

(No Model.)

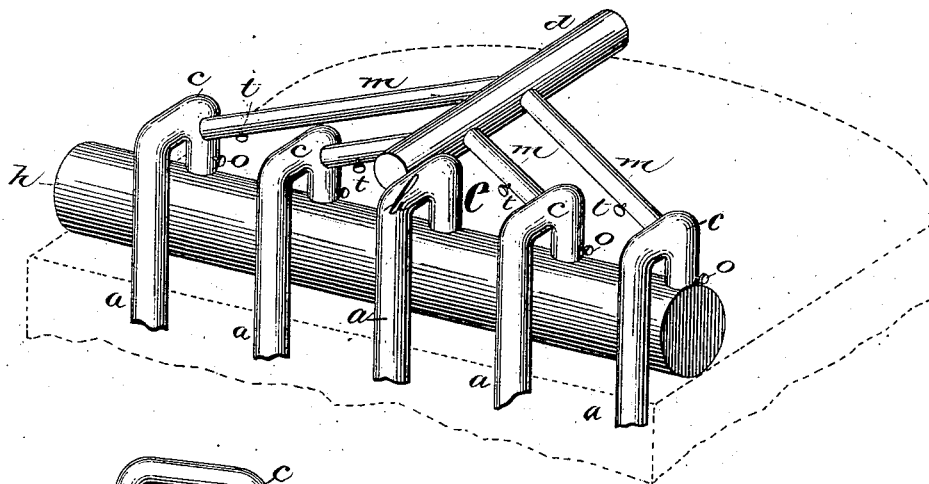
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PROCESS OF AND APPARATUS FOR MAKING COAL GAS.

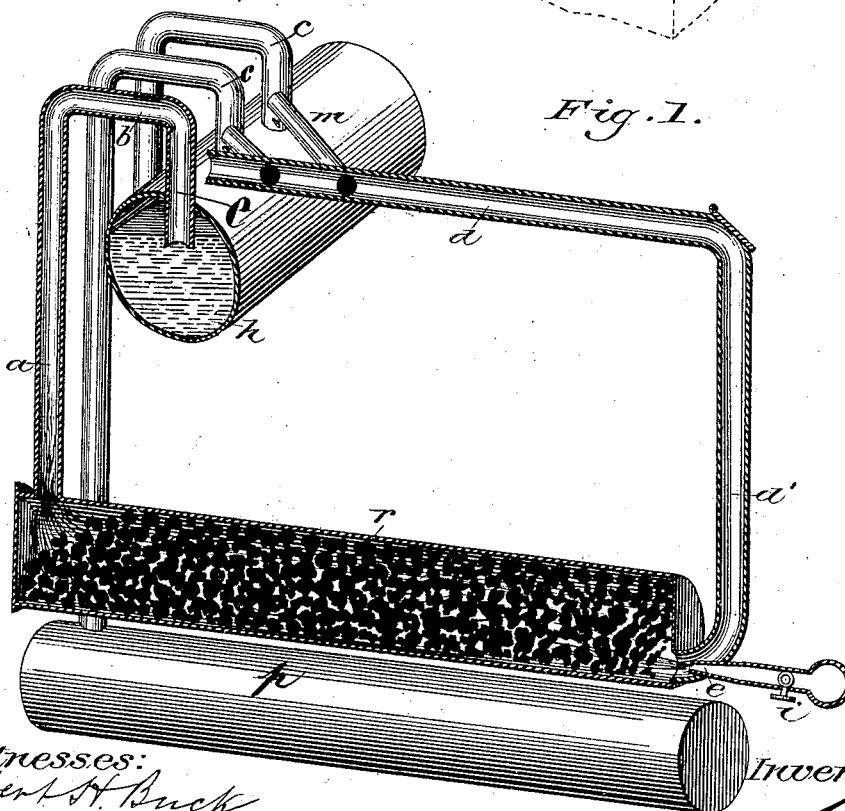
No. 266,326.

Patented Oct. 24, 1882.

*Fig. 2.*



*Fig. 1.*



Witnesses:  
Robert H. Buck  
John Kaprio

Inventor:  
Anton Stamm

# UNITED STATES PATENT OFFICE.

ANTON STAMM, OF LEADVILLE, COLORADO, ASSIGNOR OF ONE-SIXTEENTH  
TO CHARLES W. BUCK AND ROBERT H. BUCK, BOTH OF SAME PLACE.

## PROCESS OF AND APPARATUS FOR MAKING COAL-GAS.

SPECIFICATION forming part of Letters Patent No. 266,326, dated October 24, 1882.

Application filed November 7, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ANTON STAMM, a citizen of the United States, residing at Leadville, in the county of Lake and State of Colorado, have  
5 invented certain new and useful Improvements in Process of and Apparatus for Making Coal-Gas; and I declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to  
10 which it appertains to make and use the same.

Hitherto the tar vapors that arise from freshly-charged coal-gas retorts have been driven into other more highly heated retorts by means of steam-jets and by their own pressure; but  
15 gas produced with the admixture of steam contains a large proportion of non-luminous ingredients, which reduce the candle-power of the gas; and if the tar-vapors are made to pass through other retorts by their own pressure  
20 or tension, then they are not removed fast enough from the generating-retorts to relieve the latter promptly of the pressure.

The object of my invention is to inject the tarry vapors successively from a number of  
25 freshly-charged gas-retorts into a regenerating and decomposing retort filled with incandescent coke by means of a jet of highly-compressed coal-gas used as an injecting agent. I attain this object by the apparatus shown in  
30 the accompanying drawings, in which—

Figure 1 is a vertical section, showing also some parts in perspective; and Fig. 2 is a perspective view of the top and part of the front of the apparatus.

35 Similar letters refer to similar parts throughout the two views.

To carry my invention into effect, I connect the dip-pipes *c c c c* with the lateral pipes *m m m m*, and these latter with the pipe *d*. The  
40 pipe *d* lies horizontally upon the gas-oven, reaching from the water-main to the rear end of the oven. Thence it turns downward, extending to the level of the bottom of the retort *r*. Here it bends inward and enters the  
45 rear end of the said retort *r* by the opening *E*. At the inward bend the pipe *d* is met and penetrated by the nozzle of the injector *j*. The horizontal pipe *s* (behind the retort *r*) is filled with highly-compressed coal-gas. The gas is  
50 taken either from the gas-holder or from the

pipe *C*, and is compressed in a (water-jacketed) cylinder with a piston worked by a steam-engine. On opening the stop-cock *i* the compressed coal-gas issues from the nozzle of the injector and forms a very forcible jet in the  
55 middle of the lower end of the pipe *d*. *o o o o*, Fig. 2, are valves for the opening and closing of the dip-pipes *c c c c*, and *t t t t* are valves for the lateral pipes *m m m m*.

The mode of operation is as follows: The  
60 retort *r*, being the upper one of a bench of retorts—*p*, *q*, &c.—is filled with coke once every day, and is constantly kept at a bright-red heat. The gas evolved in *r* passes through the pipes *a*, *b*, and *c* directly into the water-main.  
65 The other retorts are filled with coal, say, every six hours each. If there are six retorts besides *r* in the bench, then one of the retorts is filled every hour. During the first hour of  
70 distilling the coals in any one of the six retorts the valves of the respective dip-pipe *c* and lateral pipe *m* (which are in communication with the last-charged retort) must be so  
75 arranged as to allow the tarry vapors from the said retort to pass freely into the pipe *d*. After one hour's distillation the valves are reversed, so that the now perfect gas from the  
80 said retort can pass directly from the respective dip-pipe *c* into the hydraulic main. Then another one of the six retorts is charged with  
85 fresh coal, and the valves of its dip-pipe *c* and lateral connecting-pipe *m* are so placed as to allow the tar-vapors from the said retort to pass freely into the pipe *d*, &c. Thus the six  
90 retorts are charged one after another at intervals of one hour, and the vapors from each during the first hour's distillation are made to pass into the connecting-pipe *d* by closing the valve *o* in the respective dip-pipe *c* and by opening the valve *t* in the respective lateral connecting-pipe *m*. In the pipe *d* the tar-vapors  
95 are drawn downward by the induced current caused by the action of the gas-jet from the injector *j*, and after arriving at the lower end of the pipe *d* they are forcibly injected into  
100 the rear part of the retort *r* and driven through the whole length of the retort by the same injecting jet of compressed gas. In the retort *r* the vapors are converted into a fixed gas, which passes directly to the hydraulic main.

Now, I do not claim, broadly, the conversion of the tarry vapors given off from fresh charges in coal-gas retorts into fixed gas by blowing them into other more highly heated retorts  
5 than those from which they have arisen, nor the reciprocal action of twin retorts in their distilling and regenerating operations, nor the application of steam as the agent and material for injecting the tarry vapors.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improvement in the process of manufacturing gas which consists in converting the tarry vapors given off from a fresh charge of  
15 bituminous coal during the early part of the distillation into a fixed gas by injecting such

vapors by a jet of coal-gas under pressure into and through a mass of incandescent coke in a separate retort, as hereinbefore described.

2. In a plant for manufacturing coal-gas, the  
20 combination, with the distilling-retorts *p*, &c., the stand-pipes *a a*, &c., the dip-pipes *c c c c*, and the hydraulic main *h*, of the connecting-pipes *m m m m* and *d*, provided with valves, the injector *j*, and the retort *r*, all substan-  
25 tially as described, and for the purpose specified.

ANTON STAMM.

Witnesses:

H. B. METCALF,  
ROBERT H. BUCK.