

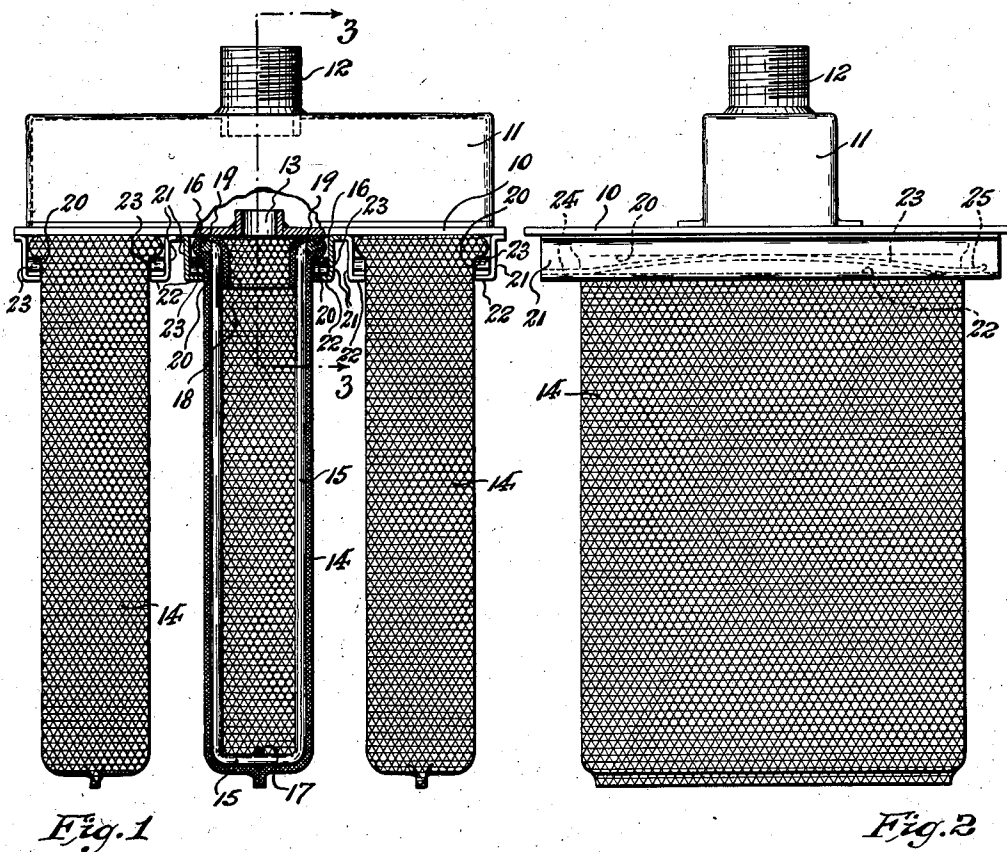
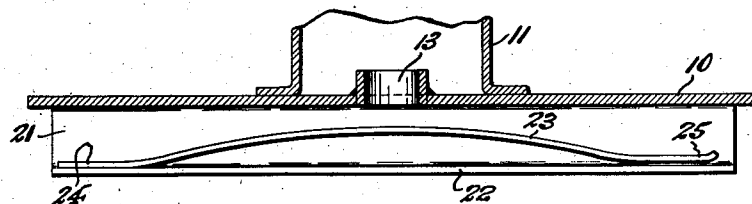
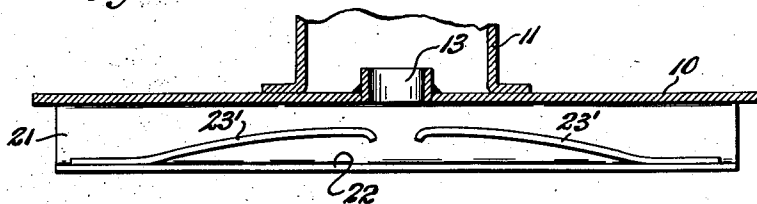
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MEANS FOR DETACHABLY MOUNTING STRAINER BAGS

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MEANS FOR DETACHABLY MOUNTING
STRAINER BAGS

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This invention relates to improvements in strainer apparatus for separating suspended solids from liquid passed therethrough, whereby to clarify and cleanse the liquid for initial or repeated use.

This invention has for an object to provide a novel construction of strainer device provided with clean liquid receiving and discharge means having one or more bag-like strainer elements through which the liquid to be strained is passed to said receiving and discharge means, and provided with novel means for detachably coupling said bags thereto, whereby the latter may be quickly and easily detachably assembled therewith.

Another object of this invention is to provide a simple, self-acting means for receiving and holding a strainer bag in easily releaseable operative coupled relation to the clean liquid receiving and discharge means, and so as to automatically about the discharge mouth of the bag in sealed relation to a wall of the liquid receiving and discharge means, but with the bag interior in communication with interior of said receiving and discharge means.

The invention has for a further object to provide a strainer device wherein the structure for supporting a strainer bag comprises a wall having at its exterior side cooperating opposed, laterally spaced slideway members to straddle a fluid passage therein and to receive and straddle the mouth end of said bag, and wherein said bag is expanded by an inserted open-work frame having an external top rim member around which marginal portions of the bag may be inwardly folded, whereby to form, with the top rim member enclosed thereby, external shoulder portions adapted to be slidably entered in and between said slideway members; the bottom flanges of said slideway members having upwardly bowed thrust spring elements adapted to engage beneath said shoulder portions, whereby to both tightly press the mouth of the bag into self-sealing abutment against the strainer device wall, and to frictionally grip and hold the bag against accidental displacement from such assembled relation to the strainer device.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

Illustrative embodiments of this invention are shown in the accompanying drawing, in which:

Fig. 1 is an end elevational view, with parts in section, of a strainer device according to this in-

vention; Fig. 2 is a side elevational view of the same; and Fig. 3 is a transverse vertical sectional view, taken on line 3—3 in Fig. 1 but omitting the strainer bag, said view being drawn on an enlarged scale.

Fig. 4 is a view similar to that of Fig. 3 but showing a modified form and arrangement of strainer bag coupling spring means.

Similar characters of reference are employed in the hereinabove described views, to indicate corresponding parts.

In the illustrative embodiment of this invention as shown, the strainer device includes a rigid wall or plate 10 adapted to form one side of a clean liquid collecting chamber 11. Leading from said chamber 11 is means for connecting the same to a clean liquid discharge conduit or pipe (not shown), said means being illustratively shown in the form of an exteriorly projecting nipple 12, which is suitably screw-threaded for union with said discharge conduit or pipe. Said wall or plate 10 is provided with one or more clean liquid passages or openings 13. The number of said passages or openings 13 may be varied according to the amount of straining capacity desired to be obtained, which is governed principally by the number of strainer bags with which the strainer device is provided. Said passages or openings 13 are spaced one from another so that a strainer bag may be mounted for communication with each.

It will be understood that the clean liquid receiving and discharge means of the strainer device may be otherwise constructed than above illustratively set forth, so long as it includes a wall or rigid plate with which the strainer bag or bags may be coupled by the novel attachment means hereinafter described.

The strainer medium per se comprises one or more bag-like elements 14 according to the number of intake passages or openings with which the collecting chamber or the device is provided. Each strainer bag 14 is expanded by means of an open-work frame which is inserted therein. Said frame, in a preferred construction thereof, comprises a series of transverse U-shaped body members 15 made of strong and comparatively rigid metallic rod or wire stock. Said U-shaped members 15 are spaced apart, and to upper terminals of their legs is joined an external top-rim member 16 which defines the open or mouth end of the frame. The lower or closed ends of the U-shaped body members are secured together against relative displacement by a transverse tie-rod 17 extending across said ends. The described

elements of the frame are preferably joined together by welding, thus providing a very strong and rigid frame structure. The frame thus provided is of somewhat less length than the length of a strainer bag to be served thereby.

In use, a frame is inserted downwardly through the open mouth of a strainer bag 14, to extend exteriorly therethrough to the bottom closed end thereof. The strainer bag being of somewhat greater length than the length of the frame, when the latter is inserted in the bag, a marginal portion 18 of the mouth end of said bag will project exteriorly beyond the top-rim member 16 of the frame. Such projecting marginal portion 18 is turned inwardly and folded over and around the frame top-rim member 16, and then tucked into the bag interior. By reason of this arrangement, not only is the bag and frame disposed in operative assembled relation, but the mouth of the bag is symmetrically shaped and firmly supported by the enclosed frame top-rim member 16, whereby to provide, along the top side of the latter, bag portions backed thereby and disposed to provide compressible seating and sealing lip portions 19 to abut the strainer device wall 10, but also to provide, along the underside of the covered external top-rim member 16, outwardly off-set shoulder portions 20 for cooperation with means to operatively and detachably couple the bag in assembled relation to the wall 10, as will presently appear.

The strainer bags may be made of any suitable material or materials which provide the necessary liquid pervious interstitial or porous structure suitable for straining effect. A very satisfactory bag comprises one made of knitted mesh fabric, knitted from metallic wire, or natural or synthetic fiber strands, or compositely from both.

The novel means for detachably assembling a strainer bag in operative relation to a strainer device wall, according to the invention, comprises, for each bag, a pair of opposed, laterally spaced L-shaped slideway members 21, which are suitably secured to the exterior side of a strainer device wall 10 so as to straddle a clean liquid intake passage or opening 13 of said wall. Said slideway members are laterally spaced to receive and accommodate the upper open end or mouth portion of a frame expanded bag, and said slideway members are each provided along their lower portions with inwardly projecting bottom flanges 22 to underlie external shoulder portions 20 of the mouth of the frame expanded bag. Mounted on the respective bottom flanges 20 of said slideway members 21 are upwardly bowed leaf spring members 23. These leaf spring members 23 are provided with butt ends 24 which are suitably secured, as e. g., by welding, to said bottom flanges 22; the opposite ends 25 of said leaf spring members being free.

Said leaf spring members 23 are opposed to the exterior face of the strainer device wall 10. To apply a frame expanded bag 14 to the described holding means, the frame top-rim supported portion of the bag mouth is entered between the opposed slide-way members 21, and slid into the embrace thereof, so that the shoulder portions 20 ride onto the leaf spring members 23, thus engaging said frame top-rim supported portions of the bag mouth between the latter and the exterior face of the strainer device wall 10. Said leaf spring members tensionally yield to such engagement, and thereby the spring members are caused to exert an upward thrust upon the frame top-rim supported portions of the bag

mouth, thus not only strongly pressing the seating and sealing lip portions 19 in sealing abutment against the exterior surface of the strainer device wall 10, but also effecting a strong frictional grip upon the frame top-rim supported portions of the bag mouth, whereby to hold the bag firmly and securely against displacement, and yet nevertheless subject to manual release or detachment merely by sliding the same outwardly from the embrace of said slideway members and their spring members.

It will be obvious that the novel strainer bag attachment means involves no parts which per se require manipulation, but rather said means is self-acting, and automatically engage or disengage the bag accordingly as the latter is slid into or out of the embrace of the slideway members and their leaf springs.

As shown in Figs. 1 to 3 inclusive, the leaf springs 23 may constitute a single long spring member mounted on each bottom flange 22 of the slideway members. If desired, however, a plurality of springs may be mounted on the bottom flange 22 of each slideway member. For example, as shown in Fig. 4, each such bottom flange may be provided with at least two leaf springs 23', longitudinally spaced along the same.

Having now described our invention, we claim:

1. A strainer device provided with a clean liquid receiving and discharge means having an external wall provided with liquid passage means entering therethrough, a strainer bag, an open-work frame within said bag whereby to expand the bag, said frame having externally projecting top rim means lying within the open mouth of the bag and about which marginal portions of the bag mouth walls are folded in enclosing relation thereto so as to provide external shoulder portions adjacent the bag mouth, laterally spaced slideway members depending from said wall to straddle said liquid passage means therein, spring means carried by said slideway members, said shoulder portions of the bag enclosed rim of said frame being slidably movable onto said slideway members so that said shoulder portions are engaged by said spring means, whereby to releasably hold said bag in operative assembled relation to said liquid passage means in said external wall.

2. In a strainer device provided with a clean liquid receiving and discharge means having an external wall provided with liquid passage means entering therethrough, a strainer bag, an open-work frame within said bag whereby to expand the bag, said frame having externally projecting top rim means lying within the open mouth of the bag and about which marginal portions of the bag mouth walls are folded in enclosing relation thereto, whereby to provide the bag mouth with rigidly backed, upwardly presented seating and sealing lip portions to abut the exterior face of said wall and outwardly offset shoulder portions, opposed laterally spaced L-shaped slideway members depending from said wall to straddle said liquid passage means therein, and spring means carried by said slideway members, said shoulder portions of the bag enclosed rim of said frame being slidably movable onto said slideway members so that said shoulder portions are engaged by said spring means, whereby to releasably hold the bag in operative assembled relation to said liquid passage means in said external wall and the bag lip portions pressed into sealing abutment against said wall.

3. In a strainer device provided with a clean

liquid receiving and discharge means having an external wall provided with liquid passage means entering therethrough, a strainer bag, an open-work frame within said bag whereby to expand the bag, said frame having externally projecting top rim means lying within the open mouth of the bag and about which marginal portions of the bag mouth walls are folded in enclosing relation thereto, whereby to provide the bag mouth with rigidly backed, upwardly presented seating and sealing lip portions to abut the exterior face of said wall and outwardly offset shoulder portions, opposed laterally spaced slideway members depending from said wall to straddle said liquid passage means therein, said slideway members

5 having inwardly projecting bottom flanges opposed to said wall, and upwardly bowed leaf spring means affixed to said bottom flanges, said shoulder portions of the bag enclosed rim of said frame being slidably movable onto the bottom flanges of said slideway members so that said shoulder portions are engaged by said leaf spring means, whereby to releasably hold the bag in operative assembled relation to said liquid passage means in said external wall and the bag lip portions pressed into sealing abutment against said wall.

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