

W. GRIX.
GAS IGNITING DEVICE.
APPLICATION FILED OCT. 28, 1908.

933,431.

Patented Sept. 7, 1909.
2 SHEETS—SHEET 1.

Fig. 1.

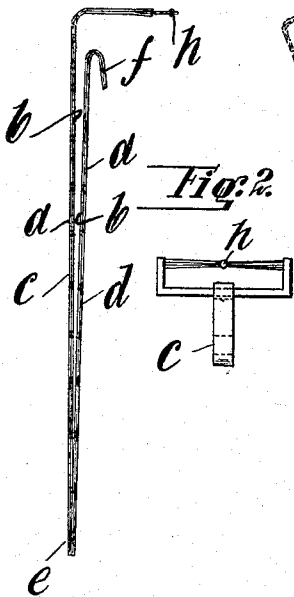


Fig. 3.

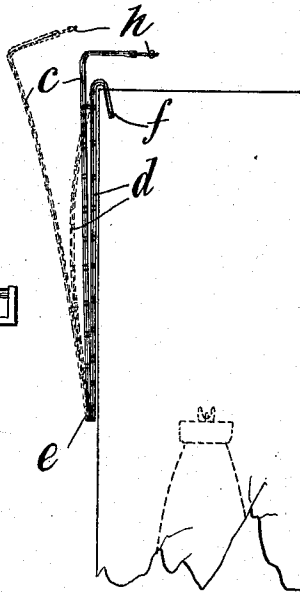


Fig. 4.

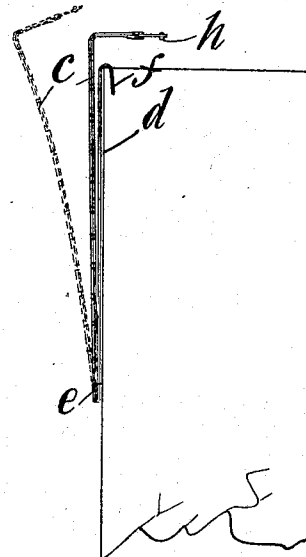


Fig. 5.

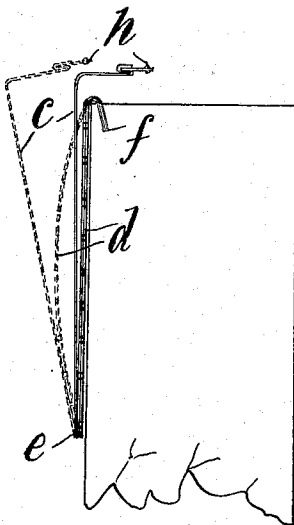


Fig. 6.

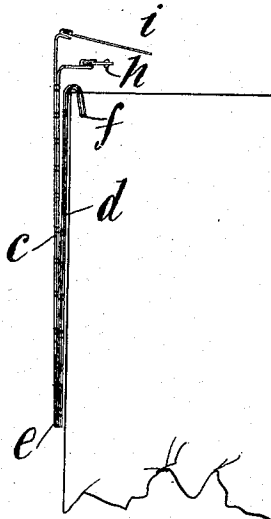
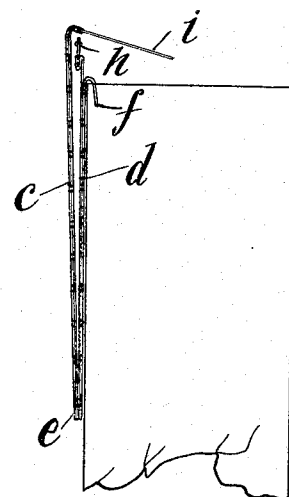


Fig. 7.



WITNESSES :
W. M. Avery
J. P. Davis

INVENTOR
Waldemar Grix
BY *Mum & Co.*
ATTORNEYS

W. GRIX.
GAS IGNITING DEVICE.
APPLICATION FILED OCT. 28, 1908.

933,431.

Patented Sept. 7, 1909.
2 SHEETS—SHEET 2.

Fig. 8.

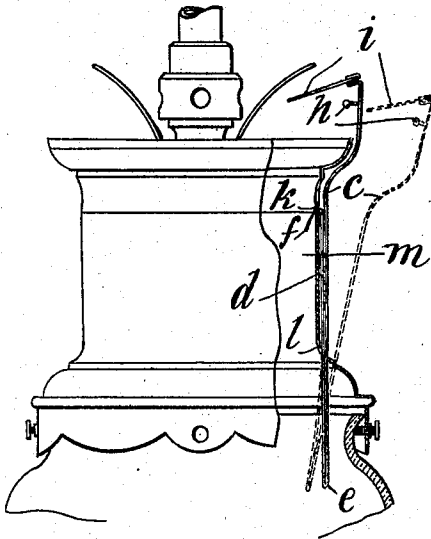


Fig. 9.

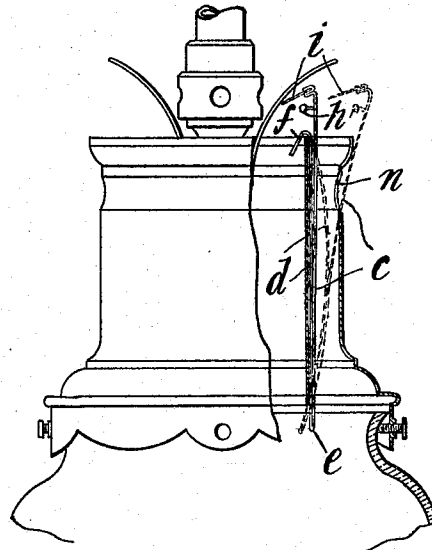


Fig. 10.

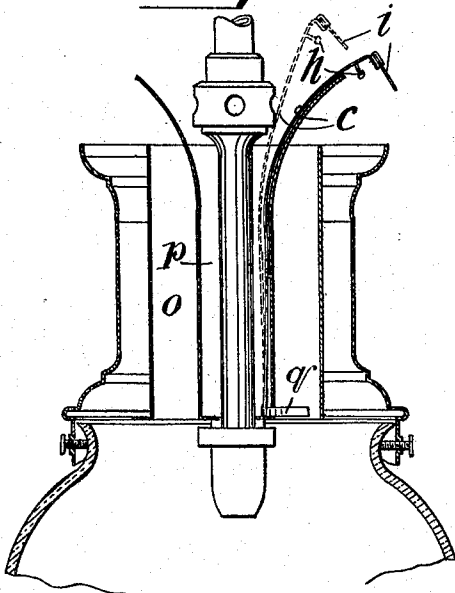
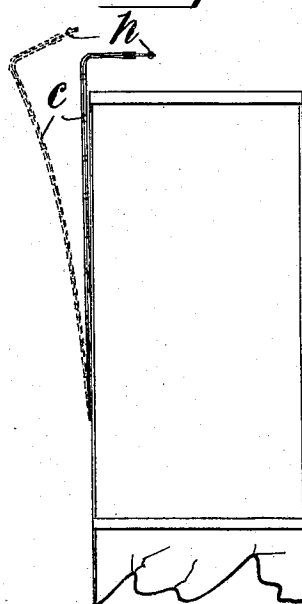


Fig. 11.



WITNESSES :

W. M. Avery
J. P. Davis

INVENTOR
Waldemar Grix

BY *Mumler*

ATTORNEYS

UNITED STATES PATENT OFFICE.

WALDEMAR GRIX, OF SCHÖNEBERG, NEAR BERLIN, GERMANY.

GAS-IGNITING DEVICE.

933,431.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed October 28, 1908. Serial No. 459,888.

To all whom it may concern:

Be it known that I, WALDEMAR GRIX, a subject of the King of Prussia, residing at Schöneberg, near Berlin, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in Gas-Igniting Devices, of which the following is a specification.

My invention relates to a gas igniting device consisting of an igniter proper, such as a platinum pilule, an electric spark former or an incandescence wire, which is carried directly or through the agency of suitable parts by a compensation rod, that is, by a rod made by fastening together two strips of metals having different coefficients of expansion, so that, after the gas is ignited, said rod is bent by the heat and moves the igniter out of the zone of the hot gases.

In the accompanying drawings illustrating my invention Figure 1 is a side elevation and Fig. 2 a plan view of one construction of the igniting device, Fig. 3 is a side elevation of a lamp cylinder provided with the igniting device, Fig. 4 shows a modification of the igniter illustrated in Figs. 1 and 2, in which the limb attached to the cylinder is not a compensation rod, Fig. 5 is a similar view of a second modification, in which the limb carrying the igniter proper is not constructed as a compensation rod. Figs. 6 and 7 represent further modifications, which can be used in combination with those shown in Figs. 1-5. Figs. 8, 9 and 10 show various ways of adapting the device to inverted gas lamps. Fig. 11 represents the preferred method of applying the invention to a mica cylinder.

The compensation rod, which is made of two strips of metal *a*, *b*, such as brass and iron or zinc and iron, has two limbs *c* and *d* (Figs. 1 and 2) so riveted together at *e* that the strips of metal having the larger coefficient of expansion lie on each other. At the top the limb *d* is bent into the form of a hook *f*, which is placed over the top of the lamp cylinder (Fig. 3). The top end of the other limb, *c*, which carries the igniter proper *h* is bent at right angles and projects some distance over the edge of the cylinder. The device can also be so constructed that either the limb attached to the lamp or that by which the igniter is carried consists of a simple strip of metal. In Figs. 4 and 5 such modifications are shown, *d* being the simple strip in Fig. 4 and *c* in Fig. 5.

On opening the gas cock the gas is ignited by the igniter in the well known manner, and the igniter remains in the igniting position until the compensation rod or rods, owing to the unequal expansion of their constituent metals, assume the position shown in dotted lines in Figs. 3-5, where the igniter is not exposed to the destroying influence of the hot gases. As soon as the flame is extinguished, the igniter, owing to the cooling down of the device, returns to its first position, so that the gas is ignited at once on again turning on the cock.

In the construction shown in Fig. 6 a guide plate *i* is attached to the limb *c*, which plate, in the igniting position of the limb *c*, deflects the current of gas toward the igniter. Both this plate and the igniter are moved out of the zone of the hot gases by the compensation rod.

The construction shown in Fig. 7 differs from that shown in Fig. 6 only by the fact that the igniter *h* is attached to the top end of the limb *d* at a point where it is normally not in the zone of the hot gases. In order to bring about the ignition on turning on the gas the guide plate *i* is secured to the limb *c*, which deflects the gas toward the igniter and is afterward moved away from the top of the cylinder, or the like, so that the hot gases are not deflected toward the igniter.

According to Fig. 8 the device is attached to the outside tube of an inverted gas lamp. The tube is provided with openings at *k* and *l*, through the first (*k*) of which the hooked end *f* of the limb *d* is passed, and the lower ends of both limbs *c* and *d* pass into the interior of the lamp through the other opening (*l*). As in the construction shown in Fig. 6 the top end of the other limb *c* is in this case also provided with the igniter *h* and guide plate *i*, which in the normal position both project over the draft opening *m* of the lamp.

In the construction illustrated in Fig. 9 the device is provided between the outside tube and the draft pipe. The hooked top end of the limb *d* fits over the top of said draft pipe, while the other limb *c*, which carries the igniter *h* and plate *i*, in moving back under the influence of the heat of the ignited lamp, passes through a slot *n* in the outside pipe. For another type of invert lamp (Fig. 10), in which there are two draft pipes *o* and *p*, the device is attached to the outside of one of these pipes. In this

case no limb *d* is required, and the compensation rod is riveted to the draft pipe, which replaces the limb *d* of the other constructions. The bottom end of the compensation rod is attached to the clip *q*, which partially embraces the pipe *p*.

When a mica cylinder is used for ordinary gas lamps the compensation rod *c* can be fastened thereto, as shown in Fig. 11. In this case also no limb *d* is required.

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

1. An automatic igniting device for gas lamps, which comprises in combination, a rod consisting of two strips of metal fastened together and having different heat coefficients of expansion, a limb fastened to said rod also consisting of two strips of metal fastened together and having different heat coefficients of expansion, and an igniter adapted to be moved on heating said rod and said limb, substantially as, and for the purpose, set forth.

2. In an automatic gas igniting device, the combination with a rod consisting of two strips of metal fastened together and having different heat coefficients of expansion, of an igniter adapted to be moved by said rod, and a gas deflecting plate also adapted to be moved by said rod, substantially as, and for the purpose, set forth.

3. An automatic igniting device for gas lamps, which comprises in combination, a rod consisting of two strips of metal fastened together and having different heat coefficients of expansion, an igniter, and a gas deflecting plate adapted to be moved by said rod, substantially as, and for the purpose, set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALDEMAR GRIX.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.