

R. THOMAS.
MANUFACTURE OF GAS FROM GARBAGE.
APPLICATION FILED MAR. 15, 1910.

969,733.

Patented Sept. 6, 1910.

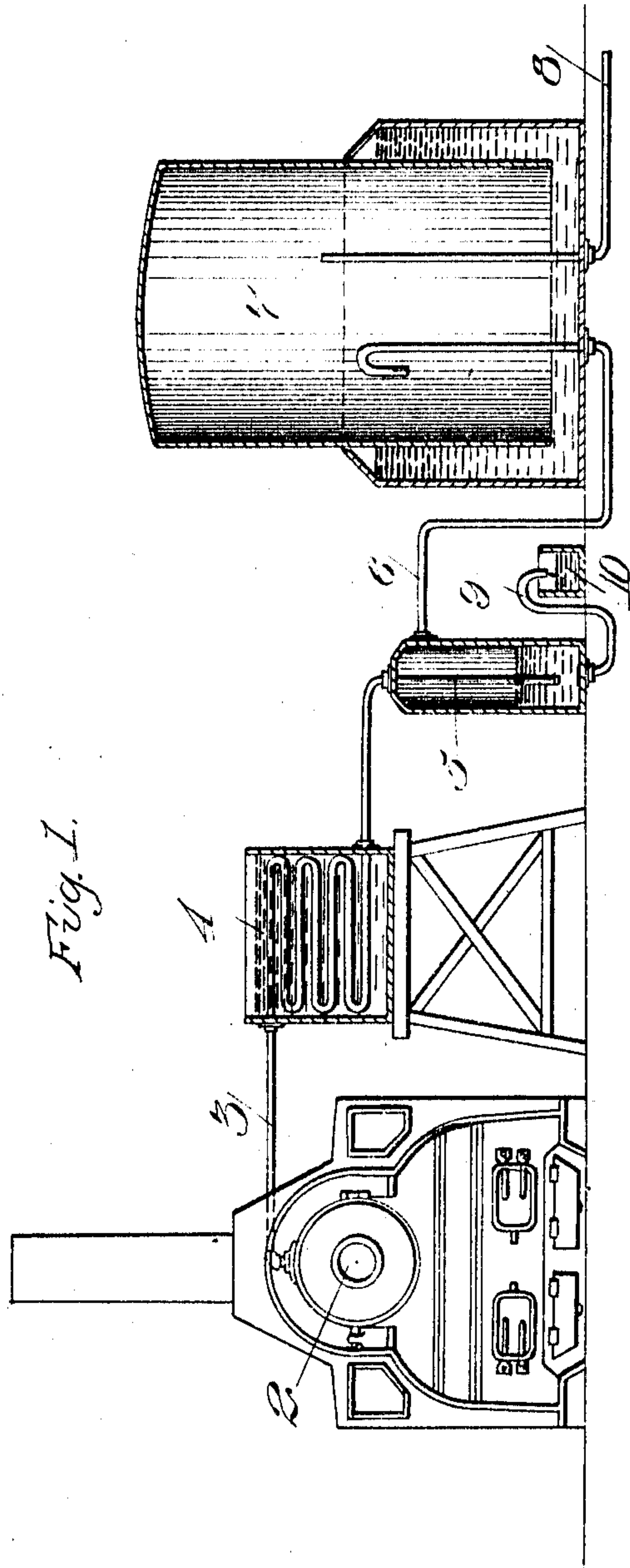


Fig. 1.

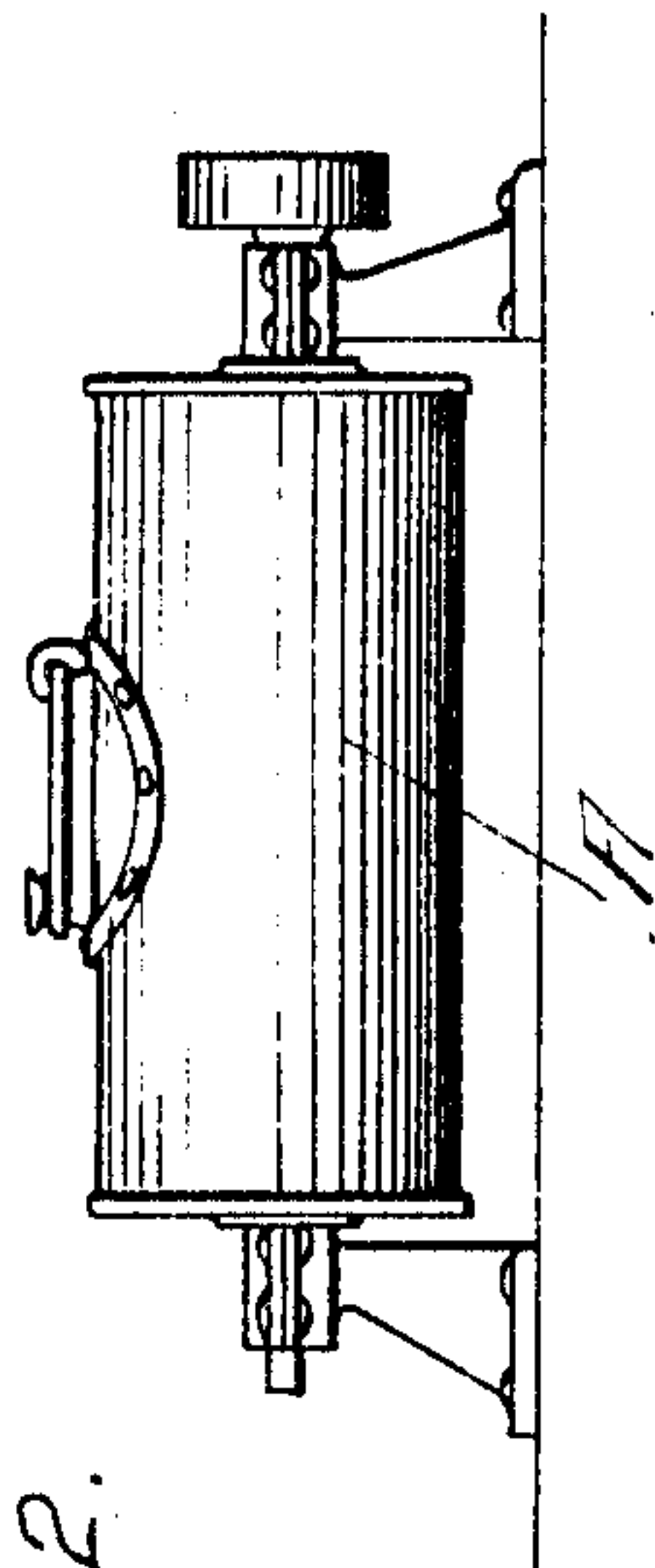


Fig. 2.

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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF GAS FROM GARBAGE.

969,733.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed March 15, 1910. Serial No. 549,496.

To all whom it may concern:

Be it known that I, ROBERT THOMAS, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented new and useful Improvements in Manufacture of Gas from Garbage, of which the following is a specification.

My invention relates to improvements in the manufacture of gas from garbage, and to produce by distillation a gas which is suitable for fuel and illuminating purposes, and a residue which may afterward be employed for various purposes for which such residue may be suitable.

My invention consists in the mixing and combination with the garbage of a certain proportion of sodium carbonate, sulfate of iron, and chlorid of ammonia, and with a proportion of water, and the subsequent distillation of the mixture, and the separation of the gas thus produced from the remaining residue.

In the accompanying drawing, Figure 1 is a part sectional view and part elevation of an apparatus suitable for carrying out my invention. Fig. 2 is a side elevation of the revoluble mixer.

In carrying out my invention I take of sodium carbonate, (known as soda ash) of 48 or 58 per cent. strength, a proportion such as 2 lbs. of sulfate of iron, $\frac{1}{2}$ of a lb., and of chlorid of ammonia, $\frac{1}{2}$ of a lb. These substances are intimately mixed with the organic matter of garbage, which has been previously separated from the inorganic matter, and moisture either contained or added to make up about 75 per cent. of the mass, the whole amounting to proportionally ten lbs. These materials are thoroughly incorporated in a mixer, and afterward are placed in a retort, and heated to a point where the gas will be separated out and conveyed through the usual cooling, washing and separating mechanism.

I have herein shown an apparatus by which this process may be carried out, in which Fig. 1 shows a mixer A revoluble upon an axis, and having an opening through which the material may be introduced, said opening being afterward hermetically closed and the apparatus revolved until the mixing is complete. From this point it is then placed in a retort, as at 2, and subjected to the heat of a furnace, the

temperature being raised until the gas begins to pass off through the pipe 3. From this it passes through a condenser 4, and thence the pipe discharges into a well 5 in which the liquid residue is received, while the gas rising through it, passes out through the pipe 6, thence through the water-seal, and into the gasometer 7, from which it may be withdrawn for use through a pipe as at 8. The residue from the chamber 5 may pass out through the pipe 9, and into a receiver 10.

It will be understood that this apparatus represents any suitable variation which may be profitably used for the operation.

The action of the sodium carbonate, sulfate of iron, and chlorid of ammonia, is such as to destroy the odors arising from the garbage, and the action of these ingredients when distilled in the mixture, produces a continuous flow of gas, which is comparatively pure, and of high illuminating or heating power.

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

1. The herein described improvement in manufacturing gas from garbage, said improvement consisting in first separating the organic from the inorganic portions of the garbage, then mixing with said organic substances a proportion of sodium carbonate, sulfate of iron and chlorid of ammonia, and finally distilling the mass in a suitable retort, and separating the gas from residue which distils over with it.

2. The improvement in manufacture of gas from garbage, said improvement consisting in mixing sodium carbonate, sulfate of iron, and chlorid of ammonia with the organic matter of the garbage, and a proportion of moisture, subjecting the mass to destructive distillation in a retort, passing the volatile products through a condenser, separating the gases from the remaining residue, passing the gas through a water-seal into a gasometer, and the residue into a separate receptacle.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT THOMAS.

Witnesses:

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