions keep it there because if the plate commences to move out of alignment with the water stream the latter strikes a part of the marginal portion 7 and thereby re-aligns the plate 6. It is found that best results are attained by making the rod 5 of some length, not shorter than the radius of the plate 6, as otherwise the rod and plate swing too abruptly about their connection with the front extremity of the element 4.

After passing inwardly through the opening 3 the element 4 is wound around the spool 10 so that by rotating the latter the distance from the front of the nozzle 1 to the plate 6 is varied to suit different conditions and water pressures. In the arrangement shown a lateral projection 11 is formed on one side of the nozzle 1 and has an opening 12 therein extending from the bore of the nozzle. One side of the opening is closed by a removable cover 13 which is internally threaded from its outer side to receive a packing nut 14. A spindle 15 integral with the spool 10 is supported at one extremity in a bearing 16 formed in one wall of the projection 11, and the opposite end of the spindle extends through the cover 13 and packing nut 14. Mounted on the end of the spindle outwardly of the packing nut 14 for rotation with the said spindle is a ratchet wheel 17 and a crank 18. 19 denotes a dog pivotally supported on the nozzle 1 to engage the ratchet wheel 17 and hold the spool against rotation in one direction so that the element 4 will not be carried outward by the water pressure, thus retaining the plate 6 at the desired spacing in front of the nozzle.

While in the foregoing the preferred embodiment of the invention has been described and shown, it is understood that alterations and mod-

ifications may be made thereto provided the said alterations and modifications fall within the scope of the appended claims.

What I claim is:

1. In an arrangement of the character described, the combination of a nozzle, a centrally apertured bar extending transversely of the bore of said nozzle, the latter having a cavity therein in communication with the nozzle bore, a spool mounted for rotation in said cavity, means outside the nozzle for turning the spool, an element wound around the spool having one extremity extending through the bar aperture and beyond the outlet end of the nozzle and a deflector plate secured to the said extremity of the element.

2. In an arrangement of the character described, the combination of a nozzle having a cavity therein in communication with the bore of the nozzle, a spool rotatably mounted in the cavity, means outside of the nozzle for turning the spool, an element wound around the spool and having one extremity projecting beyond the nozzle outlet, a deflector plate secured to said extremity of the element, and guide means in the nozzle through which the element passes intermediately of the length of the latter.

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