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RAIN TRAP FOR VENTILATING EXHAUST STACKS

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Fig. 1

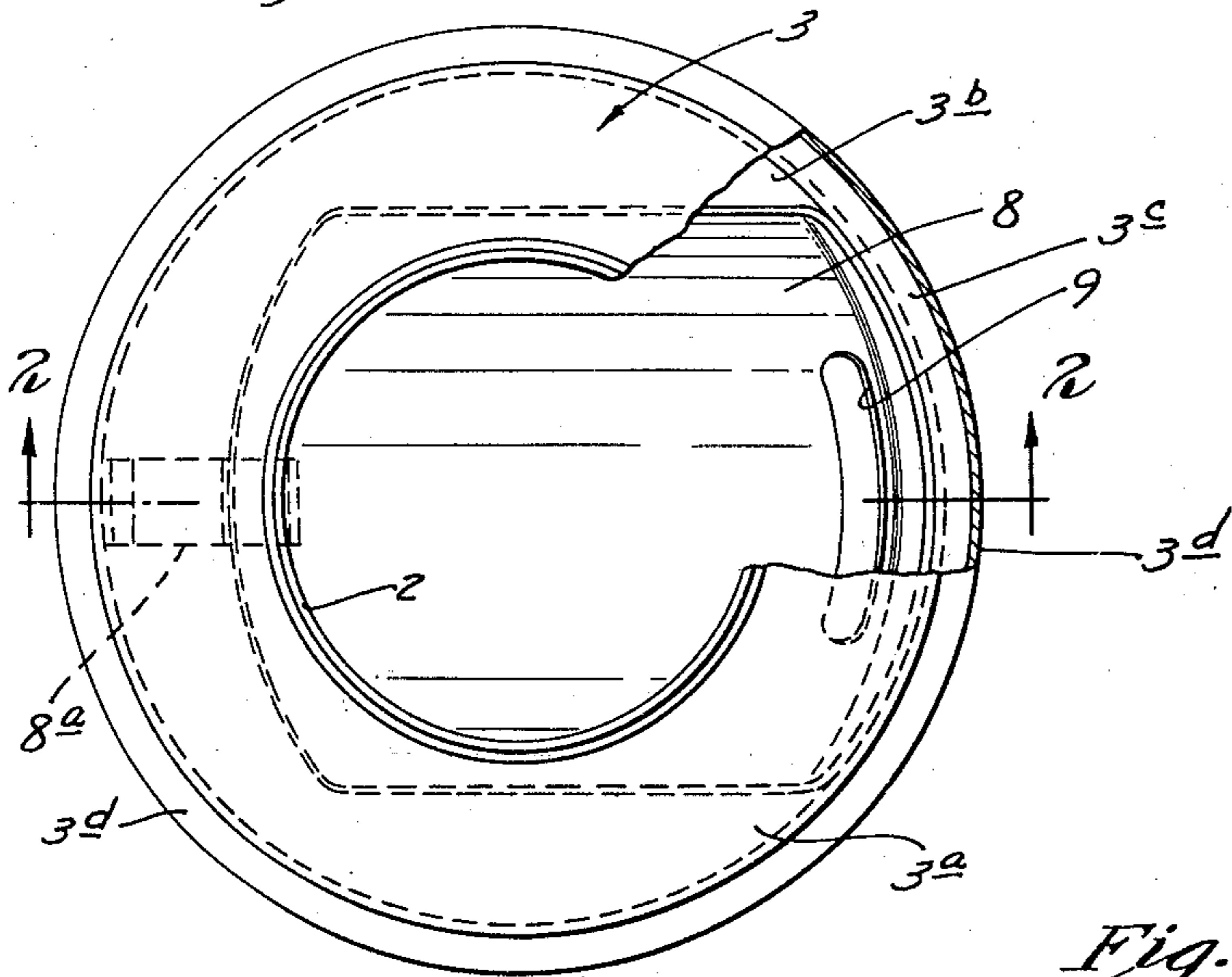


Fig. 2

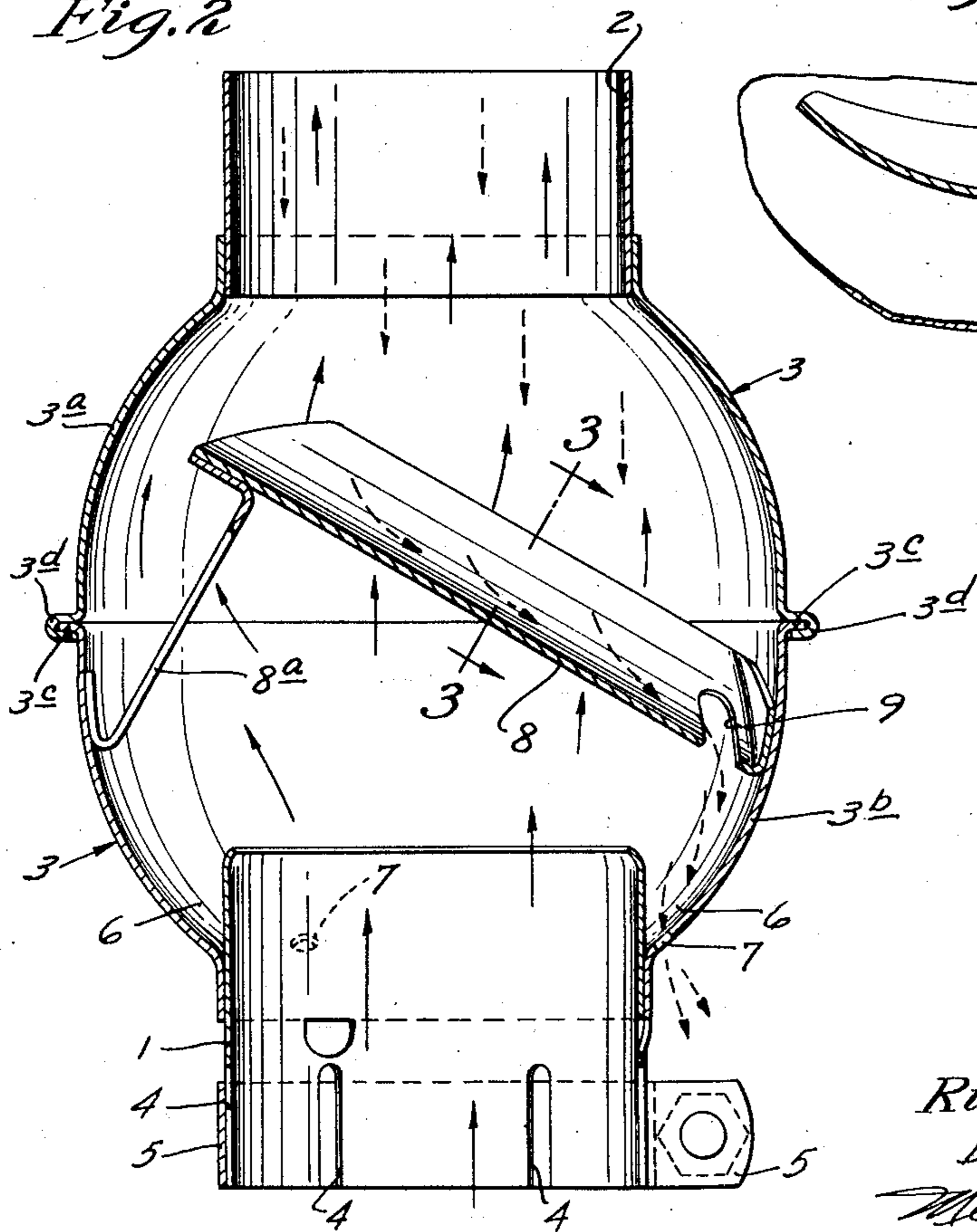
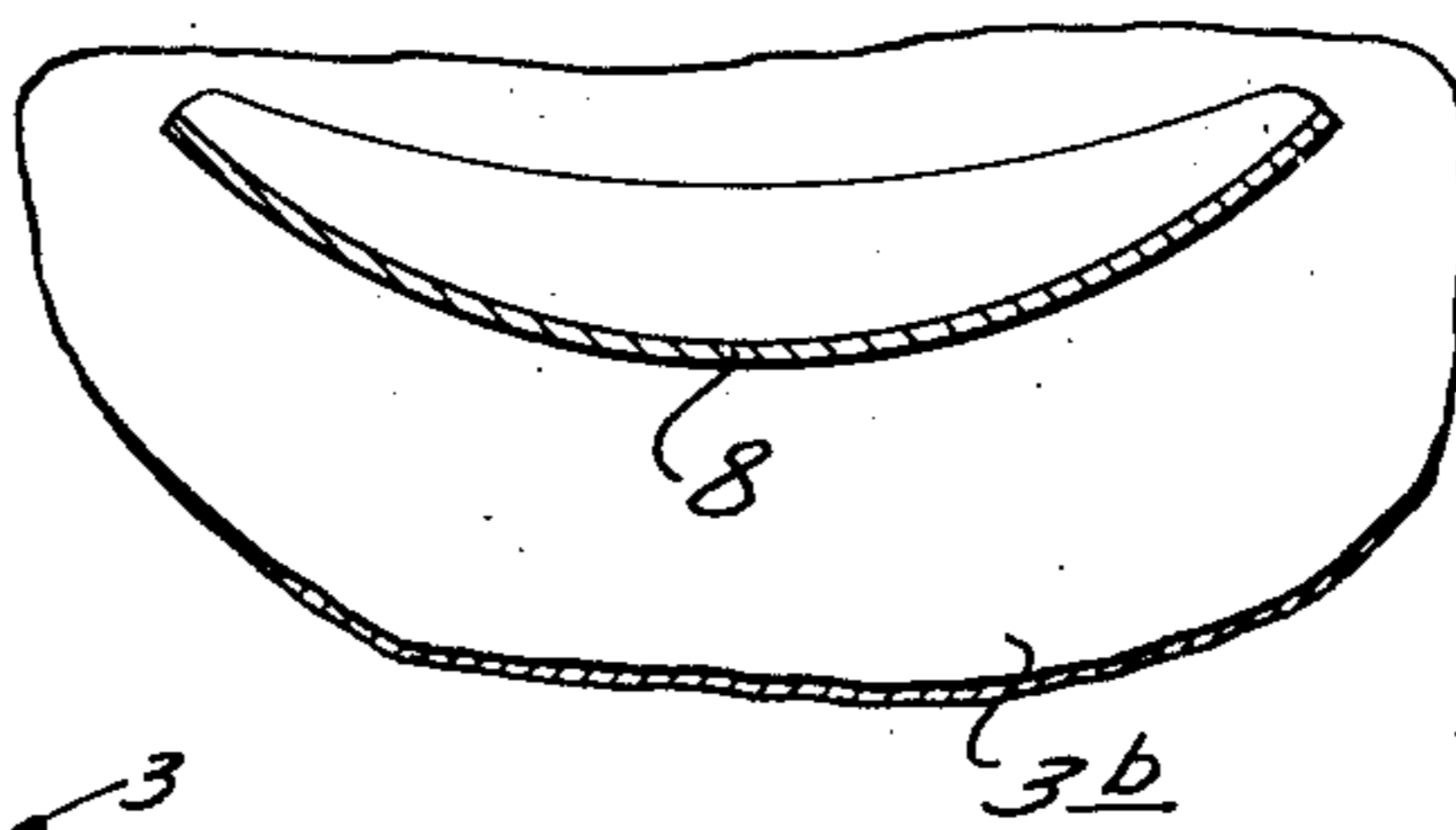


Fig. 3



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# UNITED STATES PATENT OFFICE

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## RAIN TRAP FOR VENTILATING EXHAUST STACKS

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1 Claim. (Cl. 98—60)

1

My invention relates to rain traps for vertical exhaust stacks and has for its object the provision for such a structure which is inexpensive to manufacture, which is durable and which is extremely efficient as a rain trap, while imposing but a minimum restriction upon the exhaust stream.

The above and numerous other objects of my invention will become apparent from the following detailed specification, appended claim and attached drawings.

Referring to the drawings wherein like characters indicate like parts throughout the several views:

Fig. 1 is a plan view, some parts broken away and shown in section;

Fig. 2 is a vertical axial section taken on the line 2—2 of Fig. 1; and

Fig. 3 is a fragmentary sectional view taken on the line 3—3 of Fig. 2.

Referring with greater particularity to the drawings, the device illustrated therein comprises vertically-spaced, axially-aligned, inlet and outlet tubes that are connected by a casing or housing 3, which is preferably, and as shown, of bulbular formation. The inlet and outlet tubes 1 and 2, respectively, define inlet and outlet passages, and the casing or housing 3 defines a chamber of somewhat greater diameter at its intermediate portion than the said inlet and outlet passages. The inlet tube 1 is adapted to be telescopically applied around the upper end of an exhaust stack of the engine of a tractor or the like, and is slotted at 4 to permit contraction thereof about the stack by means of a clamping band 5.

The upper end of the intake tube 1 is extended beyond the bottom of the casing 3 to provide therebelow and radially outwardly thereof, an annular moisture-collecting sump 6 wherefrom collected moisture drains to atmosphere through a circumferentially-spaced series of outlet ports 7.

An inclined rain or other moisture-deflecting baffle 8, which is transversely concave to define an upwardly opening channel, is positioned within the casing 3 intermediate the upper end of inlet tube 1 and the lower end of outlet tube 2. The lower end of baffle 8 is secured to the inner wall of casing 3 below its intermediate portion, by welding or the like, and the upper end and sides of said baffle are spaced from the sides of the casing to permit free upward flow of exhaust gases therearound. The upper end of baffle 8 is rigidly supported above the intermediate portion of the casing 3 by means of a bracket 8a, which is welded or otherwise secured to the inner side of casing 3 and to the under side of baffle 8. The baffle 8, as shown, is of a sufficient size to intercept any moisture which may drop downwardly through the outlet tube 2.

Adjacent its lower end, baffle 8 is provided with a transverse, elongated outlet port 9 which is centrally positioned with respect to the sides thereof. It will be seen, particularly by reference to

2

Fig. 2, that moisture discharged through port 9 will drop vertically into the annular moisture-collecting sump 6 and from thence be discharged to atmosphere through outlet ports 7.

5 While the inlet and outlet tubes 1 and 2, and chamber 3 may take several forms, as shown, they are all formed of separate members which are welded or otherwise secured together. Casing 3 is formed by two substantially semi-spherical halves 3a and 3b, the latter of which is provided with a radially-outwardly-projecting circumferential flange 3c, and the former of which is provided with an inwardly-opening circumferential flange 3d, which closely embraces the flange 3c.

10 It will be obvious from Fig. 2 of the drawings that as the exhaust gases, indicated by the unbroken arrows, pass upwardly through the chamber defined by the housing 3, the baffle 8 will impose a minimum of restriction thereupon because of its shape and inclined position. On the other hand, any rain or moisture which is indicated by the broken arrows, is efficiently intercepted and diverted.

What I claim is:

25 A rain trap for vertical exhaust stacks comprising a casing having vertically spaced coaxial inlet and outlet passages and defining a chamber of greater diameter than said passages, the inlet passage being in the bottom of the casing and the outlet passage being in the top of the casing, and a rigid inclined moisture intercepting baffle obliquely intersecting the axis of the casing and aligned inlet and outlet passages and anchored fast to the side of the casing at its lower end, the upper end and sides of the intercepting baffle being generally spaced from the casing to permit free upward flow of exhaust gases between the inlet and outlet passages, said baffle defining an upwardly opening channel in transverse cross-section and being provided adjacent its lower end and in radially outwardly spaced relation from the inlet and outlet passages with a discharge port, said inlet being defined by an upstanding sleeve-like portion projecting above the bottom of the chamber to provide radially outwardly thereof and below the discharge port of the baffle an annular moisture-collecting sump, and an outlet port in that portion of the casing wall forming the bottom of the moisture sump.

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