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FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO F/G 13/2  
DEVICE FOR REMOVING HARMFUL GASES AND DUST FROM INDUSTRIAL GASE--ETC(U)  
DEC 77 J ALEKSANDROWICZ, W BIEDA, E GORLICH  
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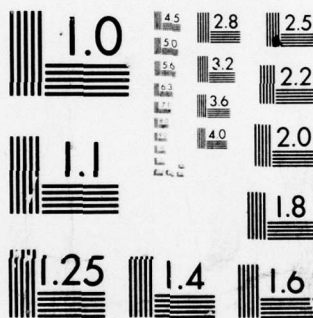
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MICROCOPY RESOLUTION TEST CHART  
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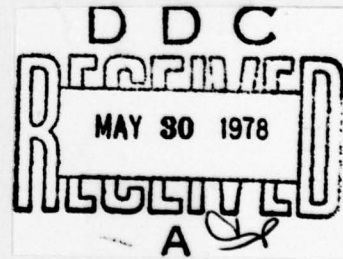
# FOREIGN TECHNOLOGY DIVISION



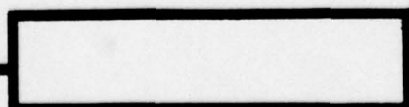
DEVICE FOR REMOVING HARMFUL GASES AND DUST FROM INDUSTRIAL GASES AND FOR IMPROVING ATMOSPHERIC AND GROUND CONDITIONS AROUND INDUSTRIAL SITES

by

J. Aleksandrowicz,  
W. Bieda, et al.



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# EDITED TRANSLATION

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DEVICE FOR REMOVING HARMFUL GASES AND DUST FROM INDUSTRIAL GASES AND FOR IMPROVING ATMOSPHERIC AND GROUND CONDITIONS AROUND INDUSTRIAL SITES

By: J. Aleksandrowicz, W. Bieda, et al.

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TRANSLATION DIVISION  
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WP-AFB, OHIO.

DEVICE FOR REMOVING HARMFUL GASES AND DUST FROM INDUSTRIAL  
GASES AND FOR IMPROVING ATMOSPHERIC AND GROUND CONDITIONS  
AROUND INDUSTRIAL SITES

Provisional Patent Specifications, Patent Office of the Polish  
People's Republic

Inventors: Julian Aleksandrowicz, Wladyslaw Bieda, Edward  
Gorlich, Zezislaw Liskiewicz, Jerzy Warecki-Niemcewicz

The invention is a device for removing harmful gases and  
dust from industrial gases and for improving atmospheric and  
ground conditions around industrial sites.

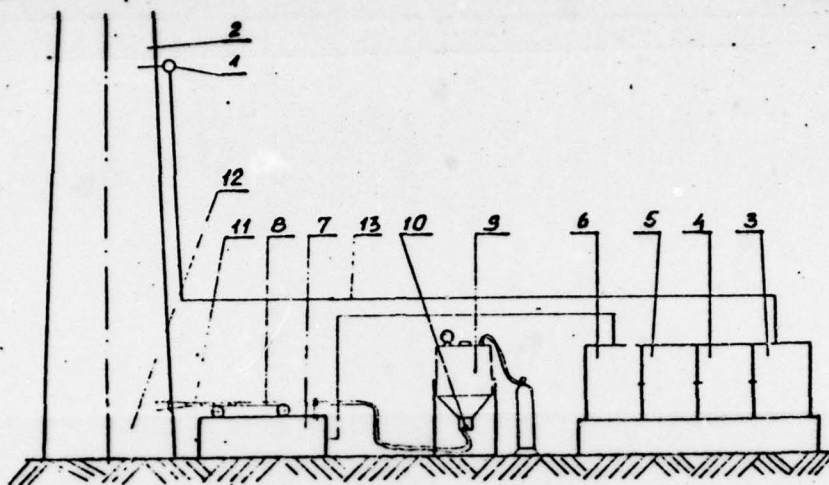
Bearing patent specification number 71,594, this device  
for purifying chimney smoke of toxic gases and dust dissovable  
in water has a pump that draws water from any kind of tank or  
precipitation tank and pumps it into a collector. The collector  
is connected to "n" dispersion nozzles arranged at a tangent  
or radially to the circumference of the chimney top. Water  
vapor created by the nozzles moistens the fumes and at the same  
time directs them against a metal screen into the smoke discharge  
channel. The smoke discharge channel is a space bounded by a  
jacket, the channel unit, and an upper cowl. The smoke  
discharge channel is divided into two chambers by a metal  
screen. The metal screen and the wall are moistened  
gravitationally by water supplied from the collector through a  
flange and water main to a tubular ring that is equipped with  
discharge openings.

The shortcoming of the device described is that it can only be used in chimneys in which the temperature of the smoke is not greater than  $200^{\circ}\text{C}$ . The water vapor precipitates a sediment from the fumes which, exactly like limestone precipitated from water, settles on the metal screen and causes blocking of the flow.

The intended purpose of the invention is to develop a device that can be used to remove harmful gases and dust at a temperature of up to  $800^{\circ}\text{C}$  from industrial gases and to improve the atmospheric and ground conditions around industrial sites. This goal has been obtained by inserting a gas probe into the chimney ; it is connected through a fumes analyzer, gas chromatograph, and electric transducers to an automatic control panel. The automatic control panel is connected to a servomotor which in turn is connected by a pipe to a pressurized tank equipped with an electrically controlled valve; within the tank there is a chemical solution. The pipe is outfitted with nozzles and is placed in the chimney draft.

The merit of the device is that it neutralizes harmful gases and at the same time compensates for chemical elements lacking in a given environment, a fact which has great significance for protecting humans, animals, and plants.

The invention is shown in schematic form in the illustration.



Schematic Diagram

The device has a gas probe(1) inserted in the mouth of the chimney (2) and is connected through fumes analyzer(3), gas chromatograph (4), and electric transducers (5) to automatic control panel (6). Automatic control panel (6) is connected to servomotor (7), which is connected by pipe (8) to pressurized tank (9) that is equipped with an electrically controlled valve (10). The tank contains a chemical solution. Pipe (8) with nozzles (11) are placed in the chimney draft (12).

The operating principle of this device is the following: gas probe (1) draws in the emitted gases that are directed by pipe (13) first of all to the fumes analyzer (3), then through gas chromatograph(4) to electric transducers (5). The pulses measuring the gas concentrations are transmitted by converters(5) to automatic control panel (6). Relays located in panel (6) activate electric valve (10) and allow

the chemical solution to flow from tank (9) into pipe (8). The solution of chemical elements is added depending on the chemical composition of the emitted gases and on the chemical elements lacking in a given environment. As a result of the neutralization of the emitted gases inert salts in the form of nitrates, phosphates, and other elements dissovable in water are created and they are used for fertilizing the ground. Based on investigations of the soil and atmosphere of the specified environment the amount and kind of chemical elements lacking in a given environment is determined every time.

#### Patent Specifications

The device for removing harmful gases and dust from industrial gases and for improving atmospheric and ground conditions around industrial sites is equipped with nozzles and is characterized by the fact that it has gas probe (1) placed in chimney (2) and is connected through fumes analyzer (3), gas chromatograph(4) and electric transducers (5) to automatic control panel (6); this in turn is connected to servomotor (7), connected through pipe (8) to nozzles (11), which are inserted in chimney draft (12) and to pressurized tank (9) containing a chemical solution; the tank is equipped with an electrically controlled valve (10).

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