June 28, 1932. W. I. CARPENTER 1,865,355

FLUID DISPENSING NOZZLE

Filed March 23, 1931

Fig. 1.

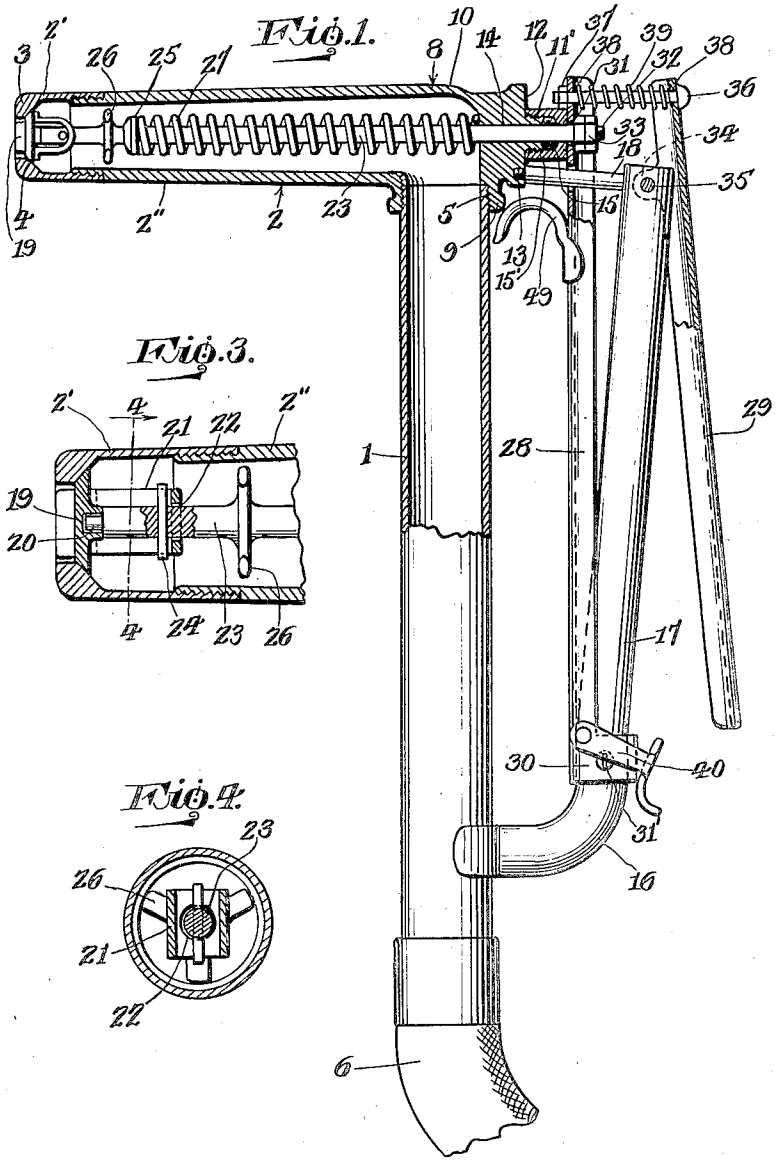



Fig. 2.

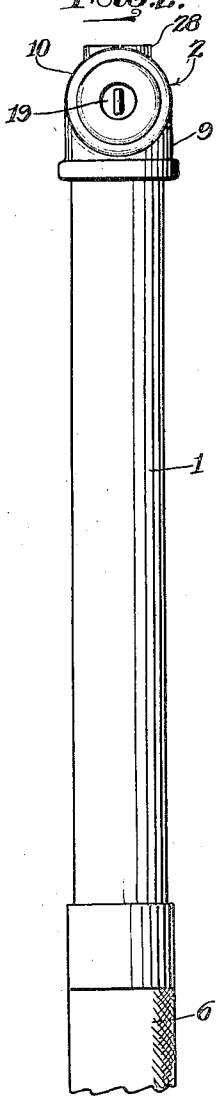


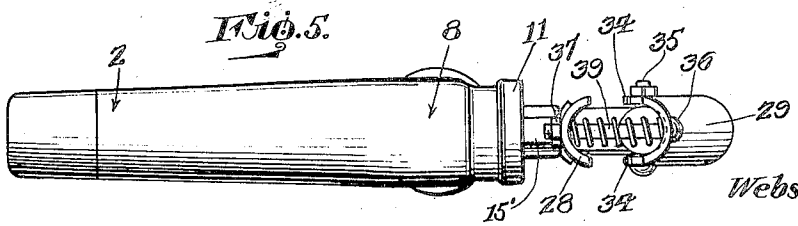

Fig. 3.




Fig. 4.




Fig. 5.




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# UNITED STATES PATENT OFFICE

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## FLUID DISPENSING NOZZLE

Application filed March 23, 1931. Serial No. 524,703.

This invention relates to a fluid dispensing nozzle designed primarily for the dispensing of gasoline at automotive vehicle filling stations, but it is to be understood that a nozzle in accordance with this invention may be employed in any connection for which it is found applicable, and the invention has for its object to provide, a nozzle of the class referred to, in a manner as hereinafter set forth, to prevent dripping at the outlet end thereof when the desired quantity of fluid has been supplied.

A further object of the invention is to provide a nozzle of the class referred to, in a manner as hereinafter set forth, for shutting off the discharge of fluid at the outlet end thereof to prevent dripping whereby the nozzle can be immediately removed from the intake of the receptacle, tank or receiver for the fluid without waiting for discontinuance of drippings as is now generally the practice.

A further object of the invention is to provide a fluid dispensing nozzle, in a manner as hereinafter set forth for completely and immediately shutting off any discharge of fluid at the outlet end thereof when the desired quantity of fluid has been dispensed therefrom.

A further object of the invention is to provide a fluid dispensing nozzle, in a manner as hereinafter set forth for expediting the dispensing of fluid by preventing fluid dripping after a measured quantity of fluid has been dispensed.

A further object of the invention is to provide a fluid dispensing nozzle, in a manner as hereinafter set forth to enable it to be immediately removed from the filling intake of a tank, can or receptacle after a measured quantity has been supplied to the latter to overcome the requirement of holding the nozzle in such intake until all drippings have discontinued.

A further object of the invention is to provide, in a manner as hereinafter set forth, a fluid dispensing nozzle including a spring controlled valve acting to close the discharge end of the nozzle after a quantity of fluid has been dispensed to prevent fluid dripping at such end.

A further object of the invention is to provide, in a manner as hereinafter set forth, a fluid dispensing nozzle including an automatically seating valve under the control of an attendant at a service station for preventing, when seated fluid drippings at the discharge end of the nozzle.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a fluid dispensing nozzle which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, conveniently handled and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawing wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the invention as claimed.

In the drawing wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is an elevation partly in lengthwise section of a fluid dispensing nozzle in accordance with this invention.

Figure 2 is an elevation looking towards the discharge end of the nozzle.

Figure 3 is a fragmentary view in longitudinal section illustrating the shut-off or closure valve.

Figure 4 is a section on line 4—4 Figure 3.

Figure 5 is a top plan view of the nozzle.

The nozzle includes a tubular stem part 1 and a tapered tubular discharge part 2 disposed at right angles to and of less length than part 1. The outer end of part 2 is formed with an inwardly extending annular flange 3 having a beveled inner face to provide a valve seat 4. The part 1 has its outer periphery at one end formed with threads 5 and is shown as having coupled to its other end a fluid feed line 6. The line 6 is flexible. Formed integrally with the inner end of end part 2 is an elbow coupling 8 having one leg thereof indicated at 9 threadedly engag-

ing with the threads 5 of part 1 and its other leg indicated at 10 integral with the inner end of part 2. The coupling 8, in alignment with leg 10 is formed with a lateral extension 11 provided with a reduced peripherally threaded outer end 11′ which forms a peripheral shoulder 12 provided with an inclined socket 13 having its wall threaded. The extension 11 is formed with an axial bore 14 opening into coupling 8. The reduced end 11′ of extension 11 has a cup shaped edge 14′ to receive a packing 15. A flanged sleeve 15′ threadedly engages with the reduced end 11′ of extension 11 to maintain the packing 15 in position. The elements 11′, 15 and 15′ provide a stuffing box for seating a valve stem to be hereinafter referred to.

The tubular discharge part 2 is formed of an inner and an outer section 2′, 2″ respectively which threadedly engage with each other. The section 2′ can be removed when the valve seat 4 becomes impaired and a new section 2′ substituted, or section 2′ can be removed to replace the controlling valve to be presently referred to. Section 2′ preferably is of less length than section 2″.

Fixed to the stem part 1 in proximity to that end of the latter to which is coupled the line 6 is a bracket 16 curving towards the extension 11 and terminating in an arm 17 of circular cross section. The arm 17 is fixed at one end to bracket 16 and inclines outwardly from such end towards its other end. The arm 17 opposes the stem part 1 and projects beyond that end of part 1 which is secured to coupling 8. Secured at one end in socket 13 and projecting from extension 11 is an inclined support 18 which is anchored at its outer end to the arm 17.

Normally engaging the seat 4 for the purpose of closing the discharge end of part 2 is a shut-off or closing valve 19 acting to close the nozzle after the desired quantity of fluid has been dispensed. As the valve is positioned to close the discharge end of the nozzle drippings from the latter is prevented. The arrangement also enables the nozzle to be immediately removed from the filling intake of a tank or receptacle when it is shut-off as the attendant does not have to hold the nozzle in the intake for flow of drippings as is the case at present when dispensing gasoline at a service station.

The valve 19 has a beveled edge, its inner side formed with a tubular extension to provide a socket 20 and an inwardly extending yoke 21 integral with such side. The yoke 21 has an opening 22 and passing through the latter, abutting the tubular extension and extending into socket 20 is a valve stem 23 which is detachably connected to yoke 21 by a removable pin 24. The valve 19 is loosely connected to stem 23.

The stem 23 is provided with an abutment 25 and a series of radially disposed guide arms 26 interposed between yoke 21 and abutment 25. The stem 23 is of a length to extend through and project beyond the outer end of bore 14. Surrounding the stem 23 and interposed between abutment 25 and the inner face of coupling 8 is a coiled controlling spring 27 for the valve 19. The spring 27 normally retains valve 19 against seat 4 and acts to shift valve 19 to shut-off position when a shifting mechanism for the stem is released.

The shifting mechanism for valve stem 23 includes a pair of oppositely disposed handle members 28, 29 of semi-cylindrical cross section. The member 28 is attached at one end to the arm 17 by a band 30 which is fixedly secured in position by holdfast means 31′. The member 28 is interposed between stem part 1 and arm 17. The clamp 30 is arranged in proximity to bracket 16. The member 28 is resilient, normally disposed parallel to stem part 1 and of a length to project beyond sleeve 15′. The member 28 normally seats against sleeve 15′ and is formed with an opening 31 for the passage of stem 23, the latter is formed with threads on its outer end 32. Nuts 33 engage with end 32 of stem 23 for connecting the latter to member 28.

The handle member 29 is arranged outwardly with respect to arm 17 and is formed with a pair of apertured ears 34. Carried by the outer end of arm 17 and connected to ears 34 is a pivot 35 for member 29 and which also connects the latter to arm 17. The member 29 projects beyond the outer end of arm 17 and has its outer end connected to the outer end of member 28 by a headed bolt 36 and a nut 37. The outer ends of members 28 and 29, are apertured as at 38 and extending therethrough is the shank of bolt 36. Interposed between the outer ends of members 28 and 29 and carried by bolt 36 is a coiled spring 39 acting to normally hold such ends in spaced relation. The members 28 and 29 provide a compound lever to provide satisfactory control in operating the opening and closing of valve 19.

Carried by member 28 is a pivoted latch 40 capable of engaging with the inner end of member 29 for latching it in position to retain valve 19 shifted from off its seat. The member 28 carries a hook 49 for suspending the nozzle when not in use.

When the nozzle is used, the operator or attendant grips the members 28 and 29 and shifts member 29 on its pivot and applies pressure to said member 28 and owing to the connection between the outer ends of said members, member 29 acts to shift the outer end of member 28 towards arm 17 thereby carrying stem 23 therewith and unseating valve 19 against the action of springs 27 and 39. Member 29 can then be latched if desired for the necessary period. When pressure is relieved upon member 29 or the latter un-

latched the valve 19 will immediately seat itself to close the nozzle at the discharge end of the latter.

What I claim is:—

1. A fluid dispensing nozzle comprising a tubular stem part, a tubular discharge part having its inner end coupled to and communicating with the outer end of the stem part, said discharge part having a valve seat within its outer end, a spring controlled valve means engaging said seat for normally closing said discharge part to prevent drippings, and a shifting mechanism for said valve means, said mechanism connected in proximity to one end thereof to the latter and being secured at its other end with said stem part.

2. A fluid dispensing nozzle comprising a tubular stem part, a tubular discharge part having its inner end coupled to and communicating with the outer end of the stem part, said discharge part having a valve seat within its outer end, a spring controlled valve means engaging said seat for normally closing said discharge part to prevent drippings, and a shifting mechanism for said valve means, said mechanism connected to the latter and with said stem part and including a resilient member and a pivoted handle member connected together at their outer ends.

3. A fluid dispensing nozzle comprising a tubular stem part, a tubular discharge part having its inner end coupled to and communicating with the outer end of the stem part, said discharge part having a valve seat within its outer end, a spring controlled valve means engaging said seat for normally closing said discharge part to prevent drippings, and a shifting mechanism for said valve means, said mechanism connected in proximity to one end thereof to the latter and being secured at its other end with said stem part, said discharge part disposed at right angles to said stem part.

4. A fluid dispensing nozzle comprising a tubular stem part, a tubular discharge part having its inner end coupled to and communicating with the outer end of the stem part, said discharge part having a valve seat within its outer end, a spring controlled valve means engaging said seat for normally closing said discharge part to prevent drippings, and a shifting mechanism for said valve means, said mechanism connected to the latter and with said stem part and including a resilient member and a pivoted handle member connected together at their outer ends, said discharge part disposed at right angles to said stem part.

5. A fluid dispensing nozzle including an angle shaped tubular body adapted to have one end attached to a feed line, normally closed valve means within the other end of said body for closing it to prevent drippings, and pressure operated means arranged exteriorly of and connected to said body and to said valve means, and means for shifting the pressure operated means to open the nozzle for discharge, said pressure operated means and shifting means including a resilient member and a pivoted handle member connected together at their outer ends.

6. A fluid dispensing nozzle including a tubular body adapted to have one end attached to a feed line, normally closed valve means within the other end of said body for closing it to prevent drippings, and pressure operated means arranged exteriorly of and connected to said body and to said valve means, and means for shifting the pressure operated means to open the nozzle for discharge, said pressure operated means and shifting means including a resilient member and a pivoted handle member connected together at their outer ends.

7. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means within and normally closing the discharge end of said discharge part and including a valve stem extending outwardly from such part, and a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism being connected adjacent one end thereof to said valve stem and at its other end with the stem part of said body.

8. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means normally closing the discharge end of said discharge part and including a valve stem projecting outwardly from said body, a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism being connected to said valve stem and to the stem part of said body and including a pair of handle members connected together at their outer ends, one of said members being resilient and attached to the valve stem and the other being pivoted, and a spring between and normally holding said outer ends in spaced relation.

9. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means normally closing the discharge end of said discharge part and including a valve stem projecting outwardly from said body, a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism being connected to said valve stem and to the stem part of said body and including a pair of handle members connected together

at their outer ends, one of said members being resilient and attached to the valve stem and the other being pivoted, a spring between and normally holding said outer ends in spaced relation, and a latch for said pivoted member.

10. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means normally closing the discharge end of said discharge part and including a valve stem projecting outwardly from said body, a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism being connected to said valve stem and to the stem part of said body and including a pair of handle members connected together at their outer ends, one of said members being resilient and attached to the valve stem and the other being pivoted, a spring between and normally holding said outer ends in spaced relation, a latch for said pivoted member, and a hook carried by the resilient member.

11. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means normally closing the discharge end of said discharge part and including a valve stem projecting outwardly from said body, and a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism including a pair of spaced handle members connected together at their outer ends, one of said members attached to said valve stem and having its inner end anchored to the stem part of said body and the other of said members being pivotally mounted intermediate its ends.

12. A fluid dispensing nozzle including a tubular body formed of a stem part and a discharge part, said stem part adapted to be connected to a fluid feed line, a spring controlled valve means normally closing the discharge end of said discharge part and including a valve stem projecting outwardly from said body, a pressure operated valve means shifting mechanism acting to shift said means to open the nozzle for discharge, said mechanism including a pair of spaced handle members connected together at their outer ends, one of said members attached to said valve stem and having its inner end anchored to the stem part of said body and the other of said members being pivotally mounted intermediate its ends, and a latch for said pivoted member.

13. A fluid dispensing nozzle including a tubular body adapted to have one end attached to a feed line, normally closed valve means within the other end of said body for closing it to prevent drippings, and a compound lever mechanism arranged exteriorly of said body for shifting the valve means to open position, said mechanism including a resilient element and a pivoted element connected together at one end of each element and with said resilient element attached to said valve means.

In testimony whereof, I affix my signature hereto.

WEBSTER I. CARPENTER.