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## Oil Mist Removal Device



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### Technical Field

The present invention relates to an oil mist removal device.

### Related Art

Previous publications have proposed new structures for this type of oil mist removal device, and some of these proposals are likely to be put to practical use. An overview of these proposals will be given below.

Publication (1) is a dust removal and deodorizing device of Japanese Patent Laid-open No. Hei. 11-285611. The content of this publication is a structure comprising a first dust removal section provided with a dust removal section for carrying out removal processing to remove fine particles of dust provided in a processing path for a gaseous fluid, and a louver unit for contacting a gaseous fluid body provided in the dust removal section, changing a flow direction of this gaseous fluid body, and removing an oil content of the gaseous fluid body, a second dust removal section provided with a filter unit for adsorption removal of microscopic dust particles, and a deodorization section for contacting a gaseous fluid body discharged from the dust removal section and subjecting the gaseous fluid body to deodorization processing, intended to remove dust, oil mist or weld fumes from a gaseous fluid body containing oil mist or weld fumes, and efficiently deodorizing the gaseous fluid body.

Publication (2) is the oil mist removal device of Japanese Patent Laid-open No. Hei. 10-216437. The content of this publication is a structure in which an inlet side filter for removing coarse debris etc. from within oil mist is mounted capable of horizontal movement along a guide rail provided in an air suction chamber, a primary filtration filter capable of moving horizontally along the guide rail is disposed in a front chamber of a lower chamber specially reserved beneath the air suction chamber, a front side cover for pulling out the inlet side filter to the side is provided in a side surface of a front casing defining the air suction chamber, and a lower side cover drawing out the primary filtration filter to the side is provided in a side surface of a lower casing defining the lower chamber, with the intention of simplifying a filter replacement operation and improving oil mist capture performance.

Publication (3) is a dust removal device of Japanese utility model registration No. 3006922, and a louver used in this dust removal device. The content of this publication is a structure in which a suction fan is provided inside a processing passage for a gaseous body to be processed provided in a casing, an adsorption filter is provided at a peripheral position further downstream in a flow direction of the gaseous body to be processed than the suction fan, and a louver unit formed from a cloth filter designed to change flow direction of the gaseous body to be processed through contact with the gaseous body is provided at a position further upstream in the flow direction of the gaseous body to be processed than the adsorption filter, wherein a guide surface of the louver unit allows some of the gaseous body to be processed to pass, and collects dust inside the gaseous body to be processed that is contacted, wherein it is possible to provide a dust removal device that avoids generating vibration due to erratic vibration of the fan while avoiding increase in power load, and has excellent dust removal performance, and a louver for use with this dust removal device.

#### Problems to be Solved by the Invention

The above described publications (1) and (2) have a structure where a first dust removal section and a second dust removal section are respectively provided in a first casing and a second casing, and the first and second casings are connected. Accordingly, there are problems such as the fact that smooth flow of oil mist to the first and second casing is not ensured, and there is no design for efficient dust removal and deodorization, such as the generation of a gaseous fluid body that moves randomly and a gaseous fluid body that moves while colliding. When individually repairing or cleaning the first and second casings, it is therefore necessary to respectively open and assemble the first and second casings, and there are problems such as the fact that this is troublesome, and taking into consideration the fact that the filters are replaced often practical use is not made of the device.

Also, since publication (3) has a structure where a second dust removal section is disposed in an annular shape around a fan, there are also problems such as the fact that replacement, repair and maintenance of the second dust removal section (filter and punching plate) is troublesome, and smooth flow of oil mist (gas phase) is not ensured. Also, the structure where the first dust removal section confronts an inlet port causes

problems such as the generation of pressure drop.

The above-described publications (1) - (3) adopt a structure where a first dust removal section confronts the flow of gas phase in the vicinity of an inlet port. As a result, it is easy for a pressure drop to occur and it is difficult to guarantee flow at the casing. This leads to the need to increase the fan speed and enlarge fan capacity to avoid this pressure drop, and also the need for improvements with respect to faults with enlargement of mist particle diameter.

With a structure intended to form oil mist into oil droplets and remove foreign matter such as dust by using a single punching plate, this punching plate has a single plate structure, has a punching shape or mesh shape that is a normal appearance, and this forming into oil droplets, bypassing effect and capturing effect can not be made sufficient. The present invention provides a multi-layered punching plate to solve these problems.

#### Summary of the Invention

The invention of claim 1 is an oil mist removal device, comprising, in a casing provided with an intake port and a discharge port, a first processing section, a second processing section arranged behind the first processing section, an annular third processing section arranged behind the second processing section, an intake fan provided inside the annular third processing section, and a motor for the intake fan, wherein the first processing section comprises a link provided with a gap between the casing, and an umbrella-shaped impact plate provided on a front surface of a central passage of the link, the second processing section comprises at least one punching plate and a plurality of first porous members arranged behind the punching plate, the third processing section comprises at least one annular punching plate and an annular second porous member attached to the annular punching plate, and air contained in oil mist has been sucked into the casing through the intake port so as to be processed by the first to third processing means, and separated oil is accumulated in a recovery section and cleaned air is discharged to the outside from the discharge port.

Therefore, claim 1 has a structure where first to third processing sections are positioned maintaining appropriate gaps in the casing, and this casing is opened and

closed with a cover, and is intended to simplify and speed-up cleaning and replacement of the first to third processing sections, or achieve reliable installation and simplify maintenance, to avoid negative pressure of air containing oil mist during suction, to reliably turn oil mist in the air containing oil mist into oil droplets, and to make it possible to provide oil mist smoothly to the first and second processing sections. By satisfying these requirements, it is intended to avoid speeding up a fan and increasing the capacity of the fan, and to expand mist particle diameter. The present invention has first to third processing sections arranged almost linearly inside a casing having almost the same cross sectional area, and it is intended to ensure circulation of air and a dispersed flow inside the casing, or make the generation of oil droplets efficient and make the capture of dust efficient by utilizing at least a single punching plate.

The invention of claim 2 is an oil mist removal device of claim 1, wherein burring is provided around holes formed in the punching plate of the second processing section and/or the annular punching plate of the third processing section, with this burring constituting a bypass passage for oil mist, and oil and/or mist.

As a result, claim 2 can achieve the objectives of claim 1, or it is intended to improve the punching plates, to ensure oil mist circulation and dispersed flow in the casing, or to make the capture of dust efficient, and simplify collection and dropping of oil.

The invention of claim 3 is the oil mist removal device of claim 1, wherein, when a plurality of holes are formed in the annular punching plate of the third processing section, the lower  $1/3$  to  $1/4$  of the punching plate does not have any holes.

This means that it is possible for claim 3 to achieve the objectives of claim 1, it is intended to improve the punching plates, to ensure dispersed flow of oil mist in a specified direction, or efficiently capture dust using a filter.

The invention of claim 4 is the oil mist removal device of claim 1, wherein at least two punching plates are arranged in the second processing section, and holes in each of the punching plates are arranged so that they do not overlap.

Accordingly, the invention of claim 4 can achieve the objectives of claim 1, and in addition to improvement in the structure of the punching plates is intended to ensure dispersed flow of oil mist in a specified direction, efficiently capture dust using a filter, or

simplify collection and dropping of oil.

Claim 5 is the oil mist removal device of claim 1, wherein a partition plate is provided in the second processing section, and a round passage is formed in the partition plate.

Accordingly, the invention of claim 5 can achieve the objectives of claim 1, and is intended to reliably supply oil mist that has been subjected to primary processing by passing through a first porous member to a suction fan, achieve dispersed contact with a second porous plate, make it possible to ensure dispersed flow of oil mist in a specified direction, and achieve efficient capture of dust using a filter.

The invention of claim 6 is the oil mist removal device of claim 1, wherein the second processing section is fastened to a casing utilizing a pressing member provided on a rear surface of an opening and closing cover of the casing.

As a result, the invention of claim 6 can achieve the objectives of claim 1, and is intended to enable installation of the second and third processing sections in a casing, and achieve efficient capture of dust using a filter.

#### Brief description of the drawings

Fig. 1 is an overall cross section showing one example of the present invention.

Fig. 2 is a front view of Fig. 1.

Fig. 3 is a rear view of Fig. 1.

Fig. 4 is an enlarged schematic view showing a first processing section and air flow.

Fig. 5 is an enlarged cross-sectional view showing holes in a first rear punching plate and air flow.

Fig. 6 is a front view of Fig. 5.

Fig. 7 is an enlarged schematic view for describing collision of air with second and third punching plates.

Fig. 8 is a front view showing the whole of a second punching plate.

Fig. 9 is an overall cross sectional view showing another example of the present invention.

Fig. 10 is an overall cross sectional view showing yet another example of the present

invention.

Fig. 11 is an enlarged schematic view showing the whole of another collision plate.

Fig. 12 is a cross sectional view of Fig. 11.

Fig. 13 is an enlarged schematic view showing essential parts of other second and third punching plates etc.

### Embodiments of the Invention

One example of oil mist treatment of the present invention will be described.

A motor (one example of suction means) provided in a casing is driven to rotate a suction fan. As a result of this rotation, air containing oil mist (hereafter called oil mist air) conveyed via means such as a hose and piping is taken in to the casing through an inlet port (introduction) (→1). Oil mist air that has been introduced into the casing collides with a collision plate provided in the vicinity of the inlet port, and most follows the surface of the collision plate and is scattered and introduced (→2). Then, oil mist air that has been guided to the collision plate branches into a casing inner wall direction (→3) and to a passage in a central direction of the casing (→4) at a gap formed between the collision plate and the casing, and at a branching passage formed between a link and a base section of the collision plate. As a result of this branching, oil mist air does not accumulate in the central part and air flow is as shown in Fig. 4, which is designed to give a substantially uniform load on the first punching plate, efficient diffusion, and reduced intake air amount. Oil in this diffused oil mist air is made into oil particles (represented by "oil droplets" in the drawings) until reaching a second processing section, and collect in a reservoir from a lower surface of the casing. High specific gravity sludge and processing waste are separated at this collision plate and collect at the lower surface of the casing etc.

Air containing a small amount of oil mist (called low oil mist air) that reaches this second processing section first of all comes into contact with (collides with) a first punching plate. This first punching plate can normally be any shape, but with this example burring is formed on the first punching plate. By forming this burring, a detour effect of the oil in the vicinity of holes is utilized, with the intention of making the oil into oil particles and expanding retention time, and also to promote dropping of oil,

increase capture and achieve dust separation. Also, with a structure where two first punching plates are provided (a front plate and a rear plate), in the case where a structure having holes provided in the second plate at alternating positions is adopted, the design is such that generation of oil particles (separation effect of air) and flow of oil particles into the holes is avoided, and scattering is prevented, and also retention time is expanded. A slight gap is then held behind the two first punching plates and filtration is carried out using a first porous member such as one or a plurality of filters. Specifically, by passing through this first porous member, foreign matter such as dust or cutting scraps contained in the low oil mist air can be reliably and efficiently scavenged by the porous member, and it is also useful in promoting creation of oil particles etc. It is also possible to contribute to relief of air resistance (a second porous member can also be applied).

This separated oil reaches a first reservoir provided below the casing. Oil mist that has passed through the first porous member and been subjected to primary processing passes through a projecting passage (→5) in a central part of a partition plate forming the second processing section and reaches a third processing section.

Air containing minute quantities of oil mist that has passed through the second processing section and been subjected to primary processing (microscopic amount oil mist) reaches the third processing section by means of suction of the suction fan and diffusion. This microscopic amount of oil mist then comes into contact with (collides with) a second punching plate (second collision plate) and third punching plate (third collision plate) constituting the third processing section substantially from a radiating (substantially parabolic) direction. The second and third punching plates can have a normal appearance, but in this example burring is formed.

By forming this burring, substantially complete oil particle formation and a detour effect in the vicinity of holes are utilized, and extremely small particles of oil and dust in the microscopic oil mist air are captured. Also, processed air that has passed through the holes passes through a second porous member such as a single or multiple plate filter. As shown in Fig. 7, the second of the two second punching plates rectifies the flow of air (wind), and air collides with inner surface of the second punching plate (third punching plate) and/or wall surfaces of holes in the third punching plate (second punching plate) thus allowing only air to pass (preventing the passage of oil droplets), or effectively

promoting the passage of air. This is also effective in preventing blockage of the second porous member provided at the peripheral sections and preventing contamination, or enabling capture of microscopic foreign matter such as microscopic dust particles or processing waste.

This cleaned air passes through the third processing section and a passage of the inner wall surface of the casing ( $\rightarrow 6$ ) and reaches a fourth processing section. Filtration and deodorization are carried out by a second porous member provided in the fourth processing section, such as a filter containing a single or a plurality of punching plates and activated carbon or a chemical agent etc. (shown by  $\rightarrow 7$ ). The finally processed mist that has been filtered (cleansed mist) is diffused into the atmosphere via a discharge port (shown by  $\rightarrow 8$ ). On the other hand, oil reaches a second reservoir provided below the casing.

Also, a structure is adopted where about  $1/3$  to  $1/4$  from the downstream side of the second punching plate is shielded, and dispersion of the suction fan is supplied from another part of the second punching plate to the second porous member, which makes oil mist disperse over a wide area, avoids blocking that is likely to arise at a down stream side of the second porous member, avoids oil discharge, and also improves durability.

The present invention is characterized by the fact that it is intended to simplify replacement and functional updating of a second processing section, third processing section and suction fan etc. and cleaning of a first processing section, second processing section, third processing section and suction fan by opening a cover, and also that it is possible to confirm a state of dirtiness of these parts in detail. The invention is characterized by the fact that it is also intended to make it possible to install the second processing section with one touch by pressing using a pressing

[Example]

Reference numeral 1 is a casing provided with an inlet port 2 and a discharge port 3, with this casing being provided with a cover 4, and about  $1/2$  of the casing 1 can be opened by opening the cover 4. This is designed to simplify cleaning of a first processing section, second processing section, third processing section and suction fan, which will be described later, and to confirm whether parts need replacement or are dirty. A pressing member 400 is provided in the cover 4, configured to restrain at least the second

processing section. The arrows in the drawing indicate flow of air (oil mist, low oil mist air, etc.).

Reference numeral 5 is a first processing section provided behind a cylindrical suction fan 2, with this first processing section 5 being provided hanging on a support plate 60 hanging from a lower surface 1a of the casing 1, and comprising a link 6 provided in a gap 1b at an inner wall surface of the casing 1, and an umbrella shaped collision plate 7 having a base end 7a between a groove 6a of this link 6. A substantially annular branching passage 8 is formed between the link 6 and the base end 7a. This annular branching passage 8 branches oil mist that has been guided by the collision plate 7. Reference numeral 9 in the drawings represents a cylindrical passage provided substantially in the center of the link 6. An oil dropping hole 100 is formed in a lower surface 1a. With this example, as shown in Fig. 6, the link 6 has a high outer side and a low inner side, and branches to an outer part, and controls a branched flow amount to the passage 9. Using this control, it is intended to diffuse flow to the central part. Also, by forming a ventilation passage A in almost the entire surface of the collision plate 7 (a peripheral surface from the center), a wide flow of oil mist air is ensured, intake air amount is reduced and speed is also reduced, and it is intended to give a uniform load on the second processing section (described later), widely disperse oil droplets, and efficiently separate oil and comparatively heavy sludge components etc.

Reference numeral 10 is a second processing section, and this second processing section 10 comprises a first front punching plate 11 (first rear punching plate 12) having a plurality of holes 1100 (1200), a first porous member 13, such as a first non-woven fabric, plastic, synthetic resin filter or first ceramic filter, and a partition plate 14 provided with an annular passage 1400. There may be either one or a plurality of the first front punching plate 11 and first rear punching plate 12. Also, the holes 1100 (1200) formed in the first front punching plate (first rear punching plate 12) have a normal appearance. However, in describing this example, it is possible to have a structure where the holes 1100 (1200) are provided with burring 1100a (1200a) at their peripheral parts, which is intended to promote detouring of low oil mist air and to expand particle diameter of the oil mist (make into oil droplets or an aggregation) and retention time, to promote dropping of oil, or effectively separate out dust, or a structure where the positions of the

holes 1100 on the first front punching plate 11 and the holes 1200 in the first rear punching plate 12 are alternated, and a structure where the size of the holes 1100 (1200) is changed (hole diameter is varied) and a structure where the holes 1100 in the first front punching plate 11 and the holes 1200 in the first rear punching plate 12 are different shapes. Various forms can also be considered for the first porous member 13, and so one example will be described. Specifically, the shape is either a single plate shape or a multi-plate shape, and the size either thick or thin. Also, passages (a) - (c) are formed between the first front punching plate 11 and the first rear punching plate 12, and between the first porous member 13 and the partition plate 14. The width or volume of these passages (a) - (c) is varied taking the shape of the device and the type of processing material into consideration, to ensure the most effective size.

Reference numeral 20 is a third processing section, and this third processing section 20 comprises an inner second punching plate and an outer third punching plate 21-1, ensuring a single plate or multiple plate collision plate surface area, each having a plurality of holes 2100 (2100 -1), and a second porous member 22 such as a second non-woven cloth, plastic or synthetic resin filter or second ceramic filter. Further, as another example, the holes 2100 (2100-1) have burring 2100a (2100a-1) provided around their peripheral parts, intended to promote detouring of the microscopic oil mist air, and intended to expand particle diameter and retention time of the oil mist, and it is possible to adopt a structure intended to promote oil dropping or to effectively separate dust, or a similar structure with holes formed in the previously described first front punching plate 11 (first rear punching plate 12). The holes 2100 (2100-1) formed in the second punching plate 21 (third punching plate 21-1) have a microscopic structure compared to the holes 1100 (1200) formed in the first front punching plate 11 (first rear punching plate 12). This results in an ideal structure where oil droplets and/or foreign matter are generally captured or collected by means of holes 1100 (1200) formed in the first front punching plate 11 (first rear punching plate 12) of the second processing section 10, and then oil droplets and/or foreign matter are finally captured or collected by means of holes 2100 (2100-1) formed in the second punching plate 21 (third punching plate 21-1) of the third processing section 20.

The second filter constituting the second porous member 22 can correspond to

various types, such as a single plate or multiple plate structure, or a structure with different hole diameters, and adopts the most efficient structure by changing taking the shape of the device and type of material to be processed into consideration. Also, passages (d) and (e) are formed between the second punching plate 21, second porous member 22 and suction fan 30. The thickness or volume of these passages (d) and (e) correspond to the previously described example. Varying the phase of the holes 2100 and 2100-1 of the second punching plate 21 and the third punching plate 21-1 corresponds to the example of the previously described first front punching plate 11 and the first rear punching plate 12. The annular second punching plate 21 and third punching plate 21-1 are attached to a partition plate 14, and together with being deployed inside the casing 1, spaces for insertion of the second porous member 22 and passage (e) are formed between this annular third punching plate 21-1 and the casing 1. Also, adopting this structure attached to the partition plate 14 is beneficial in terms of simple fixing of the annular second punching plate 21 and third punching plate 21-1, and in terms of maintaining the space etc. between the two and simplifying removal.

Reference numeral 30 is a suction fan 30, rotated by a motor 31.

Reference numeral 40 is a fourth processing section, comprising a third filter containing a single plate or multiple plates of activated carbon, zeolite, a chemical agent etc., arranged at a rear part of the casing 1 and provided in a passage (e). This is intended to filter and deodorize processed oil mist. The structure of this third filter is basically the same as that of the previously described example. Also, (f) in the drawings represents a passage, and a motor 31 is arranged in this passage (f).

Reference numeral 50 in the drawings is a first reservoir (collection section) for collecting oil, and reference numeral 51 is a similar second reservoir (collection section). Outlets 50a and 51a for connection of pipes (not shown) for discharge (circulation) are respectively provided in the first reservoir 50 and second reservoir 51.

Fig. 10 is an overall cross sectional drawing showing yet another example of the present invention.

The collision plate 7 shown in Fig. 11 and Fig. 12 has a structure that is an improvement of the previously described examples, and in giving the umbrella-shaped collision plate 7 provided in the first processing section 5 a stepped structure, a

ventilation passage 701 such as a through hole or elongated hole is preferably provided in each step 700. Using each step 700 and/or the ventilation passage 701, by forming a ventilation passage section at substantially the entire peripheral surface (peripheral surface from the middle) of the collision plate 7, extensive flow of oil mist air is ensured, and it is intended to reduce suction air flow amount and reduce speed, to exert a uniform load on the second processing section 10, to make fine oil particles and efficiently separate various comparatively heavy sludge and oil.

Also, the second and third punching plates 21b, 21b-1 shown in Fig. 13 have a structure that is an improvement on the previously described example, which is intended to harmonize collision and/or collision avoidance of oil mist air from impellers of the suction fan 30, and proposes a more efficient method. Specifically, with the previously described examples, the angle of flow of air going through the holes 2100 and 2100-1 of the second and third punching plates 21, 21-1 was an obtuse angle compared to the flow angle of air from the impellers of the suction fan 30. On the contrary, with this example, by inclining the holes 2100b and 2100b-1 of the second and third punching plates 21b and 21b-1, and angle of flow passing through the holes 2100b and 2100b-1 is made an acute angle compared to the angle of flow from the impellers, and it is possible to reduce the probability of passing through the holes 2100b and 2100b-1 without colliding. With this example, put simply, at the same time as inclining the holes 2100b and 2100b-1, a collision surface with no holes is formed on a spherical surface, designed so that ultrafine oil mist air collides with this collision surface, and also to achieve efficient separation and to turn oil mist into oil droplets. In more detail, the second and third punching plates 21b and 21b-1 shown in Fig. 13 form collision annular bodies having collision walls 2101 (2101-1) that are curved, uneven, mountain shaped etc. Holes 2100b (2100b-1) formed (preferably) alternately in the collision walls 2101 (2101-1) of the second punching plate 21b (third punching plate 21b-1) adopt a normal appearance without burring. The holes 2100b (2100b-1) formed in the collision wall 2101 (2101-1) are configured offset with respect to phase or opening direction, and the intention is to ensure retention time and to avoid the holes 2100b (2100b-1) passing straight through. Specifically, the design is such that particle diameter of the mist is expanded, with the intention of causing collision of ultrafine oil mist air with this collision surface, and efficiently making the oil mist into oil

droplets.

[Description of the numerals]

|       |                            |
|-------|----------------------------|
| 1     | casing                     |
| 1a    | lower surface              |
| 1b    | gap                        |
| 100   | hole                       |
| 2     | suction port               |
| 3     | discharge port             |
| 4     | cover                      |
| 400   | pressing member            |
| 5     | first processing section   |
| 6     | link                       |
| 6a    | groove                     |
| 60    | support plate              |
| 7     | collision plate            |
| 7a    | base end                   |
| 700   | step                       |
| 701   | ventilation passage        |
| 8     | branching passage          |
| 9     | passage                    |
| 10    | second processing section  |
| 11    | first front punching plate |
| 1100  | hole                       |
| 1100a | burring                    |
| 12    | first rear punching plate  |
| 1200  | hole                       |
| 1200a | burring                    |
| 13    | first porous member        |
| 14    | partition plate            |
| 1400  | passage                    |

20 third processing section  
21 second punching plate  
2100 hole  
2100a burring  
21b second punching plate  
2100b hole  
2101 collision wall  
21-1 third punching plate  
2100-1 hole  
2100a-1 burring  
21b-1 third punching plate  
2100b-1 hole  
2101-1 collision wall  
22 second porous member  
30 suction fan  
31 motor  
40 fourth processing section  
50 first reservoir  
50a outlet  
51 second reservoir  
51a outlet  
(a) - (f) passage  
A ventilation passage

## Claims

1. An oil mist removal device, comprising, in a casing provided with an intake port and a discharge port, a first processing section, a second processing section arranged behind the first processing section, an annular third processing section arranged behind the second processing section, an intake fan provided inside the annular third processing section, and a motor for the intake fan, wherein

the first processing section comprises a link provided with a gap between the casing, and an umbrella-shaped impact plate provided on a front surface of a central passage of the link,

the second processing section comprises at least one punching plate and a plurality of first porous members arranged behind the punching plate,

the third processing section comprises at least one annular punching plate and an annular second porous member attached to the annular punching plate, and

after air contained in oil mist has been sucked into the casing through the intake port, this air is processed by the first to third processing means, separated oil is accumulated in a recovery section and cleaned air is discharged to the outside from the discharge port.

2. The oil mist removal device of claim 1, wherein burring is provided around holes formed in the punching plate of the second processing section and/or the annular punching plate of the third processing section so as to constitute a bypass passage for oilmist, a bypass passage for oil and a bypass passage for mist

3. The oil mist removal device of claim 1, wherein, a plurality of holes are formed in the annular punching plate of the third processing section in only the upper two-thirds to three-quarters of the annular punching plate.

4. The oil mist removal device of claim 1, wherein at least two punching plates are arranged in the second processing section, and holes in each of the punching plates are

arranged so as not to overlap.

5. The oil mist removal device of claim 1, wherein a partition plate is provided in the second processing section, and a round passage is formed in the partition plate.

6. The oil mist removal device of claim 1, wherein the second processing section is fastened to a casing utilizing a pressing member provided on a rear surface of an opening and closing cover of the casing.