

No. 615,717.

Patented Dec. 13, 1898.

E. KNAPP.
PNEUMATIC GAS LIGHTER.

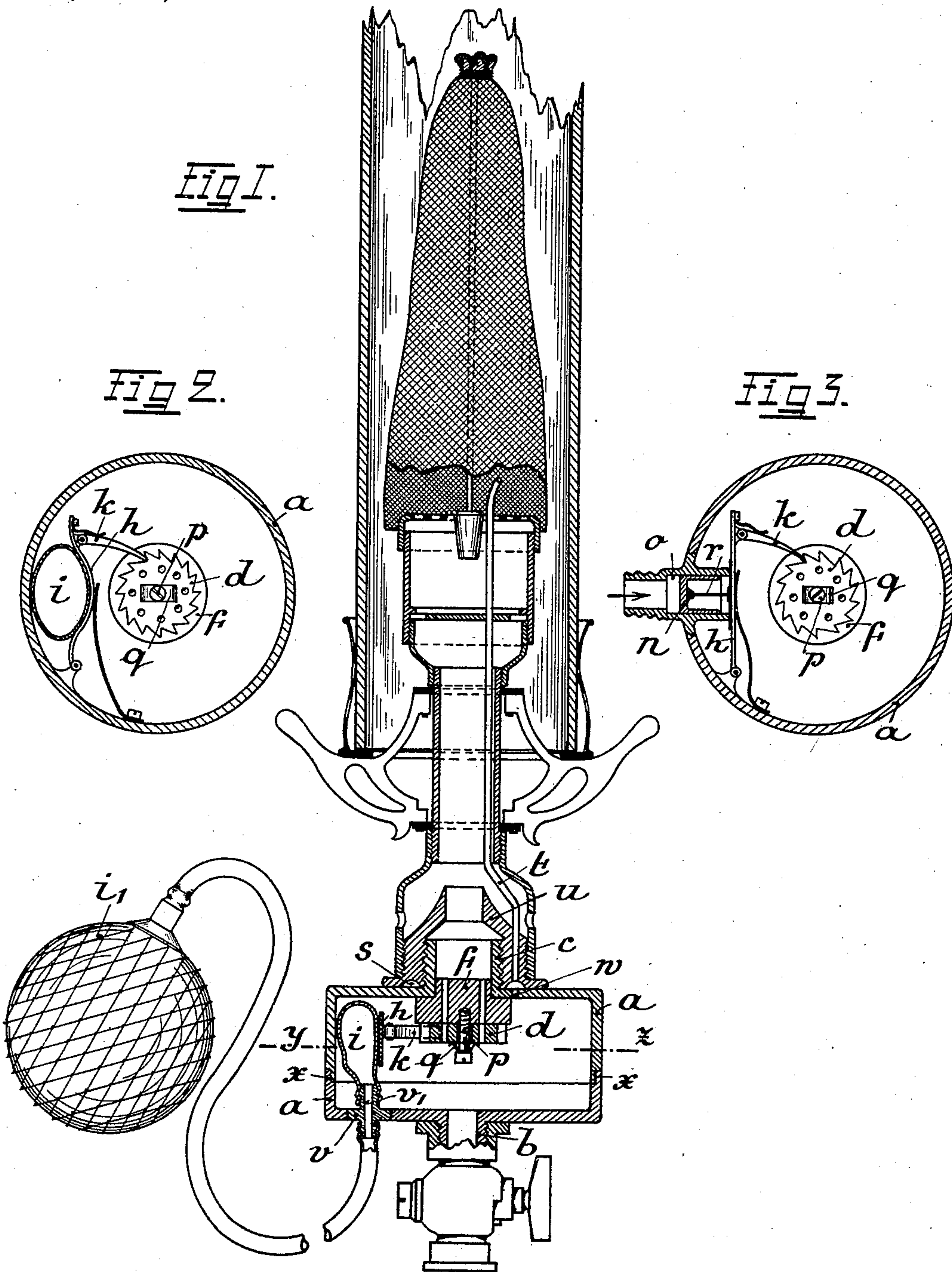
(Application filed Apr. 21, 1898.)

(No Model.)

Fig 1.

Fig 2.

Fig 3.



WITNESSES:

E. R. Bolton

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INVENTOR:

Ewald Knapp

By *[Signature]*

his Attorneys.

UNITED STATES PATENT OFFICE.

EWALD KNAPP, OF COLOGNE, GERMANY, ASSIGNOR TO KÖLNER WASSER-
MESSER WERK, GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF
SAME PLACE.

PNEUMATIC GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 615,717, dated December 13, 1898.

Application filed April 21, 1898. Serial No. 678,364. (No model.)

To all whom it may concern:

Be it known that I, EWALD KNAPP, a sub-
ject of the Emperor of Germany, and a resi-
dent of Cologne, Germany, have invented cer-
tain new and useful Improvements in Pneu-
matic Gas-Lighters, of which the following is
a specification.

This invention relates to an improved ap-
paratus for the lighting and extinguishing of
gas-lamps from a distance, especially of such
lamps that are provided with what is known
in the art as the "Welsbach light."

The invention consists in a pneumatic de-
vice for opening and closing the supply of gas
from a distance.

Of the accompanying drawings, Figure 1 is
a vertical section through the whole lamp,
showing the apparatus forming the object of
this invention. Fig. 2 is a horizontal section
on line yz in Fig. 1. Fig. 3 is a horizontal
section on the same line, showing modifica-
tions.

The letters of reference designate the same
parts in all the figures.

a is a flat cylindrical box made of two pieces
hermetically screwed together at x . The box
 a is provided with two screw-threaded studs
 b and c , the lower one, b , serving as inlet and
the upper one, c , as outlet for the gas.

Any ordinary Welsbach lamp is shown in
Fig. 1, being screwed onto the upper stud c .
I will not, however, describe the latter in de-
tail, as its construction is well known to those
conversant with the art, and any other gas-
lamp may be substituted without changing
the nature of this invention.

The lower opening of the stud c is filled
with a plug f , which latter is perforated with
a suitable number of holes. The number of
holes may vary, but it ought to be sufficient
to admit enough gas to the burner under the
ordinary pressure. In the center of the plug
 f a screw or pin p is fastened, which serves
as a pivot for the disk d . The upper surface
of the disk d and the lower surface of the
plug f are ground smooth and so as to fit each
other intimately. The disk d is likewise per-
forated with a number of holes. These holes
are so placed that by turning the disk they
will correspond to the holes bored in the plug

f , thus making a free outlet for the gas to the
burner in certain positions, while in others
the spaces left between the holes in the disk
will correspond with the holes in the plug f ,
and thus the supply of gas will be shut off. In
order to secure a gas-tight fit of the disk
on the lower surface of the plug f , a spring q
is provided, which presses the disk against
said surface and rests against the head of the
pin p . In the upper lid of the box a another
hole w is provided, and corresponding to this
hole a circular groove s in the nozzle u . The
nozzle u further carries a small tube t , reach-
ing down to and communicating with the
aforesaid groove s . The upper end of this
tube t reaches right up above the burner and
is provided with a small gas-outlet at its up-
per extremity.

The box a is further provided with a third
stud v , which is prolonged into the interior of
the box a and there forms the stud v' . Onto
the stud v' a small india-rubber bag i is fas-
tened, and onto the stud v a tube made of
rubber or of any other suitable material and
having any suitable length and carrying at
its extremity another rubber bag i' . Against
the rubber bag i a metal strip or spring h
rests, which at its end carries a pawl k . The
disk d has a toothed edge, so as to form a
ratchet-wheel, and the pawl k engages with
the teeth fashioned in the edge of the disk d .

Instead of the rubber bag i in some cases I
prefer to employ the cylinder o , Fig. 3, in
which the piston n and piston-rod r can move
loosely. In this case the strip h is fastened
to the piston-rod r .

The operation of my apparatus is as fol-
lows: The gas can pass freely through the
hole w and the tube t and out of the opening
at the upper extremity of the latter. Here
it is lighted and the small flame thus obtained
is allowed to burn without interruption. At
ordinary times the disk d is supposed to be
in such a position that the holes bored in the
plug f are covered. Thus the gas cannot pass
out of the box a to the burner. When the
lamp is to be lighted, the rubber ball i is com-
pressed by hand or any other suitable means.
The air inclosed in the two rubber balls and
the tube connecting them is thereby com-

pressed and the rubber ball *i* consequently expanded. The rubber ball *i* acts upon the strip *h*, and by means of the pawl *k* pushes the ratchet-wheel *d* around. The teeth of the
 5 latter are so dimensioned that it will be pushed just so far as to make the perforations in the disk correspond with the perforations in the plug *f*. Thus the gas is allowed to pass through these perforations to the burner and
 10 the small flame burning at the top of the tube *t* serves to set it alight. When the ball *i*' is contracted a second time, the ratchet-wheel will again be turned around the same distance as before, and thereby the perforations
 15 in the plug *f* will now be covered up, thus cutting off the supply of gas to the burner.

The modification shown in Fig. 3 acts in the same way, with the difference only that instead of the expansion of the bag *i* the movement of the piston *n* is employed to push the
 20 ratchet-wheel around.

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

1. A pneumatic device for controlling the lighting and extinguishing of gas-lamps from a distance which consists of a gas-tight box the interior of which is in direct communication with the gas-conduits, but is separated
 30 from the gas-burner by a plug containing a number of concentrically-bored perforations and a disk closely fitting the surface of such plug and being pivoted in the center of same, such disk being likewise perforated by a corresponding number of holes, and means for turning such disk by contracting a rubber ball, which is connected to the device by means of an air-tube, substantially as and for
 35 the purpose set forth.

2. An apparatus for lighting and extin-

guishing gas-lamps from a distance, which consists of the combination of a gas-tight box the interior of which is in direct communication with the gas-conduits but is separated
 45 from the burner by a plug having a number of concentrically-placed holes and a disk fitting said plug closely and having a corresponding number of holes, said disk having a toothed edge and being pivoted in the center of said plug, of a pliable strip carrying at
 50 its extremity a pawl which engages with the toothed edge of said disk and a rubber ball placed between the wall of the box and said pliable strip and being in communication by
 55 means of a tube or pipe of any suitable length with another rubber ball, substantially as and for the purpose described.

3. An apparatus for lighting and extinguishing gas-lamps from a distance, which
 60 consists of the combination of a gas-tight box the interior of which is in direct communication with the gas-conduits but is separated from the burner by a plug having a number of concentrically-placed holes and a disk fitting
 65 said plug closely and having a corresponding number of holes, said disk having a toothed edge and being pivoted in the center of said plug, of a pliable strip carrying at its extremity a pawl which engages with the
 70 toothed edge of said disk and a cylinder with a piston and a piston-rod connected with said strip, said cylinder being in communication by means of a tube or pipe of any suitable length with a rubber bag, substantially as and
 75 for the purpose set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EWALD KNAPP.

Witnesses:

WILLIAM H. MADDEN,
 KÄTCHEN SLENZ.