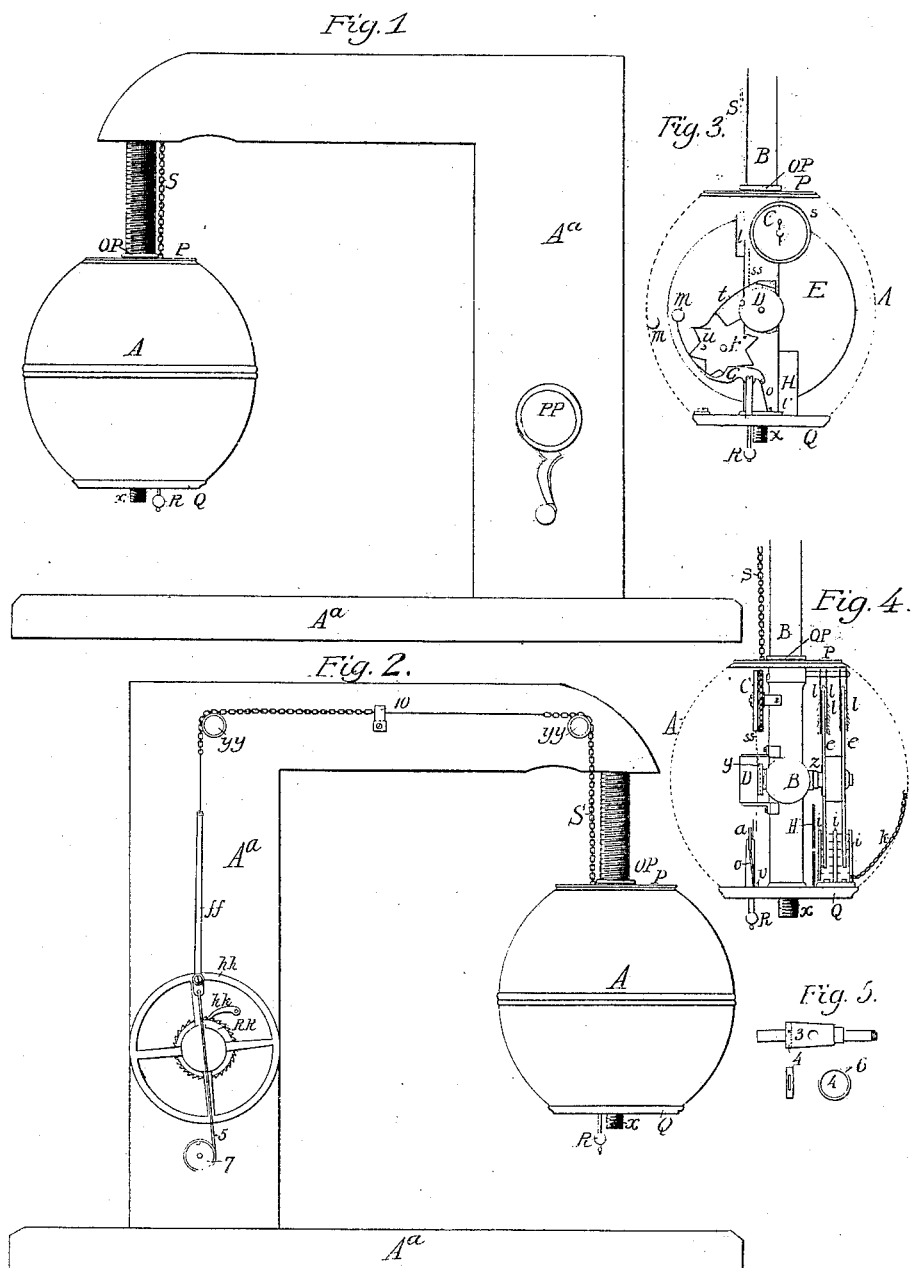


S. GARDINER, Jr.
LIGHTING GAS BY ELECTRICITY.

No. 45,240.

Patented Nov. 29, 1864.



Witnesses.
C. J. Smith
J. L. Baker

UNITED STATES PATENT OFFICE.

SAMUEL GARDINER, JR., OF NEW YORK, N. Y.

IMPROVEMENT IN LIGHTING GAS BY ELECTRICITY.

Specification forming part of Letters Patent No. 45,240, dated November 29, 1894.

To all whom it may concern:

Be it known that I, SAMUEL GARDINER, JR., of the city, county, and State of New York, have invented certain new and useful Improvements in Lighting Illuminating-Gas by Electricity; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

The object of this invention is to turn on the gas and light it by electricity by the mechanical device hereinafter referred to, and at the same time and by the same operation to generate the electricity by one or more disks, or a series of disks, placed upon the plug of the stop-cock, and using the shell which incloses the apparatus as a receiver of the electricity generated by the disk upon the plug of the stop-cock, and by a peculiar device called a "discharger," which is operated by the same mechanical device as for turning on and lighting the gas, to discharge the electricity collected on the receiver, causing it to pass through proper conductors to the gas-burners to be lighted.

No. 1 is a front view, showing the frame and the shell or receiver which incloses the apparatus for generating the electricity and stop-cock; also, a section of gas-pipe leading from the top of the frame which supports the stop-cock and shell; also, the crank P P, which is used for turning on and off the gas and at the same time generating and discharging the electricity from the receiver A to the gas-burners to be lighted. No. 2 is a back view of the frame and the shell A, showing the wheel and ratchet to which the crank P P in No. 1 is attached; also, the connections of the chain passing over the pulleys Y Y, which, upon turning the crank, gives motion to the apparatus contained in the shell or receiver A for turning on the gas and generating the electricity. No. 3 is a side view of the apparatus contained in the shell or receiver A in Nos. 1 and 2. No. 4 is an end view of the same apparatus. No. 5 is the plug of the cock-stop, showing the adjustable collar and pawl to work the device for discharging the electricity from the receiver.

Similar letters of reference indicate corresponding parts in all figures.

To enable others skilled in the art to make and use my invention, I will proceed to de-

scribe the construction and operation of the same.

A is the shell or receiver, made of brass or any suitable metal.

P and Q are isolators, made of hard rubber, to insulate the shell or receiver from the stop-cock or gas-pipe.

O P is the service-pipe to conduct the gas from the ceiling.

X is the lower end of the stop-cock, to which a chandelier or any other gas-fixture may be attached.

R is a ball connected to the discharger, to conduct the electricity to the gas-burners by means of conducting wire or chain.

P P is the crank for turning on the gas and working the disks, which is connected by means of wire and chain running over pulleys. By revolving the crank it sets the whole in working operation.

h h is the crank-wheel. R R is the ratchet-wheel. k k is the dog which drops in the teeth of the ratchet-wheel, preventing the turning of the crank backward.

7 is a drum containing a spring to give tension to the crank.

x x is a bar, which is connected to the rim of the crank-wheel h h, the upper end of which is connected to the wire and chain which pass over the pulleys for setting the apparatus in motion.

B is the stop-cock. C is a pulley on which the chain S is placed, and which is connected by wire and chain to the crank P P.

D is the drum which contains the mainspring to bring back the stop-cock and disks to their place when worked by the crank P P.

E are the disks, which may be made of hard rubber, glass, or any other suitable material.

l are the pads, made of metal, and the side next to the disks covered with fur or any other suitable substance to create friction on the disks to produce electricity.

H is a thin plate of hard rubber to prevent the discharge of electricity from the forks i to the stop-cock B.

s s is a small chain connected to the plug of the stop-cock by the drum Y, and connected to the pulley C.

F is a star-wheel, made of hard rubber, which revolves on giving motion to the plug of the

stop-cock. The pawl 6 in No. 1 moves it one notch, and upon the eighth revolution of the plug the pin *u* strikes the lever G, throwing the end of the lever, which has attached to it a small ball, *n*, in connection with the ball *m*, which is attached to the shell or receiver A, and discharges the electricity through the lever G down the connecting-rod R, which passes through the rubber post supporting the lever G through the proper conductors to the gas-burners to be lighted.

i are the forks placed between the pair of disks and at their sides, to collect the electricity generated upon the disks and convey it to the receiver A by means of the chain *k*, which is connected to the forks and receiver A.

c c represent two rubber disks attached to one end of the plug of the stop-cock.

o is an elastic spring, made of rubber, attached to one end of the lever G to bring back to its place the lever after the pin *u* has forced the ball *n*, in connection with the ball *m*, to discharge the electricity from the receiver.

t is a steel flat spring, to throw the star-wheel F in position to be tripped by the pawl *b*, attached to the collar 4.

3 is the plug of the stop-cock.

4 is a loose collar, which is fitted on the plug. The plug makes one and one-quarter revolution in order that the gas may flow through the stop-cock. It must be revolved a quarter more than an even turn or a quarter less. Therefore I have placed a loose collar, 4, that it may loose one-quarter motion of the plug, that it

may give the even trips to the star-wheel F. The collar has a slot cut one-quarter of its diameter, into which a small stud-pin is fastened to the plug 3, to prevent the collar moving more than the fraction designed.

This apparatus may be placed to the ceiling connected to the gas-pipe and the chandelier attached to it, or it may be placed in any convenient part of the room or building.

Having thus described the construction and operation of my invention, I claim—

1. The turning on and off illuminating-gas, generating and discharging the electricity through a series of gas-burners to be lighted by means of an ordinary bell-crank, arranged as specified.

2. One or more disks, *c*, arranged and employed substantially as described in an apparatus for lighting gas by electricity.

3. The arrangement of the receiver of the electricity, or its equivalent, as specified.

4. Discharging the electricity from the receiver by the combined action of the star-wheel F, pin *u*, lever G, and adjusting-spring *t*.

5. The combination of the receiver A, stop-cock B, disks *c*, forks *i*, and discharging apparatus F G *n m*, arranged and operating substantially as herein set forth.

In testimony of which invention I hereunto set my hand.

SAML. GARDINER, JR.

Witnesses:

OCTAVIUS KNIGHT,
EDM. F. BROWN.