E. F. STEWART.

COCK FOR REGULATING THE FLOW OF LIQUIDS AND GASES.

APPLICATION FILED NOV. 25, 1916.

1,259,054.

Patented Mar. 12, 1918.

2 SHEETS—SHEET 1.

Fig. 2.

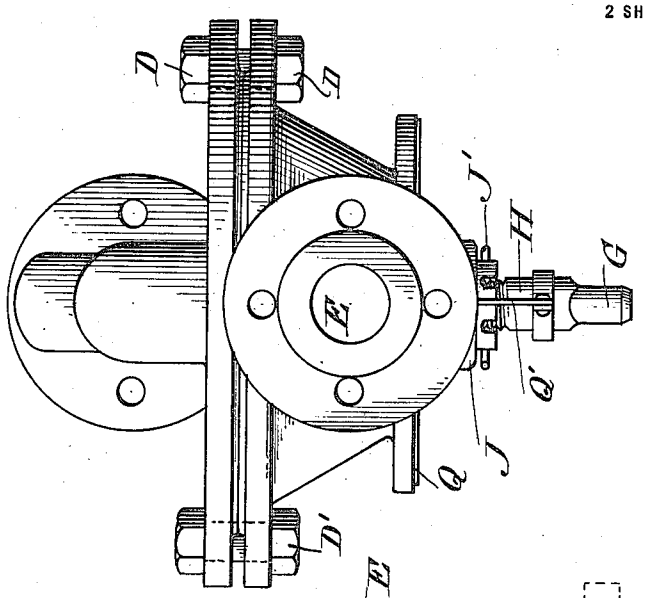
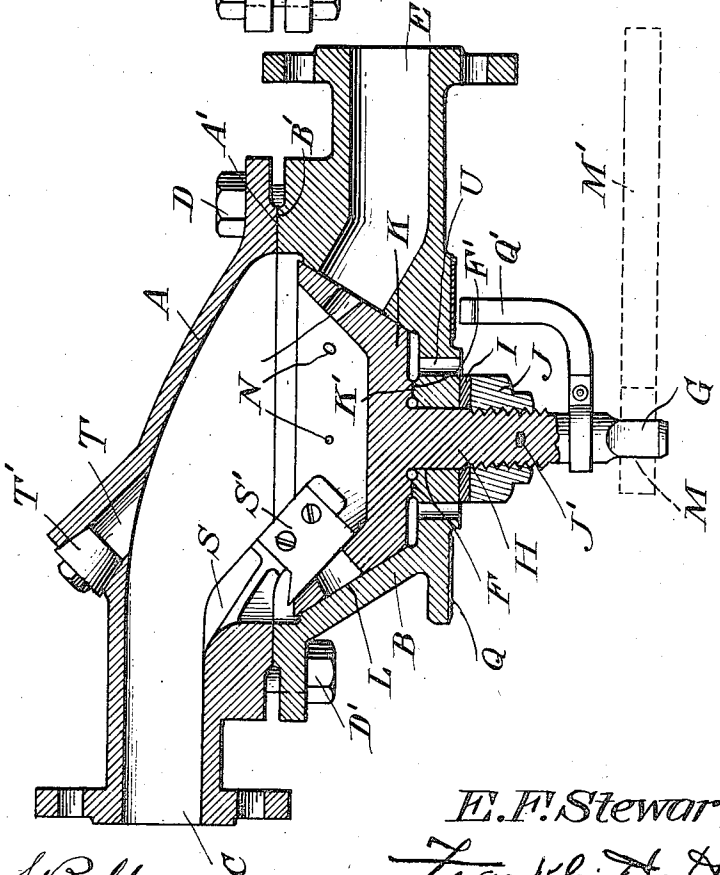


Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

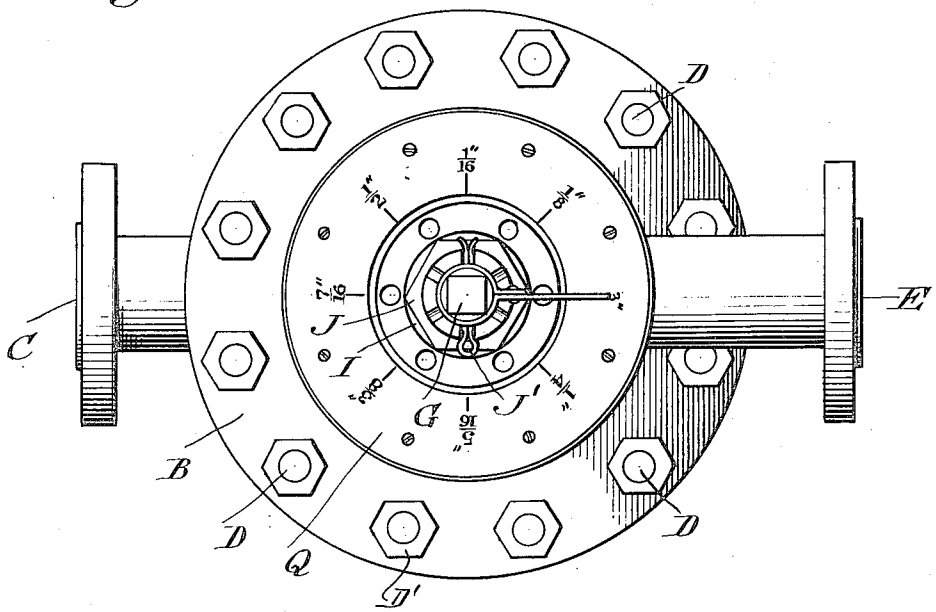
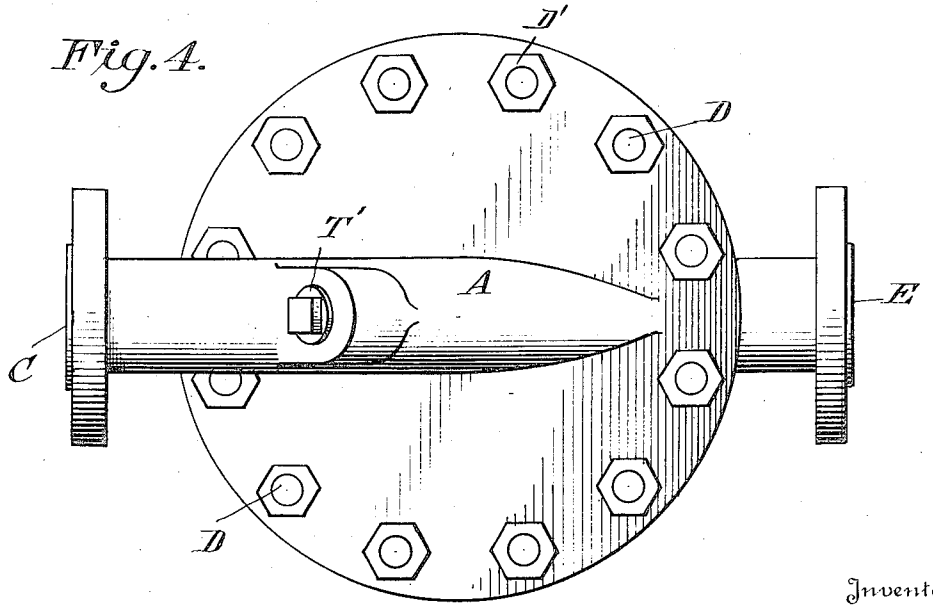


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWIN F. STEWART, OF WOODCLIFF, NEW JERSEY, ASSIGNOR TO THE BARRETT COMPANY, A CORPORATION OF NEW YORK.

COCK FOR REGULATING THE FLOW OF LIQUIDS AND GASES.

1,259,054. Specification of Letters Patent. Patented Mar. 12, 1918.

Application filed November 25, 1916. Serial No. 133,400.

To all whom it may concern:

Be it known that I, EDWIN F. STEWART, a citizen of the United States, residing at Woodcliff, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Cocks for Regulating the Flow of Liquids and Gases; and I 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in cocks for regulating and varying the flow of tars, hard coal tar pitches at high temperatures, and other viscous liquids as well as lighter liquids and gases, and consists in the provision of a simple and efficient apparatus of this nature having various details of construction, combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claim.

My invention is illustrated in the accompanying drawings, in which:

Figure 1 is a central vertical sectional view through my invention.

Fig. 2 is a view in elevation.

Fig. 3 is a bottom plan view.

Fig. 4 is a top plan view.

Reference now being had to the details of the drawings by letter, A and B designate two sections, preferably of cast iron, forming a casing, circular outlined and provided with annular bosses A′ and B′ respectively upon said sections. Said sections are held together by means of bolts D, thus forming a tight joint, the space intermediate the outer portions of the flanges of said sections and the bosses being provided to give more pressure on the packing in said joint at the inner edge near the contained liquid. The section A is provided with an inlet C and the section B with an outlet E. The bottom of the section B is provided with a central circular-outlined outlet aperture F in which the stem H of the dished valve or plug K (preferably of steel) is journaled. About said opening F is a boss F′ and about the stem H and upon the bottom of said plug K is a boss K′ which bears against the boss F′, thus spacing the portion of the plug about said two bosses and the bottom of the shell, as shown clearly in Fig. 1 of the drawings, and which space, together with the vent holes U, is provided for the purpose of receiving and discharging any oozing of the viscous liquid which might pass through the joint intermediate the plug and its seat, thus indicating a leak between the plug K and its seat L.

It will be noted that the outer circumference of the plug K is inclined and has a bearing surface against the inclined inner seat L of the section B and that the wall of the plug K is provided with different sized exit openings N which flare downwardly, as shown, and which are designed to be brought into registration with the exit opening E.

Said stem H has a washer I mounted thereon which is held against the under surface of the section B through the medium of the castellated nut J which is locked in position by the cotter pin J′. The lower end of the stem is squared as at G to receive the square-outlined opening M of the handle M′.

Mounted upon the under surface of the section B is a scale Q, and Q′ designates a pointer which is keyed to the stem H and its free end moves adjacent to said scale, the designations upon said scale corresponding to and adapted to identify the various sized exit openings N formed in the wall of the plug K when they register with the outlet E.

The section A is provided with an opening T, normally closed by a plug T′ and serves as a means whereby access may be had to the casing when it is desired to cleanse the interior of the same by the introduction of any suitable cleansing agent.

Integral with and projecting from the inner wall of the casing A is an arm S to which a metallic scraper S′ is fastened, having an inclined edge adapted to conform to and contact with the inner inclined side wall of the plug whereby, as the plug is rotated, said scraper will serve to clear the entrances to the exit apertures N from any substance which may tend to clog the same.

By the provision of the apparatus shown and described, means is afforded for regulating the flow of liquids, preferably those under uniform pressure and of uniform character, for it is a fact well known in the art that, when all the conditions of a flow-

ing liquid are uniformly maintained, principally those of pressure, viscosity and the area and form of the opening through which it flows, the quantity flowing will be uniformly constant and will vary only by changing one or more of the conditions, such as, for instance, the area of the opening as in our apparatus shown.

By the use of a cock of the design shown, having various sized openings, a uniform and constant quantity of liquid or gas may be delivered for each opening of a certain diameter or area, when other conditions are uniformly maintained, the variation of flow of the liquid being easily and quickly secured by changing from one of the various size openings to the other when desired. This type of cock has been found to be of special utility in regulating the flow of tars and hard coal tar pitches at high temperatures. The present invention was designed primarily to handle 600 degree Fahrenheit hard coal tar pitch of about 300 degree Fahrenheit melting point, but will work equally well with various other liquids and gases.

What I claim to be new is:—

An apparatus for regulating and varying the flow of liquids while under uniform pressure or of uniform character, comprising a casing made up of an upper and a lower hollow section, the lower section having a conical shaped wall with an exit passageway leading from the wall, and a central aperture in the bottom of said section, about which aperture a boss projects upwardly a slight distance, a dished valve having a circumferential conical wall conforming to and adapted to bear against the inclined wall of the casing section in which it is mounted, and provided with a threaded stem having a bearing in said opening, and a boss upon the bottom about said stem, adapted to have a bearing upon said boss rising from the bottom of the section in which the valve is positioned, the wall of the valve having an outwardly flaring opening designed to regulate the flow of material from the interior of the casing into said passageway, said upper section having an integral arm projecting from its inner surface, and a scraper blade fastened thereto, and having a contact edge conforming to and wiping against the inner inclined surface of the valve, a nut fitted upon said threaded stem, affording means for taking up wear between the valve and the wall of the casing in which it is mounted.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

EDWIN F. STEWART.

Witnesses:

WILLIAM JOHN LURCKEL,

ELIZABETH A. ADAMS.