

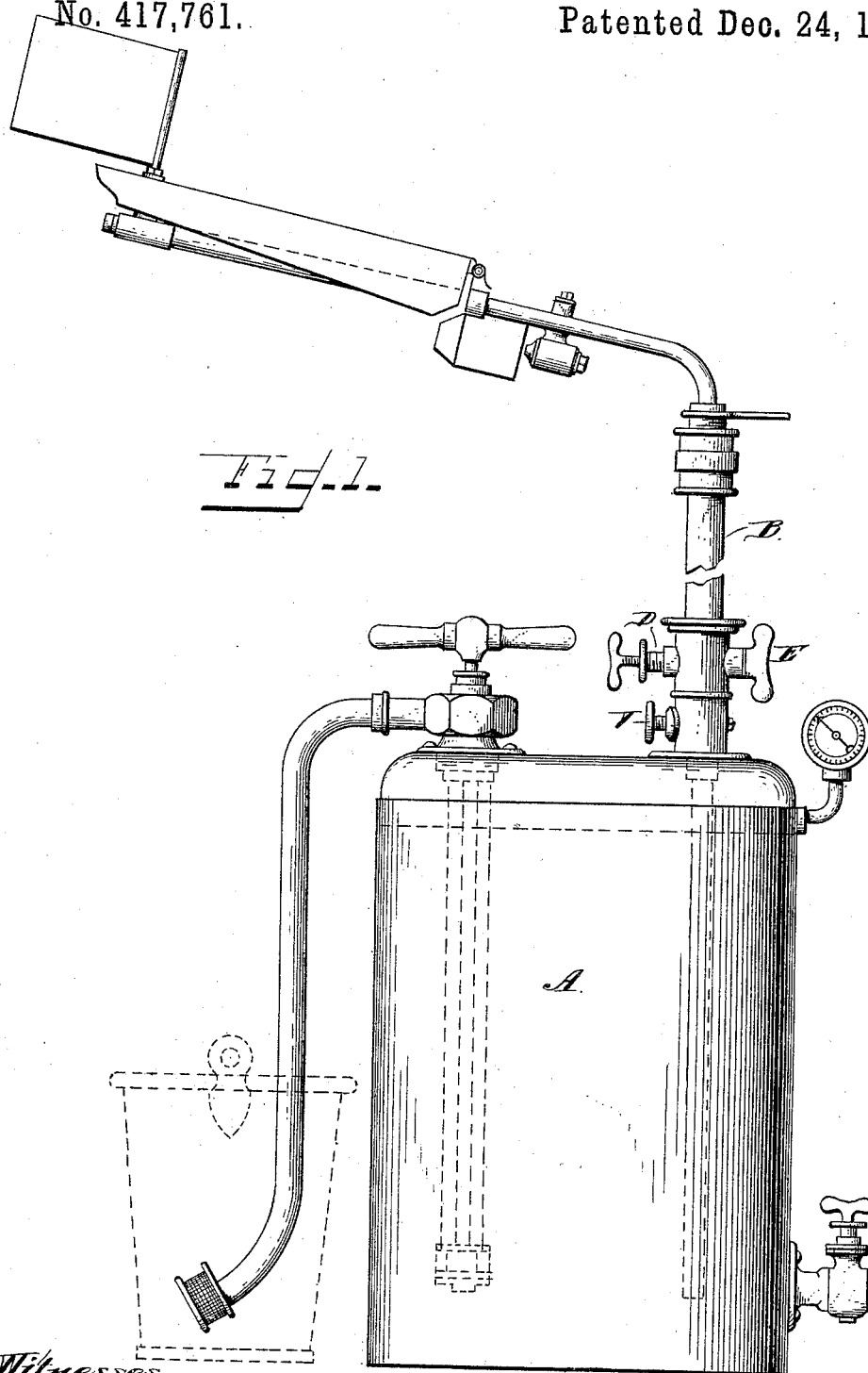
(No Model.)

2 Sheets—Sheet 1.

R. WALLWORK & A. C. WELLS.
COMBINED REGULATING VALVE AND FILTER.

No. 417,761.

Patented Dec. 24, 1889.



Witnesses.

J. Thomson Cross,
A. V. Weaver.

Inventors.

Roughsedge Wallwork & Co.
Arthur Collins Wells.

per

Henry O. R. Atty.

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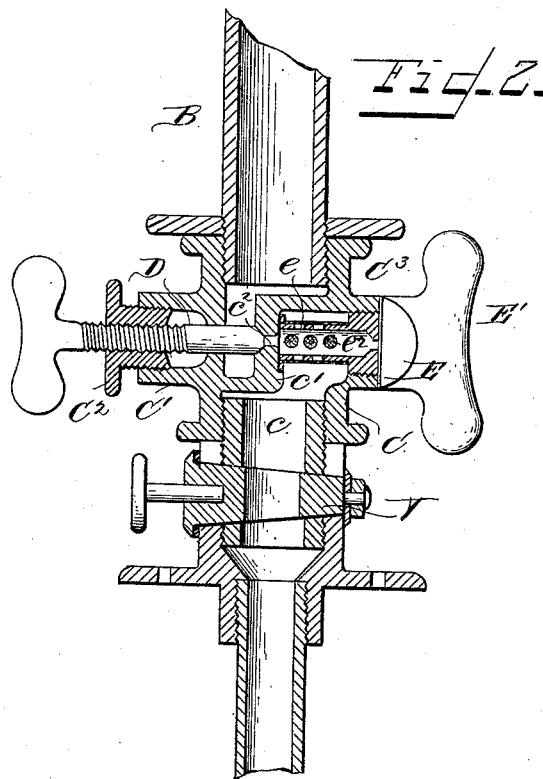
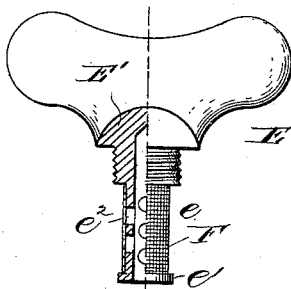


Fig. 3.



Witnesses:
J. Thomson Cross
A. V. Weaver.

Inventor:
Roughsedge Wallwork and
Arthur Collings Wells.
per Harry Corth
Attorney.

UNITED STATES PATENT OFFICE.

ROUGHSEGE WALLWORK AND ARTHUR COLLINGS WELLS, OF MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

COMBINED REGULATING-VALVE AND FILTER.

SPECIFICATION forming part of Letters Patent No. 417,761, dated December 24, 1889.

Application filed June 24, 1889. Serial No. 315,402. (No model.) Patented in England December 14, 1887, No. 17,218.

To all whom it may concern:

Be it known that we, ROUGHSEGE WALLWORK and ARTHUR COLLINGS WELLS, subjects of Her Majesty the Queen of Great Britain, residing at Manchester, in the county of Lancaster, Great Britain, (temporarily residing in the city, county, and State of New York,) have invented certain new and useful Improvements in Combined Regulating-Valve and Filter, (for which we have obtained Letters Patent in Great Britain, dated December 14, 1887, No. 17,218;) and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is an elevation of an apparatus designed for heating or illuminating purposes. Fig. 2 is a detached axial section of the combined regulating and filter valve, and Fig. 3 is a detail view, half section and half plan, of the filter-cock.

We have shown the valve as applied to one of our improved portable lamps, in which the burner is revolvable on the supply. We do, however, not desire to claim herein either the said lamp or the means for connecting the burner with the supply-pipe, as these form subjects-matter for separate applications for patent filed June 24, 1889, Serial Nos. 315,412 and 315,400.

This invention relates to regulating-valves, and more especially to those valves designed for use with illuminating or heating devices where a liquid illuminant—such as a hydrocarbon—is used.

It is well known that liquid illuminating agents of an oily nature, and more especially the heavier hydrocarbons, contain more or less solid matter held in suspension, and such matter, if allowed to reach the burner, will be carbonized and adhere to the surfaces of the burner, choking the same in a comparatively short time.

Various means have heretofore been devised to arrest this solid matter before it reaches the burner—as, for instance, by inter-

posing a foraminous body in the path of the illuminating agent from the reservoir to the burner—such as wire-gauze and other foraminous bodies. In all such cases access to the foraminous body for the purpose of cleaning the same necessitates the taking apart of the supply-pipes, and where such foraminous body is rigidly connected within the supply-pipe, which is necessary when the illuminant is supplied to the burner under pressure, to prevent the displacement of such foraminous body, the cleansing of the same is very difficult.

This invention has for its object to provide a simple means whereby such solid matter may be prevented from passing to the burner, and whereby the cleansing of the foraminous body may be readily effected without taking apart the supply-pipes or other connections in which such body may be located. To these ends we combine the filtering medium with the regulating-valve in such manner as that such medium may be readily removed, cleansed, and returned to its place; and the invention consists in structural features and combinations of parts, substantially as hereinafter fully described, and as set forth in the claims.

In the drawings, A indicates a reservoir for the liquid illuminating agent, which agent may be forced to the burner-pipe B by any suitable means, as by a liquid under pressure. In the burner-pipe B is arranged a valve-casing C, that has an axial passage *c*, intercepted by a Z-shaped wall or partition *c'*, the vertical portion or web of which wall has a passage *c''*, one end of which is conical and forms the seat for a cone-valve or regulating-needle D, that has its bearing in an opening formed in the inner wall of a stuffing-box C', cast integral with the casing on a line with the valve-seat. The cone-valve D is screw-threaded and works in a threaded opening of the stuffing-box gland C². The casing C is provided with a branch C³, diametrically opposite the stuffing-box C'. The outer end of this branch is screw-threaded for the reception of what we term the "filter-plug" E. The said plug E has a tubular stem *e*, open at its outer end and provided at that point with a

flange e' , its opposite end terminating in an enlarged exteriorly-screw-threaded winged head E' , that screws into the branch C^3 of the valve-casing, thus leaving an annular passage around the plug E for the circulation of the liquid illuminant. The face of the flange serves as a bearing and abuts against the vertical portion or web of the partition c' around the passage c^2 in said partition.

10 The smaller tubular portion of the plug may be slotted longitudinally or provided with perforations e^2 for the passage of the liquid, and is clothed with a foraminous material—as, for instance, a wire-gauze sheath F , held

15 against motion between the flange e' and the threaded portion of the head E' .

V is a valve or stop-cock interposed in the pipe that connects the valve-casing C with the reservoir A , and when said stop-cock is

20 open the liquid will flow around the plug, pass through the foraminous sheath F , through the slots or perforations of plug E , and thence through passage c^2 , the flow being regulated by means of the cone-valve or needle D , and solid matter will necessarily be

25 arrested by the foraminous sheath F , as will be readily understood. When it becomes necessary to cleanse the filter-plug, the valves V and D are closed and the plug E is unscrewed from the branch C^3 , and by blowing

30 into the open end of the plug the obstructing matter adhering to the foraminous sheath is removed; or any other desired means may be adopted to cleanse the same. It will be seen

35 that the cleansing of the plug requires but a few seconds and that all escape of the illuminating agent from the pipes is effectually prevented.

Although this valve is more especially designed for use on our illuminating and heating devices in which hydrocarbon oils are chiefly used, yet we do not desire to limit ourselves to the application of the valve to such use exclusively, as it may be used wherever

40 it is desirable to filter a liquid prior to its use. For instance, it may be advantageously used for filtering the water taken from service-pipes for household and other purposes with but slight or no modification in construction, except as to dimensions and the

50 nature of the valve or the nature of the filtering medium, according to the amplitude of the flow, as it is obvious that other forms of valve than that described may be employed.

55 We claim—

1. In a conduit for liquids, provided with a partition intercepting the flow of the liquid therethrough, a port formed in said partition,

and a valve operating to open or close said port, the combination therewith of a filter consisting of a hollow slotted or perforated cylinder closed at one end and open at the other, arranged within the conduit with its open end surrounding the valve-port, and a foraminous material surrounding said perforated cylinder, substantially as and for the purposes specified.

2. In a conduit for liquids, provided with a partition intercepting the flow of the liquid therethrough, a port formed in said partition, and a valve operating to open or close said port, the combination therewith of a filter consisting of a hollow slotted or perforated cylinder closed at one end and open at the other, arranged within the conduit so as to be readily withdrawn therefrom and with its inner open end surrounding the valve-port, and a foraminous material surrounding said perforated cylinder, substantially as and for the purposes specified.

3. In a combined valve and filter, a valve-casing whose axial passage is intercepted by a Z -shaped partition, a port or passage formed in the vertical branch or web of said partition and constructed to form a valve-seat, and a regulating-valve for said port, a filter consisting of a tubular slotted or perforated screw-plug closed at one end and screwed into the valve-casing, with its open end around the port or passage in the partition, and a foraminous body surrounding said slotted or perforated tubular portion of the plug, substantially as and for the purposes specified.

4. In a combined valve and filter, a valve-casing whose axial passage is intercepted by a Z -shaped partition provided with a port or passage in the vertical portion or web thereof, said passage being formed with a valve-seat, and a screw-valve co-operating with said passage, a filter consisting of a tubular slotted or perforated screw-plug open at one end and having at that point an annular bearing abutting against the web of the partition around the passage therein, and a foraminous material enveloping the slotted or perforated portion of the plug, substantially as and for the purposes specified.

In testimony whereof we affix our signatures in presence of two witnesses.

ROUGHSEGE WALLWORK.
ARTHUR COLLINGS WELLS.

Witnesses:

GEO. H. JACOB,
MORRIS W. BURCHARD.