Feb. 8, 1955 H. G. BRENNER 2,701,619

GREASE INTERCEPTOR

Filed Nov. 9, 1949

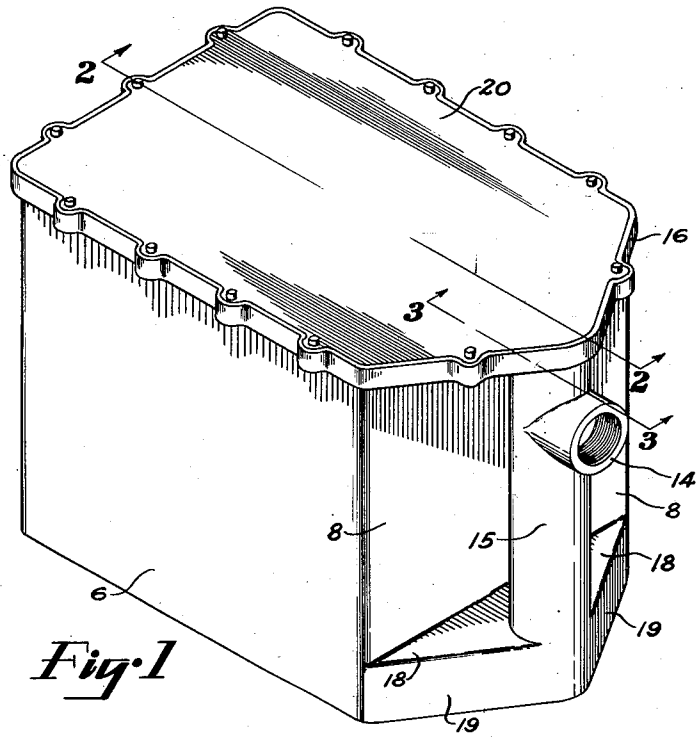

Fig. 1

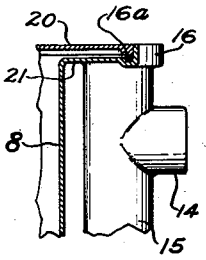

Fig. 3

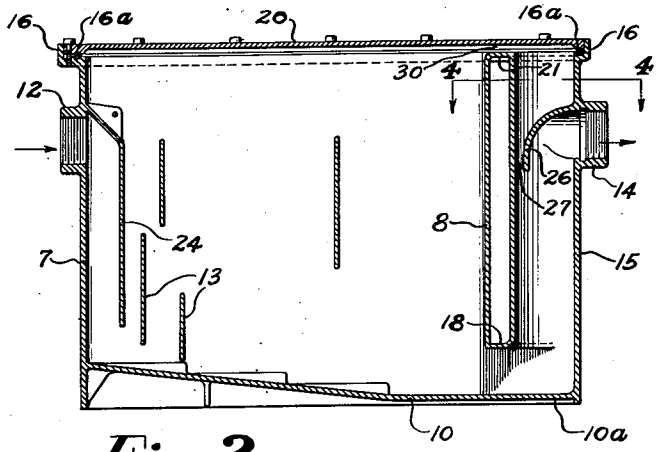

Fig. 2

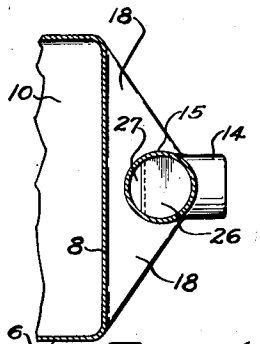

Fig. 4

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United States Patent Office 2,701,619 Patented Feb. 8, 1955

2,701,619

GREASE INTERCEPTOR

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Application November 9, 1949, Serial No. 126,359

1 Claim. (Cl. 182—9)

This invention is directed to improvements in grease interceptors of the continuous flow type wherein a cast iron basin comprising the grease separating chamber has an outlet duct extending from near the bottom to an outlet branch located near the top of the basin structure. In such interceptor constructions the basin proper is sealed with a gasket and lid and it is important that a pressure equalizing gas duct be arranged to communicate with the space above the grease chamber and the outlet duct in such manner as to permit the air or gas to escape from the top region of the basin when the grease level therein rises. In some instances a surging effect takes place which may be due to several causes. Various practices have been followed to meet such conditions, including the provision of a by-pass cast in the wall or walls of the basin and outlet duct. While the mentioned practice has fulfilled the function of pressure equalization, considerable difficulty has been experienced in the smooth casting of such by-pass ducts in the basin body regardless of the care taken in the core work. Also, the relative inaccessibility of such by-pass locations results in cleaning neglect. When such by-pass ducts are not cleaned thoroughly, clogging eventually occurs.

The object of the present invention is to provide an exit or outlet end structure for interceptors of the type referred to which will provide the by-pass as an incident to a reshaping of the outlet structure and which will result in better balancing of metal distribution when being poured in the mold.

More specifically, an object of the invention is to provide an integral outlet duct which will be in communication with both the bottom region and the top region of the exit end of the separator basin and whereby a common closure or lid may serve to seal both the top of the basin structure and the top of the outlet duct structure, while affording a by-pass spacing between the under side of the lid and the top of the end wall of the basin.

Another object of the present invention is to provide an interceptor construction of the type referred to having a bottom effluent passageway and a top pressure equalizer passageway so arranged in association with the outlet passageway as to overcome the accumulation of solid deposits in the respective passageways.

A further object of the present invention is the provision of an outlet end structure for an interceptor of the type referred to which will afford direct flow communication of the entire exit end region of the bottom of the basin with the outlet or riser.

A still further object is to provide a by-pass duct which will communicate with the entire end region of the grease chamber and the outlet duct.

Other objects and advantages of the invention will be apparent from the following detailed description of a preferred form or embodiment of the invention, reference being made to the accompanying drawings wherein—

Fig. 1 is a perspective view of a cast grease interceptor structure incorporating the features of the present invention;

Fig. 2 is a cross-sectional elevation of the entire basin structure taken along a vertical plane indicated by the line 2—2 in Fig. 1;

Fig. 3 is a detail in elevation showing a vertical section taken substantially along the plane indicated by the line 3—3 in Fig. 1; and

Fig. 4 is a horizontal section of the discharge or exit end of the interceptor structure taken along the plane indicated by the line 4—4 in Fig. 2.

Referring to the drawings, I have illustrated the embodiment of my invention as being incorporated in a grease interceptor structure of the unitary basin type and which is rectangular in shape. The interceptor is of the continuous flow type wherein the greasy effluent is discharged into one end of a separator basin and the grease rises to the top region of the basin and is trapped there until removed while the greaseless effluent escapes from a location adjacent the bottom of the basin upwardly through an outlet riser duct.

The interceptor structure shown comprises side walls **6**, an inlet end wall **7**, an outlet end wall **8** and a bottom wall **10**, which form the separating chamber proper of the interceptor mechanism. The bottom wall **10** of the interceptor inclines from the inlet end to the outlet end for well known purposes.

In the form shown the inlet wall **7** is provided with an inlet branch connecting means **12** which is disposed above the normal water level in the separating chamber, this normal level being determined by the point of elevation of the outlet branch **14**. The branch **14** is particularly arranged with respect to the outlet duct structure.

As shown, the outlet duct comprises a tubular riser duct **15** extending upwardly from an extension **10***a* of the bottom wall to substantially the plane of a cover seat or gasket seal formation **16***a* of the interceptor structure which may have a vertical flange. The exit end wall **8** of the basin structure terminates a substantial distance above the bottom wall member **10***a* and is provided with a horizontal wall or converging extension **18** connecting to the bottom part of the duct **15**, there being converging vertical walls **19** as extensions of the lower region of the side walls connecting the bottom wall extension **10***a* to the overlying extension **18** and all converging to the bottom region of the outlet duct **15**. The top of the end wall **8** of the basin structure terminates substantially in a plane coincident with a plane of the gasket seat **16***a* of the cover structure **20** and this top terminus of the end wall **8** is provided with a horizontal wall or lateral extension **21** vertically spaced from **18** and converging to, and integral with, the top end formation of the duct **15**.

In Fig. 2 an inlet baffle **24** is shown disposed to deflect the inflowing grease-carrying effluent downwardly to the bottom wall **10** of the basin structure of the separator and a series of baffles **13** are provided for flow direction and turbulence effects, which features comprise no part of the present invention, but are shown to indicate general relation of the funnel-shaped bottom outlet passageway to the general path of flow of the effluent.

The outlet duct of branch **14** is provided with elbow-shaped baffle member **26** extending downwardly to a level slightly below the outlet branch to form an outlet seal, which baffle also extends inwardly a distance of substantially three-fourths of the diameter of the duct **15** to direct the outflowing effluent into the branch **14** while leaving a passageway **27** connecting the upper reach of the duct with the lower reach of the duct.

The particular manner of constructing the lower effluent passageway leading from the bottom of the basin structure to the bottom of the outlet duct **15** results in a convenient distribution of the metal in the mold when the basin is being cast and, in the ultimate product, produces a passageway clear across the bottom of the end wall **8**, thereby to prevent the lodging of solids against any part of the end wall **8** and bottom wall **10**. In so far as casting is concerned, the top structure of the duct and associated passageway have the same foundry advantage, while providing an air by-pass passageway **30** between the under face of the cover or lid **20** and the top region of the duct **15**, all surfaces of which passageway become immediately exposed when the cover is removed for cleaning. The passageway **27** within the duct structure per se establishes air communication between the top cavity of the basin structure through passageway **30** with the liquid in the duct **15** when the apparatus is installed and in operation. Thus there is an air passageway available from the top space of the basin to a locus in the duct below the outlet branch **14**.

By providing a continuation of the cover seat or gasket seal **16***a* to extend beyond the end wall **8**, access to the entire length of the duct **15** also becomes immediate when

the cover **20** is removed, thus affording convenience in dislodging any solids which might become deposited in the upper region of the duct **15** down through the passageway **27** and to any unusual lodgment of solid matter in the lower part of the duct.

It will be apparent that while obtaining improved functioning of the apparatus through the convenience afforded to keep the various passageways clean, I also eliminate troublesome core work while a better metal distribution results in the mold when manufacturing the interceptors.

I claim:

In a grease interceptor of the continuous flow sealed type, a rectangular unitary basin structure having an inlet end and an outlet end at opposite ends of the basin structure, the outflow end of the basin structure consisting of two horizontally disposed vertically spaced walls converging to the upper and lower ends of an integral riser pipe portion spaced outwardly from the outlet end wall of the basin structure, a basin bottom wall extending outwardly and terminating beneath the riser pipe portion and beneath extensions of the lower regions of the side walls integral with the lower one of said horizontal walls thereby to form a solids gathering chamber converging to the bottom of said riser pipe formation, said riser pipe terminating in the upper of said horizontal walls with an integral outflow branch disposed below said upper horizontal wall, said branch formation being continued inwardly in the form of an inner elbow extending downwardly below the normal water level of the basin as determined by the said outlet branch with a passageway of segment-shaped cross section between the elbow formation and the inner pipe wall, said upper horizontal wall being disposed below the top of the basin structure, side walls extending upwardly from the upper horizontal wall and formed to provide a lid seat which is a continuation of a lid seat formed about the upper rim of the rectangular basin and a lid on said seat whereby a single lid structure serves to enclose and form a by-pass channel between the upper horizontal wall and the lid thereby establishing gas communication between the upper region of the basin and the top opening of said riser pipe.

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