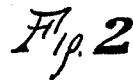
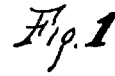


VALVE.

**1,105,209.**

3 SHEETS—SHEET 1.



Witnesses  
Harold C. Scantelmy  
Edna Broyles

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Herbert E. Smith  
Attorney

J. L. SAUCHEREAU.

VALVE.

APPLICATION FILED MAR. 25, 1913.

1,105,209.

Patented July 28, 1914.

3 SHEETS-SHEET 2.

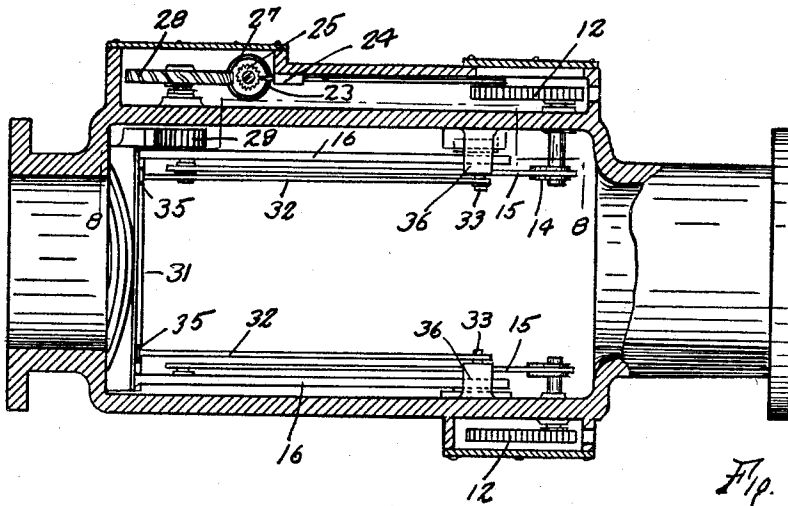


Fig. 3

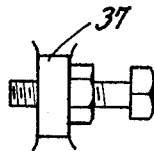


Fig. 9

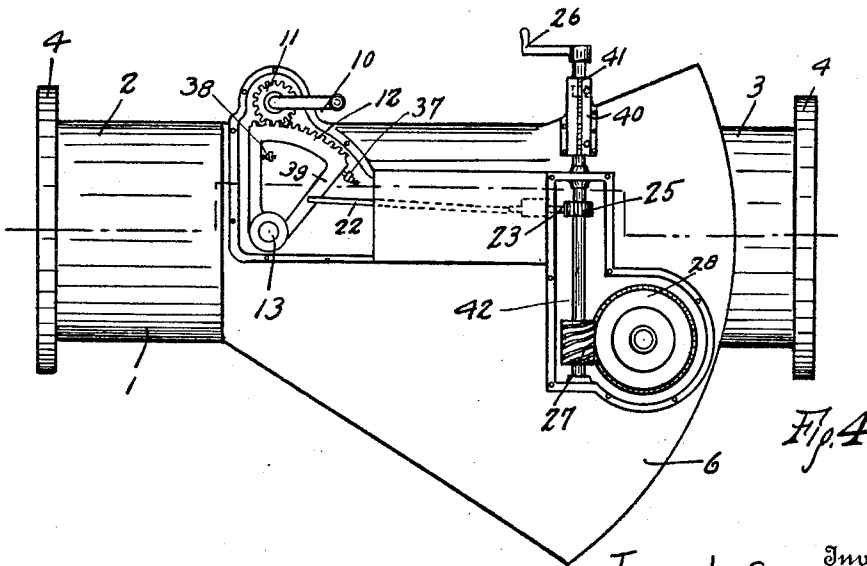


Fig. 4

JOHN L. SAUCHEREAU Inventor

Witnesses

Harold E. Scantlebury  
Edna Broyles

By

Herbert E. Smith  
Attorney

J. L. SAUCHEREAU.

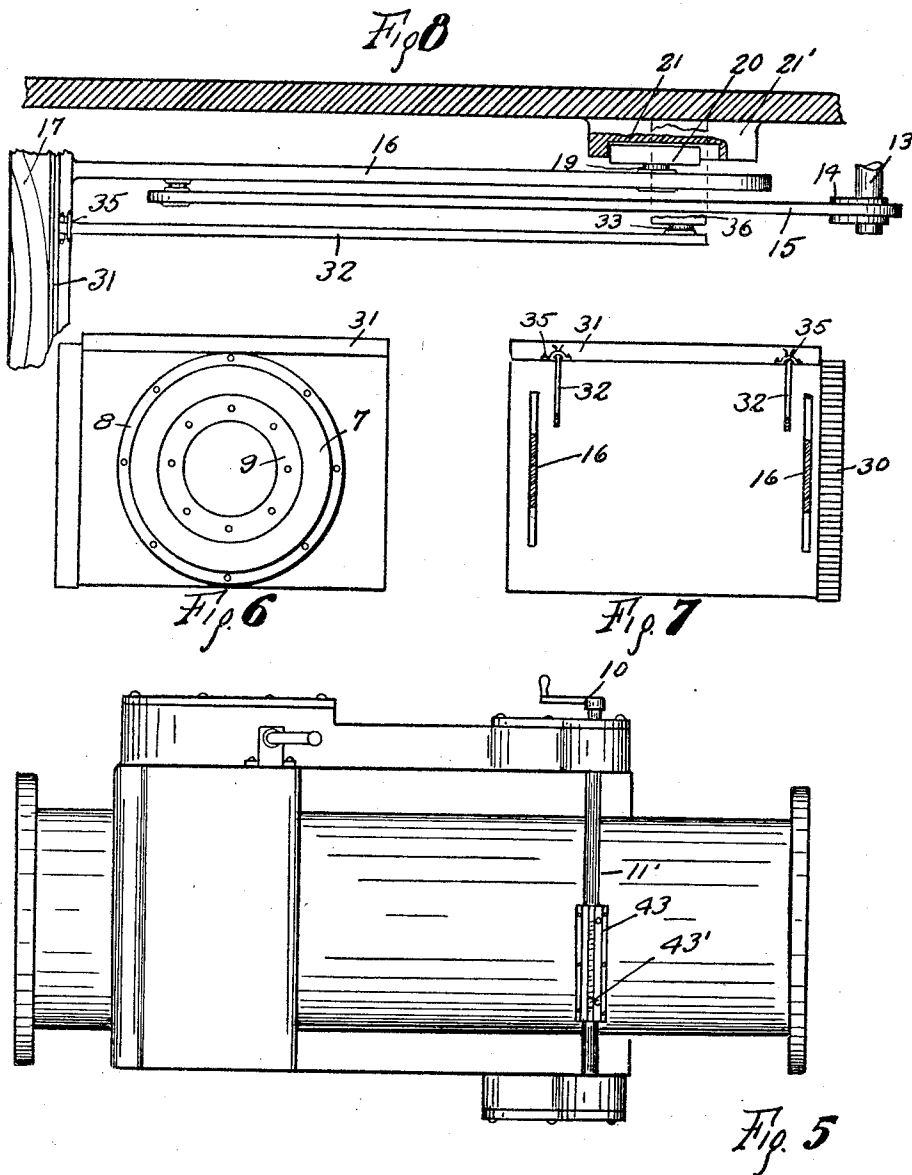
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Inventor  
JOHN L. SAUCHEREAU

Witnesses  
Hans E. Scantlebury  
Edna Broyles

By Herbert E. Smith  
Attorney

# UNITED STATES PATENT OFFICE.

JOHN L. SAUCHEREAU, OF SPOKANE, WASHINGTON.

## VALVE.

1,105,209.

Specification of Letters Patent.

Patented July 28, 1914.

Application filed March 25, 1913. Serial No. 756,652.

*To all whom it may concern:*

Be it known that I, JOHN L. SAUCHEREAU, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented new and useful Improvements in Valves, of which the following is a specification.

My invention relates to an improved form of valve and has as its principal object the provision of a water valve which may be positively withdrawn from engagement with its seat before being moved.

A second object resides in the provision of means for scraping the seat of the valve before closing it.

A third object resides in the particular arrangement and combination of parts hereinafter described.

In the accompanying drawings:—Figure 1 is a central vertical sectional view of my improved valve showing the device closed. Fig. 2 is a view similar to Fig. 1 but showing the device opened. Fig. 3 is a sectional view taken at right angles to Fig. 1, a portion of the device being shown in plan. Fig. 4 is a side elevation looking in the opposite direction from Fig. 1. Fig. 5 is a top plan view of my device. Fig. 6 shows the valve head looking in the direction of Fig. 1. Fig. 7 shows the valve head looking in the opposite direction from Fig. 6. Fig. 8 is a detail of the mechanism included in line 8—8 of Fig. 3. Fig. 9 is a detail of the means used in adjusting the limit of movement of the valve.

In the separate views the same part is designated by the same reference character.

Referring more particularly to the drawings, 1 indicates a casing or special casting intended to be inserted into a pipe line. For this purpose the casting 1 is provided with two circular portions such as 2—3, one at each end, the portions 2 and 3 being provided with flanges such as 4—4 whereby the casting 1 may be connected to the adjoining pipe sections. The central portion of the casting 1 is enlarged to provide a chamber 5 within which the valve is mounted. The face of the chamber 5 at one end is of arc-shaped section as shown at 6, the center of said arc-shaped section being at 7<sup>a</sup>, in Fig. 2. The valve 17 is shaped so as to conform to the curve of the face 6 and, as best shown in Fig. 6, is of generally rectangular elevation. On the closing face of the valve 17 is a packing ring 7 which is attached to the

face of the valve by removable rings 8 and 9, such packing rings being adapted to form a tight joint with the valve seat around inlet aperture 10. The valve 17 is provided with geared teeth 30 on its inner face as shown in Fig. 7 and a pinion wheel 29 is shown within the chamber 5, in Figs. 1 and 2, as meshing with the teeth 30 for the purpose of swinging the valve when it is to be opened or closed. As best shown in Fig. 3, the pinion 29 is carried by a shaft which projects through the whirl of the chamber 5 into a hollow chamber formed on the outside of the casting 1. On the outer end of this shaft is a gear 28 which meshes with a worm 27, best shown in Fig. 4. Now the worm 27 is fastened to a vertically extending shaft 42 at the upper end of which is a handle 26 by which the valve may be operated through the foregoing mechanism. On the shaft 42 is a nut 41 threaded thereon and slidably mounted in a guide 40 so that it cannot turn. When the shaft 42 is revolved the nut 41 will travel up or down as the case may be on the guide 40 and indicate thereby the position of the valve head. It being understood that the parts 40 and 41 are on the outside and above the chamber 50. However, it will be obvious that the ring of soft packing such as I prefer to use would be quickly abraded if the valve was to be moved when such packing ring is in close contact with the face 6. Moreover, to turn the valve in such a position would require a great deal of power and consequently I provide means for backing the valve away from the face 6 when it is to be moved, and positively forcing it against the valve seat when it is to be closed.

For the foregoing purpose I so mount the valve 17 that it may be moved toward and away from the face 6 as well as swung from closed to opened position, and the reverse, and this is accomplished by forming the valve head 17 rigid with two arms 16, one on each side thereof, the arms 16 being pivotally connected to a shaft 19 which carries a round bearing block 20, mounted in a slot 21 which is provided in a lug 21' which projects from the inner face of the chamber 5. Details of the foregoing are best shown in Fig. 8. The arms 16 are pivoted to links 15, as shown at 18 in Fig. 1, and the opposite ends of the links 15 are provided with apertures which embrace eccentrics such as 14 carried on sub-shaft 13 which projects in-

wardly to the walls of the casing 1, in the chamber 5. When eccentric 14 is in the position shown in Fig. 1 the valve head is forced strongly against the seat so as to close the valve, but when 14 is turned to the position shown in Fig. 2, the valve is withdrawn from contact with the face 6 allowing it to be swung gently and avoiding damage to the packing. The eccentrics 14 are operated from the handle 10 shown in Fig. 4, by means of gears 11 carried at the ends of the shaft 11'. The gears 11 mesh with teeth on the outer surface of the segments 12 which are mounted on the outer ends of the sub-shaft 13. In order to prevent segments 12 from being turned too far, I provide two lugs 37 and 38 which project from the opposite side of the casting 1 and these lugs are provided with set screws and lock nuts as illustrated in Fig. 9, the set screw in the lugs 37 being set to contact with the outside of the arms 39 of the segments 12 when the eccentrics 14 are in their maximum position in one direction and the set screw in lug 38 being set to contact with the inner edge of the same arm when the segment, and consequently the eccentrics are swung to their maximum desirable limit in the opposite direction. In order to determine whether or not the valve is actuated from its seat I provide a nut 43', shown in Fig. 5, which operates in the guide 43 in a manner similar to the nut 41 and guide 40. In order to make sure that the valve is not turned except when actuated from the seat I provide a ratchet wheel 25 on the shaft 42 and a dog 23 is provided which is guided in a lug 24 and which is adapted to engage the teeth of the wheel 25 so as to hold the shaft 42 fixed except when withdrawn. The dog 23 is connected to a link 22 which is pivoted in the arm 39 of the segment 12, and the link 22 is so designed that the dog 23 cannot be withdrawn from engagement with the wheel 25 until the segment 12 has been moved so as to back the valve away from its seat.

Valves such as I have shown are designed to remain open for long intervals and consequently it is found that often the valve seat is so corroded and dirty that it is impossible to so close the valve as to prevent leakage. In order to obviate this difficulty I provide a scraping knife 31, which is carried on links 32 which are pivoted at points 33, said points 33 being coincident with the points 7, previously mentioned as being the center of the arc-like surface 6. At the end opposite the scraper the links 32 are pivoted to lugs 36 which project from the inner walls of the chamber 5 above the lugs 21, lugs 36 being shown broken away in Fig. 8. At their outer ends the lugs 36 are turned downwardly as shown in Fig. 2 so as to provide the pivot as aforesaid. Consequently the scraper 31 always moves in

contact with the surface 6 and as it is so mounted as to always precede the valve in closing, it insures a clean seat therefor. The scraper 31 is held against the edge of the valve head 17 by staple-like retainers 35 which, however, permit the relative movement of the two when the head is being withdrawn from the face 6.

It will be understood that while I have described and claimed the preferred form of my invention, modifications thereof may be made without departing from the spirit of my invention, and parts of my invention may be used without utilizing the whole.

Having thus described my invention, what I claim is:—

1. A valve device comprising in combination, a casing provided with a passage therethrough and having a valve seat surrounding a portion of said passage, a valve head adapted to coöperate with said seat to close said passage and adapted to be moved toward and be backed away from said seat, means for moving said head when it is backed away from its seat, means for moving said head toward and backing it away from said seat, and a scraper adapted to remove dirt from said seat when said head is moved from an opened to a closed position.

2. A valve device comprising in combination, a casing provided with a passage way therethrough and having a cylindrical inner surface adapted to act as a valve seat, a valve head having a curvature corresponding to that of said seat and adapted to close the passage through said casing, said head being mounted for oscillatory movement, links connected to said head, cams positively engaging said links, and means for operating said cams whereby said head may be positively forced against or withdrawn from said seat, and means for rocking said head from closed to opened position.

3. A valve device comprising in combination, a casing provided with a passage therethrough and having an interior cylindrical surface adapted to act as a valve seat, a valve head having a curvature corresponding to that of said seat and adapted to close the passage through said casing, said head being attached to arms and said arms being provided with pivotal projections engaging slots in said casing whereby said head is adapted to be swung and also to be moved toward and away from said seat, positively acting means for moving said head toward and away from said seat, and means for swinging said head from a closed to an opened position.

4. A valve device comprising in combination, a casing provided with a passage therethrough and having an interior cylindrical surface adapted to act as a valve seat, a valve head having a curvature corresponding to that of said seat and adapted to close

the passage through said casing, a mounting for said head adapted to be moved toward and away from said seat, said mounting being supported from the casing at points  
5 about the center of curvature of the cylindrical surface, positively acting means for moving said mounting, and means independent of said mounting for swinging said head from a closed to an opened position  
10 and the reverse.

5. A valve device comprising in combination, a casing provided with a passage there-through and having a cylindrical valve seat, a curved head adapted to coöperate with  
15 said seat to close said passage, said head being mounted for oscillatory movement and being provided with gear teeth on the surface removed from said seat, a mounting for said head adapted to be moved toward  
20 and away from said seat, means for operating said mounting, a pinion mounted within said casing and on a shaft extending through said casing and engaging the teeth on said head, and means exterior to said  
25 casing for operating said pinion whereby said valve may be moved from a closed to an opened position and the reverse.

6. A valve device comprising in combination, a casing provided with a passage there-through and having a cylindrical valve seat, a curved valve head adapted to coöperate  
30 with said seat in order to close said passage, said head having arms projecting therefrom, said arms being provided with pivotal projections engaging slots in the side of said  
35 casing whereby said head may be swung from a closed to an opened position and may be moved toward and away from said seat, links pivoted to said arms at one end, eccentrics positively engaging said links at the  
40 other ends thereof, mechanism exterior to said casing for operating said eccentrics whereby said head may be moved toward and away from said seat, and means whereby  
45 by said head may be swung from closed to opened position and reversed.

7. A valve device comprising in combination, a casing provided with a passage there-through and having a cylindrical valve seat, a curved valve head adapted to coöperate  
50 with said seat in order to close said passage, said head having arms projecting therefrom, said arms being provided with pivotal projections engaging slots in the side of said  
55 casing whereby said head may be swung

from a closed to an opened position and may be moved toward and away from said seat, links pivoted to said arms at one end, eccentrics positively engaging said links at the  
other ends thereof, mechanism exterior to  
60 said casing for operating said eccentrics whereby said head may be moved toward and away from said seat, means whereby said head may be swung from closed to  
opened position and reversed, and a scraper  
65 pivotally supported from said casing at a point coincident with the center of curvature of said seat, said scraper being in contact with said seat and having operative engagement with said head on the forward side  
70 thereof when said head is moved from opened to closed positions.

8. A valve device comprising in combination, a casing provided with a passage there-through and having an interior cylindrical  
75 surface adapted to act as a valve seat, an imperforate valve head having a curvature corresponding to that of said seat and adapted to close the passage through said casing, said head being attached to arms and said  
80 arms being provided with pivotal projections engaging slots in said casing whereby said head is adapted to be swung and also to be moved toward and away from said seat, positively acting means for moving said  
85 head toward and away from said seat, and means for swinging said head from a closed to an opened position.

9. A valve device comprising in combination, a casing provided with a passage there-through and having an interior cylindrical  
90 surface adapted to act as a valve seat, an imperforate valve head having a curvature corresponding to that of said seat and adapted to close the passage through said casing, arms rigidly attached to said head, connections between said arms and said casing  
95 adapted to serve as pivotal supports for said arms and also adapted to permit relative sliding movement, positively acting  
100 means for moving said head toward and away from said seat, and means for swinging said head from a closed to an opened position.

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

JOHN L. SAUCHEREAU.

Witnesses:

HAROLD SCANTLEBURY,  
EDNA BROYLES.