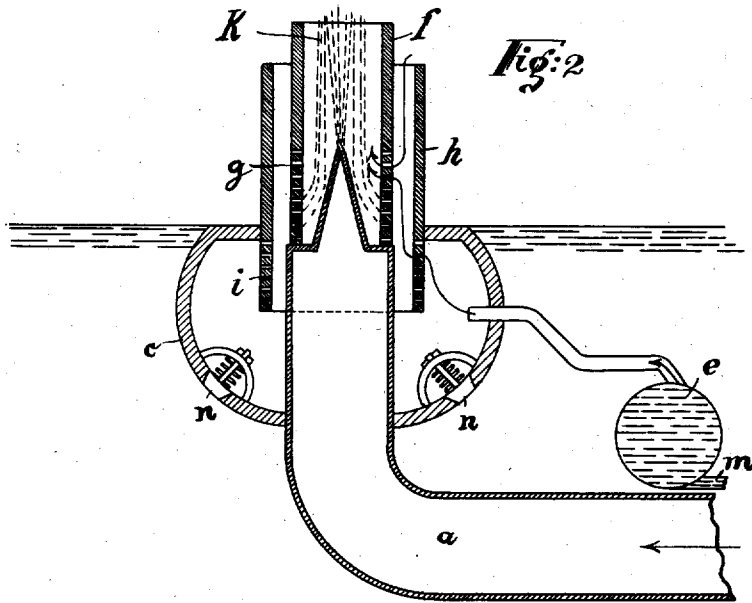
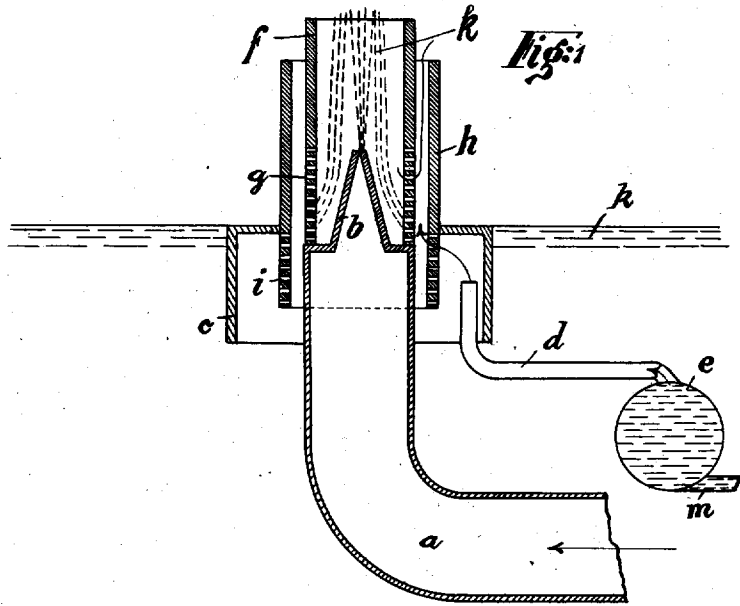


S. LEICHER.
 LUMINOUS FOUNTAIN.
 APPLICATION FILED SEPT. 1, 1911.

1,018,431.

Patented Feb. 27, 1912.



Witnesses:
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 E. Lecher.

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 By *[Signature]* atty.

UNITED STATES PATENT OFFICE.

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LUMINOUS FOUNTAIN.

1,018,431.

Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, SIEGFRIED LEICHNER, a citizen of the German Empire, residing at Grunewald, near Berlin, Germany, have invented certain new and useful Improvements in Luminous Fountains; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to a luminous fountain in which the water jet is inclosed by flames.

In order to obtain the smallest amount of smoke possible which would affect the efficiency and appearance of such luminous fountains, the water jet of this new fountain draws by its injector-like operation a combustible liquid, for example benzin, as well as air so as to obtain a thorough mixing of the combustible liquid and air. Instead of air any other gas or liquid may be used which would improve the combustion. It is however advisable to draw as much air as possible so as to convert the combustible liquid into vapor during the mixing, so as to cause a gas and not liquid to leave the fountain nozzle and to inclose the water jet. By this means the ignited mixture burns almost without smoke and does not involve danger as would be the case if the burning fuel in liquid condition pours outside the fountain and continues burning which would happen, if the fuel were liquid, and it would be dangerous even if the fountain was situated in the middle of a pond, for the combustible liquid would float on the water and drift toward the banks of the pond where frequently boats or the like are kept which then could easily catch fire. A burning liquid upon the surface of the pond affects also the effectiveness and appearance of the fountain which appearance is a much better one if the eye of the spectator only rests upon the fire column.

In the accompanying drawings, Figure 1 is a vertical section of a portion of a fountain embodying my invention, and Fig. 2 is a like view of a modified form.

a designates the supply pipe of the fountain, the nozzle of which is shown at *b*. The water is passed through the nozzle in usual

manner under pressure. A box-like container *c* is arranged in the water into which container the pipe *d* of a benzin container *e* is led. A tube *f* is set over the nozzle and has a number of holes or openings *g* which communicate with the outer air. A second tube *h* provided with openings *i* is inserted into the box *c* surrounds the tube *f* and forms therewith an annular chamber open at its top for the admission of air.

Referring particularly to Fig. 1 the apparatus works substantially as follows: On account of its injector-like operation the water jet *k* sucks the air contained in the tube *h* through the opening *g* into the pipe *f* and also produces a partial vacuum with the box *c*. The benzin is therefore drawn from the container *e* into the box *c* and enters into the pipe *f* through the openings *g* where a thorough mixing of benzin and air takes place. The air is, as indicated by the arrow, drawn in between pipe *f* and the outer pipe *h* and so great a quantity that the benzin is converted into vapor. The mixture of benzin vapor and air leaves the pipes and incloses the water jet. After this mixture of vapors has been ignited near the nozzle a wonderful illuminating effect is obtained without developing much smoke. The box *c* may be open at the bottom, *i. e.* communicate with the surface of the water *k'* as the benzin is specifically lighter than the water and the upper part of the box *c* will therefore always be filled up with benzin.

In order to avoid air collecting in the benzin container *e* the said container may be connected to a larger reservoir (not shown) by means of a pipe *m*, so as to cause the empty space in the box to be always filled up with benzin or the pipe *m* may lead to a water container instead of to a benzin reservoir. In Fig. 2 a similar construction of my invention is shown in which however small valves *n* are arranged in the box *c*. The box *c* in the present case is closed at all its sides and in this construction the tension of the spring of the valve *n* can be regulated so as to suck always only a certain quantity of benzin which should reach the injector so as to be able to obtain a vaporizing or a mixing with air which is as perfect as possible. In case the sucking operation of the liquid jet *k* is a greater one, a certain quantity of water corresponding to this faculty is caused to enter through

the valve *n* which opens automatically. The gas may be ignited electrically from a distance to avoid danger.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A luminous fountain comprising means to form a jet of water, means to envelop the jet in a combustible gas and a combustible gas supply connected to said means.

2. A luminous fountain comprising means to form a jet of water, means surrounding the jet to supply a combustible gas mixture thereto, said mixture being entrained by and enveloping the jet.

3. In a luminous fountain, the combination with an injector nozzle, concentric tubes surrounding the latter forming an annular chamber open at the top and bottom for the admission of air and combustible fuel respectively, the inner tube being provided with perforations above the fuel admission.

4. In a luminous fountain, the combination with an injector nozzle, of a liquid fuel receptacle, concentric tubes surrounding the nozzle forming an annular chamber communicating at its lower end with the fuel receptacle and open at the top for the admission of air, the inner tube having perforations through which the air and combustible fuel are sucked from the annular chamber by a water jet issuing from the nozzle.

5. In a luminous fountain, the combination with a water injector nozzle, an inner tube surrounding the nozzle having perforations in the lower portion, an outer tube

surrounding the inner tube and having perforations below the perforations of the latter, said tubes forming an annular chamber open at its top, a container immersed in the water of the basin of the fountain and inclosing the outer tube above its perforations, and a combustible-fuel receptacle communicating with the container.

6. In a luminous fountain, the combination with a water injector nozzle, an inner tube surrounding the nozzle having perforations in the lower portion, an outer tube surrounding the inner tube and having perforations below the perforations of the latter, a closed container inclosing the outer tube above its perforations, a combustible-fuel receptacle communicating with the container, and valves in the container operable by the suction of water issuing from the injector.

7. The method of producing a luminous fountain which comprises forming a jet of water and supplying a combustible gas to and surrounding said jet.

8. The method of producing a luminous fountain which comprises forming a jet of water and entraining by said jet an enveloping combustible gas mixture from a suitable source of supply.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

S. LEICHNER.

Witnesses:

HENRY HASPER,
HARRY L. WILSON.