(No Model.)

J. W. HYATT.

STRAINER.

No. 429,688. Patented June 10, 1890.

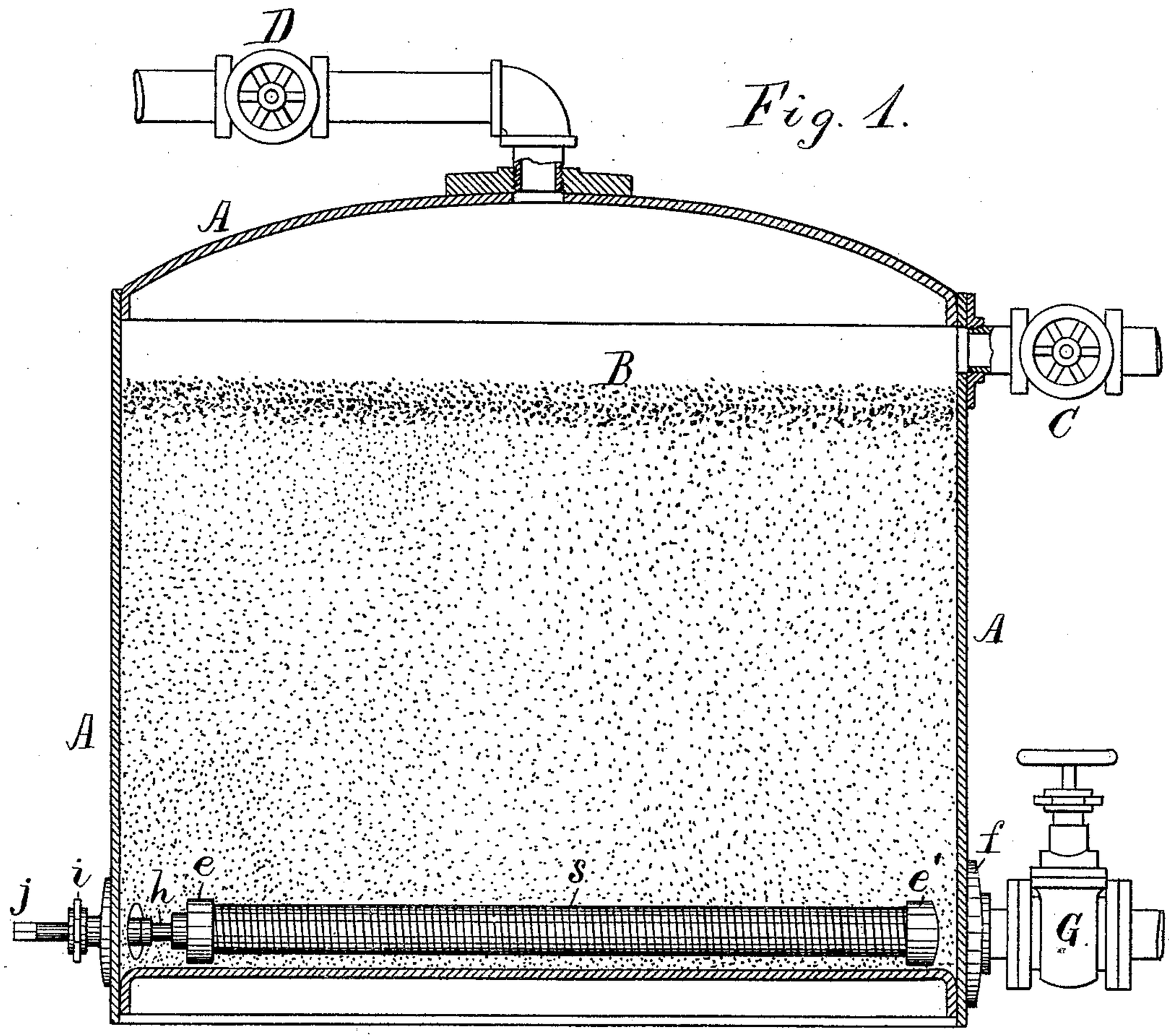


Fig. 1.

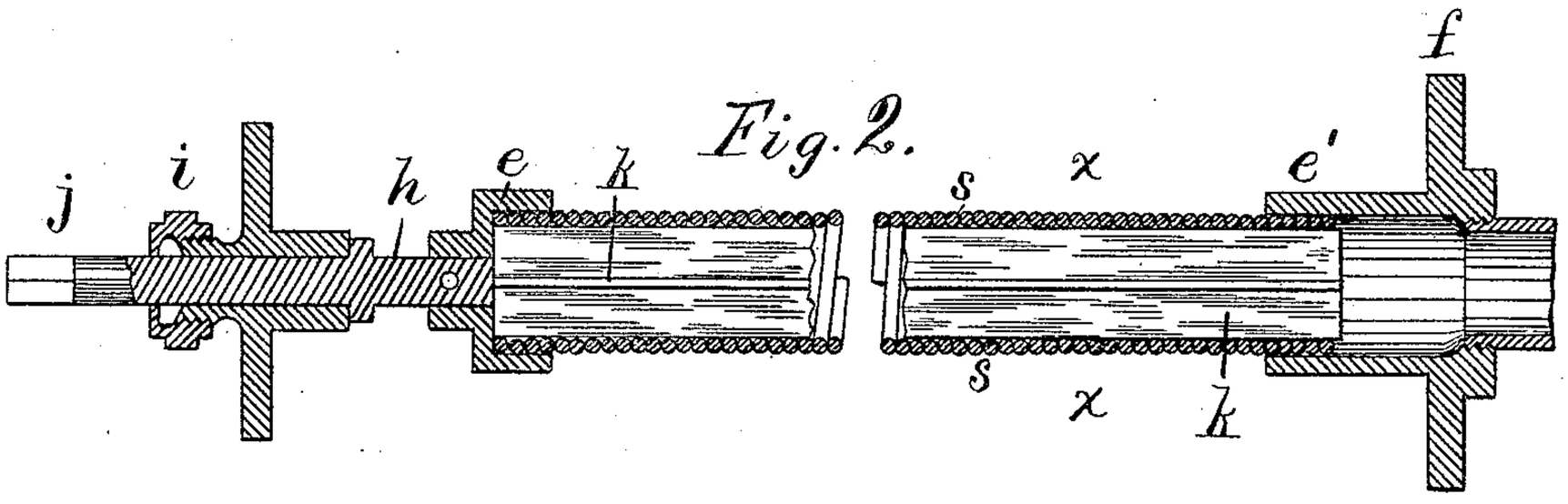
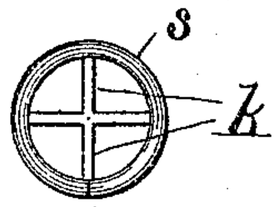


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN W. HYATT, OF NEWARK, NEW JERSEY.

STRAINER.

SPECIFICATION forming part of Letters Patent No. 429,688, dated June 10, 1890

Application filed October 14, 1889. Serial No. 326,980. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. HYATT, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Strainers, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to furnish a simple and effective means of removing from a filter-strainer the obstructions that may find entrance into the straining-apertures; and the invention consists, primarily, in a spiral coil of wire provided with means for twisting the coils upon one another.

The invention will be understood by reference to the annexed drawings, in which Figure 1 is a vertical section at the center of a filter containing a granular filter-bed with one of my improved strainers in the bottom of the same. The parts hatched are in section upon the center line of the filter, and the strainer is shown not in section, as it is located at the farther side of the center line, and it will be understood that the nearer side of the filter, which is removed, would contain one or more similar strainers, as any number of such strainers may be inserted within the filter. Fig. 2 is a central longitudinal section at the points where hatched of the strainer-coil and its attachments, the view being broken in the middle for want of room and the internal supporter not being in section; and Fig. 3 is a transverse section of the strainer on line $x\ x$ in Fig. 2.

A is the filter-casing, which would be provided with a granular filter-bed of suitable depth, as to the dotted line B.

C is an inlet-pipe for impure water.

s is the coil of the strainer, secured, as by brazing or solder, at each end inside of heads *e* and *e'*, the latter being of tubular form, attached by flange *f* to the side of the casing A, and the interior of the head being connected with an outlet-cock G for admitting fluid to and from the interior of the strainer. The head *e* closes one end of the strainer, and is attached to a stem *h*, extended outside the casing by a stuffing-box *i*, and provided at its outer end with a square shank *j* for turning the stem.

A supporter formed as a ribbed bar *k* is inserted within the strainer to hold the coils in a straight line between the heads, and the coils are in practice wound with an intervening space adapted to permit the passage of the fluid without permitting the escape of the granular material from the filter-bed. In filtering, the water is admitted by the pipe C and escapes by the cock G, passing downward through the filter-bed and entering the interstices between the coils of the strainer and escaping through the head *e'*.

To clean the interstices in the strainer when clogged, the stem *h* is oscillated at intervals by applying a wrench or handle to the end *j* and twisting the coils of the strainer, which has the effect of causing the several coils to slide past one another, and thus displace the obstructions temporarily lodged within the same.

In cleansing the filter-bed a cock D at the top of the casing is opened and a reverse current is directed through the cock G into the strainer by means already well known in cleansing filters. Such reverse current disintegrates the filter-bed and removes the sediment from the upper portion of the same, washing it away through the waste-pipe D. The cleaning of the interstices in the strainer is performed much more effectively by twisting the coils during the reversal of the water current, as such current operates immediately to remove the obstructions when dislodged from the coils by the twisting of the same. The coils may, however, also be twisted from time to time during the filtering operation with advantage, as the movement of the coils serves to dislodge more or less of the obstructions that may gain entrance to the interstices.

The coils may be made of any desired size of wire and in any diameter, with interstices of any desired width; but I find in practice that coils wound substantially close together permit the passage of a large volume of fluid and wholly exclude the finest filtering material. The ends of the coil may be secured outside of the heads, if preferred, and fastened thereto by any species of clamp or connection, and the means of sustaining and twisting the coil are not material, as the essential part of my invention is the combination, with the coil, of means for twisting one end in relation to the other, to cause a variation in the

interstices between the coils, and the slipping of the coils past one another to dislodge any obstructions that may be caught therein.

An internal supporter of any suitable form to permit the longitudinal passage of the fluid to the outlet-head may be used where the dimensions of the strainer require it; but the coils perform their straining function without regard to such supporter.

Any number of strainers constructed with my improvement may be employed in filtering in connection with a suitable casing of any form, and the coil may operate as a strainer by introducing the fluid within the same and discharging it from the exterior in case such an arrangement be desirable, as the function of the coils when intercepting the impurities and in sliding upon one another to dislodge the obstructions would be the same in such case as in the construction described above.

Having thus set forth my invention, what I claim herein is—

1. In a strainer, the combination, with a spiral coil of wire, of a tubular connection to the interior of the coil for the passage of fluid and means for twisting one end of the coil in relation to the other, substantially as herein set forth.

2. In a strainer, the combination, with a spiral coil of wire, of a fixed head secured at one end thereof, a rotary head affixed to the other end of the coil, and a water-connection to one of the heads for the passage of fluid, substantially as herein set forth.

3. In a strainer, the combination, with a spiral coil of wire, of a fixed head secured at one end thereof, a rotary head affixed to the other end of the coil, an internal supporter forming longitudinal passages within the coil, and a water-connection to one of the heads for the passage of fluid, substantially as herein set forth.

4. The combination, with a filter-casing containing a granular filter-bed, of a spiral wire coil sustained within the bed, a fixed head secured at one end of the coil, with a tubular water-connection projecting outside the casing, and a rotary head fixed to the other end of the coil, with a stem projecting outside of the casing to twist the coil, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN W. HYATT.

Witnesses:
THOS. S. CRANE,
L. LEE.