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Patent Search

Invention Title	IMPROVED, LOW PRESSURE DROP WET SCRUBBER FOR CLEANING POLLUTED FLUE GAS
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Abstract:

This patent describes an invention in a wet scrubber which is used for removing / reducing solid particulates found in the flue gas emanating from the boiler of capacity 40 tons of steam production per hour. The invention pertains to the introduction of the flue gas (which has to be cleaned) into the scrubber cylindrical shell at an inclined horizontal and tangential to the inner wall of the cylinder thereby making the flow of the gas to be in a helical path and in combination with the introduction of water running on the inner wall of the cylinder used for capturing the gas particles. The gas flows in a helical path and contacts the water thereby the solid particles are captured. To remove the tiny particles of water carried by the flue gas, an assembly called demister is located at the top portion of the shell. The demister is made in a special shape so that the water particles carried get collected back and sent to the inner wall of the shell and joins the water running in the inner wall of the shell. The water with solid particles collected at the bottom of the shell and is filtered and recirculated to the pump for water supply.

Complete Specification

Wet scrubbers are used in the industries using boiler for removing or reducing the amount of solid particulates in the flue gas coming out of the system. Wet scrubber operating in the following principle: The flue gas stream is made to contact water and make the solid particles wet. This wetness gives weight to the solid suspension because of their density these particles tend to separate and fall from their normal path and the separation is aided by gravity. Some designs utilize the centrifugal force given to the flue gas flow by either swirl plate or a fan. In either case, a pressure drop occurs in the gas flow which adds to load on the fan. A demister is placed along the exiting gas flow path after the removal of solid particulates to eliminate the minute particles of the water getting carried along the flue gas so that the fan does not get impacted by water particles. Figure 2 gives an illustration of the above general principle of wet scrubber operation.

In Patent No : US 3358413 (1967) is an invention titled " Wet scrubber for dirty gases" , invention describes a methodology where the flue gas is introduced into the scrubber from the top. The system consists of two concentric shells, wherein a fan is located in the inner shell, and the flue gas is introduced into the system through the annular space between the two shells. The flue gas passes through a column of vertically sprinkled water, a spiral baffle, tangentially sprinkled water spray, and a centrifugal fan. Compared to the above patent, the submitted application refers to an invention which uses a lesser number of elements and hence the pressure drop involved is less resulting in reduced power consumption.

In patent no : US 36448440 (1972) titled, "wet scrubber system" , the invention describes a device, where the flue gas is introduced at the top, into the receptacle through a variable annulus between a frustum of a cone and the conical centre part, and the solid particles are picked up as a by the mixture of the solid particulate particles and water. The wet solid particle is picked up due to the impinging its impingement on a conical plate and the gas alone goes up to the outer area. The water particles carried along with the gas without the solid particle, is diverted through the demister, in which the gas is allowed to pass through a tortuous path, and water alone is separated and

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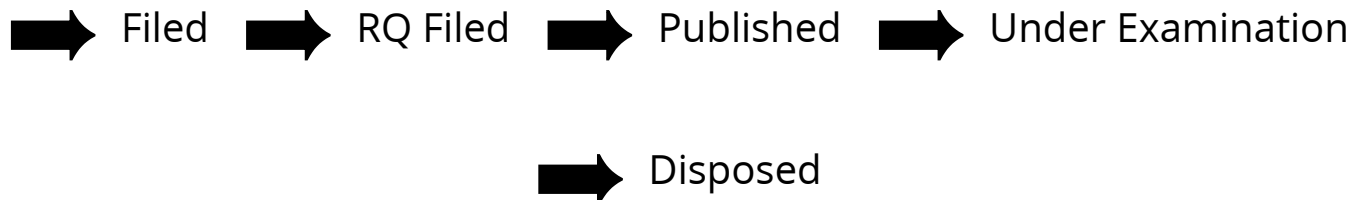
Application Details

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APPLICANT NAME	1 . Dr. M. VIVEKANANDAN 2 . Dr. R. ASOKAN 3 . Dr. D. JAGADEESH 4 . DR. G. SARAVANAN 5 . DR. K. PERIASAMY 6 . N. SIVASHANKAR
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FIELD OF INVENTION	CHEMICAL
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Application Status

APPLICATION STATUS

**Granted Application, Patent Number
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सत्यमेव जयते

The Patent Office, Government Of India

Patent Certificate

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468858

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22/11/2021

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It is hereby certified that a patent has been granted to the patentee for an invention entitled *IMPROVED, LOW PRESSURE DROP WET SCRUBBER FOR CLEANING POLLUTED FLUE GAS* as disclosed in the above mentioned application for the term of 20 years from the 22nd day of November 2021 in accordance with the provisions of the Patents Act, 1970.

provisions of the Patents Act, 1970.

अनुदान की तारीख : 14/11/2023
Date of Grant :

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, नवम्बर 2023 के बाईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 22nd day of November 2023 and on the

same day in every year thereafter. बौद्धिक संपदा दफ्तर, भारत सरकार, बौद्धिक सम्पद कार्यालय, भारत सरकार, बौद्धिक अंश कक्ष, भारत सरकार.

*चूंकि पेटेंटी व आविष्कारकों की संख्या अधिक है, पेटेंटी व आविष्कारकों के नाम पृष्ठ संख्या 2 पर जारी हैं।

*Since the Number of Patentees / Inventors is more, the name of Patentees / Inventors are continued on Page No. 2



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पेटेंट प्रमाणपत्र के लिए अनुलग्नक/Annexure to Patent Certificate

पेटेंट सं. / Patent No.

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