

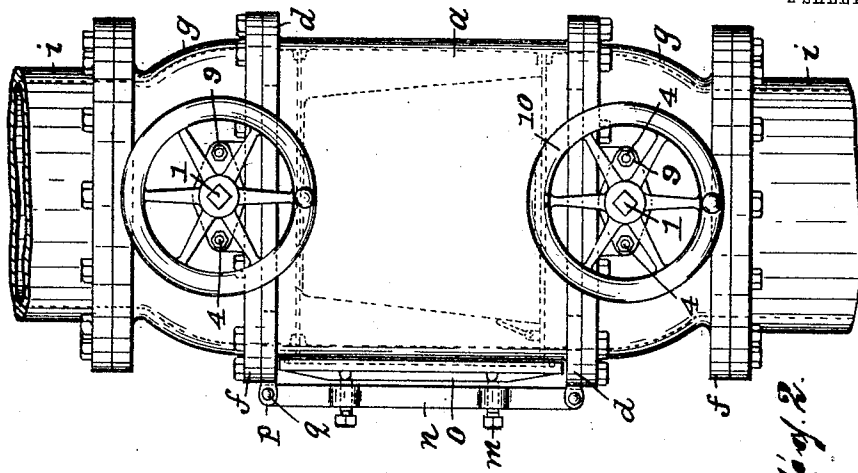
No. 782,866.

PATENTED FEB. 21, 1905.

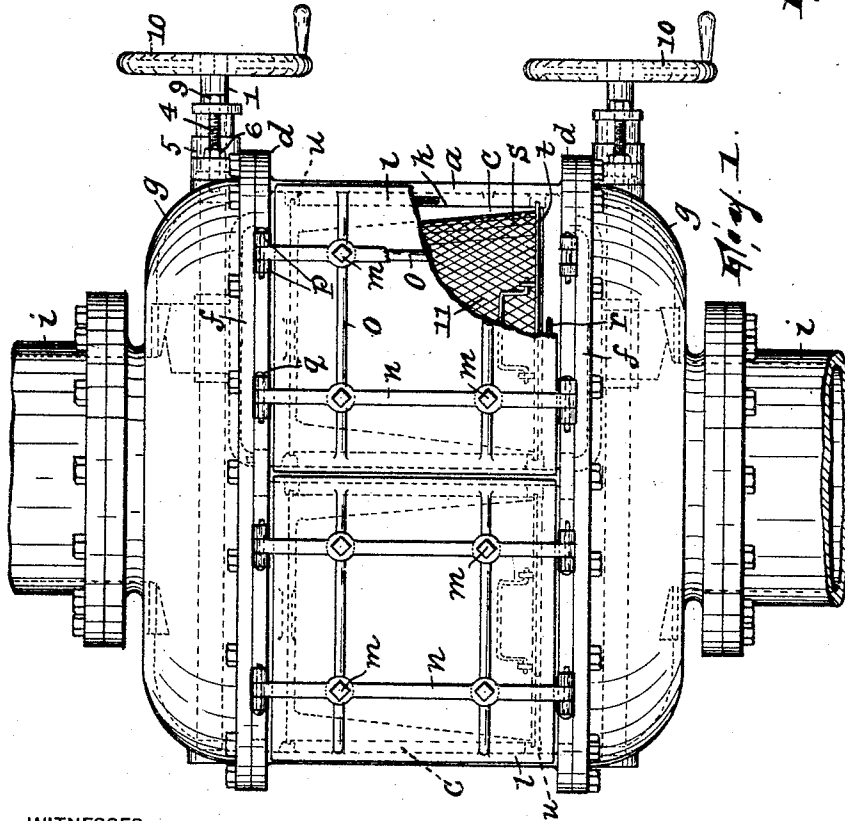
G. U. MERRILL.
COMBINED STRAINER AND VALVE.

APPLICATION FILED AUG. 2, 1904.

2 SHEETS—SHEET 1.



H. G. P.



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WITNESSES:

W. D. Bell.
Robert J. Pollett.

INVENTOR,

Grant U. Merrill,

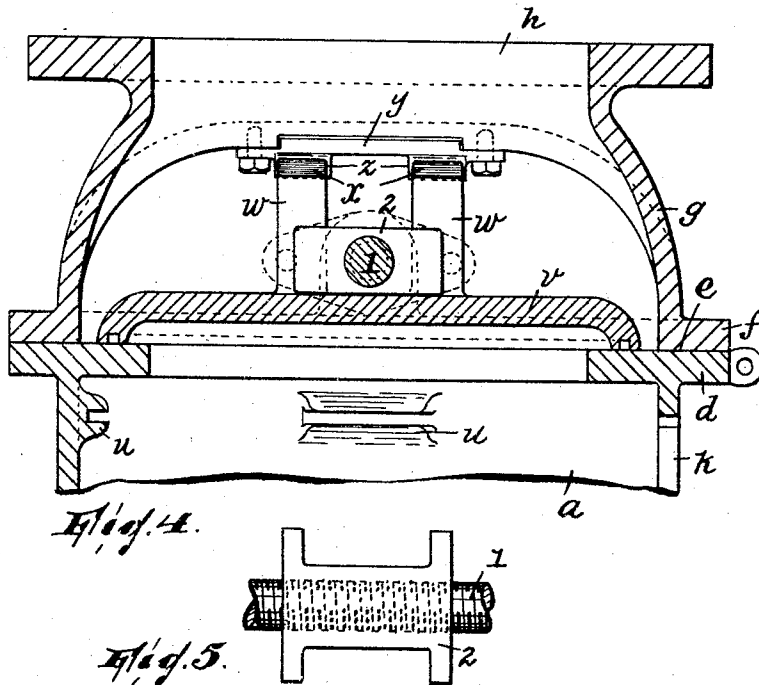
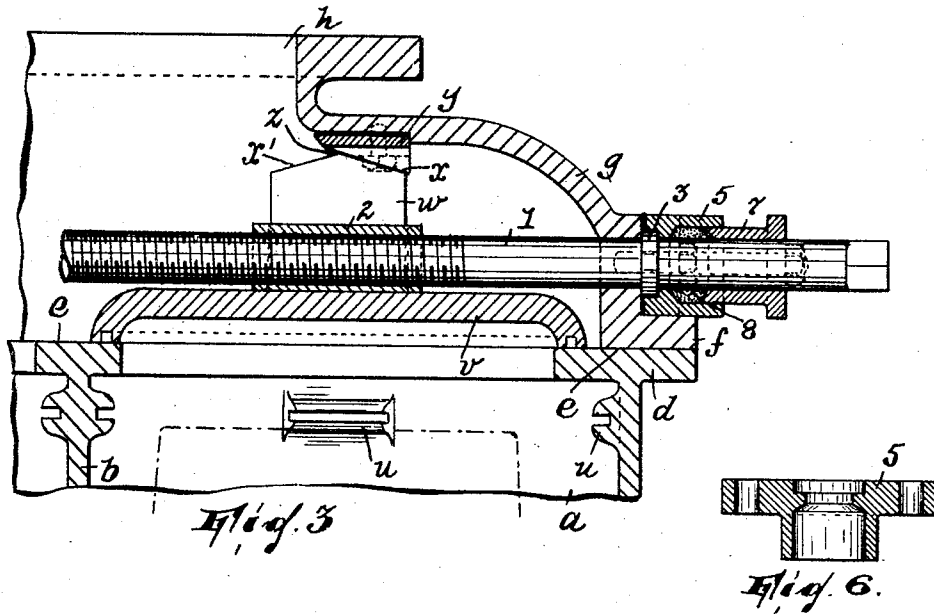
BY

Garner & Leeward,
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WITNESSES:

Wm. S. Bell.
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UNITED STATES PATENT OFFICE.

GRANT U. MERRILL, OF PATERSON, NEW JERSEY.

COMBINED STRAINER AND VALVE.

SPECIFICATION forming part of Letters Patent No. 782,866, dated February 21, 1905.

Application filed August 2, 1904. Serial No. 219,190.

To all whom it may concern:

Be it known that I, GRANT U. MERRILL, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in a Combined Strainer and Valve; 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 letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for filtering or straining water flowing from raceways and other sources of water-supply, and particularly to that type of such apparatus illustrated in my United States Letters Patent No. 678,001, having two strainers and separate water-flow-controlling means therefor, so that the water-flow may continue uninterrupted through one though it is cut off through the other strainer while the latter is removed for cleaning.

The present invention consists in certain improvements on that patented to me as aforesaid, having principally in view to simplify the manufacture and cheapen the cost of the same, to facilitate the assembling of the various parts, both initially and when the apparatus is in use, as in cleaning the strainers or making repairs, to better insure against leakage at such points where joints are necessarily formed, to facilitate the operation of its moving parts, and increase the efficiency generally.

I have fully illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a front view of the apparatus, a portion of one of the cover-plates being broken away to show the interior of the apparatus. Fig. 2 is a side view; Fig. 3, an enlarged sectional view taken in the plane of certain valve-controlling shafts; Fig. 4, a sectional view taken at right angles to the plane in which the section in Fig. 3 is taken, and Figs. 5 and 6 are views of certain details.

a is a casing open at both ends and divided by a longitudinal central partition *b*, whereby

two passage-ways *c* are formed in said casing. The casing in the present instance instead of being oval in form, as in my patent aforesaid, is substantially rectangular, and it has each end formed with a flange *d* and planed off smooth, as at *e*. Against the face of each flange *d* is bolted the flange *f* of a hollow head *g*, having a central opening *h*, whereby communication is had between the interior of the apparatus and certain pipes *i*, which are bolted to said heads *g* and one of which leads the water to be filtered into the apparatus and the other of which carries off the water therefrom after it has been filtered.

The front wall *j* of the casing *a* is formed with openings *k*, each leading into one of the passage-ways *c*. *l* represents removable cover-plates which normally close said openings and each of which is clamped against the face of said wall *j* of the casing by means of set-screws *m*, mounted in pairs of bars *n*, which bridge the flanges *d* of the casing, said set-screws being adapted to take against the cover-plates, preferably at the intersections of certain integral reinforcing-ribs *o*, formed on the outer faces of said cover-plates. The bars *n* are secured in pairs of lugs *p*, projecting from the flanges *d* by removable pins *q*. Either of these pins for each bar may be removed and the other used as a temporary pivotal support for the bar, or both pins may be removed, so that the bar may be completely detached from the casing, as will be obvious.

r is a packing arranged between each cover-plate and the outer face of the wall *j* of the casing.

In the passage-ways *c* are arranged wire-mesh or other perforated form of strainers *s*, provided with supporting-flanges *t*. *u* designates pairs of lips formed internally on the three permanent walls of each passage-way *c*. There are two sets of these lips, one near each end of each passage-way, each set being adapted to receive the flange of a strainer, and thus support the latter. The arrangement permits the strainers to either stand in the position shown in Fig. 1 or be inverted, according to the direction of the water-flow.

v designates slide-valves which work against the planed faces *e* of the casing and are mov-

able transversely thereof to open up the communication through the casing by means of one passage-way while closing off the other. Each valve is provided with a pair of thrust-blocks *w*, projecting outwardly and having their ends formed with double bevels or inclines *x x'*. To the inside face of each head *g*, opposite each passage-way *c*, are bolted fixed thrust-blocks *y*, having inclined faces *z*.

When the valve is moved to close the communication between one of the passage-ways *c* and the interior of the head *g*, the inclined surfaces *w* or *w'* (according to the direction in which the valve is moved) of the thrust-blocks *w* will take against the inclined surfaces *z* of the thrust-block *y* and force the valve against its seat on the planed surface *e*, thus making the joint between the block and said surface tight.

1 designates threaded shafts each of which is journaled in a head *g*, extending lengthwise thereof. The threaded portion of each shaft is received by a threaded traveler or block 2, recessed at the sides, so as to receive the thrust-blocks *w*, and thus permit the valve *v* to have slight movement transversely of the shaft. Near one end each shaft is formed with a rigid shoulder 3, which takes against the outside face of the head *g* and prevents the inward thrust of the shaft. From the head *g* both sides of each shaft 1 project two threaded studs 4, over which and the shaft is slipped the female member 5 of a gland which is held in place on the head *g* by nuts 6, screwed on said studs. 7 is the male member of the gland acting to retain in the member 5 the packing 8 and being held in place in member 5 by nuts 9, screwed on said studs. The end of each shaft 1 is squared to receive a hand-wheel 10 for rotating the same.

In use the valves *v* normally stand so that they close one of the passage-ways *c* and leave the other open. The water in passing through the passage-way *c* is cleared of refuse by the basket *s* therein. When it is necessary to remove the refuse from this basket, the valves are moved by their shafts 1 to close off the passage-way aforesaid and permit the water to run through the other passage-way, whereupon the set-screws *m* and pins *q* can be released, so that the bars *n* can be detached and permit the removal of the cover-plate *l*. 11 designates a bail attached to each basket, whereby to facilitate the removal of the latter from the casing *a*.

The arrangement and construction throughout is such that convertibility and interchangeability of parts are prime features of the apparatus. Thus a reduction in the cost of manufacture and facility of assemblage accrue, and the apparatus can be made to adapt itself to various conditions attending installation. The body part or casing *a* is regular in form, and thus more shapely to handle and install, and by having its end faces *e* planed

flat adapts itself at these points both for good contact with the heads and the proper seating of the valves.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a casing having a plurality of substantially parallel passage-ways therethrough, hollow heads removably attached to the ends of said casing over the ends of said passage-ways, said heads being adapted to afford communication between said passage-ways and the ends of the pipe system in which the apparatus is installed, a shaft arranged in each head transversely of said passage-ways, valves inclosed one in each head between said shaft and said casing ends and adapted to close off one passage-way while leaving the other free, and operative connecting means between each valve and shaft, substantially as described.

2. The combination of a casing having a plurality of substantially parallel passage-ways therethrough and having its ends at the ends of said passage-ways planed off smooth, hollow heads secured against said planed-off ends of the casing, said heads being adapted to afford communication between said passage-ways and the ends of the pipe system in which the apparatus is installed, valves inclosed one in each head and adapted to seat against said planed-off ends of the casing to close off one passage-way while leaving the other free, and means for operating said valves, substantially as described.

3. The combination of a hollow body having a plurality of substantially parallel passage-ways therethrough, a valve-seat disposed transversely at each end of said passage-ways, a valve adapted to slide on each valve-seat to close off communication through one passage-way while leaving the other free, a fixed portion of said body being disposed opposite each end of each passage-way, thrust devices disposed on said fixed portion, and another thrust device arranged on each valve and impingeable against the one or the other of said first-named thrust devices to force the valve against its seat at the closing off of a passage-way thereby, and means for moving said valves, substantially as described.

4. The combination of a hollow body having a plurality of substantially parallel passage-ways therethrough, a valve-seat disposed transversely at each end of said passage-ways, a valve adapted to slide on each valve-seat to close off communication through one passage-way while leaving the other free, rotary threaded shafts journaled in said body and each having a shoulder taking against the outside thereof, a threaded block receiving each shaft and operatively connected to one of the valves, and glands for said shafts each comprising a female member secured to said body outside thereof and taking against said shoulder and

a male member inserted in and secured to said female member, substantially as described.

5 The combination of a hollow body having a plurality of substantially parallel passage-ways therethrough, a valve-seat disposed transversely at the end of said passage-ways, a valve adapted to slide on said valve-seat to close communication through one passage-way while leaving the other free, a rotary threaded shaft, means for forcing said valve
10 against the valve-seat when opposed to either passage-way comprising a thrust device pro-

jecting from said valve, and a threaded block penetrated and engaged by said shaft, said thrust device being guided in said block, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of July, 1904.

GRANT U. MERRILL.

Witnesses:

JOHN W. STEWARD,
ROBERT J. POLLITT.