E. GARBER.

STRAINER.

APPLICATION FILED AUG. 9, 1918.

1,370,425. Patented Mar. 1, 1921.

Fig. 1

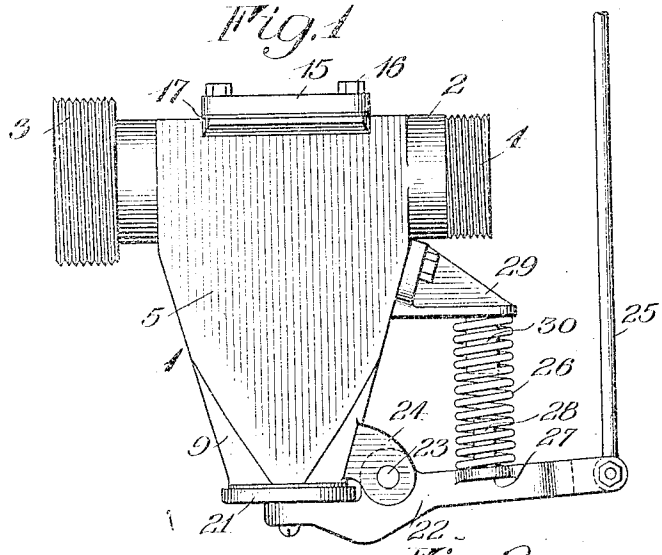


Fig. 2

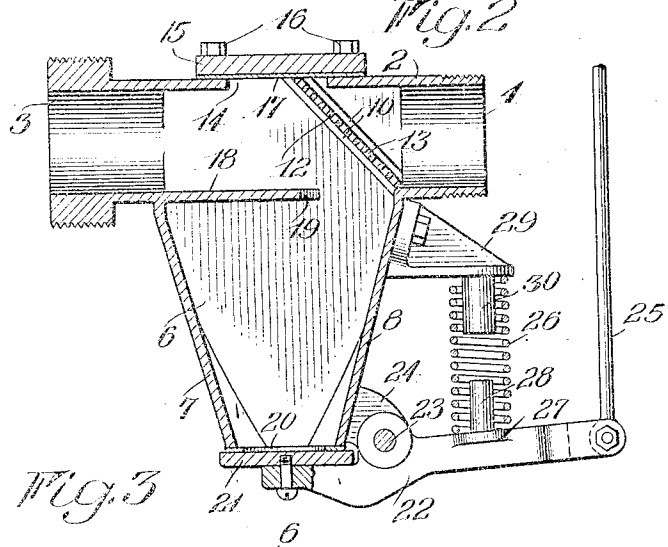
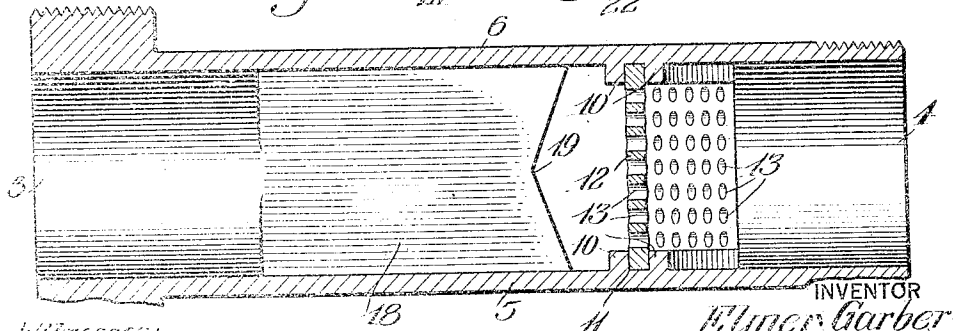


Fig. 3



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STRAINER.

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To all whom it may concern:

Be it known that I, ELMER GARBER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Strainers; 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.

This invention relates to strainers of the kind used in pipes for conducting liquids, such as water, oil, and other liquids. The object of my invention is to provide an improved strainer especially adapted for use in pipes connecting the water tank with a locomotive boiler. A further object of my invention is to provide an efficient strainer of this kind having a sediment pocket in which the impurities removed from the water are deposited, and from which they can be readily removed. To these and other ends the invention resides in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

Referring to the drawings:

Figure 1 is a side elevation of a strainer constructed according to the principles of my invention,

Fig. 2 is a vertical longitudinal section of the same, and

Fig. 3 is an enlarged horizontal section through the conductor pipe.

Similar reference numerals in the several views indicate the same parts.

My strainer is adapted to be connected in liquid supply pipes and especially in the water supply pipes of steam boilers and the steam boilers of locomotives. The strainer comprises a casing 1, the upper portion 2 of which has a direct passageway therethrough forming a portion of the supply pipe, having threaded ends 3 and 4. The end 3 constitutes the intake and is adapted to be coupled with a pipe or conductor leading from the main supply, while the end 4 is connected with the supply pipe or conductor leading to the boiler. The casing 1 further comprises the side walls 5 and 6 extending downwardly, substantially parallel with each other, from the portion 2, and the end walls 7 and 8 extending downwardly from the portion 2 and inwardly toward each other, as clearly shown in the drawings. Near the bottom, the casing is made substantially circular in form by interposing the corner walls 9 between the side and end walls. The portion of the casing below the main conductor portion 2 constitutes a pocket of substantial volume with walls having uniform and unobstructed downward inclination into which the solid particles or other impurities removed from the liquid are deposited and collected.

Cast integral with each of the side walls of the casing is a pair of inclined substantially parallel projections 10, each pair forming a guideway or groove 11, in which a screen or sieve 12 is removably supported. The lower end of the screen rests adjacent the inner end of the outlet 4 and extends upwardly and inwardly to a point near the middle of the top of the casing and completely closes the outlet, except for the openings or perforations 13 in the screen. The top of the casing adjacent the upper end of the screen has an opening or aperture 14 therethrough, closed by a cover 15 secured to the casing by any suitable means, as by bolts 16. A packing 17 may be interposed between the cover and the outside of the casing to completely seal the union formed thereby. When the cover 15 is removed, the screen 12 can be lifted from the grooves 11, cleaned and replaced, or a screen having smaller or larger apertures substituted therefor.

Extending inwardly, just below the inlet 3 and over the pocket, is a baffle plate 18 terminating just below the upper end of the screen. This baffle plate partially closes the dirt pocket and prevents the pressure of the liquid flowing through the conductor from carrying the material collected in the pocket back against the screen. By referring to Fig. 3 of the drawings, it will be noted that the baffle plate is cut back centrally, as at 19, so that its outer edges project nearer to the screen where the liquid pressure is least on account of friction with the side walls of the casing.

I have provided means for removing the dirt or other material periodically from the pocket. To this end the bottom of the pocket is provided with an outlet opening

20 normally closed by an outwardly opening bottom wall or valve 21 carried on the inwardly extending arm of a lever 22, to which it is suitably secured by a screw or otherwise. The lever 22 is mounted on a pivot 23 carried by a bracket 24 provided therefor on the casing 1. At its outer end, the lever is connected to an operating rod or shaft which extends to the engine cab or other place from which it can be conveniently operated. The valve 21 is normally held in closed position by means of an expansion coil spring 26 seated against an enlargement 27 on the lever and retained in position thereon by means of a centrally projecting stud 28. The opposite end of the spring is anchored against a bracket 29 secured to the outer wall of the casing 1, and having a retaining stud 30 projecting into the coils of the spring.

Solid particles or other foreign matter in the liquid are removed therefrom by the screen 12 and sink into the pocket provided therefor. If the screen becomes clogged, the cover 15 may be removed, giving access to the screen which may then be taken out and cleaned. To remove the dirt or other material from the pocket, the operating rod 25 is pulled to swing the lever 22 on its pivot against the tension of the spring 26 and open the valve 21 outwardly, permitting the dirt to fall out of the pocket. If the pressure of the liquid in the conductor is maintained when the valve is open, it will pour through the outlet pocket and opening and, assisted by the uniformly smooth and unobstructed wall surface, will thoroughly remove the dirt from the pocket.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a fluid strainer, the combination with a casing provided at each end with openings located in the upper portion of said casing and forming a fluid passageway therethrough, of a screen angularly disposed in said passageway across one of said openings, an imperforate baffle plate longitudinally disposed adjacent an edge of the opposite opening and extending toward said screen, the end of said plate adjacent the screen being centrally cut back with its outer edges projecting nearer the strainer, the lower portion of said casing having the walls thereof tapering steeply downward and provided with an opening in the lower end portion.

2. In a fluid strainer, the combination with a screen, of a casting having oppositely disposed openings and in which the same is angularly disposed, said casting comprising an upper and lower portion defined by an imperforate baffle plate integral with the casting and having its end adjacent the screen cut back while the outer edges of said baffle plate project nearer the screen, the upper portion of the casting comprising walls in substantial alinement and connecting the oppositely disposed openings, the lower portion of the casting comprising walls steeply tapering downward and provided with an opening in the lower end portion thereof, a valve yieldably closing said opening, and a manually operable control rod for the valve normally held to a position with the valve closed.

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