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J. W. KINCADE

AGITATOR FOR CHEMICALLY PURIFYING OIL

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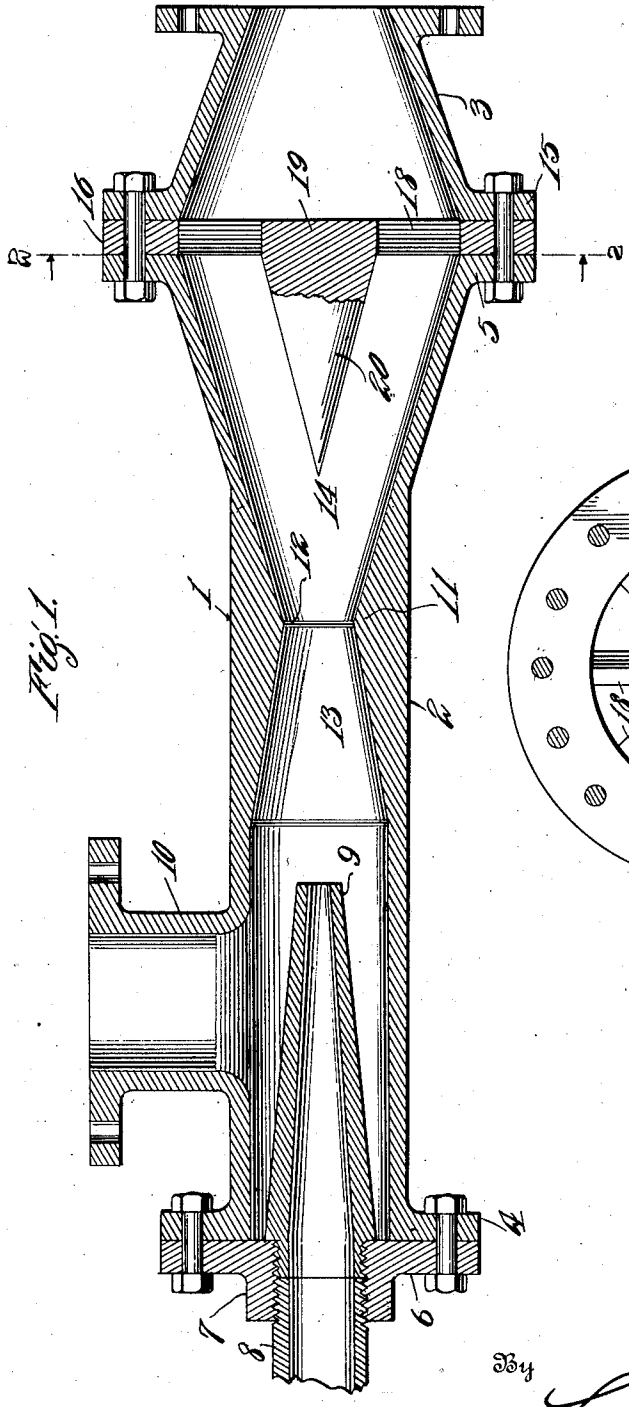


Fig. 1.

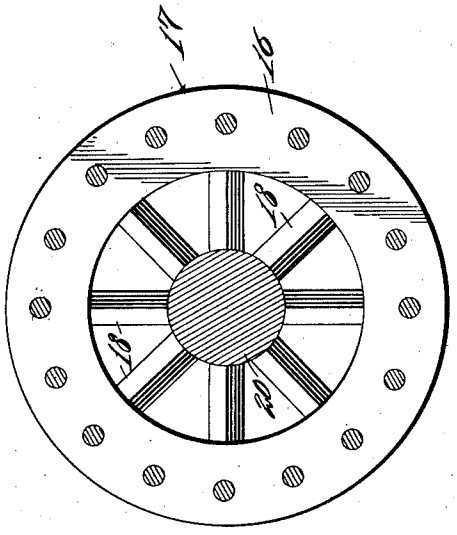


Fig. 2.

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UNITED STATES PATENT OFFICE.

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AGITATOR FOR CHEMICALLY PURIFYING OIL.

Application filed October 28, 1926. Serial No. 144,882.

The present invention is directed to improvements in agitators for chemically purifying oil.

The primary object of the invention is to provide a device of this character so constructed that the oil and treating or purifying chemical solution will be thoroughly agitated to remove the sulphur from the oil to enhance its market value.

Another object of the invention is to provide an agitator for this purpose so constructed that during the agitation of the oil and solution, the vapor incident to this agitation is trapped, thus reducing loss to a minimum.

Another object of the invention is to provide a device of this nature so constructed that the purifying solution will be separated from the oil during the process of agitation.

In the accompanying drawing:

Figure 1 is a longitudinal sectional view through the agitator.

Figure 2 is a sectional view on line 2—2 of Figure 1.

The device comprises a casing 1 consisting of sections 2 and 3, the section 2 constituting a mixing chamber, whereas the section 3 provides a chamber from which the mixed fluid is discharged. The section 2 has its respective ends provided with annular flanges 4 and 5, the former having clamped thereto the flange 6 of the coupling member 7, said member having a pipe 8 fitted thereto and it is through this pipe that the purifying solution is pumped into the casing.

The coupling member not only serves to connect the pipe 8 to the casing, but also supports the injector nozzle 9, the outer or major end thereof being screwed into said member.

A branch 10 is carried by the section 2 and it is through this branch that the oil is pumped into the mixing chamber formed by the section 2 to commingle with the incoming purifying solution.

The intermediate portion of the section 2 is thickened, as at 11, to provide a restricted passage 12 and tapered bores 13 and 14, the latter having its major diameter greater than the major diameter of the former.

The section 3, or discharge chamber is also provided with an annular flange 15 and it is between this flange and the flange 5 that the ring 16 of the baffle member 17 is clamped, as clearly shown in Figure 1 of the drawings.

In addition to the ring 16 this member comprises a plurality of spreader bars or spokes 18, triangular in cross section, the inner ends of which merging with a hub 19. Extending inwardly from the hub is a conical spreader 20, the apex of which is disposed in direct alinement with the outer end or longitudinal axis of the nozzle 9. It will be observed that the bars 18 are so positioned as to have one of their edges presented in opposition to the flow of mixture of oil and solution. In this manner the fluid mixture will be thoroughly agitated as it passes through the baffle member and will be discharged into the section 3 from which it may be conveyed in any suitable manner for further refining or storage.

Upon reference to Figure 1 of the drawings, it will be observed that the outlet end of the nozzle 9 is located inwardly of the branch 10 in order that the purifying solution and oil will intimately commingle in the bore 13.

In operation, the oil and solution enter, respectively, the branch 10 and nozzle 9 under pressure and gain considerable velocity before passing through the restricted passage 12, thus assuring a thorough mixture thereof and at a time just previous to the time it strikes the baffle member. Owing to the larger diameter of the bore 14 the fluid will expand therein after passing through the opening 12.

It is well known that the purifying solution is heavier than the oil, therefore the conical spreader 20 forms an important feature of the invention, inasmuch that it will sustain the solution in the oil in order that the solution laden stream of oil will be precipitated equally against all of the bars 18, thus assuring a thorough agitation of the oil and solution as it passes through the baffle member.

The purifying medium may be any well known solution and may be pumped with the oil continually to the casing 1 or the oil and solution may be refined in predetermined quantities, as desired. I have not deemed it necessary to illustrate the tank into which the fluid is discharged from the section 3, and it will be of course, under-

stood that minor changes in shape and size and proportion may be resorted to without departing from the spirit of the invention.

Having thus described the invention, I claim:

An injector of the class described, comprising a casing consisting of a pair of sections, a baffle member including a ring for engagement between the ends of the sections, means engaged with the sections and ring for maintaining said sections and ring in fixed engagement, said ring having radially disposed spreader bars merging at their inner ends with a hub, a conical spreader carried by the hub, said bars and conical spreader being disposed in opposition to the flow of fluid through the casing.

In testimony whereof I affix my signature.

JERRY W. KINCADE. [L. S.]