

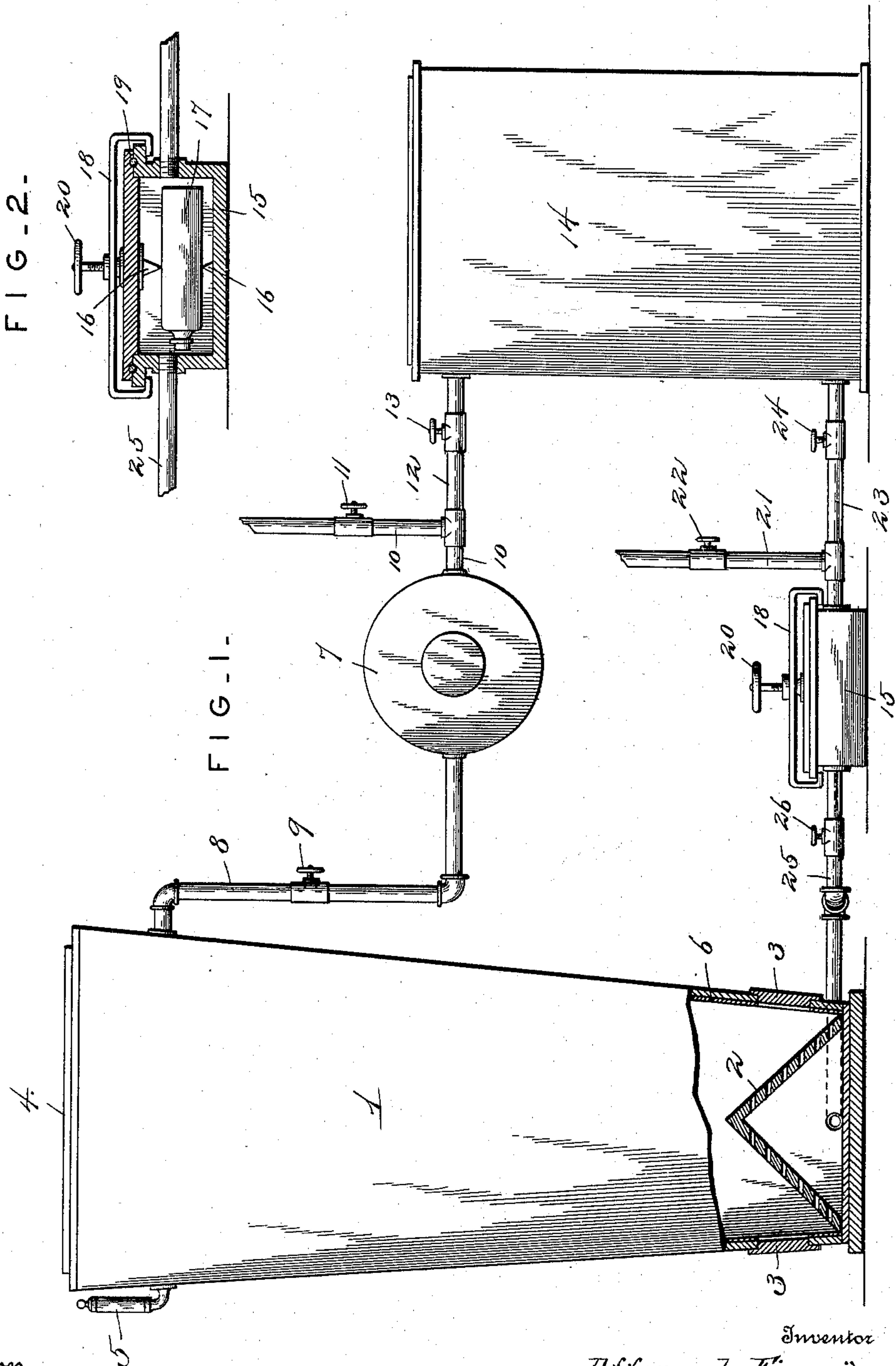
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Patented Oct. 18, 1898.

A. DE FIGANIERE.  
BROMINATING APPARATUS.

(Application filed Apr. 4, 1898.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

AFFONSO DE FIGANIÈRE, OF NORRISTOWN, PENNSYLVANIA.

## BROMINATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 612,716, dated October 18, 1898.

Application filed April 4, 1898. Serial No. 676,399. (No model.)

*To all whom it may concern:*

Be it known that I, AFFONSO DE FIGANIÈRE, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Brominating Apparatuses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in brominating apparatus.

The object of the invention is to provide a simple and efficient apparatus whereby auriferous ores may be conveniently and economically subjected to the solvent action of bromin.

The invention consists, essentially, of the combination of an ore vessel adapted to be closed and sealed, means for exhausting air from said vessel, a fume-generator connected with the ore vessel, and means for cutting off the exhaust and for cutting off the inlet to the fume-generator.

In the drawings forming a part of this specification, Figure 1 is a diagram illustrating my improved apparatus. Fig. 2 is a section of the fume-generator.

1 is the ore vessel, which may be of any convenient size and shape. I have represented the same as being rectangular in cross-section and about two feet square at the bottom, three feet square at the top, and about eight feet high. This vessel is provided at the bottom with a grate or perforated false bottom 2. It is also provided with discharge-openings closed by means of doors or shutters 3 with a removable top or lid 4 with a glazed peep-hole or sight-gage 5, and is preferably provided with a lining 6, consisting of a coating compound, such as described in my Patent No. 401,014, dated April 9, 1889. Any suitable lining, however, which will not be affected by the fumes of bromin may be used. Leading from the top of the ore vessel to a blower or pump 7 or other means of exhaust is an exhaust-pipe 8, provided with a cock 9. Leading from the blower or pump is a pipe 10, discharging into the atmosphere, provided

with a cock 11. Also leading as a branch of pipe 10 is a pipe 12, provided with a cock 13, discharging into a condenser 14.

15 is a fume-generator consisting of a vessel or gland provided with rigid jaws or projections 16, adapted to be brought together in such a manner as to crush a bottle 17 containing bromin. This gland is provided with a cover connected with the vessel by means of a yoke 18, the cover being rendered gas-tight by means of a packing consisting of a greased cord or the like 19, and being held to position by means of a hand-screw 20, which also operates to bring the jaws 16 together sufficiently to crush the bromin-bottle, as before indicated. Leading from the atmosphere to this fume-generator is a pipe 21, having a cock 22. There is also a pipe 23 leading from the condenser to the generator, the pipe having a cock 24. Discharging from the generator to the bottom of the ore vessel is a pipe or conduit 25, provided with a cock 26.

The operation of my improved apparatus is as follows: Auriferous ore freed from sulfur by roasting, desulfurization, or otherwise is placed in the ore vessel until it is nearly filled, the top 4 and the doors or closures 3 being luted in order to render the vessel airtight. Cocks 9 and 11 are opened and the blower started to exhaust the air from the vessel, after which the bottle of bromin arranged in place within the fume-generator is crushed by operating the hand-wheel 20, whereupon cocks 22 and 26 are opened, and by reason of the exhaustion in the ore vessel the fumes of bromin pass into and fill the ore vessel. When this has been done, which will be readily ascertained by watching the sight-gage or glazed peep-hole 5, cocks 9 and 22 are closed and the ore is left for the proper period—about two hours, more or less—whereupon the cock 11 is closed, cocks 9 and 13 opened, and the blower put in motion to exhaust the excess of fumes in the ore vessel and conduct them to condenser 14, from which they may be drawn at any time desired by opening cock 24 in branch pipe 23.

It should be understood that the pump and the blower and, indeed, all of the parts of the



apparatus are to be made of or lined with such substance as will not be destroyed by the fumes of bromin.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A brominating apparatus involving the combination of an ore vessel, means for exhausting air from the ore vessel, and a fume-  
10 generating chamber having external means for opening a vessel containing bromin in said chamber and means for the admission of air, substantially as described.

2. A brominating apparatus involving the  
15 combination of an ore vessel, means for exhausting air from said ore vessel, means for cutting off the air, a fume-generating chamber, means for opening a vessel containing bromin in said chamber, an air-inlet, means

for admitting fumes to the ore vessel, and  
20 means for retaining the fumes within the ore vessel, substantially as described.

3. A brominating apparatus involving the combination of an ore vessel, means for ex-  
25 hausting air from said ore vessel, a fume-generator for supplying fumes to the vessel, and a condenser connected with the exhaust for receiving surplus fumes and connected with the fume-generator for conducting said  
30 fumes to the ore vessel, substantially as described.

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

AFFONSO DE FIGANIÈRE.

Witnesses:

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