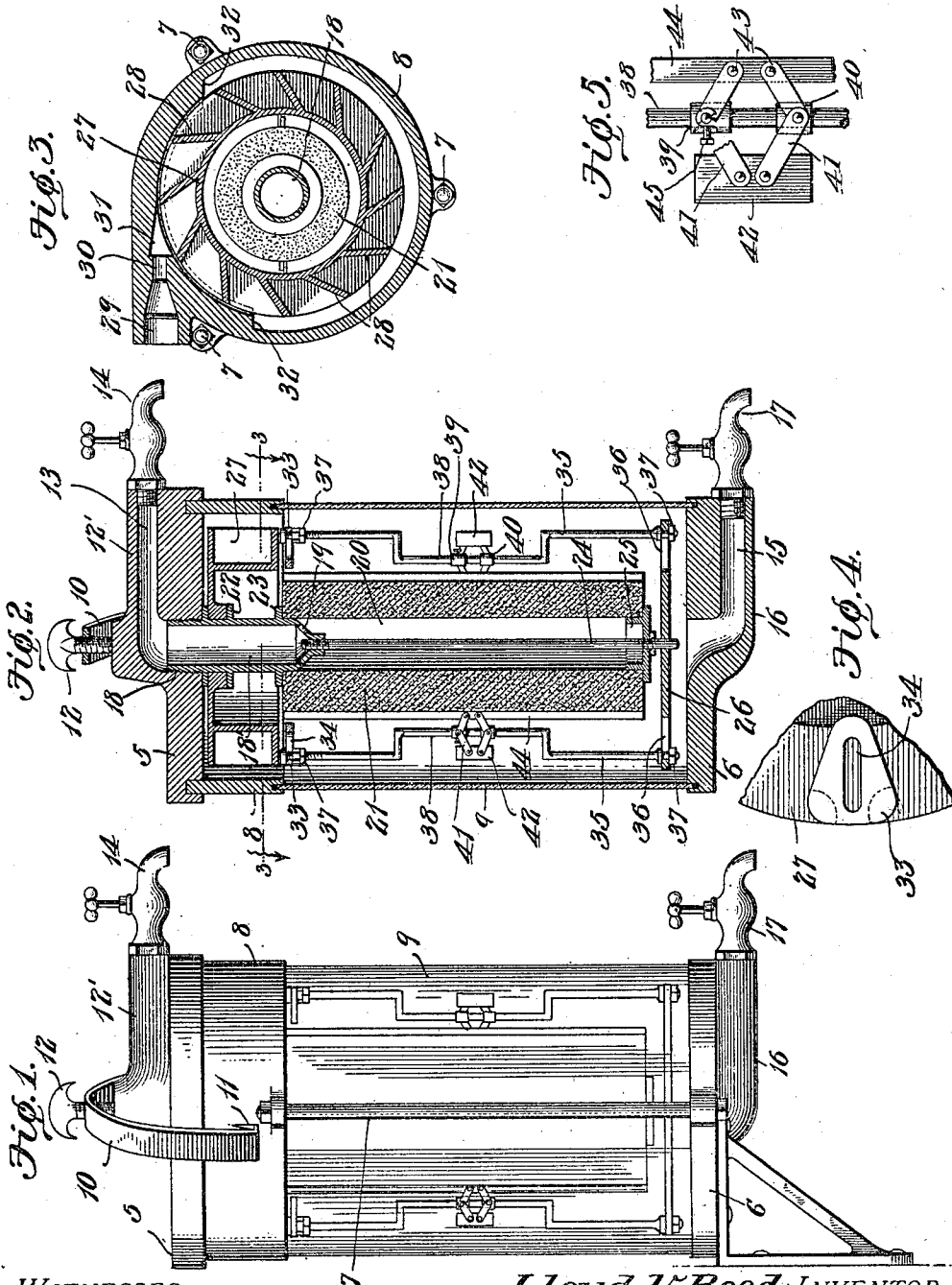


No. 839,514.

PATENTED DEC. 25, 1906.

L. V. ROOD.
FILTER.

APPLICATION FILED MAR. 26, 1906.



WITNESSES:

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LLOYD VINCENT ROOD, OF MARIETTA, OHIO.

FILTER.

No. 839,514.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed March 26, 1906. Serial No. 308,137.

To all whom it may concern:

Be it known that I, LLOYD VINCENT ROOD, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented a new and useful Filter, of which the following is a specification.

This invention relates to filters of that general class shown in United States Letters Patent granted to me on the 6th day of February, 1906, under No. 811,644.

The object of the invention is to improve, simplify, and cheapen the construction of the filter and to provide a transparent casing or housing for the same whereby the condition of the filtering material may be observed from time to time without the necessity of detaching the several parts.

A further object of the invention is to provide improved means for cleaning the filtering material and means whereby the cleaning brushes or scrapers may be adjusted laterally with respect to the filtering material to compensate for wear upon the latter.

A still further object of the invention is to generally improve this class of devices so as to increase their utility, durability, and efficiency, as well as to reduce the cost of manufacture.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, and illustrated in the accompanying drawings, it being understood that various changes in form, proportions, and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a filter constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken on the line 3-3 of Fig. 2. Fig. 4 is a bottom plan view of one of the slotted brackets. Fig. 5 is a side elevation of a portion of one of the filter-cleaning devices.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved filter comprises a pair of spaced heads 5 and 6, one of which is provided with perforated lugs in which are seated clamping-rods 7, the opposite ends of said rods being threaded through similar lugs

on a flange depending from the head 5, as shown.

Interposed between the flange 8 and the head 6 is a casing or housing 9, preferably formed of glass or similar transparent material, so that the contents of the filter may be readily inspected from time to time. The head 5 is retained in position on the flange 6 by means of a clamping member or yoke 10, the free ends of which engage suitable lugs or projections 11, secured to said flange, so that by adjusting the clamping-screws 12 the parts may be securely locked together. The cap or head 5 is formed with an enlargement 12', having a longitudinally-disposed passage 13 formed therein, which communicates with a draw-off valve or cock 14, through which the filtered water is discharged, there being a similar passage 15 formed in the enlargement 16 on the head 6 for withdrawing the water through a similar cock or faucet. Threaded in an opening 18 in the cap or head 5 is a pipe or tube 18, the lower end of which is conical in shape and provided with a plurality of perforations or openings 19, which communicate with the interior bore 20 of a filtering element 21, preferably in the form of a cylindrical block of porous material.

The tube 18 is provided with spaced laterally-extending flanges 22 and 23, the lower flange 23 of which engages the adjacent surface of the filtering element 21, said element being retained in contact with the flange 23 by means of a rod 24, threaded in the reduced end of a tube 18 and extended longitudinally of the bore 20. The free end of the rod 24 passes through a threaded opening in a cap or closure 25, fitting within the bore 20 at the lower end of the filtering element, said rod being loosely mounted in a horizontally-disposed bar 26, extending transversely of the casing and spaced a short distance from the head 6, as shown.

Disposed above the filtering element 21 and mounted for rotation on the flange 22 is a water-wheel 27, provided with a plurality of non-radial blades 28 and to which the water is delivered through an inlet 29, formed in a lateral enlargement on the flange 8, as shown. The inner portion of the inlet 29 is reduced at 30, and the walls of the flange 8 adjacent the reduced portion 30 enlarged at 31, so as to give a clearance to the incoming stream of water and prevent spreading thereof, whereby the water is compelled to strike the blades 28 in a compact stream,

which produces a more effective rotation of the wheel. At the opposite sides of the inlet 29 the flange 8 is provided with an internal enlargement or shoulder 32, fitting closely to the outer periphery of the edge of the wheel and slightly underlapping the same, as indicated by dotted lines in Fig. 3 of the drawings, thereby to prevent the incoming water from escaping downwardly without actuating the wheel, said shoulder or enlargement extending a comparatively short distance around the interior walls of the flange 8 in order that there be an annular space between the remaining portion of the wheel and said flange to permit the water to escape into the body of the filter.

Secured to the bottom of the water-wheel 27 are inwardly-extending brackets 33, each provided with a longitudinally-disposed slot 34, in which are mounted for lateral movement longitudinally-disposed rods or bars 35, the lower ends of said bars being passed through slots 36, formed in the opposite ends of the bar 26. The ends of the bars 35 are threaded for engagement with suitable clamping-nuts 37, whereby said bars may be securely locked in adjusted position. The intermediate portions of the bars 35 are offset to form centrally-disposed crank-arms 38, which serve to support the filter-cleaning devices. Slidably mounted on the crank-arms 38 are sliding collars 39 and 40, connected through the medium of links 41 to a weight 42, that is also connected by similar links 43 to the cleaning device, preferably in the form of a bar or scraper 44. The sleeves or collars 39 are rigidly secured to the crank-arms by means of suitable screws or similar fastening devices 45, while the sleeves 40 are free to slide on said arms, so that as the rods 35 are rotated through the medium of the water-wheel the weights 42 will be thrown outwardly by centrifugal force, and thus hold the bars or scrapers 44 in contact with the filtering element. While the cleaning devices are preferably in the form of bars or scrapers, it is obvious that brushes or strips of emery, steel, or other suitable material may be employed, if desired.

By having the cleaning devices mounted on the rods in the manner described the bars 44 may be adjusted laterally with respect to the filtering element by sliding the rod 35 longitudinally of the slots 34 and 36 and clamping the same by adjusting the nuts 37, a further adjustment of the bars or cleaners 34 being effected by partially rotating the crank-arms 38, as will be readily understood.

In operation water is admitted through the inlet 29, whereupon the wheel 27 is rotated by the incoming water and the cleaning devices or bars 44 rotated around the stationary filtering element 21. As the water escapes from the wheel and passes downwardly into the body of the filter it perco-

lates through the filtering element to the bore or passage 20, through which it rises to the passage 12 in the cap 5 and may be drawn off at the cock or faucet 14. At the same time the dirty or impure water may be drawn off through the cock or faucet 17 without fouling the filtered water within the longitudinal bore of the filtering element. During the rotation of the cleaning mechanism around the porous block or filtering element the bars or cleaners 44 will be maintained in frictional engagement with said filtering element under the centrifugal action of the crank-arms and weights 42.

By having the casing or housing formed of glass or other transparent material the contents of the filter may be observed from time to time without the necessity of detaching the several parts, while by reason of the shape of the inlet 29 the water is forced under pressure in contact with the blades of the water-wheel thereby effectually rotating the latter.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art, and further description thereof is deemed unnecessary.

Having thus described the invention, what is claimed is—

1. In a filter, a casing provided with intake and discharge passages, a filtering element arranged within the casing and provided with a longitudinal bore communicating with the discharge-passage, a rotating member, rods depending from the rotating member and provided with crank-arms, and cleaning devices carried by the crank-arms and adapted to engage the filtering element.

2. In a filter, a pair of spaced heads one of which is provided with intake and discharge passages, a stationary filtering element having a longitudinal bore communicating with the discharge-passage, a rotating member, laterally-adjustable rods carried by the rotating member, cleaning devices secured to the rods and adapted to engage the filtering element, and a transparent casing interposed between the heads.

3. In a filter, a casing provided with intake and discharge passages, a filtering element disposed within the casing, a rotating element, brackets secured to the rotating element, rods adjustable longitudinally of the brackets and mounted for rotation therein, and cleaning devices carried by the rods and adapted to engage the filtering element.

4. In a filter, a casing provided with intake and discharge passages, a stationary filtering element arranged within the casing, a rotating member, slotted brackets secured to the rotating member, a slotted bar disposed beneath the filtering element, rods engaging the slots in the brackets and bars respectively, and mounted for rotation therein,

and cleaning devices carried by the rods and adapted to engage the filtering element.

5. In a filter, a casing provided with intake and discharge passages, a stationary filtering element arranged within the casing and provided with a bore communicating with the discharge-passage, a rotating member, brackets carried by the rotating member, rods adjustable longitudinally of the brackets and provided with crank-arms, cleaning devices adapted to engage the filtering element, pivotal connections between the cleaning devices and the crank-arms, and means for clamping the rods in adjusted position.

6. In a filter, a casing provided with intake and discharge passages, a stationary filtering element arranged within the casing and provided with a bore communicating with the discharge-passage, a rotating member, brackets carried by the rotating member and having slots formed therein, a bar disposed beneath the filtering element and provided with terminal slots disposed in alignment with the slots in said brackets, laterally-adjustable rods having their opposite ends threaded and engaging the slots in the brackets and bars respectively, nuts for clamping the rods in adjusted position, and cleaning devices mounted for swinging movement on said rods.

7. In a filter, a casing provided with intake and discharge passages, a filtering element arranged within the casing and provided with a longitudinal bore, a tube threaded in the discharge-opening and having its opposite ends formed with a series of perforations communicating with the bore of the filtering element, a bar disposed beneath the filtering element, a rod threaded in the perforated end of the tube and engaging said bar and rotating member, and cleaning devices carried by the rotating elements and adapted to engage the filtering element, said cleaning devices being adjustable transversely of the casing and laterally with respect to said filtering element.

8. In a filter, a casing provided with a dis-

charge-passage and having an intake the walls of which are contracted and communicate with the interior of the casing, a shoulder formed on the walls of the casing at one side of the intake, a recess formed in the walls of the casing on the opposite side of the intake, a water-wheel mounted for rotation in the path of the intake, a stationary filtering element provided with a longitudinal bore, a perforated tube forming a source of communication between the longitudinal bore and discharge-opening, laterally-adjustable rods carried by the water-wheel and provided with crank-arms, and cleaning devices secured to the crank-arms and adapted to engage the walls of the filtering element.

9. In a filter, a stationary filtering element, a rotating member, a bar disposed beneath the filtering element, rods connecting the bar and rotating member, relatively stationary and movable sleeves mounted on the rods, cleaning devices adapted to engage the filtering element, pivotal connections between the sleeves and the cleaning device, and weights associated with the sleeves.

10. In a filter, a stationary filtering element, a rotating member provided with depending horizontally-disposed slotted brackets, a bar supported beneath the filtering element and having its opposite ends slotted, laterally-adjustable rods engaging the slots in the bar and brackets respectively and having their intermediate portions provided with crank-arms, relatively stationary and movable sleeves carried by the crank-arms, a scraper adapted to engage the walls of a filtering element, links connecting the scraper and sleeves, weights associated with said sleeves, and nuts for clamping the rods in adjusted position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LLOYD VINCENT ROOD.

Witnesses:

DAVID H. THOMAS,
N. E. KIDD.