E. ZICKWOLFF.

PRESSURE CONTROLLED GAS IGNITER.

APPLICATION FILED JULY 11, 1908.

907,304. Patented Dec. 22, 1908.

2 SHEETS—SHEET 1.

Fig. 1

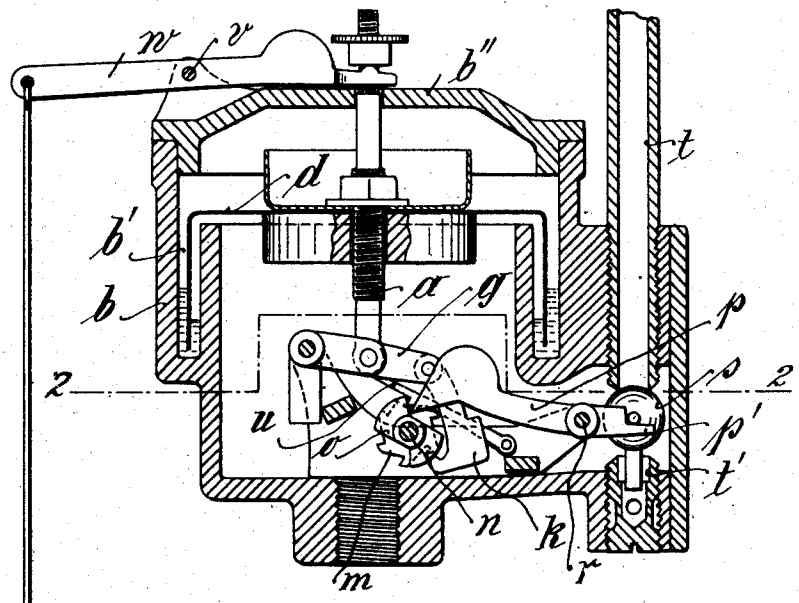
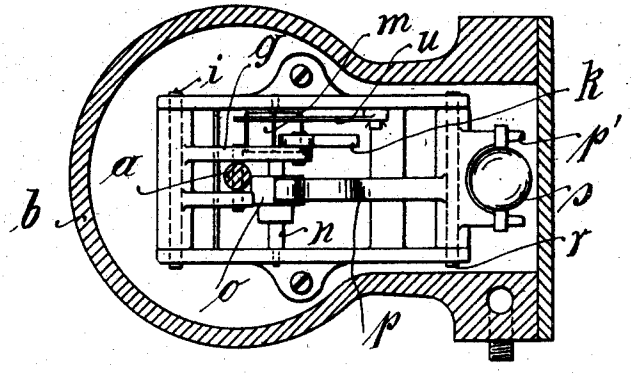


Fig. 2



Witnesses
L. E. Barkley.
L. A. Sands.

Inventor
Eduard Zickwolff
By his Attorney Frank S. Appleman

E. ZICKWOLFF.

PRESSURE CONTROLLED GAS IGNITER.

APPLICATION FILED JULY 11, 1908.

907,304. Patented Dec. 22, 1908.

2 SHEETS—SHEET 2.

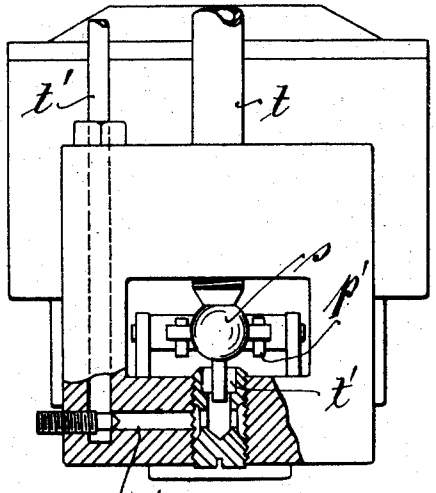


Fig.3

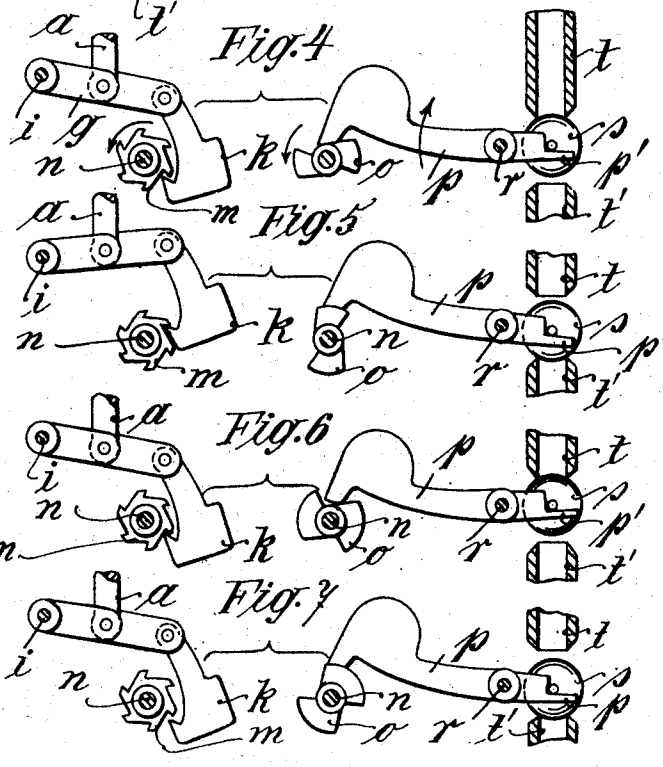


Fig.4

Fig.5

Fig.6

Fig.7

Witnesses
L. E. Barkley.
L. A. Sands

Inventor
Edward Zickwolff
by his Attorney Frank S. Appleman

UNITED STATES PATENT OFFICE.

EDUARD ZICKWOLFF, OF SIEGEN, GERMANY.

PRESSURE-CONTROLLED GAS-IGNITER.

No. 907,304. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed July 11, 1908. Serial No. 443,018.

To all whom it may concern:

Be it known that I, EDUARD ZICKWOLFF, a mechanic, a subject of the Emperor of Germany, residing at Siegen, Westphalia, in the German Empire, have invented a certain new and useful Improvement in Pressure-Controlled Gas-Igniters, of which the following is a specification.

This invention relates to remote-controlled gas-burners of the type wherein the alternate opening and closing of the gas-orifices for the principal flame and igniting flame is effected by means of impulses or waves of gas-pressure transmitted through the gas-conduit to act on a membrane, bell-jar or the like connected to a valve-lever.

The present invention consists in so constructing the mechanism that a valve-lever with arms of unequal lengths forcibly thrusts the valve against the valve-seat of the principal burner orifice, so that a tight closure is obtained even if impurities are deposited on the said valve and seat.

A construction embodying the invention is shown in the annexed drawings, in which—

Figure 1 is a vertical section of the mechanism, showing the conduit leading to the main burner-orifice closed. Fig. 2 is a horizontal section on line 2—2 of Fig. 1, and Fig. 3 a front view partly in section. Figs. 4 to 7 illustrate different positions of parts of the mechanism.

In the construction illustrated a rod *a* in the casing *b* is connected to a bell-jar *d* which is partly immersed in liquid in an annular chamber b^1. The said rod is connected to a lever *g* pivoted at *i*, and from the free end of the said lever a dog *k* is suspended. The dog *k* is adapted to engage a ratchet-wheel *m* fixed to a shaft *n*, to which is also fixed a cam *o*. The weighted valve-lever *p* pivoted at *r* rests upon the said cam, and the shorter arm p^1 of the said lever engages the valve-body *s*. The latter is movable between the orifices of two ducts *t* and t^1 which lead respectively to the main burner orifice and to the igniting burner orifice. A pawl *u* engages the ratchet-wheel *m* to prevent backward rotation thereof.

In Figs. 4 to 7 the dog and ratchet-mechanism *g k m* is shown on the left-hand side and the cam and valve mechanism on the right-hand side. When the dog and ratchet and cam are in the positions shown in Fig. 4 the valve *s* closes the orifice of the conduit *t*. If a wave of pressure is sent through the gas-main the bell-jar *d* is lifted and actuates the mechanism *a g k m*, the shaft *n* being rotated through an angle which causes the lever *p* to be lifted by the cam *o*. This causes the valve *s* to be lowered on to the orifice of the conduit t^1 leading to the igniting burner, and the igniting flame is extinguished; the conduit *t* having been meanwhile opened by the lowering of the valve. The next actuation of the mechanism causes the lever *p* to slide off the cam *o* (Fig. 6) and to thrust the valve *s* with a suitable amount of force against the orifice of the conduit *t*. By this means the valve is thrust firmly against its seat and displaces impurities deposited thereon. The next actuation of the mechanism causes the conduit *t* to be reopened and the conduit t^1 to be closed (Fig. 7). Preferably the cam-surfaces are made of such length that several actuations of the mechanism must take place before the lever *p* slides from the cam and closes the conduit *t*. In a street-lighting system the igniters may then be so distributed that a single wave of pressure causes all the lamps to be lighted, and that the next wave causes alternate lamps to be extinguished, the remaining lamps being extinguished by the third wave.

To allow of actuating the mechanism by hand a lever *w* is fulcrumed at *v* on the cover *b''* of the casing. This lever engages the rod *a* and has a chain, cord or rod *y* connected to it, by means of which it can be actuated for lifting the rod *a*. This arrangement enables individual lamps to be separately lighted and extinguished.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a remote controlled gas igniter, the combination with the illuminating and igniting burners of two gas ducts having orifices opposed to one another, a valve between said orifices, a lever having a short arm coöperating with said valve and having a long weighted arm, a cam for coöperating with said weighted arm and means for rotating the cam adapted to be operated by variations of gas pressure.

2. In a remote controlled gas igniter, the combination with the illuminating and igniting burners of two gas ducts having orifices opposed to one another, a valve between said orifices, a lever having a short arm coöperating with said valve and having a long weighted arm, a cam of determined length

for coöperating with said weighted arm, and means for imparting partial rotations to said cam by variations of gas pressure, the length of the cam being proportioned to operate the lever upon a predetermined plurality of impulses.

3. In a remote controlled gas igniter, the combination with the illuminating and igniting burners of two gas ducts having orifices opposed to one another, a valve between said orifices, a lever having a short arm coöperating with said valve and having a long weighted arm, a cam for coöperating with said weighted arm and means for rotating the cam adapted to be operated by variations of gas pressure, and hand operatable mechanism for operating said cam rotating mechanism alternatively by hand.

In witness whereof I have signed this specification in the presence of two witnesses.

EDUARD ZICKWOLFF.

Witnesses:

LOUIS VANDORN,

R. H. DUNLAP.