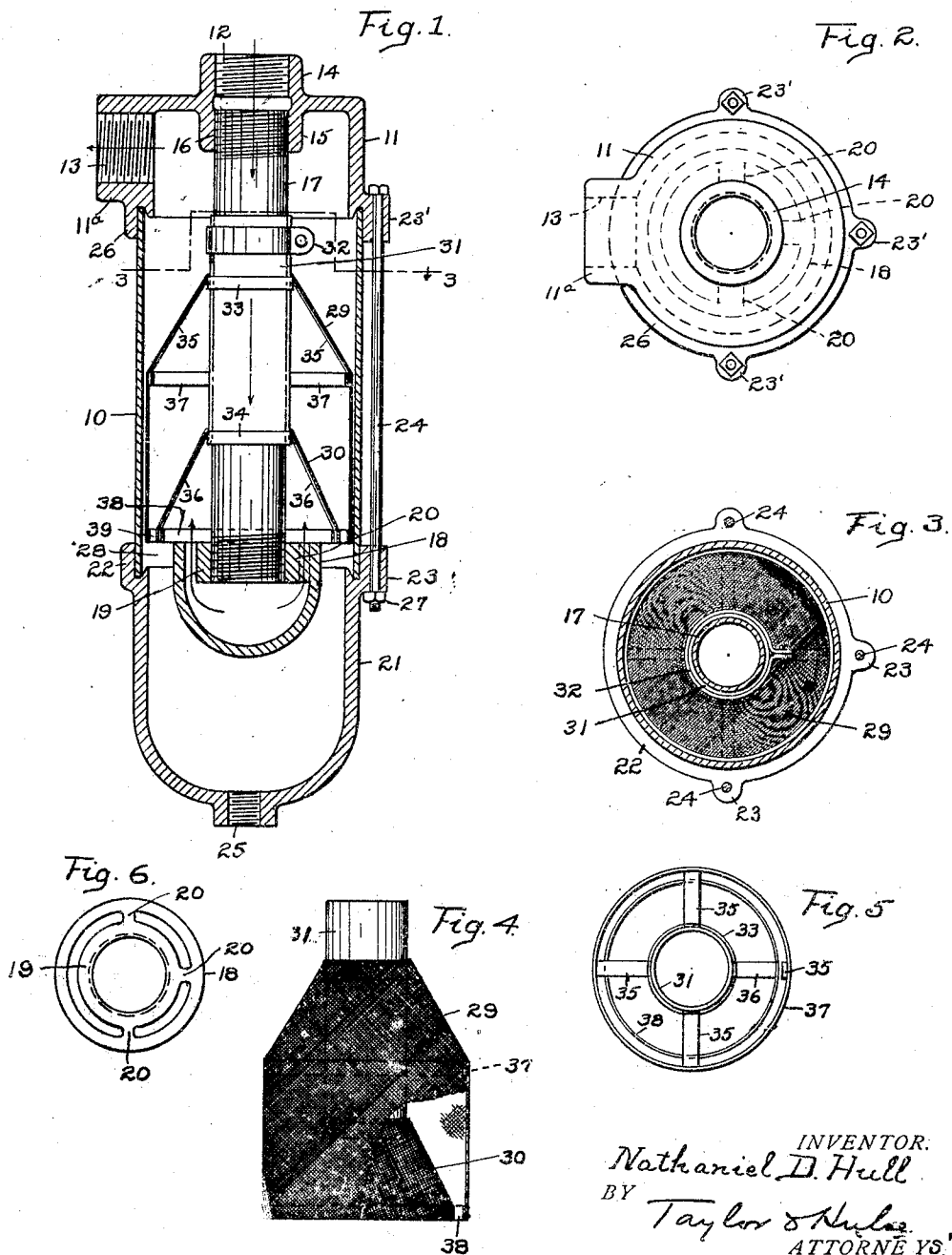


N. D. HULL.
 FILTER.
 APPLICATION FILED FEB. 4, 1916.

1,197,634.

Patented Sept. 12, 1916.



INVENTOR.
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UNITED STATES PATENT OFFICE.

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FILTER.

1,197,634.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NATHANIEL D. HULL, a citizen of the United States, residing at Owensboro, in the county of Daviess and State of Kentucky, have invented new and useful Improvements in Filters, of which the following is a specification.

The invention relates to devices for filtering liquids of various kinds, and it is especially adapted for use in connection with oil and gasoline pumps.

The object of the invention is to provide a novel and simple device which shall effectively strain or filter the liquid passing through it and by which the settlings and water taken out of the liquid are collected in an independent settling chamber through which the liquid is not permitted to flow as it passes through the device, and from which chamber the settlings and water are readily drained.

In the following description I have described, in connection with the accompanying drawings, one embodiment of my invention, in which drawings—

Figure 1 is a vertical cross-sectional view of a device embodying the invention; Fig. 2 a plan view of the same; Fig. 3 a cross-sectional view on line 3—3 of Fig. 1; Fig. 4 an elevational view of the filtering means and its supporting device; Fig. 5 a plan view of the latter supporting device; Fig. 6 a plan view of the deflector bowl.

Referring to the drawings the housing or casing of the device preferably consists of three parts, viz.: an open ended central casing or cylinder 10, head 11 and foot-casing 21. The top of the cylinder is closed by head 11 which is peripherally recessed in its lower face to engage over the end of the cylinder, suitable packing being placed between the adjacent surfaces to render the joint fluid tight. A boss 11^a projects laterally from head 11 and is provided with an opening 13 and is threaded to receive a suitable discharge pipe. On the top of the head is an outwardly projecting boss 14 having an opening 12, threads being provided to receive the discharge pipe of a pump or other connection through which the liquid to be filtered is delivered to the device. Boss 15, having opening 16, depends within the head, opening 16 being in alinement with opening 12 and communicating therewith. The upper end of conduit or pipe 17 is connected to

boss 15. A deflector ball or bowl 18 is threaded on the lower end of pipe 17, the central portion 19 of the bowl being threaded to receive the pipe and being connected by ribs 20 to the main portion or wall of the bowl. Bowl 18 receives the liquid passing down through pipe 17 and reverses the movement of the liquid or deflects it upwardly through the spaces between ribs 20, as indicated by the curved arrows. The diameter of the bowl is less than the internal diameter of either the cylinder or the casing, so that there is a space 28 entirely around the bowl through which communication is established between the cylinder and casing 21.

The lower end of cylinder 10 is closed by casing 21 the joint between which is similar to the joint between head 11 and the cylinder. Flange 22 projects over the side of the cylinder and carries apertured lugs 23 through which extend tie-rods 24, the rods also passing through apertured lugs 23^a which are carried by flange 26 on head 11. Nuts 27 on rods 24, when tightened thereon, draw the head and casing tightly upon cylinder 10, thereby securing the three parts together. Opening 25 in the bottom of casing 21 serves as a connection for a drain pipe or other suitable means by which the settlings or water in the settling chamber within casing 21 may be drawn off.

Above bowl 18 is the filtering means, as screens 29 and 30, of preferred material which are secured to a frame consisting of a sleeve 31 which is slipped over pipe 17 and clamped thereon by clamp 32. Attached to sleeve 31 are two collars 33 and 34 which are suitably spaced apart. Four or more arms 35 are secured at their upper ends to collar 33 and project downwardly and outwardly therefrom, and four or more arms 36 are similarly secured to collar 34 and also extend downwardly and outwardly. Hoop or band 37 is secured to the outer ends of arms 35 and hoop or band 38 is secured to the outer ends of arms 36. Screen 29 is secured to arms 35 and to collar 33 about which it is conical in form. It also extends downwardly in cylindrical form a suitable distance, its lower end being secured to hoop or band 39.

Screen 30 is secured to arms 36 and to band 38 and is conical in form. The lower ends of both screens are above the open

space 28 between the deflecting bowl and cylinder 11 so that all matter caught by the screens, as the liquid passes upwardly through them toward discharge opening 13, drops through said space into settling chamber 21, where it is collected and is readily drained out through opening 25.

It is to be noted that the liquid flowing through the filter cannot come into contact with the settlings which have been collected in the settling chamber, and that where the filter is connected to a pump it is unnecessary to operate the pump to withdraw the settlings from the chamber since they readily drain therefrom by gravity when permitted to do so.

I contemplate applying my invention for all uses to which it is adapted and do not desire to be understood as limiting it to the single use in connection with an oil pump.

What I claim is:

1. In a filter, a housing having openings at one end thereof for the inlet and discharge of liquid, a conduit within the housing and having communication at one end with the inlet opening, a filtering member, a settlings chamber below the filtering member and means between said member and said chamber for deflecting the liquid discharging from the conduit toward the filtering member and the discharge opening and away from the settlings chamber.

2. In a filter, a housing having openings at one end thereof for the inlet and discharge of liquid, a conduit within the housing and having communication at one end with the inlet opening, filtering means between the discharge end of the conduit and said discharge opening, a settlings chamber below the filtering means and adapted to

receive the settlings caught by the filtering means, and a bowl adjacent the discharge end of the conduit adapted to direct the flow of liquid discharging from the conduit toward the filtering means and the discharge opening.

3. In a filter, a closed housing having openings in one end thereof for the inlet and discharge of liquid, a conduit within the housing and having communication at one end with the inlet opening, filtering means removably carried by the conduit, a bowl secured to the other end of the conduit and adapted to direct the flow of liquid discharging from the conduit toward the filtering means, and a settlings chamber below the filtering means and the bowl and adapted to receive the matter caught by the filtering means and retain it out of the path of the flowing liquid.

4. In a filter, a closed housing having openings in one end thereof for the inlet and discharge of liquid, a conduit within the housing having communication at one end with the inlet opening, a plurality of screens removably carried by the conduit, a bowl carried by the conduit and adapted to direct the flow of the liquid discharging from the conduit toward the screens and the discharge opening and an independent settlings chamber below the screens and the bowl and adapted to receive the foreign matter caught by the screens and to retain them out of the path of the flowing liquid, and means to drain the settlings chamber.

In witness whereof I have hereunto subscribed my name this 21st day of January 1916.

NATHANIEL D. HULL