

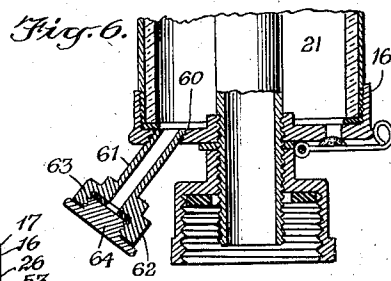
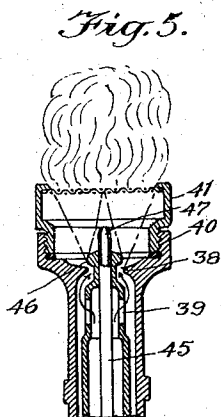
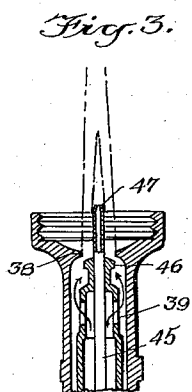
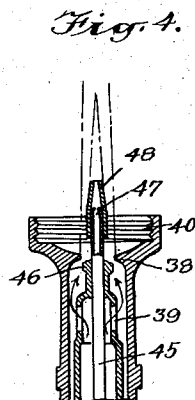
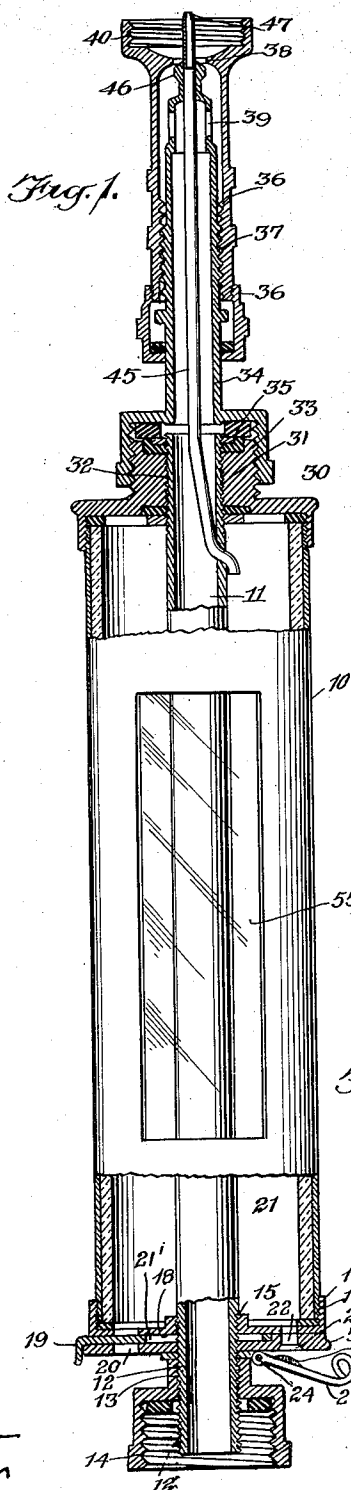
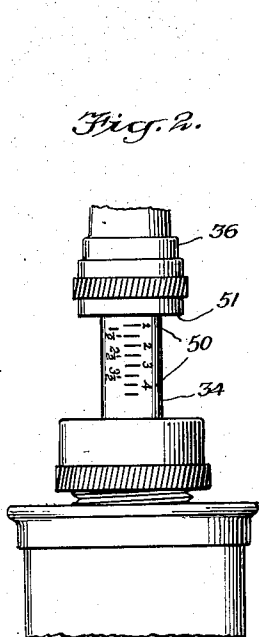
Sept. 22, 1942.

G. M. KYPRIE

2,296,718

MIXING NOZZLE

Filed Jan. 28, 1941



WITNESSES
George M. Kyprie
John F. Glacum

INVENTOR
George M. Kyprie
 BY
Munn Anderson & Litchky
 ATTORNEYS

UNITED STATES PATENT OFFICE

2,296,718

MIXING NOZZLE

George M. Kyprie, New York, N. Y.

Application January 28, 1941, Serial No. 376,297

4 Claims. (Cl. 299—83)

This invention relates to mixing nozzles, and more particularly to the type of nozzle which may be fastened to the conventional hose or to the source of water supply to mix the water with any substance such as a detergent, insecticide, reagent, or fire extinguishing chemical.

The purpose of the invention is to provide a nozzle in which a steady and uniform mixture may be secured.

A further object is to provide a nozzle of the type indicated in which the mixing may be controlled and temporarily discontinued without disconnecting the nozzle.

A further object is to provide a nozzle which will be simple in construction having all of its parts readily accessible, and in which the reagent or substance to be mixed with the water is kept in a self-contained chamber until the actual time of mixing.

A further object is to provide a nozzle which will indicate the amount of flow of water to more readily figure the percentage of mixture.

In the accompanying drawing—

Fig. 1 is a side elevation partly in section showing a mixing nozzle embodying my invention;

Fig. 2 is a detailed sectional view showing means for measuring the water passage;

Fig. 3 is a sectional view of the end of the nozzle showing the operation thereof;

Fig. 4 is a view, similar to Fig. 3, but with a modified form of tip;

Fig. 5 is a view showing the operation with a screen attached;

Fig. 6 is a sectional view of a modified cap for the nozzle member.

I provide a tubular member 10 through which extends a water pipe 11. At its lower end the pipe 11 is provided with external threads 12 adapted to engage the internal thread 13 of the coupling 14 as well as the internal threads 15 of the cap member 16. The cap member 16 is threaded at 17 to the end of the tubular member 10.

The cap member 16 is provided with a slot 18 in which is positioned a closure member 19 adapted to slide therein. The cap member has an opening 20 into the interior chamber 21 of the tube 10. In the closure member 19 is an opening 21' adapted to register with the opening 20 when the cap member is moved outwardly. An air inlet passage 22 is also provided in the cap member 16 and a closure 23 is pivoted at 24 to close the air inlet passage 22. The member 23 is provided with a washer or pad 25 to register with the mitred walls 26 of the opening 22.

The outer end of the tubular member 10 has a cap 30 internally threaded at 31 to engage the threads 32 on the end of the pipe 11 and externally threaded at 33 to engage the end of a nozzle member 34. A washer 35 may be provided to seal the connection. The nozzle member 34 is similar in construction to the conventional hose nozzle and has a sleeve 36 operating on the threads 37 to control the amount of water which will pass through the restricted opening 38 at the outer end of the sleeve. Openings 39 communicate between the member 34 and the sleeve 36. The outer end 40 of the sleeve 36 may be internally threaded to receive accessories such as the screen spray 41, shown in Fig. 5.

Running from the chamber 21 through the pipe 11 is a tube 45. The tube 45 extends through the nozzle member 34 and through the tip 46 of said member. The end 47 of the tube 45 is opened but is restricted. The end 47 may be externally threaded to receive a nipple 48, shown in Fig. 4.

The nozzle member 34 carrying the sleeve 36 may be provided with graduations 50 to indicate the amount of water passing through the nozzle. As the sleeve 36 is moved on the member 34 the end thereof 51 will register with the graduations.

In operation the coupling 14 will be fastened to a source of water supply which will proceed through the pipe 11 into the openings 39 and 38 and out of the nozzle. A reagent will be supplied to the chamber 21 through the opening 20. This may be done in several ways. The opening 20 may be internally threaded or provided with a tube and cap to receive a continuous supply of the reagent, or the chamber 21 may be filled by moving the closure member 19 to the open position and then closing the member. As the water rushes past the tip 47 suction will be set up within the tube 45 so that the reagent can pass from the chamber 21 through the tube 45 and mix with the whirling water surrounding it. Air will pass through the opening 22 to allow this to take place. It will be appreciated that when the pivotal closure 23 closes the air passage 22 and the spring end thereof 52 snaps over the shoulder 53 of the cap 16, the air supply chamber 21 will be shut off, and as a result the passage of the reagent through the tube 45 will be discontinued.

This structure is particularly useful in spraying or in washing. In the washing of articles, such as automobiles, it is desirable to first rinse the car and then apply the detergent mixed with water, and then rinse again. The operator accordingly snaps the spring member 52 of the

closure over the shoulder 53 of the cap 16 and allows clear water to pass through the pipe 11 rinsing the car. By opening the member 23 the detergent will pass through the tube 45 to mix with the water for the washing operation. When this is completed the operator may close the closure 23 and allow clear water to again pass through the nozzle. The graduations 50 will enable the operator to gauge the amount of water passing through the nozzle and thus determine the mixture being used.

It will also be appreciated that by holding the nozzle downward gravity will tend to allow the reagent to pass through the chamber 21 through the tube 45, and where this is to be done a simple tip 47 is sufficient. However, where greater suction is desired the nipple 48 may be used to extend the tip 47 out further in the cone of the stream of water where the suction will be greater.

For the purpose of determining the amount of reagent in the chamber 21, a window 55 may be placed in the member 10 so that the operator may readily determine the amount of reagent available.

The cap 16 is provided with a threaded opening 60 into which is screwed the tubular member 61 having an enlarged end 62 to be internally threaded at 63 to receive the plug 64 or to receive the end of a hose member to allow the continued passage of reagents into the chamber 21.

I claim:

1. A mixing nozzle comprising a tubular member adapted for the reception of reagents, a water pipe extending through said tubular member, a tube communicating with the interior of said tubular member through said water pipe said tube

extending through and beyond the end of said water pipe and adapted to create a suction on the reagent upon the passage of water through said pipe.

2. In a device of the character described, a chamber for the reception of reagents, a water pipe extending through said chamber, an adjustable nozzle member mounted on the end of said water pipe, a tube open at both its ends communicating with said chamber and extending through and beyond said water pipe and said nozzle member, and adapted to create a suction on the reagent upon the passage of water through said pipe.

3. In a mixing nozzle comprising a tubular member, a passage for water through the said tubular member, an adjustable nozzle communicating with the end of said water passage, means communicating between said tubular member and said nozzle to allow reagents to be drawn by suction from said tubular member through said nozzle, and means for controlling said suction said means comprising an opening in the rear of said tubular member to allow the entrance of air to replace reagents drawn therefrom and a closure controlling the amount of air passing through said opening.

4. In a device of the character described, a pipe for the passage of water, an adjustable nozzle member communicating with said pipe, a chamber for the reception of reagents surrounding said pipe, and a tube communicating with said chamber and with the end of said nozzle member and adapted to create a suction on the reagent upon the passage of water through said pipe.

GEORGE M. KYPRIE.