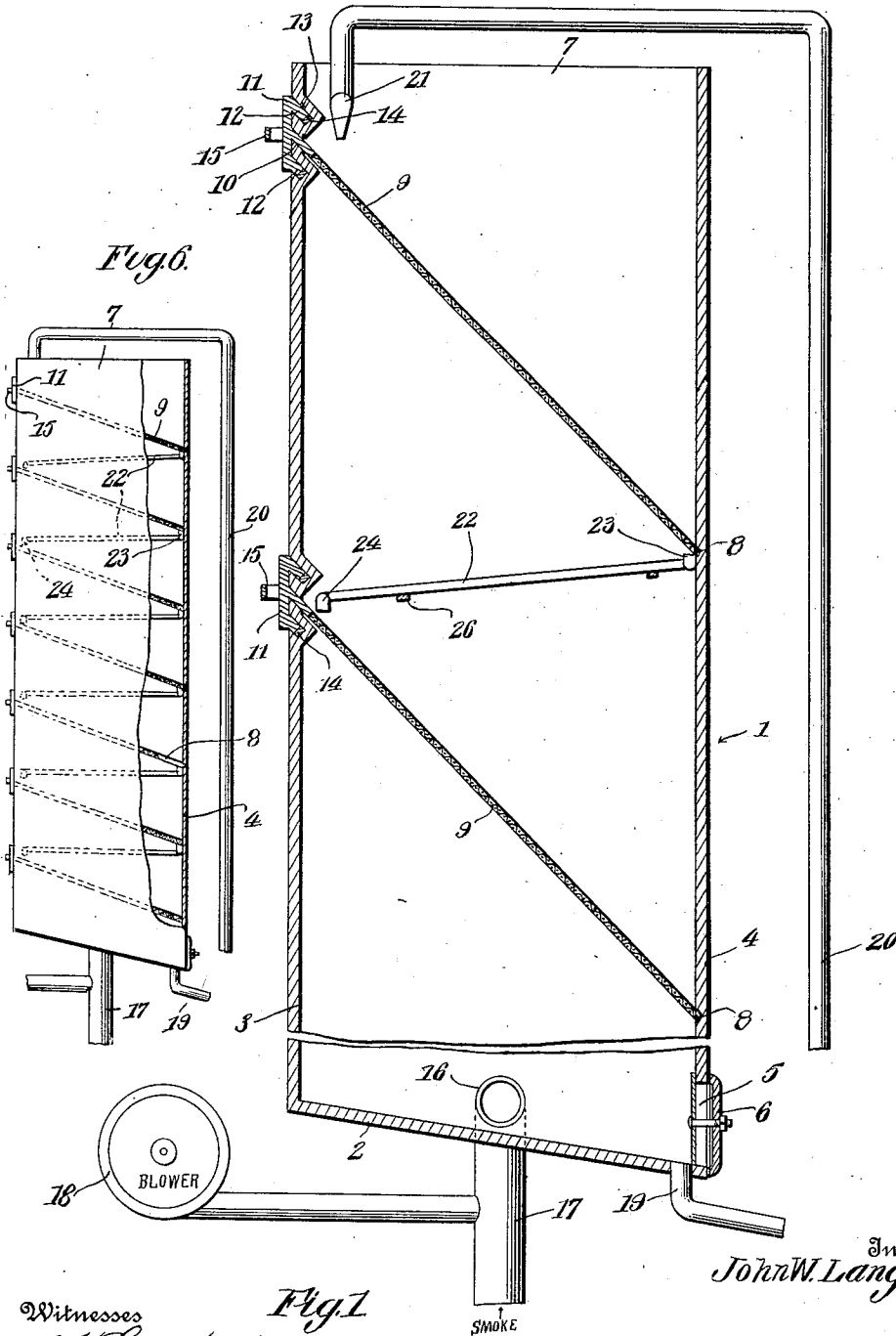


J. W. LANG.  
 APPARATUS FOR COLLECTING SMOKE, GASES, AND THE LIKE.  
 APPLICATION FILED FEB. 25, 1911.

999,114.

Patented July 25, 1911.

2 SHEETS-SHEET 1.



Witnesses  
*J. H. Crawford,*  
*James Moore*

Fig. 1

Inventor  
*John W. Lang,*

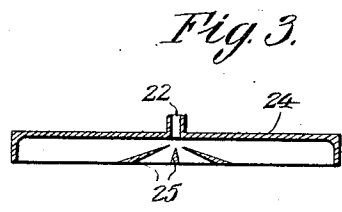
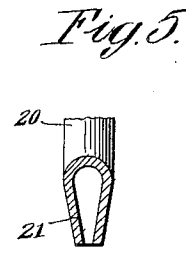
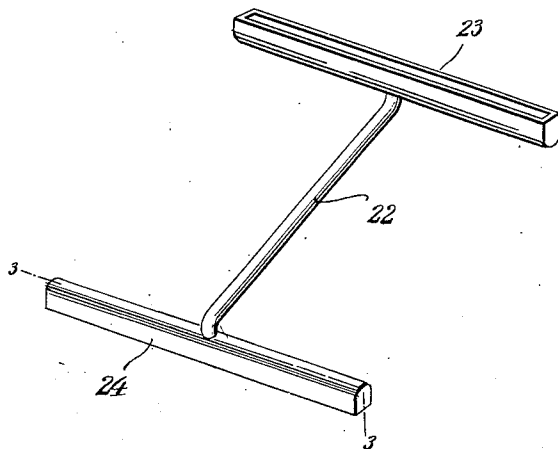
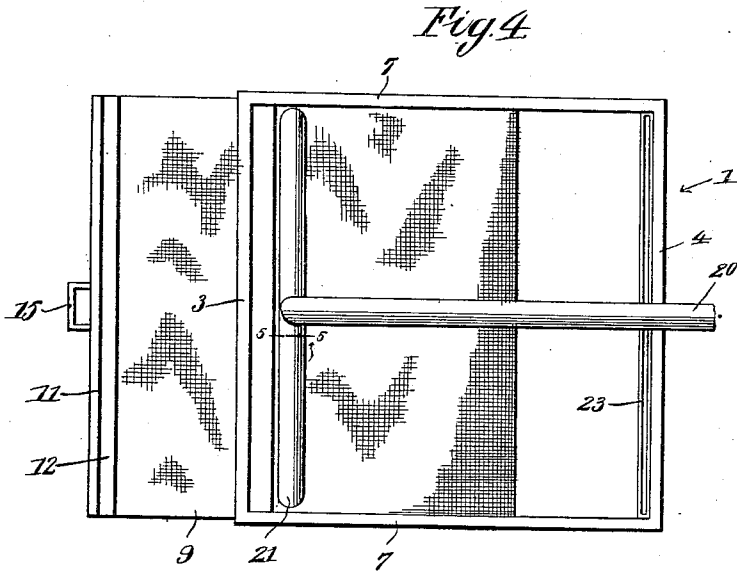
By *Victor J. Evans*  
 Attorney

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Witnesses  
*J. H. Crawford*  
*James [unclear]*

Inventor  
*John W. Lang*

By *Victor J. Evans*  
 Attorney

# UNITED STATES PATENT OFFICE.

JOHN W. LANG, OF PORTERSVILLE, CALIFORNIA.

APPARATUS FOR COLLECTING SMOKE, GASES, AND THE LIKE.

999,114.

Specification of Letters Patent. Patented July 25, 1911.

Application filed February 25, 1911. Serial No. 610,749.

*To all whom it may concern:*

Be it known that I, JOHN W. LANG, a citizen of the United States of America, residing at Portersville, in the county of Tulare and State of California, have invented new and useful Improvements in Apparatus for Collecting Smoke, Gases, and the Like, of which the following is a specification.

This invention relates to apparatus for collecting smoke, gases and the like from furnaces, the object of the invention being to provide a tank or receptacle in which is located a plurality of separating screens arranged in superimposed relation and located immediately in the path of the smoke and to further provide means whereby the smoke will be forced by a suitable blower through such screens.

Another object of the invention is to provide in addition to the separating screens a water spray apparatus which is designed to discharge the water onto the screens so that the water, during operation of the apparatus, will be disposed substantially in thin superimposed sheets entirely across the upper surfaces of the screens, the water acting to collect the smoke and gases and to offer thereto in their travel a certain resistance so that the action of the screens will be most effective.

Another object of the invention is to provide in the construction of the apparatus means whereby the screens may be arranged at an angle with respect to the top of the apparatus so that when the water is discharged directly onto the screens it will flow by gravity to the lowest points of the screens and then be discharged therefrom and conveyed by suitable conduits or ducts to the next adjacent screens.

Another object of the invention is to provide in the construction of the tank and screens means whereby the latter can be conveniently removed when it is desired to clean them of foreign matter.

Another object of the invention is to provide in the tank of the apparatus an inclined bottom whose lowest end is disposed directly in line with a clean-out opening, which latter is arranged in one of the side walls of the tank and to further arrange the discharge end of the water spray so that it will be disposed above the highest point of the bottom of the tank, allowing the water to

be discharged directly onto the bottom when the screens are removed and thereby flush the bottom and cause the sediment therein to be discharged through the clean-out opening.

In the drawings, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a vertical section through my improved apparatus, parts being shown in full lines. Fig. 2 is a perspective view of one of the conduits. Fig. 3 is a section on line 3—3 of Fig. 2. Fig. 4 is a plan view of the tank showing one of the screens in a partly withdrawn position. Fig. 5 is a section through a portion of the water conveying tube. Fig. 6 is a side view of the apparatus with parts in section.

The apparatus embodies a vertically disposed tank 1 which is open at its upper end, as shown, and closed at its lower end by the bottom 2, which latter extends downwardly at an angle from the front wall 3 toward the rear wall 4 so that the lowest end of the bottom is located immediately in line with the clean-out opening 5. The opening 5 is covered by a suitable handhole plate 6 providing at the opening a perfect water tight connection.

The side walls 7 and the wall 4 are formed to provide suitable guide grooves 8 in which the separating screens 9 are slidably and removably mounted. These screens are arranged in superimposed relation in the tank and may be placed as close to each other as may be found most desirable, it being understood that any suitable number of screens may be provided and the tanks may be made of any size according to the size of the furnace and the volume of smoke which would ordinarily issue therefrom, it being obvious that a furnace of relatively large proportion would require in the construction of the apparatus a greater number of screens than would be required in the construction of an apparatus employed in connection with a smaller furnace. The grooves 8 hereinabove described extend downwardly from the wall 3 toward the wall 4, preferably at an angle approximately of 45° with respect to the top of the tank. The wall 3 is provided with openings 10 in line with the grooves 8 so as to permit the screens to be entirely removed when it is desired to clean them of foreign matter. At the front end,

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each screen is provided with a member 11 having flanges 12 which extend into correspondingly formed concavities 13 in the wall 3 and which bear against suitable packing washers 14 so as to effect a tight joint between the member 11 and the tank. Each member 11 is provided with a suitable handle 15.

Adjacent to the lower end, and immediately beneath the lowermost screen, the tank has formed therein an opening 16 in which is fitted the upper end of a smoke conveying tube 17, it being understood that the tube may be connected in any suitable well known manner with the flue of the furnace. In order to cause the smoke when emanating from the tube 17 to be discharged throughout the tank and through all of the screens, I connect with said tube a suitable blower which is conventionally shown at 18 in Fig. 1 of the drawings, the function of the blower being to create a draft or suction in the tube 17, as is obvious.

The bottom 2 of the tank, at the lowermost point thereof, is provided with a drain pipe 19 from which the water may be discharged. A water conveying tube 20 which may be connected with any suitable water source has its discharge end 21 entering the tank 1 immediately above the uppermost screen and directly adjacent to the highest point of the screen so that the water when discharged onto the screen will flow by gravity in thin sheet form to the lowermost point of the screen. The screens are connected with each other by conduits 22, each being provided with an upper head 23 and a lower head 24. The heads 23 are disposed beneath the lower points of the screens and the heads 24 are disposed above the adjacent screens. The heads 23 and 24 are relatively long and are substantially coextensive with the width of the screens. These conduits are preferably extended at an angle opposite to the angle of the screens 8 so that the water will be free to flow by gravity therein. The lowermost heads 24 are provided with deflecting ribs or vanes 25 which divide the water as it is discharged from the conduits so as to cause the water to be equally distributed on the screens throughout the width thereof. The tank is provided with any suitable supports 26 operatively

holding the conduits with proper respect to the screens. 55

It is believed that the operation of the apparatus described herein will be readily understood, but it may be stated that in operation, the smoke emanating from the tube 17 will be discharged into the tank at the lowermost point thereof, whereupon, it will be forced in an upward direction through the superimposed screens and through the superimposed sheets of water, thereby thoroughly condensing the smoke and extracting the gaseous impurities. When the screens 9 and the plates 6 are removed the water from the conveying tube 20 may be discharged directly into the tank where it will fall upon the bottom 2 at the highest point thereof, thereby effectively flushing the apparatus and causing a thorough removal and discharge of the sediment. 60 65 70

While the apparatus described herein is particularly adapted for use in the extraction of gases and impurities emanating from furnaces it will of course be understood that it can be used just as advantageously for collecting gases, vapors and foreign particles in the air. 75 80

I claim:—

Apparatus of the class described comprising a receiver, means for conveying a gaseous body thereto, gas collecting means embodying superimposed foraminous members arranged in the receiver, means for discharging liquid onto the foraminous members, the said foraminous members each being arranged at an angle so as to cause the liquid when discharged thereonto to travel downwardly thereon, and conduits connecting the foraminous members with each other and provided with head portions, one of which is disposed beneath one of the foraminous members, the other being disposed above the foraminous member immediately below and provided with a deflecting element to spread the liquid and to cause the same to be equally distributed upon the last named foraminous member. 85 90 95 100

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

JOHN W. LANG.

Witnesses:

FRED ZIEGLER,  
W. J. McNEIL.