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NOZZLE

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Fig. 1.

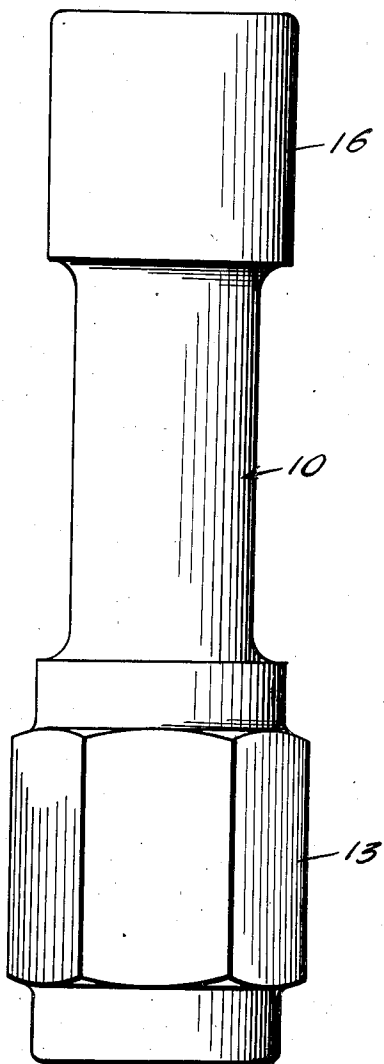
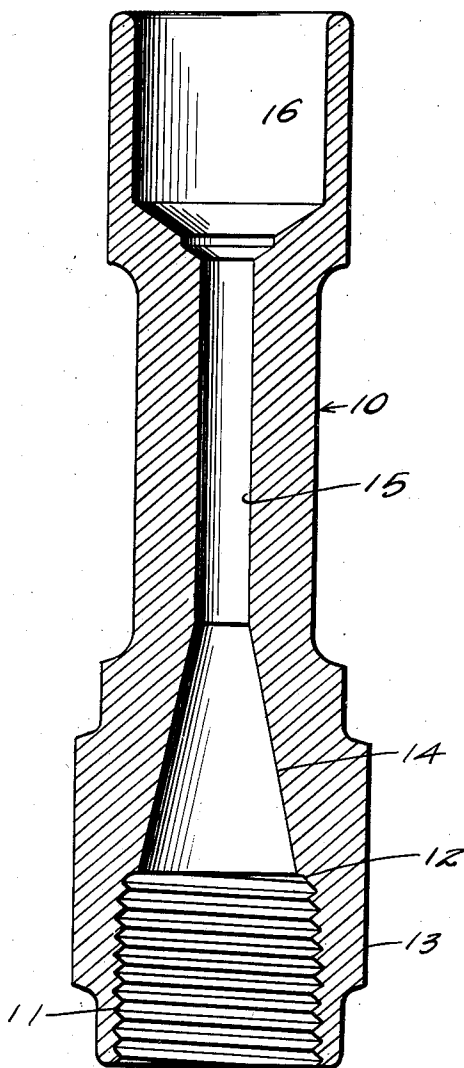


Fig. 2.



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NOZZLE

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2 Claims. (Cl. 299—107)

This invention relates to a nozzle and it provides a novel construction wherein the stream is projected a greater distance than with the usual nozzle.

5 More specifically, it is aimed to provide such a structure utilizing a co-acting conical bore portion, a cylindrical bore portion, both of said bore portions being relatively long, and the cylindrical bore portion with a bell wherein a partial vacuum is maintained by the flow or discharge of the liquid from the nozzle.

10 The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing illustrating an operative embodiment.

In said drawing:

Figure 1 is a view in elevation of the improved nozzle, and

20 Figure 2 is a central longitudinal sectional view through the nozzle.

Referring specifically to the drawing wherein like reference characters designate like or similar parts, the nozzle is illustrated at 10, being shown by way of example as of a single piece of metal or other material, although it may be sectional or otherwise as preferred.

30 Said nozzle may in any desired manner be provided with means for attachment to a hose or source of fluid supply and as shown such means consists of screw threads at 11 within the bore or passage 12 of the nozzle. To facilitate engagement by a wrench or other tool for use in applying and removing the nozzle, the exterior thereof at one portion may be polygonal as at 13.

35 Said bore 12 has a tapered portion 14 whose wider end is substantially of the same diameter as the bore at the screw threads and which leads directly therefrom. Said conical portion 14 leads to a cylindrical bore portion 15 and said cylindrical bore portion 15 opens into a relatively large chamber or bell 16 at the discharge end of the nozzle. It will be noted that the portions 14 and 15 are elongated.

40 I find with the construction described, that water or fluid discharging through the nozzle may be projected a greater distance than in existing nozzles and for example twenty-five per cent farther. This result is due to the combination of the portions 14, 15 and 16. Due to the smooth

taper of the conical wall of portion 14, the size of the stream of water passing therethrough reduces gradually and progressively from the inside diameter of the feed pipe or hose to the diameter of the cylindrical passage 15 and in so doing, increases the velocity of the flowing stream. Said cylindrical portion 15 disposes all velocity components of the stream in parallel positions and prevents eddy currents and swirling. The said space or bell 16 is very important since the flow of liquid from the nozzle maintains a partial vacuum about the same and within the bell. Such partial vacuum prevents further contraction of the area of the flowing liquid (the coefficient of contraction being very nearly 1.00) and which boosts the velocity of the liquid as it leaves the nozzle so as to effect the greater projection of the stream.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A nozzle of the class described having a conical bore portion to receive the liquid at the larger end, a cylindrical bore portion leading from the smaller end of the tapered portion having a length more than five times its diameter, and a bell space at the discharge end of the nozzle to which the cylindrical portion leads and constructed and arranged for creation of a partial vacuum within the bell about the liquid, said bell space being of greater diameter than the cylindrical portion, said tapered portion being elongated.

2. A nozzle of the class described having a conical bore portion to receive the liquid at the larger end, a cylindrical bore portion leading from the smaller end of the tapered portion having a length more than five times its diameter, a bell space at the discharge end of the nozzle to which the cylindrical portion leads and constructed and arranged for creation of a partial vacuum within the bell about the liquid, said bell space being of greater diameter than the cylindrical portion, said tapered portion being elongated, said nozzle being an integral body, and having screw threads at the attaching end interiorly thereof and from which the tapered portion leads.

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