

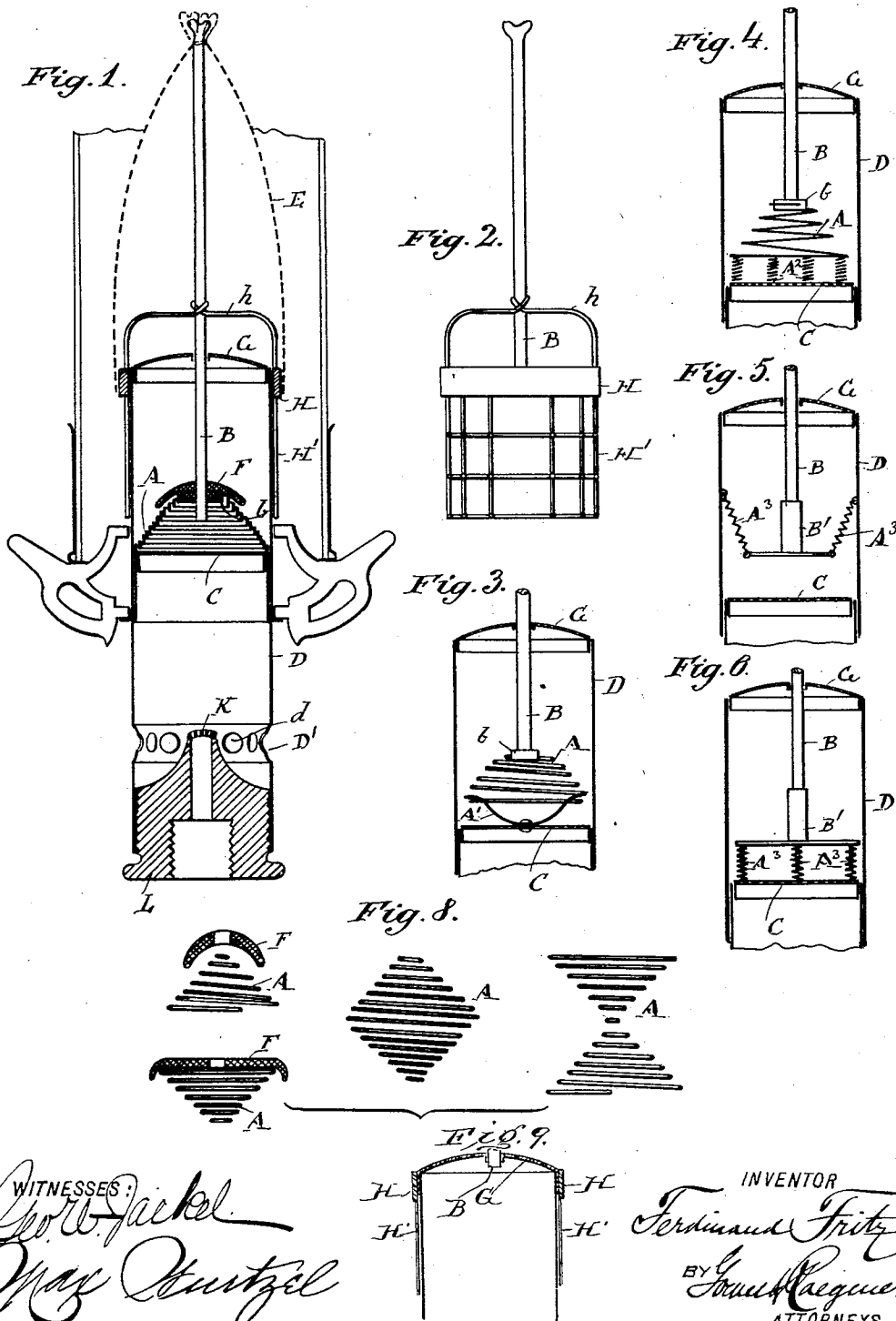
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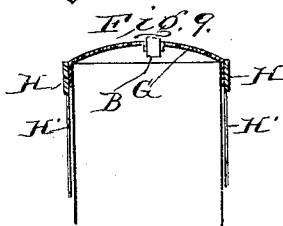
F. FRITZ.
BURNER FOR INCANDESCENT LIGHTS.

No. 580,183.

Patented Apr. 6, 1897.



WITNESSES:
Geo. W. Jackel
Max Stutzel



INVENTOR
Ferdinand Fritz
BY *Frank Regner*
ATTORNEYS.

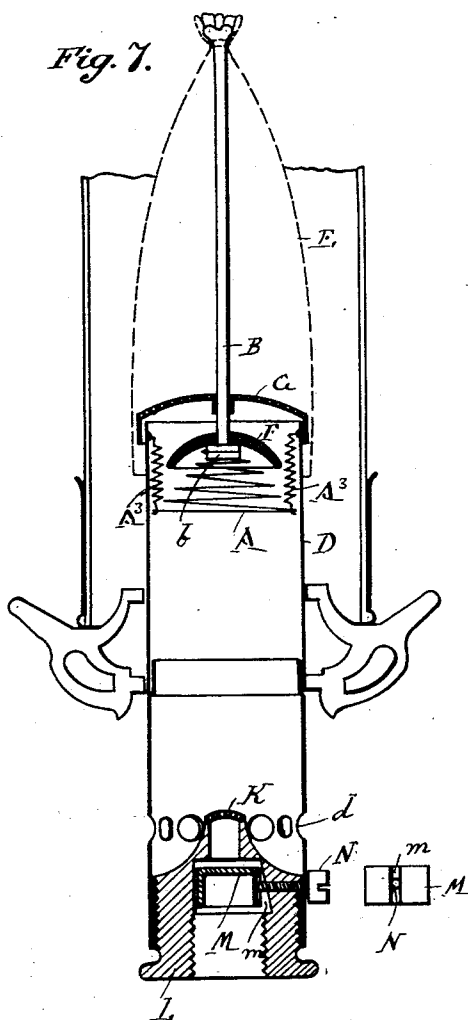
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INVENTOR
Ferdinand Fritz
BY *L. H. Wagner*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FERDINAND FRITZ, OF FRIEDENAU, GERMANY, ASSIGNOR TO GESELLSCHAFT FÜR STATTFESTE GLÜCKLICHTBRENNER PATENT FRITZ GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF BERLIN, GERMANY.

BURNER FOR INCANDESCENT LIGHTS.

SPECIFICATION forming part of Letters Patent No. 580,183, dated April 6, 1897.

Application filed January 26, 1897. Serial No. 620,726. (No model.) Patented in Germany October 4, 1895, No. 87,980; in France June 4, 1896, No. 256,948; in Belgium June 4, 1896, No. 121,723; in Norway June 4, 1896, No. 5,129; in England June 8, 1896, No. 12,542, and in Hungary July 29, 1896, No. 6,668.

To all whom it may concern:

Be it known that I, FERDINAND FRITZ, a subject of the King of Prussia, Emperor of Germany, residing at Friedenau, near Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Burners for Incandescent Lights, (for which Letters Patent were granted to me in Germany, No. 87,980, dated October 4, 1895; in England, No. 12,542, dated June 8, 1896; in France, No. 256,948, dated June 4, 1896; in Belgium, No. 121,723, dated June 4, 1896; in Norway, No. 5,129, dated June 4, 1896, and in Hungary, No. 6,668, dated July 29, 1896,) of which the following is a specification.

My invention relates to improvements in burners for incandescent light, especially gas-light, the gas being supplied by gas-pipes or generated from liquid fuel by the lamp's own heat.

The object of my invention is to provide suitable means for protecting the incandescent body or mantle against any concussions and shocks to which the lamp or lantern may be subjected.

I am aware that devices are known and have been used before which tend to serve the same purpose, the said devices consisting in the application of a spring or springs supporting the lamp-burner as a whole or other parts of the lamp in some or other connection with the mantle, but apparatus of such kind has hitherto not proved very successful because the weight to be supported by the spring or springs was comparatively considerable and required a spring or springs of adequate strength. Such springs, however, are objectionable for the reason of not being sufficiently elastic and sensible for abating the shocks and concussions which might destroy the incandescent mantle.

The device of my invention is equally based on the application of a spring or springs to support the incandescent mantle; but it consists in a novel combination and arrangement of parts so calculated to support but a very light weight, and accordingly the spring or springs may be made of comparatively thin wire, and owing to this circumstance they

have the desired elasticity and sensibility to make the mantle proof against the destructive influence of shocks and concussions.

My invention further relates to certain improvements hereinafter described and finally set forth in the claims.

The spring or springs which I employ for the purpose of intercepting the shocks and concussions to which the lamp may be subjected are preferably made of nickel or paktong or a suitable alloy of metals which, being subjected to moderate degrees of heat, does not lose its resiliency.

According to my invention the spring or springs applied to support the incandescent mantle are arranged within the burner-tube of a Bunsen burner, and the pin destined to carry the said mantle is supported by or suspended to the said spring or springs.

In the accompanying drawings a variety of modifications serve to illustrate my invention.

Figures 1 and 7 are central vertical sections through a complete burner embodying my invention. Fig. 2 is an outside view of the central pin and mantle-guide carried by the same. Figs. 3, 4, 5, and 6 are central vertical sections through the burner-tube and spring-supports, and Fig. 8 indicates several forms of springs which may be employed for supporting the mantle-carrier. Fig. 9 represents a central vertical section through the burner-tube and spring-supports, showing the ring secured to the sieve-cap.

Similar letters of reference indicate the same parts.

Referring to Fig. 1, A is an elastic support for the central pin B, from which the incandescent mantle E is suspended. The said support A preferably consists of a spiral spring tapering toward the upper end. The pin B is carried by the said spring or body A by means of a disk or plate b or cross-pin secured or formed at or near to the lower end of said pin B, and the said disk or plate b may preferably consist of asbestos or other non-conducting material to prevent the heat of the pin B from being conducted to the metal of the body A. A cap F, of asbestos or other suitable material, may cover the top of the spring or body A to protect the same

against the heat of the flame and metal cap of the burner extending down by radiation.

In the modification illustrated by Fig. 1 the mantle-carrier B extends through the sieve-cap G of the burner, having sufficient play within said cap to vibrate in the vertical direction if shocks and concussions come to shake the burner. The sieve-cap G in this case may be rigidly secured within or to the burner-tube D, but the said sieve-cap G might as well be fixed to the pin B, as illustrated by Fig. 7, and loosely fit over the burner-tube D to follow the vertical vibrations of the said pin B, or said cap may be fixed to the pin B and fit loosely in the burner-tube, as shown in Figs. 3, 4, 5, and 6. To protect the lower edge of the fragile incandescent mantle E against making contact with the metal of the burner-tube, I prefer to attach to the pin B a ring H, preferably of lardite or other material resisting to heat and non-metallic. The said ring H may be suspended by a wire *h* or wire cross, and to the lower edge of said ring a skeleton cylinder H', of wire, or a short piece of metal tube, may be secured to better guide the ring H on the tube D during the vertical vibrations. The said ring H may also be secured to the sieve-cap G if the latter is fixed to the pin B and loose upon the burner-tube D, as in Fig. 9. In this case the suspending wire or wires *h* may be omitted.

In Fig. 2 the ring H and skeleton cylinder H', suspended from the pin B, are shown separately.

The spiral spring A or elastic support, according to the modification illustrated by Fig. 1, is resting on the sieve-plate C within the burner-tube D; but any other mode of securing the resilient body A will do.

The modification illustrated by Fig. 3 consists in combining the supporting-spring A with a second spring A', riveted or secured to the sieve C, and by this additional spring A' an increased sensibility for intercepting and abating the shocks and concussions is obtained. The same effect will be obtained by employing a single spring forming a double cone, as indicated by Fig. 8, or the second auxiliary spring A' may be replaced by a number of spiral springs A², supporting the main spring A, as shown in Fig. 4, or the main spring A may be suspended by two or more spiral springs A³, as shown in Fig. 7.

In the two modifications illustrated by Figs. 5 and 6 the central pin B rests within a rigid foot or support B', which may be formed into one piece with the said pin B. The cross pin or pins of said foot B' is suspended to elastic springs A³, as shown in Fig. 5, or supported by such springs A², as illustrated by Fig. 6.

In all these modifications the weight supported by the spring or springs consists only of the pin B, guide-ring H or sieve-cap G, and incandescent body E. To support such parts, springs of thin wire and great elasticity may be employed, and a great sensibility of the

system is obtained. In the combination described and shown the arrangement of the spring or springs inside the burner-tube D not only serves to elastically support the incandescent mantle for intercepting the shocks and concussions, but it is, besides, of great advantage by operating an intimate mixture of the gas issuing from the nozzle K with the atmospheric air entering through the holes *d* of the tube D. As shown in Fig. 1, the said tube D may be formed with a perforated ring D', opposite or near to the upper end of the nozzle K, the holes *d* being cut within the bottom of said ring, and the said ring serves to facilitate the aspiration of atmospheric air through the holes *d* by the gas issuing from the nozzle K. By the aid of said perforated ring and the intimate mixture of gas and air obtained through the spring or springs inside the burner-tube a very bright, constant, and steady flame is obtained; and the said flame may be further improved by placing into the body L of the nozzle K a ring M, closed at the top, permitting the passage of gas only through a channel *m*, cut into the outside of said ring. A screw N, entering into said channel *m*, serves to vary the width of passage, and by this means the great inconveniences are overcome which are connected with the existing nozzles having extremely narrow perforations, which require frequent readjusting and repairs.

I do not limit my invention to the specific construction of the spring or springs employed, as many modifications may be employed in addition to those shown in the drawings and described in the specification.

I claim as my invention—

1. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying central pin supported by a spring or springs arranged inside of said burner-tube.

2. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying central pin supported by a spring or springs resting on a fixed part inside the burner-tube.

3. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs suspended within the burner-tube.

4. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the burner-tube, the said pin being insulated against the metal of the spring or springs.

5. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the said burner-tube, and an insulating-cap of asbestos or similar material to keep the heat from the spring or springs.

6. In a burner for incandescent light, the

combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the said burner-tube, and a guide-ring carried by the said pin.

5 7. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the said burner-tube, and a sieve-cap secured to the said pin.

10 8. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the burner-tube, a

nozzle admitting the gas through a channel, and a screw entering said channel for regulating the admittance of gas to the burner. 15

9. In a burner for incandescent light, the combination, with the burner-tube, of a mantle-carrying pin supported by a spring or springs arranged inside the burner-tube, the 20 air-holes of which are seated in a perforated ring of the said burner-tube.

FERDINAND FRITZ.

Witnesses:

W. HAUPT,
C. H. DAY.