

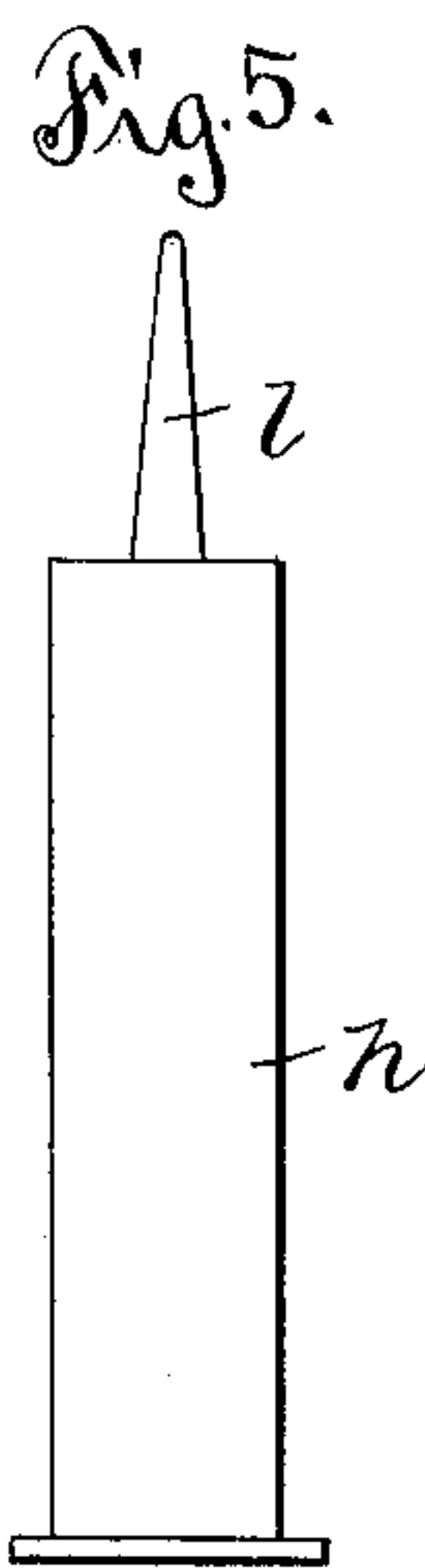
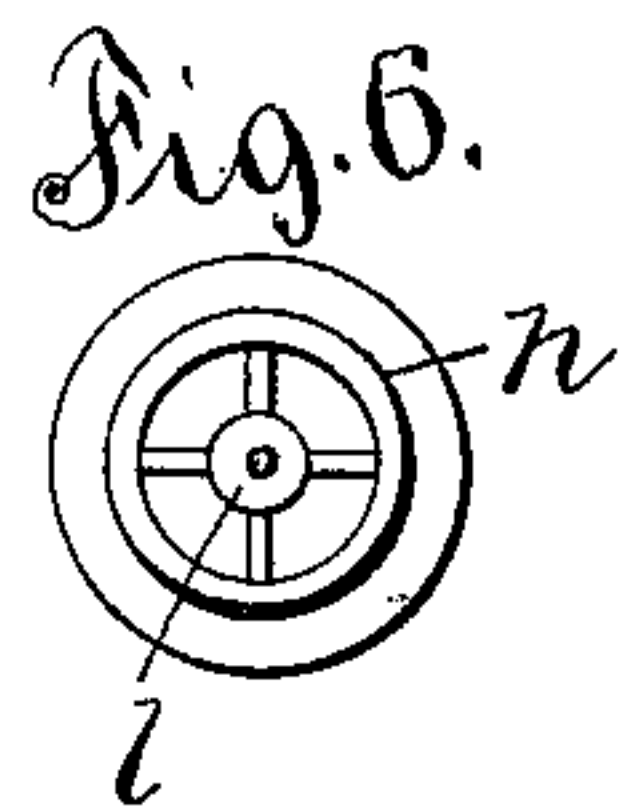
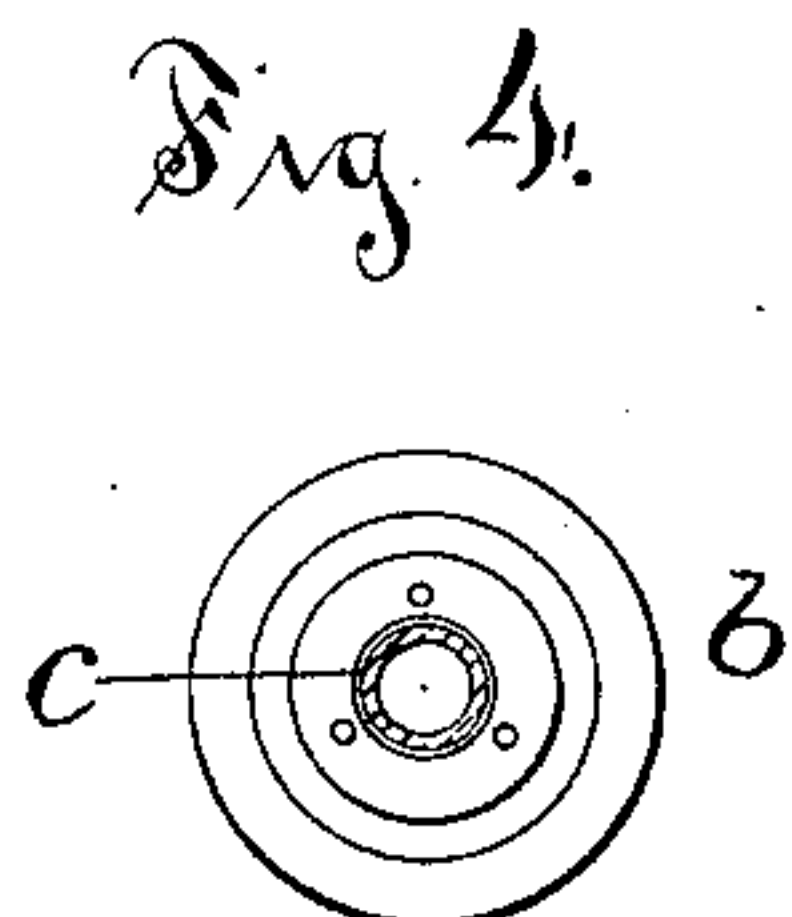
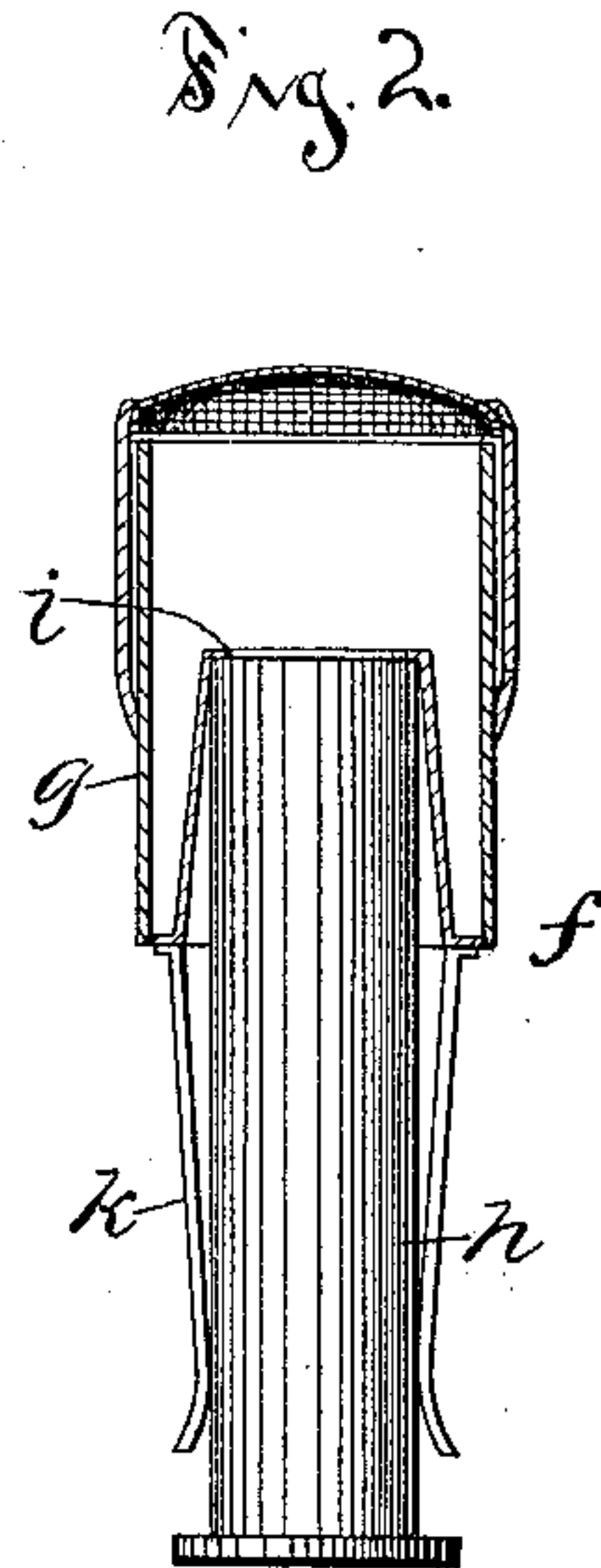
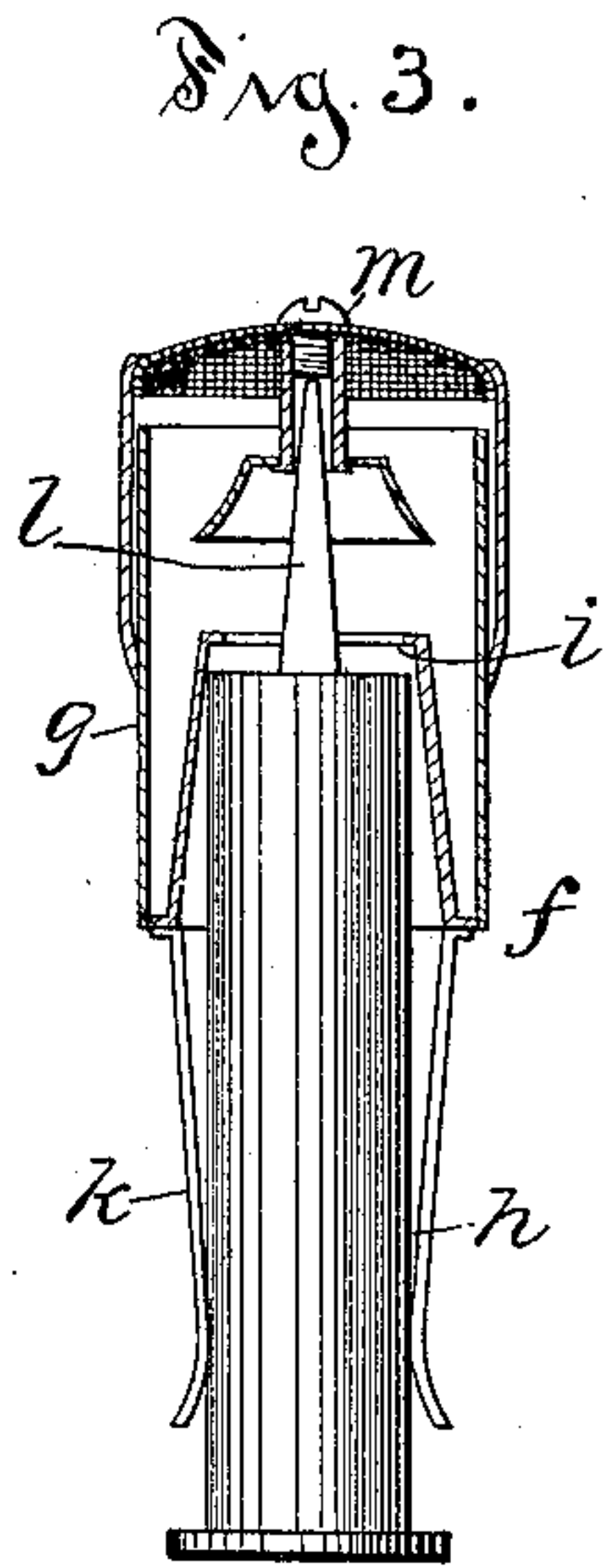
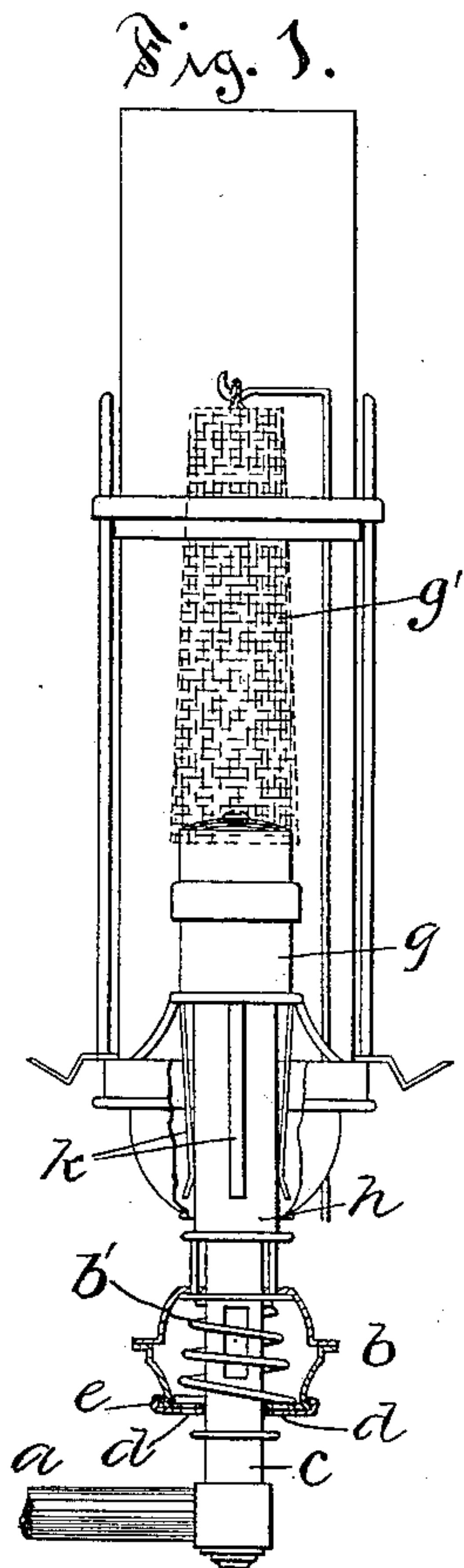
No. 610,473.

Patented Sept. 6, 1898.

F. A. CORTIS.  
WELSBACH LAMP.

(Application filed Oct. 27, 1896.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## WELSBACH LAMP.

SPECIFICATION forming part of Letters Patent No. 610,473, dated September 6, 1898.

Application filed October 27, 1896. Serial No. 610,174. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK A. CORTIS, a citizen of the United States, and a resident of Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Welsbach Lamps, of which the following is a full, clear, and exact description whereby any one skilled in the art can make and use the same.

My invention relates directly to that class of so-called "lamps" in common use under the name of "Welsbach" and involving the use of a mantle of extremely fragile material as the part which is brought to a high state of incandescence to provide the luminous body in the lamp. Owing to the fragility of this material a comparatively light shock will cause it to be broken, and thus destroy the essential feature in the lamp.

The object of my invention is to provide means whereby that part of the lamp to which the mantle is directly attached may be insulated from shocks, particularly against those directly against the bracket or the lamp; and to this end my invention consists of the sectional burner-tube so supported as to its parts one on the other as to provide a yielding cushion to absorb any lateral jar; and it further consists in the details of the several parts making up the device as a whole and the combination of such parts, as hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a view in side elevation of a Welsbach lamp with parts cut away to show construction. Fig. 2 is a detail view, on enlarged scale, showing the burner-tube with parts cut away. Fig. 3 is a modified form of the burner-tube.

Fig. 4 is a detail view in horizontal section through the device on a plane just underneath the bottom of the lower section of the burner-tube, looking down. Fig. 5 is a detail side view of the lower section of the burner-tube. Fig. 6 is a detail top view of the same.

In the accompanying drawings the letter *a* denotes a gas-bracket or like support on which that portion of the lamp which carries the mantle (and in the form herein shown the chimney also) is mounted.

*b* denotes the shutter, which is a hollow

structure through which a mixer-tube *c* extends and having air-ports *d* through which the desired quantity of air may enter the burner to properly support combustion. A valve or damper *e* is arranged in the shutter, so that by a sliding movement the flow of air through the ports may be regulated.

The mixer-tube *c*, threaded to fit upon the gas-bracket, extends upward through the shutter, with openings through its walls to receive an inflow of air within the shutter, and from the upper part of the shutter this mixer-tube extends into a burner-tube *f*. The burner-tube is made in two sections *g* *h*, the upper section *g* being provided at the upper end with a network above which the flame is located and the lower section *h* extending within the upper section and being considerably smaller in diameter than said upper section.

At a point within the upper section of the burner-tube there is located a shoulder *i*, formed in one instance by a ring extending around within the upper section *g* of said tube and secured to its wall or forming an integral part thereof. This shoulder *i* rests upon the lower section *h* of the burner-tube and preferably upon its upper edge, and said shoulder may be continuous, or substantially so, its function being to form a support on which the two sections may tilt or rock under a lateral jar or shock encountered by the lamp or its support. This point of support of the upper section of the burner-tube, which carries the mantle *g'*, is so located with reference to the parts that it is held normally in an upright position by means of spring-arms *k*, interposed between the two burner-sections, the arms being preferably fastened by one end to the upper section and having the lower ends extending along the lower section of the burner-tube on opposite sides and pressing against it, as shown in the drawings. Sufficient space is left between the two sections of the burner-tube to allow a free lateral movement of the upper section on the lower section, this lateral movement being a rocking or tipping movement.

The lower section *h* of the burner-tube may be arranged to rest upon a cushion *b'*, (a spiral spring, as shown in Fig. 1 of the draw-



ings,) interposed between it and a fixed or rigid part of the bracket or a part fast thereon, and this cushion absorbs all directly-vertical shocks or jars. In some forms of Welsbach lamps as a whole this additional cushion to absorb vertical shocks or jars is an advantage.

In the modified form of the invention, as shown in Fig. 3 of the drawings, a central pin *l* is supported on the lower section of the burner-tube, and the upper section is supported from a central point on this pin. An adjustable support *m*, in this instance a screw fitting a screw-threaded socket in the upper section, is provided, the pin *l* resting in contact with the adjustable support. As in the other instance, the free lateral movement of the two parts is provided, this freedom of movement being governed by the tension of the spring-arms interposed between the two sections of the burner-tube.

It is to be noted that an advantageous feature of improvement resides in locating the support for the upper section in contact therewith at the central point, and this may be a point as this term is commonly understood or a circular surface concentric with the center of the lower section *h* of the burner-tube, this point of support being small in area as to contact-surface, whereby the lamp is rendered particularly sensitive to sidewise shocks or jars equally in all directions, this movement being governed and controlled by the cushioned spring-arms interposed between the parts.

I claim as my invention—

1. In combination in a lamp having a fragile mantle over a flame and including a member supporting said mantle and having a loose mount, and a yielding cushion interposed between said member and its support, to resist lateral movement of said mantle-supporting member.

2. In combination in a lamp having a fragile mantle over a flame and including a burner-section supporting said mantle, said burner-

section having a shoulder resting on its support, and a cushion interposed between said burner-section and its support whereby lateral jars or shocks are prevented.

3. In combination in a lamp having a fragile mantle over the flame, a burner-tube comprising an upper section supporting the fragile mantle and loosely mounted on a lower section, the lower section of the burner-tube mounted on a support, the support and a yielding cushion interposed between the two sections of the burner-tube.

4. In combination with a bracket-arm or like support, forming a source of supply, a mixer-tube secured to said support, an air-shutter mounted on the mixer-tube, a sectional burner-tube mounted on a yielding cushion located within the air-shutter, the upper section of the burner-tube supporting the fragile mantle for the lamp and loosely mounted on the lower section of the burner-tube, and a yielding cushion interposed between the sections of the burner-tube.

5. In combination with a bracket-arm or like support, a gas-pipe, a mixer-tube, an air-shutter inclosing a yielding cushion, the lower section of the burner-tube surrounding the mixer-tube and mounted on the yielding cushion and also, extending within the upper section of the burner-tube, the upper section of the burner-tube loosely mounted on the lower section by a central support, and a yielding cushion interposed between the two sections of the burner-tube.

6. In combination with a bracket-arm or like support, a mixer-tube, a sectional burner-tube supported on the mixer-tube, one of said sections bearing a fragile mantle over the flame of the lamp and loosely mounted on the lower section, and a cushion interposed between said sections.

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