

Oct. 31, 1933.

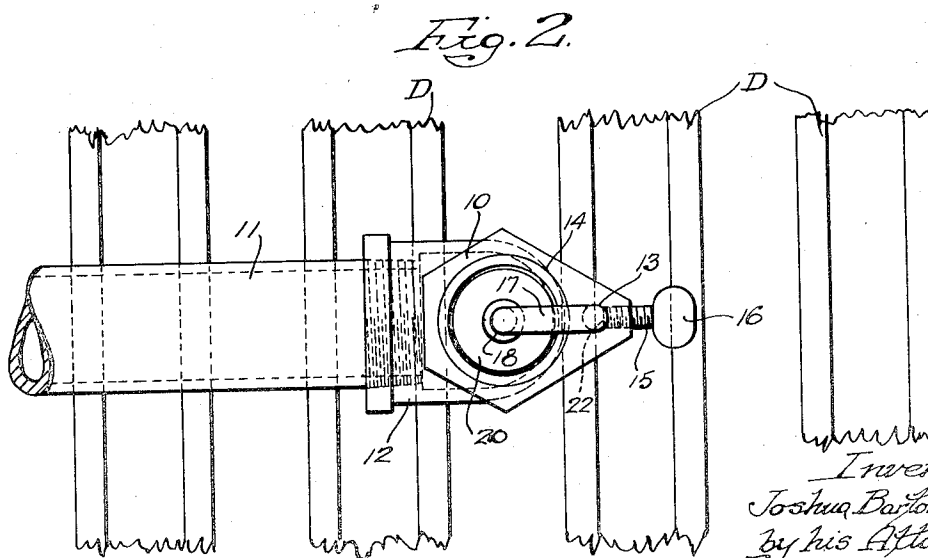
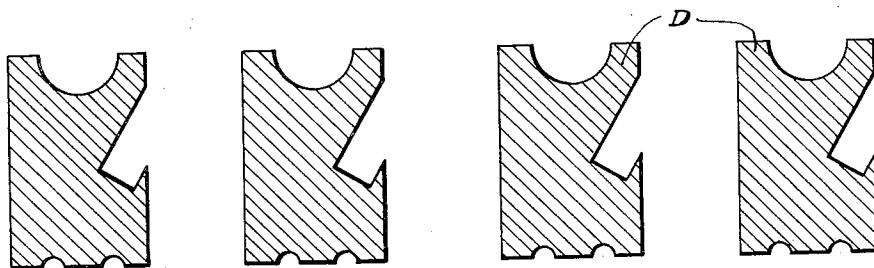
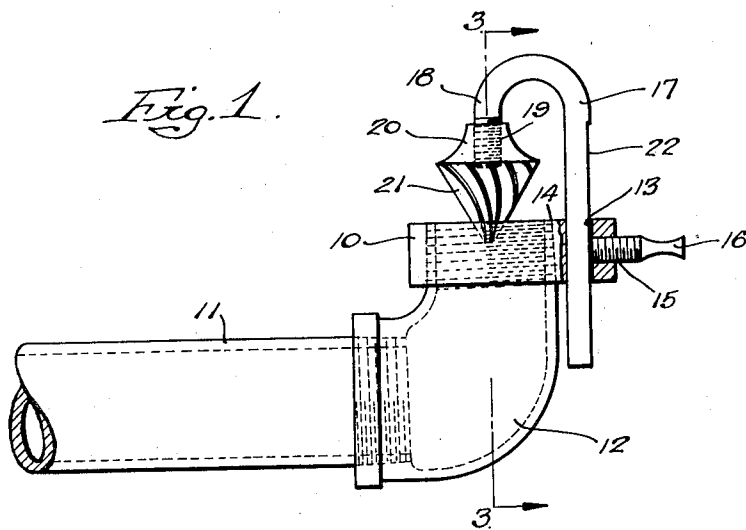
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1,933,428

ADJUSTABLE SPRAY NOZZLE

Filed Sept. 29, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3.

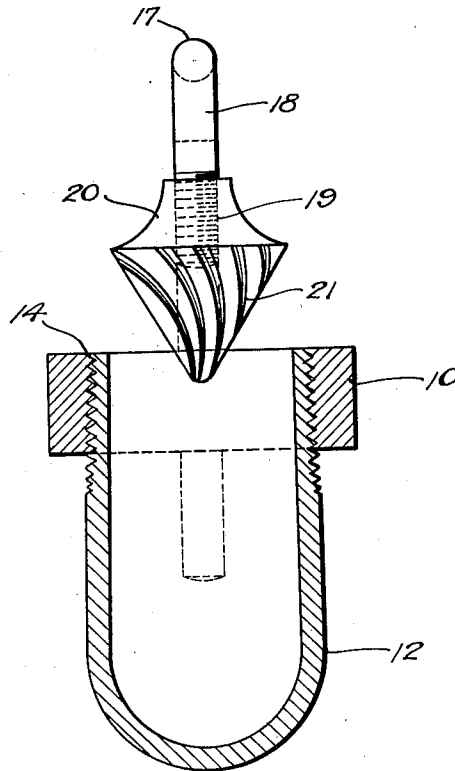
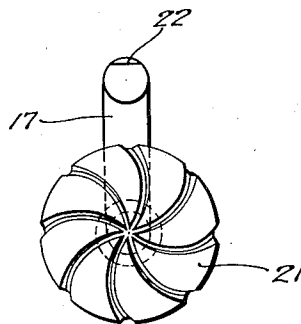


Fig. 4.



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UNITED STATES PATENT OFFICE

1,933,428

ADJUSTABLE SPRAY NOZZLE

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Philadelphia, Pa., a corporation of Delaware

Application September 29, 1931
Serial No. 565,845

2 Claims. (Cl. 299—130)

This invention relates to adjustable spray nozzles, and more particularly to spray nozzles for use in conjunction with cooling tower decks or spray ponds.

5 An important object of the invention is the provision of an adjustable spray nozzle which may be very cheaply manufactured, readily assembled and which at the same time is so constructed that the likelihood of accidental displacement of the elements thereof is reduced to a minimum.

A further and more specific object of the invention is the provision in a device of this character of a spreader or spray head for use with the nozzle which is threadedly connected with an adjustable support through which it is held in opposition to a stream to be deflected, the spray head being so constructed that the action of the water thereon not only produces the desired deflection of the spray but likewise serves to constantly urge rotation of the spray head in a direction such that it tightens upon its support, thereby insuring against any accidental displacement thereof.

15 These and other objects I attain by the construction shown in the accompanying drawings wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

30 Fig. 1 is a vertical sectional view through a portion of a cooling tower deck showing a spray nozzle constructed in accordance with my invention in side elevation;

Fig. 2 is a plan view thereof;

35 Fig. 3 is a vertical sectional view thereof taken on line 3—3 of Fig. 1 the spreader and its supporting bar being shown in elevation; and

Fig. 4 is a bottom plan view of the head.

Referring now more particularly to the drawings, the numeral 10 generally designates a collar adapted to be secured to the end of a pipe 11 or a fitting 12 secured to this pipe, the latter arrangement being disclosed in the present instance. The collar is preferably attached to the pipe or fitting through internal threads formed in the collar and engaging the normal pipe threads although other means of attachment may be provided where this is found desirable. At one side, the collar is made of sufficient thickness to admit formation therethrough of a vertical opening 13 paralleling the axis of the threaded opening 14 receiving the pipe or fitting, this opening 13 being intersected by a threaded opening 15 opening through the outer wall of the collar and adapted for the reception of a thumb

screw 16 the purpose of which will presently appear. The numeral 17 designates a bar having an end 18 thereof reverted and paralleling the main portion of the bar. The terminal of this end is exteriorly threaded as at 19 for engagement in the threaded socket 20 of a spray head 21. The distance between the axial centers of the reverted portion 18 and the body portion of the bar 17 is equal to the distance between the axial centers of the threaded opening 14 and the opening 13 so that the center of the reverted end is directed axially of the pipe or fitting with which the collar 10 is engaged when the bar 17 is engaged in opening 13. That portion of bar 17 which engages in opening 13 is flattened as at 22 for co-action with the set screw 16 and this set screw serves both to maintain bar 17 against rotation and to hold it in adjusted positions with relation to the collar 10.

Head 21 has its lower face, or that face thereof which opposes the pipe or fitting, substantially conical in form, the wall of this cone being formed with spirally-extending grooves concentrating at the apex of the cone and these grooves are reversely pitched as regards the pitch of the threads 19 so that when fluids are impinged against the vanes formed by the walls of these grooves not only is the water given a swirling spreading motion but there is a tendency to rotation of head 21 in a direction tightening the same upon the threads 19.

Apparatus of this character has been found to be extremely efficient in operation, giving an excellent spreading action which may be readily regulated as to the area covered by adjustment of the bar 17. Apparatus of this character is particularly well adapted for use in distribution of water spray over the drip bars D of cooling towers in conjunction with which it has been illustrated in Figs. 1 and 2.

As the construction employed is, obviously, capable of a considerable range of change and modification without in any manner departing from the spirit of my invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. In combination, a collar threaded for engagement with the threaded end of a water conduit, said collar at one side having an opening axially paralleling the conduit-receiving opening thereof, a bar directed through said opening and having a bent terminal co-axial with and opposing the conduit-receiving opening, a head secured to said terminal, a connection between the head

and terminal engaged by rotation of the head in one direction, means upon said head co-acting with fluid passing through the collar and impinging against the head for spreading said fluid, said bar being adjustable in said opening and a common means for securing the bar in adjusted positions and for maintaining said terminal portion of the bar in axial alignment with the collar opening.

2. In combination, a collar threaded for engagement with the threaded end of a water conduit, said collar at one side having an opening axially paralleling the conduit-receiving opening thereof, a bar directed through said opening and having a bent terminal co-axial with and opposing the conduit-receiving opening, a head secured to said terminal, a connection between the head and terminal engaged by rotation of the head in one direction, means upon said head co-acting with fluid passing through the collar and impinging against the head for spreading said fluid, said bar being adjustable in said opening and having a longitudinally extending flat surface and a set screw directed through the collar and engaging said flattened portion to secure the bar in longitudinally adjusted position and to prevent rotation thereof.

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