No. 771,390. PATENTED OCT. 4, 1904.

P. PLANTINGA.

GAS PURIFYING APPARATUS.

APPLICATION FILED SEPT. 17, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. I.

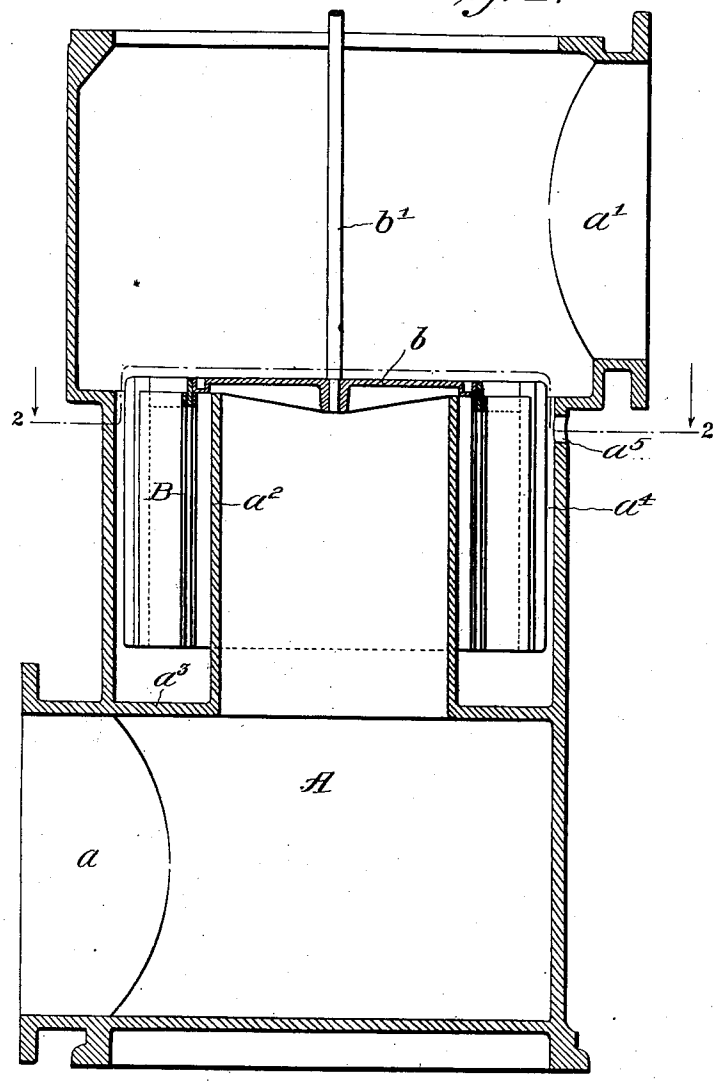


Fig. V.

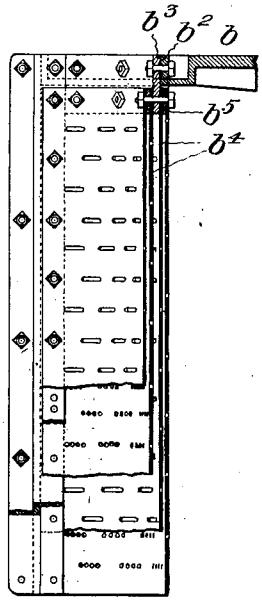
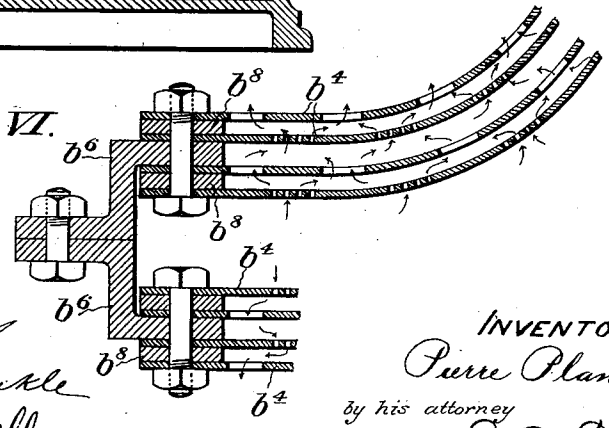


Fig. VI.



WITNESSES:

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G. W. Saywell

INVENTOR:

Pierre Plantinga,

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. II.

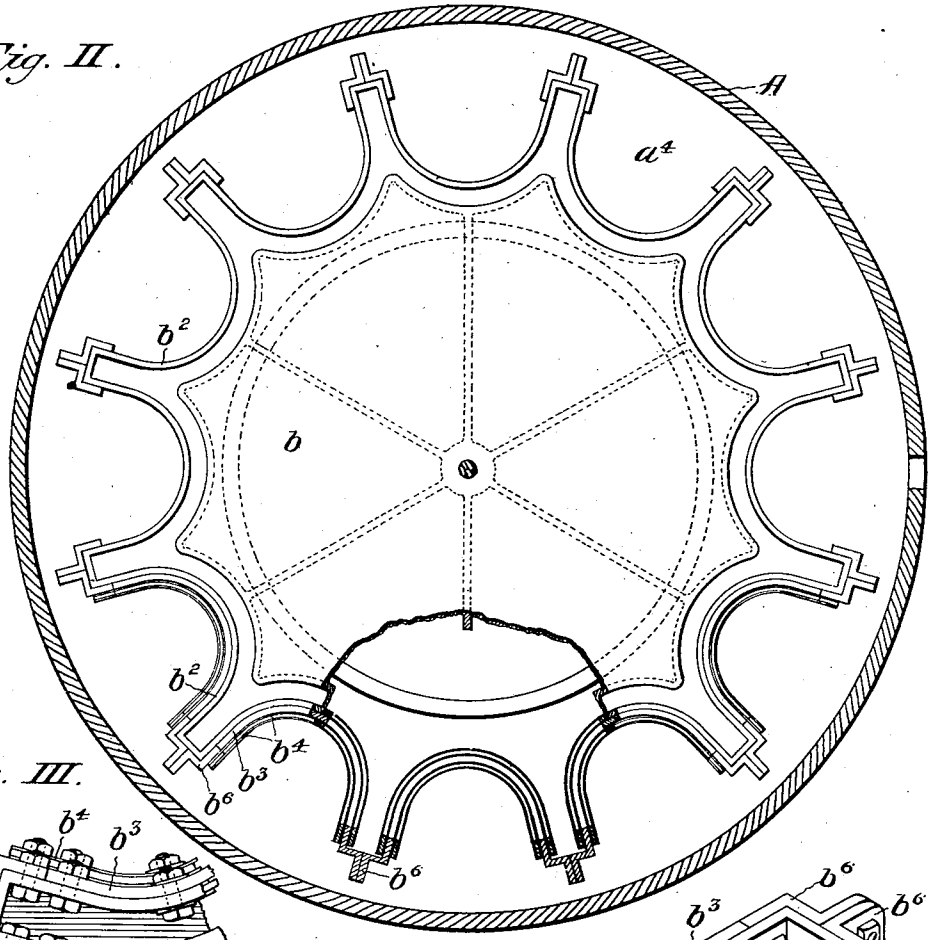


Fig. III.

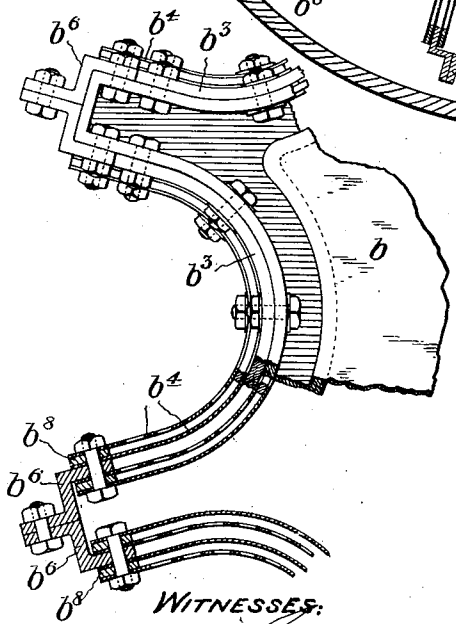
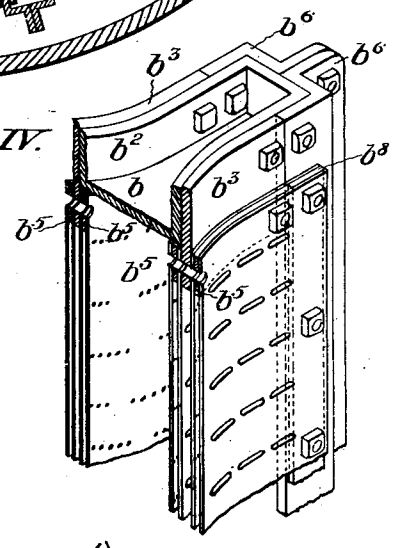


Fig. IV.



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No. 771,390. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

PIERRE PLANTINGA, OF CLEVELAND, OHIO.

GAS-PURIFYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 771,390, dated October 4, 1904.

Application filed September 17, 1903. Serial No. 173,571. (No model.)

To all whom it may concern:

Be it known that I, PIERRE PLANTINGA, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Gas-Purifying Apparatus, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to apparatus for removing tarry substances from gases, and particularly to the condensing-drums used in such apparatus.

The object of said invention is to provide a drum construction which will effectually remove the tarry substances and at the same time be capable of being taken apart for the purpose of gaining ready access to its interior.

Said invention consists of means hereinafter fully described, and particularly set forth in the claim.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a diagrammatic vertical axial section of an apparatus embodying my invention. Fig. II represents, on an enlarged scale, a horizontal section, showing the condensing-drum partly in plan and partly in horizontal section, side plates being shown as removed from part of the drum. Fig. III represents, on a still further enlarged scale, a view of a portion of such drum partly in plan and partly in horizontal section. Fig. IV represents a perspective view of a portion of said drum on such further enlarged scale. Fig. V represents a vertical axial section of a part of said drum, showing portions of the side plates broken away; and Fig. VI represents, on an enlarged scale, a horizontal section of a portion of said drum.

The general construction and operation of the apparatus, diagrammatically illustrated in Fig. I, is old and well known to those skilled in the art. Such construction and operation may, however, be briefly described herein and is as follows: A gas-duct A is provided with an inlet a and an outlet a' and is provided with an axial interior cylindrical wall a^2 and a connecting-flange a^3, forming an intermediate annular chamber a^4. Into this chamber depends a hollow drum B, supported from and closed at the top by a plate b, the sides of the drum consisting of a plurality of parallel condensing-plates provided with perforations through which the gases are forced to flow. These plates condense the tarry substances, which flow downwardly into the annular chamber a^4, the top of which is provided with an overflow a^5, which maintains a constant level of the tar in the chamber. The drum is suspended by means of a rod b' and is suitably counterbalanced, the counterweights not being shown. The pressure of the gas passing up the duct formed by wall a^2 hence regulates the amount of gas flowing over the top of the latter, the gas, as a result of its pressure upon the lower surface of the top plate b, raising or lowering the drum, and consequently withdrawing the plates from or plunging them into the tar, thus changing the amount of condensing-surface exposed to the passage of the gas. In such described structure the drum heretofore used has been of plain cylindrical form, having non-detachable side plates. In my improved form of drum, however, I adopt a different structure, presenting advantages not embodied in such cylindrical drum, such improved structure being hereinafter fully described.

The top plate b of my improved drum is recessed in its plan outline, Fig. II, and its periphery is provided with a raised flange b^2. In each recess of such plate is bolted a hanger-plate b^3, Fig, IV, which extends downwardly some distance beyond the bottom of plate b, as shown. Bolted to the lower portion of such hanger-plate are four curved side plates b^4 b^4, &c., two upon the outside and two upon the inside of said hanger-plate, the upper edge of the two outside plates being separated by means of a separating-strip b^5 and the two inside plates being similarly separated by means of a similar strip b^5, as shown in said

figure. Upon the outer ends of the projecting peripheral portions of plate b are bolted two Z-bars b^6, which fill the space between the outer ends of the two intermediate plates b^4, as shown in Figs. III and VI, the space intermediate of the ends of the two outer and two inner plates being filled by vertical separating-strips b^8, Figs. III and VI. These plates extend outwardly a sufficient distance to permit of their being bolted upon the Z-bars, as shown. As shown in Figs. V and VI, the condensing-plates are perforated, alternate plates being provided with small holes and slots. The arrangement of these holes and slots is, however, well known to those skilled in the art, and hence need not be further described herein. It will hence be seen from the above-described construction that any four plates located in a single concave indentation on the side of the drum may be readily removed if such removal be required. The general recessed structure of the drum-shell affords a maximum condensing-surface, thus rendering the construction more efficient than would be the case if such drum were made, as heretofore, of general cylindrical shape.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by the following claim or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

In means for purifying gases, a drum consisting of a frame having concaved peripheral portions, and a plurality of curved perforated condensing-plates removably secured to each such portion.

Signed by me this 31st day of August, 1903.

PIERRE PLANTINGA.

Attest:
D. T. DAVIES,
G. W. SAYWELL.