

No. 725,352.

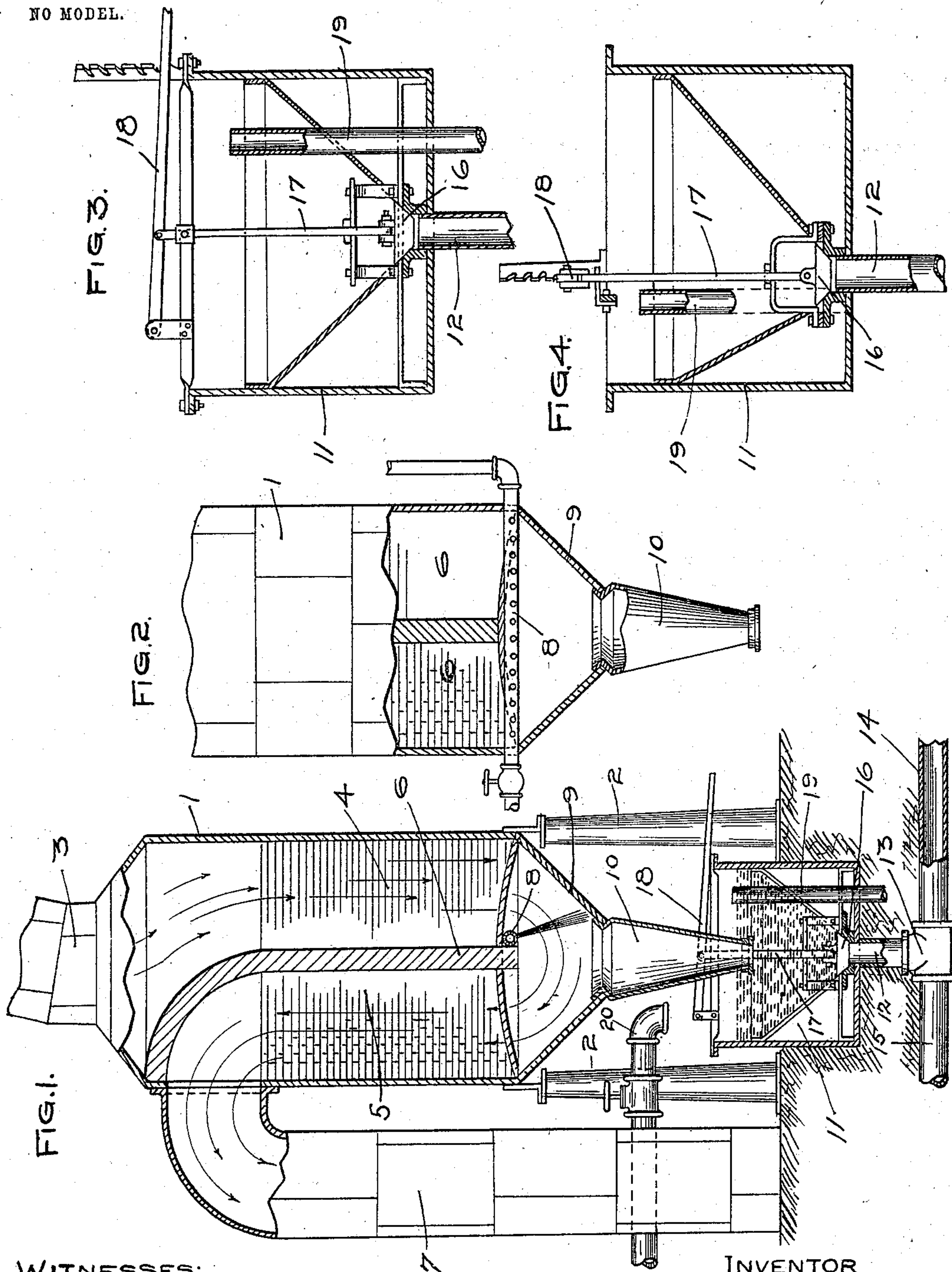
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E. J. McALEER.

APPARATUS FOR SEPARATING AND COLLECTING IMPURITIES FROM  
METALLURGICAL FURNACE GASES.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDWARD J. MCALEER, OF SHARPSVILLE, PENNSYLVANIA.

APPARATUS FOR SEPARATING AND COLLECTING IMPURITIES FROM METALLURGICAL-FURNACE GASES.

SPECIFICATION forming part of Letters Patent No. 725,352, dated April 14, 1903.

Application filed November 3, 1902. Serial No. 129,900. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD J. MCALEER, a citizen of the United States, residing at Sharpsville, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Separating and Collecting Impurities from Metallurgical-Furnace Gases, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide new and improved apparatus for removing and collecting dust, impurities, &c., carried in the gases or fumes given off from metallurgical furnaces, and particularly blast-furnaces.

In the accompanying drawings, which illustrate an application of my invention, Figure 1 is a part-elevational view and a part-sectional view of an apparatus constructed in accordance with my invention. Fig. 2 is a broken part-elevational and part-sectional view of the separating-chamber. Fig. 3 is an enlarged detail sectional view of collecting-tank, and Fig. 4 a similar view taken at right angles to view of Fig. 3.

Referring to the drawings, the separating-chamber 1 is supported by columns 2 and is preferably of the construction illustrated. Gases from a furnace or a set of furnaces are introduced into the separating-chamber at its top through an inlet-pipe 3 and pass downwardly and upwardly through passages 4 and 5, formed in the chamber 1 by the sides thereof and a dividing-wall 6. The gases, after their travel through the chamber, pass into a flue or passage 7, from whence they are conveyed to hot-blast stoves, boilers, &c., as may be desired. Conveniently placed within the separating-chamber is a slotted or apertured pipe 8, through which a fluid is discharged into the path of travel of the gases, thereby causing said gases to pass through the stream from said pipe. The bottom of the separating-chamber is preferably provided with inclined walls 9, which communicate with a discharge-nozzle 10. Discharge-nozzle 10 extends down into a receiving or collecting tank 11, into which the particles freed from the moving gases are precipitated. In practice tank 11 is kept supplied with a sufficient quantity of water, so that the lower end of

the discharge-nozzle will extend under the surface of the water a sufficient distance to overcome the gas-pressure. The removal of the dust, &c., which settles at the bottom of the tank is effected through discharge-pipe 12, which, as illustrated by Fig. 1, extends into a T-coupling 13. From the coupling the dust is conveyed through pipe 14 to any convenient point. It may sometimes be necessary in order to prevent clogging of the T and pipe 14 to employ a water-pressure. If so, water may be obtained from pipe 15. The discharge from the tank is controlled by a valve 16, the stem 17 of which is connected with a hand operating-lever 18.

19 is an overflow-pipe conveniently located within the tank.

For the purpose of maintaining a sufficient quantity of water in the tank 11, and particularly at the time when the dust is being removed from said tank, I introduce water thereto through a pipe 20, located directly over the top of said tank.

What I claim is—

1. An apparatus for removing impurities from blast-furnace gases and collecting the impurities, comprising, in combination with a separating-chamber having inlet and outlet openings, an open passage for the blast-furnace gases through the chamber formed by the walls of the separating-chamber and a centrally-disposed dividing-wall, a fluid-supply located in the separating-chamber through which the gases pass, a tank below the separating-chamber into which the fluid and impurities from the gases fall, and a valve for controlling the discharge from said tank, substantially as set forth.

2. An apparatus for removing impurities from blast-furnace gases and collecting the impurities, comprising, in combination with a separating-chamber having inlet and outlet openings, an open passage for the blast-furnace gases through the chamber formed by the walls of the separating-chamber and a centrally-disposed dividing-wall, a fluid-supply located in the separating-chamber through which the gases pass, a tank below the separating-chamber, a discharge-nozzle leading from the separating-chamber into the tank, and a valve for controlling the discharge from the tank, substantially as set forth.

3. An apparatus for removing impurities from blast-furnace gases and collecting the impurities, comprising, in combination with a separating-chamber having a fluid-supply located in the separating-chamber through which the gases pass, a tank below the separating-chamber, a discharge-nozzle leading from the separating-chamber into the tank, means for supplying a fluid to the tank, said  
5  
10 discharge-nozzle extending below the surface

of the fluid in the tank, a discharge-pipe leading from the tank, a valve for controlling the discharge from the tank, and means for operating the valve, substantially as set forth.

In testimony whereof I affix my signature 15  
in presence of two witnesses.

EDWARD J. McALEER.

Witnesses:

MARGARET HUGHES,  
CLYDE MINNIM.