

No. 629,146.

Patented July 18, 1899.

A. BACHNER.
APPARATUS FOR IGNITING GAS JETS.

(Application filed Dec. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

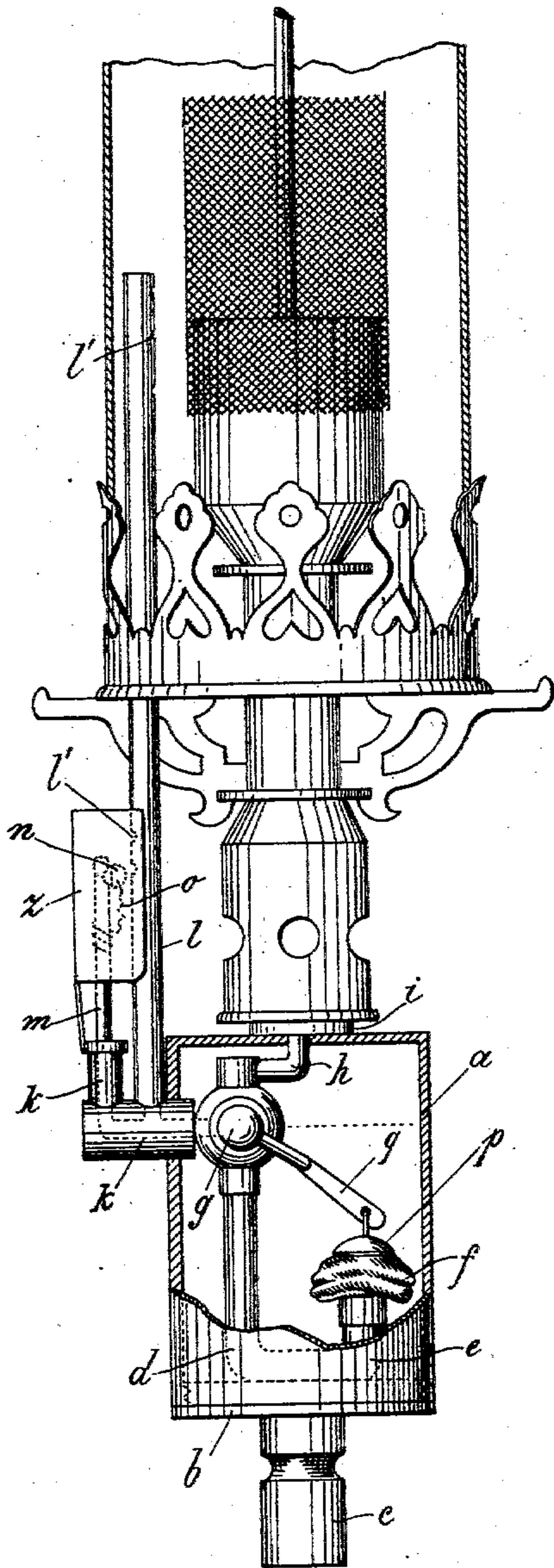


Fig. 2a.

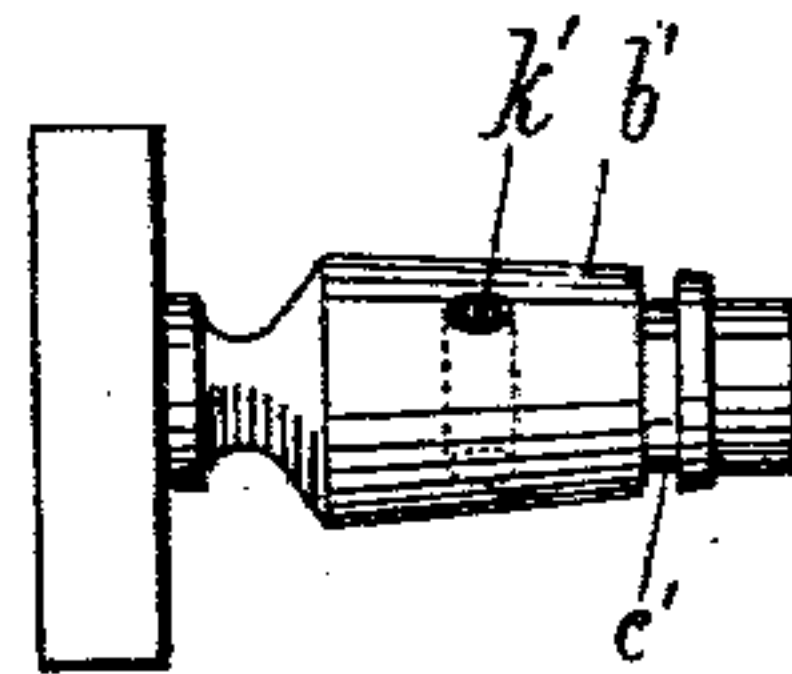
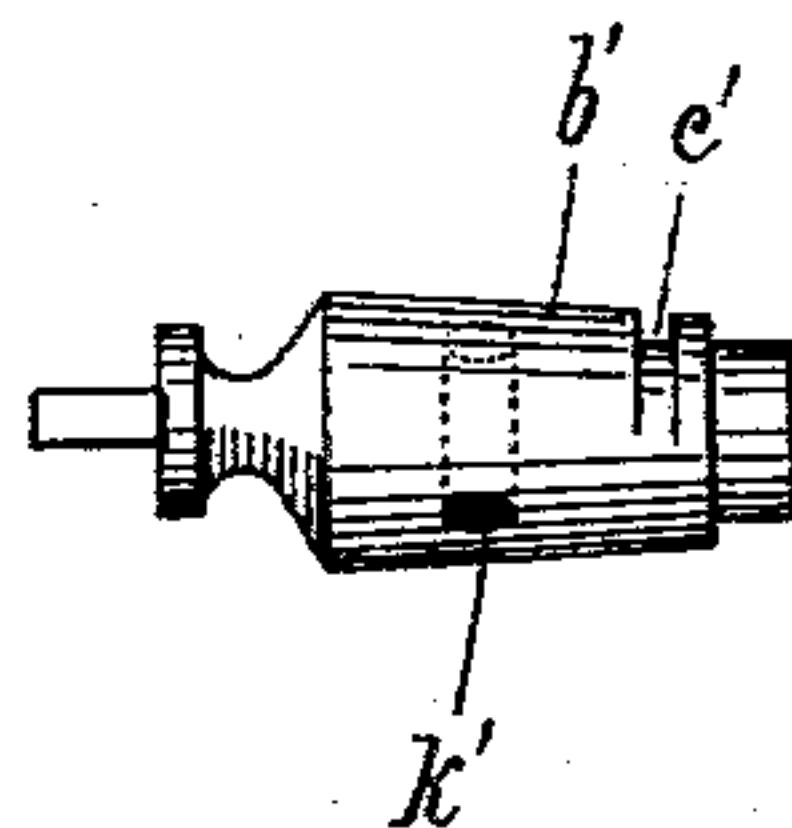


Fig. 2b.



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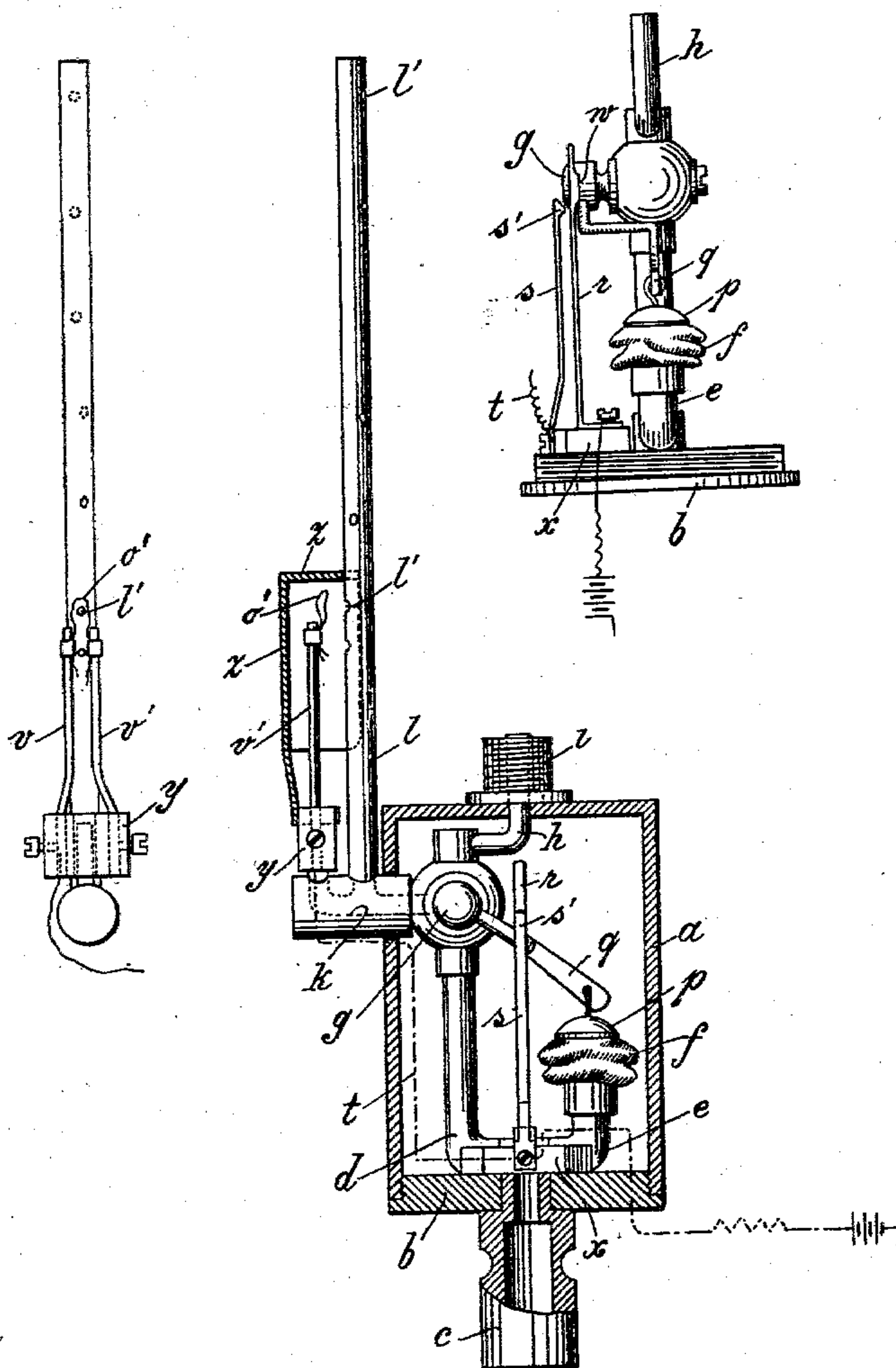
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Fig. 3^a.

Fig. 3.

Fig. 3^b.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR IGNITING GAS-JETS.

SPECIFICATION forming part of Letters Patent No. 629,146, dated July 18, 1899.

Application filed December 9, 1897. Serial No. 661,288. (No model.)

To all whom it may concern:

Be it known that I, ADOLF BACHNER, a citizen of the Empire of Germany, residing at Berlin, Germany, have invented certain new and useful Improvements in Apparatus for Igniting Gas-Jets, of which the following is a specification.

The invention relates to an apparatus for igniting gas-jets; and the object of the same is to provide an apparatus which can be constructed in various forms and arranged outside of the jet.

A further object is to regulate in the most simple and practical manner, without the aid of complicated mechanism, the supply and the shutting off of the gas from the burner and the igniting device proper.

The invention consists of certain features of construction and combinations of parts to be hereinafter described and then claimed.

In the accompanying drawings, Figure 1 is a sectional elevation showing the main form of my igniting apparatus for gas-jets, in which the same is automatically regulated. Figs. 2^a and 2^b are side elevations looking from different points of the rotary plug-valve. Fig. 3 is a vertical section of a modification in which the igniting device is operated electrically. Fig. 3^a is a view looking toward the left of Fig. 3 without the casing and contained parts to show more clearly the carrier for the platinum wire. Fig. 3^b is an elevation of the interior parts of the casing shown in Fig. 3.

In the main form of the invention (shown in Fig. 1) the gas enters the inlet or supply pipe *c*, from which extend branch pipes *d* and *e*. The inlet or supply pipe *c* supports a casing *a*, which incloses the branch pipes and which is closed by a bottom piece *b*. At the upper end of the branch pipe *e* and communicating therewith is arranged an expansible bag or diaphragm *f*, which is crowned by a cap *p*, pivotally connected with a lever *q*, mounted directly upon a rotary plug-valve *g*, that turns in a suitable bearing at the upper end of the branch pipe *d*. From the plug-valve *g* there leads a by-pass tube *k*, which has two branches *l* and *m*, the pipe *m* supporting at its upper apertured end a platinum wire *o*, which carries the igniting-pellet *n*. The pellet *n* and the wire *o*, as well as the upper end of the pipe *m*, are inclosed in an

igniting sleeve or hood *z*, whereby a shifting of the relative positions of the parts *n* and *o* is rendered impossible. The other branch *l* from the by-pass tube *k* forms an igniting-tube which is provided with a series of perforations or apertures *l'*, that extend helically from a point near the lower end of the said igniting-tube to a point on the opposite side of the igniting-tube and at the upper end of the same. The said series of apertures at the upper end of the igniting-tube extend beyond the gallery or chimney-support. From the bearing for the rotary plug-valve *g* there also extends a tubular elbow or connecting-piece *h*, which leads into a screw-threaded nipple *i*, upon which the burner is screwed.

The regulation of the gas-admission is effected by means of a rotary plug-valve *b'*, the construction of which is clearly shown in Figs. 2^a and 2^b. The valve *b'* is provided with a diametrical passage *k'*, which may communicate with the branch pipe *d*, and with a groove *c'*, that may communicate with the passage *k*, said groove extending nearly but not entirely around the said valve.

Fig. 3 illustrates a construction which is similar to that shown in Fig. 1, excepting that in this case the ignition is effected by electrical and not by chemical means. On the bottom *b* of the casing *a* there is arranged an insulating-plate which carries two contact-pieces *s* and *r*. The contact-piece *s* is formed with a shoulder *s'*, (see Fig. 3^b,) which when the two contact-pieces come together closes the circuit. The contact-piece *r* is provided with a projection *w*, the purpose of which will be referred to hereinafter. In this form of the invention the igniting device consists merely of a platinum wire *o'*, which is held by two holders *v v'*, (see Fig. 3^a,) which are mounted upon an insulating-block *y*, located at the bottom of the igniting-sleeve *z*.

The operation of the constructions described is as follows: It is assumed that as regards the construction shown in Fig. 1 the gas-cock-controlling pipe *c* is open, so that the gas passes up through the pipe *c* and, dividing, flows into the branch pipes *d* and *e* and expands the bag *f*, thereby raising the lever *q* and turning the plug-valve *g*, which in its original position already permitted the gas to pass through the branch pipe *d* to the

by-pass *k*, so that it reached the tubes *m* and *l* and caused the pellet *n* and the wire *o* to become incandescent. The gas contained in the igniting-tube *l* is ignited first at the lower apertures of the series of apertures *l*, and then at each of the uppermost apertures in succession, so that in consequence a pointed flame is produced at the top of the igniting-tube. Meanwhile the bag *f*, having continued to expand, has raised the lever *q* still farther and has allowed the gas to pass through the passage *k'* in the plug and also the connecting-pipe *h* to the burner, while at the same time the supply to the by-pass *k* has been shut off by the closed portion of the plug, which is between the ends of the groove *c'* therein. The pointed flame from the igniting-tube *l* now ignites from below the gas that is escaping at the top of the burner, and immediately after so doing it is extinguished, because in the meantime the supply of gas through the by-pass *k* has ceased. So long as the gas from the burner is burning the bag *f* is expanded and retains the lever *q* in its raised position—that is to say, it keeps the rotary plug-valve *g* in its full open position. When the gas-cock is turned to shut off the gas, of course the flame from the burner becomes smaller, and when the remainder of the gas from the bag *f* has been consumed the flame is entirely extinguished.

As regards the construction shown in Figs. 3, 3^a, and 3^b, let it be assumed that the gas-cock-controlling pipe *c* is opened. The expansible bag *f* then expands, raising the lever *q*, and the latter, by engaging the projection *w* on the contact *r*, bringing the two contact-pieces *s* and *r* into contact at *s'*. The circuit is thus closed, and the platinum wire *o'*, which is included in the circuit, is caused to become incandescent. In this case also a pointed flame is produced at the upper end of the igniting-tube; but in the meantime the bag *f*

has been expanded and has risen quite high and the contact-pieces *s* and *r* have again moved out of contact, the projection *w* of the contact-piece *r* having moved into a recess in or formed by a bend in the lever *q*. When the gas-cock is closed, the same effect is produced as in the construction shown in Fig. 1—that is to say, the flame at the burner is extinguished after all the gas from the bag *f* has been consumed.

From the above description it will be perceived that in the constructions shown and described the igniting device is arranged outside of and near to the burner proper, which has the result of diminishing the wear of the device. In both forms of the invention a pointed flame is produced through the medium of the igniting-tube with the series of apertures, which flame ignites the gas from the burner proper from below and diminishes the wear of the incandescent mantle.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In an igniting apparatus for gas-jets, the combination, with a supply-pipe provided with branch pipes, of an expansible bag connected with one of the branch pipes, a rotary valve in the other branch pipe, provided with a lever connected with said expansible bag, a burner, a connecting-tube leading from said rotary valve and forming a by-pass, an igniting-tube connected with the by-pass, and an igniter arranged opposite the igniting-tube, under the influence of the gas escaping from said by-pass, substantially as set forth.

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

ADOLF BACINER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.