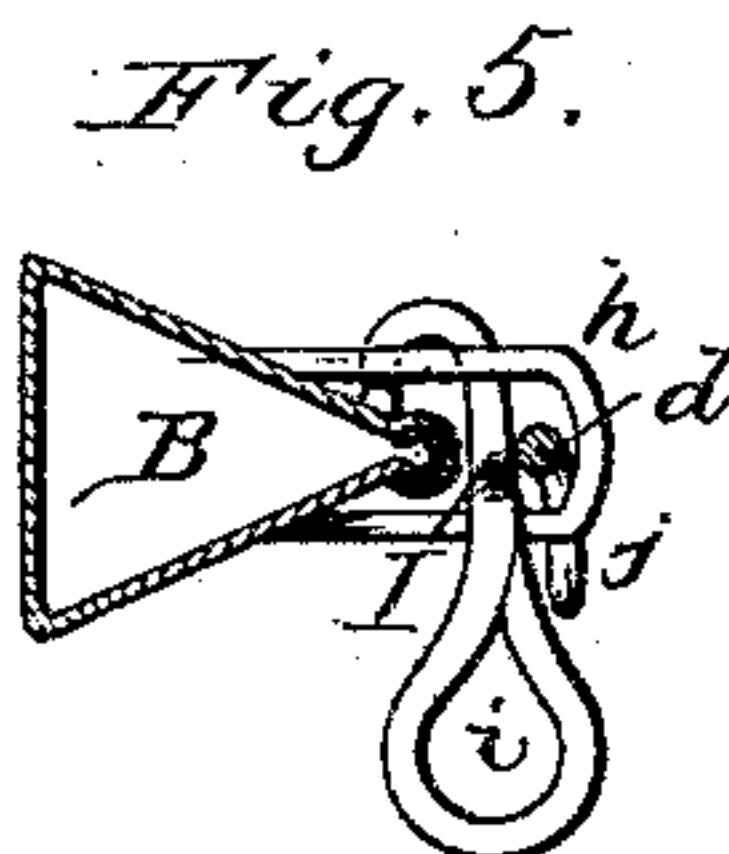
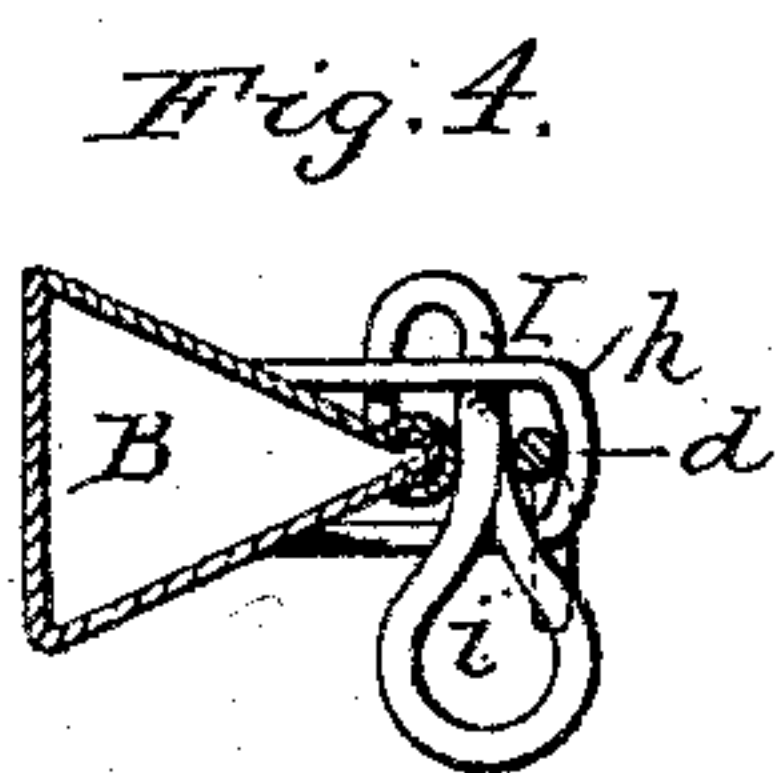
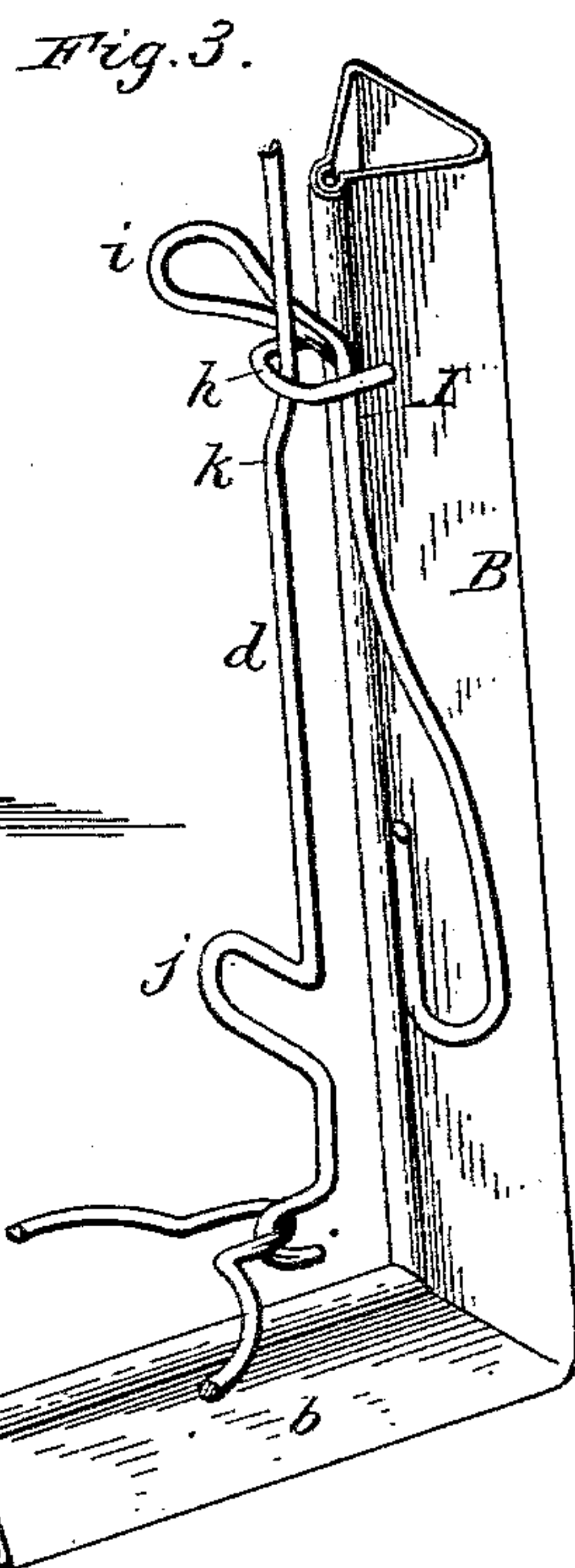
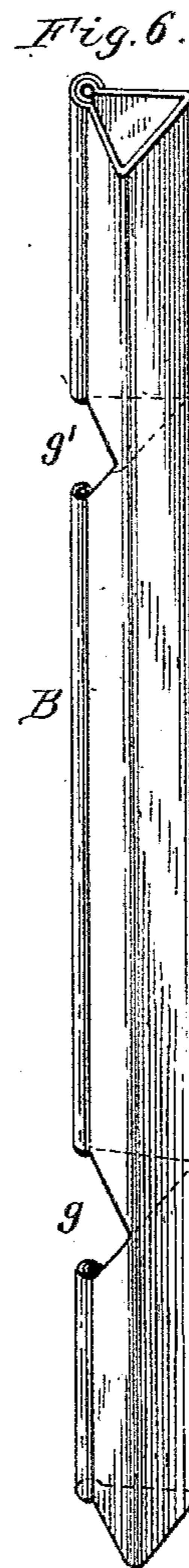
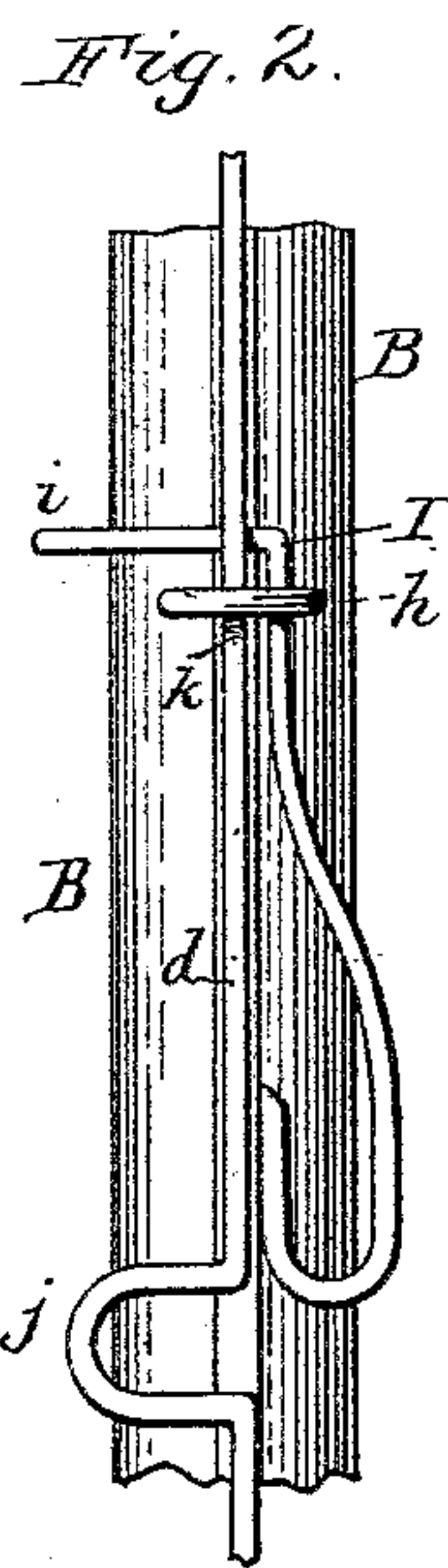
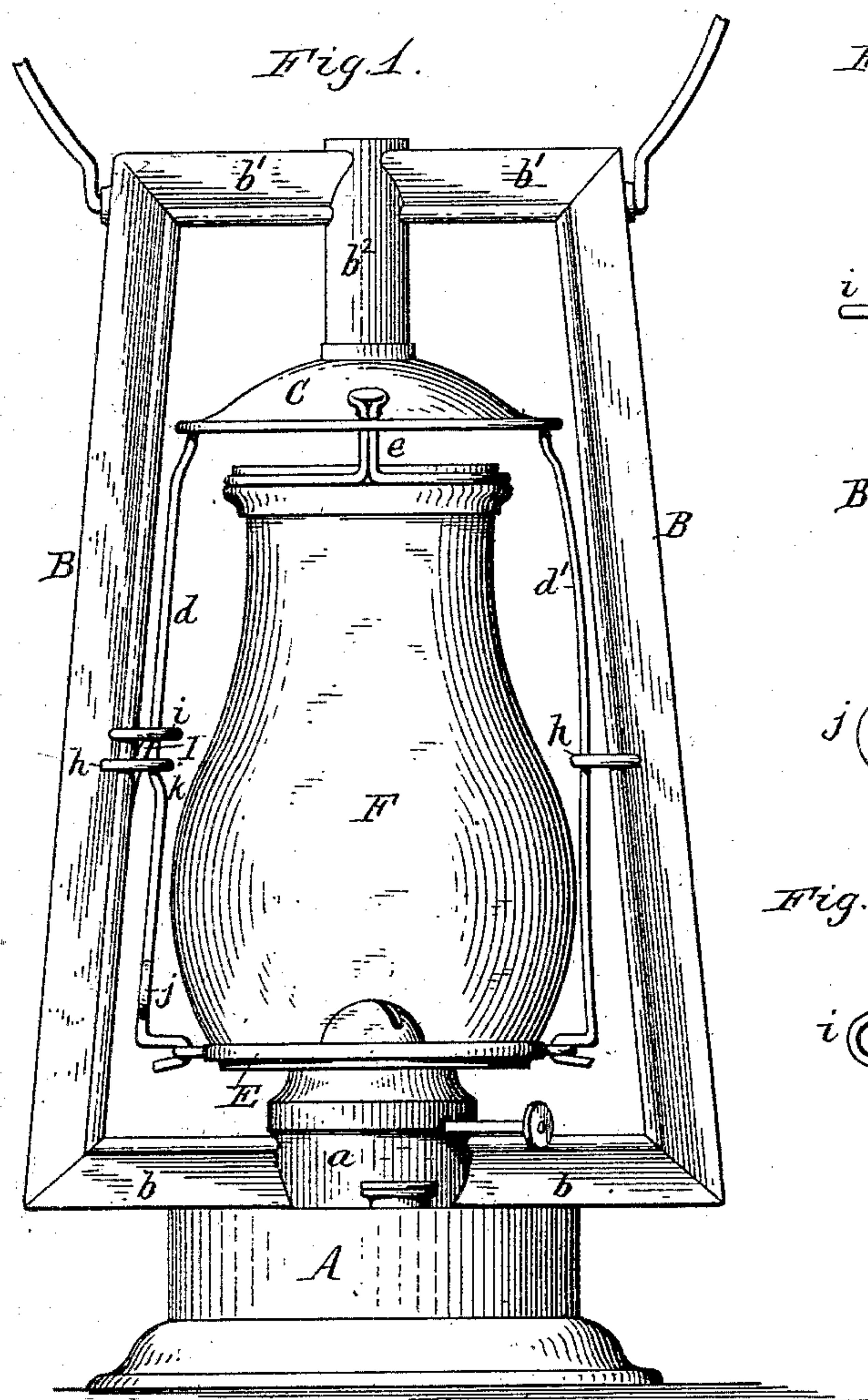


(No Model.)

L. F. BETTS.
TUBULAR LANTERN.

No. 401,116.

Patented Apr. 9, 1889.



Witnesses:

Theo. L. Popp.
Geo. Buchheit Jr.

Lewis F. Betts Inventor.
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Attorneys.

UNITED STATES PATENT OFFICE.

LEWIS F. BETTS, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO THE
R. E. DIETZ COMPANY, OF SAME PLACE, AND THE STEAM GAUGE AND
LANTERN COMPANY, OF ROCHESTER, NEW YORK.

TUBULAR LANTERN.

SPECIFICATION forming part of Letters Patent No. 401,116, dated April 9, 1889.

Application filed August 4, 1887. Serial No. 246,108. (No model.)

To all whom it may concern:

Be it known that I, LEWIS F. BETTS, of the city of New York, in the county and State of New York, have invented new and useful Improvements in Tubular Lanterns, of which the following is a specification.

This invention relates to that class of lanterns which are provided with side tubes of tin or other sheet metal, by which the air is conducted to the burner; and it has the object to improve the construction of these tubes and to provide the lantern with simple devices for raising and lowering the movable globe-frame and locking the same in position.

My invention consists of the improvements which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a tubular lantern provided with my improvements. Fig. 2 is an inside elevation, on an enlarged scale, of the catch applied to one of the side wires of the movable globe-frame. Fig. 3 is a perspective view of the same, taken from the rear. Fig. 4 is a horizontal section through one of the tubes, showing said catch tightened. Fig. 5 is a similar view showing the catch released. Fig. 6 is a perspective view of one of the tubes preparatory to bending the branches thereof.

Like letters of reference refer to like parts in the several figures.

A represents the base of the lantern, containing the oil-pot, an air-chamber, *a*, and the burner.

B B represent the side tubes; *b*, the lower branches of the side tubes, extending inwardly to the air-chamber *a*; and *b'*, the upper branches of the side tubes, connecting with the central tube, *b²*, which depends from the branches *b'*.

C represents the bell, mounted on the central tube, *b²*, so that it can be raised and lowered on the same.

d d' represent the side or lift wires secured with their upper ends to the bell C, and E is the perforated plate on which the globe F rests, and which is attached to the lower ends of the side wires, *d d'*.

e represents the spring-catch which confines the upper end of the globe.

The side tubes, B B, and their upper and lower branches, *b' b*, are made triangular in cross-section, and arranged with one edge toward the burner and with their flat backs outwardly, so that each tube presents two inclined faces to the burner, which reflect the light in opposite directions. Each tube is formed of a single blank, which is bent over a three-sided mandrel, and has its edges secured together along the inner edge of the tubes by bending or curling one edge over the other, as represented in Figs. 4 and 5. The two overlapping curved edges of the blank hold the tube in shape without seaming or soldering. The upper and lower branches, *b' b*, are preferably formed in one piece with their side tube, B, as represented in Fig. 6, so that the flat backs of each side tube and its branches are formed of a continuous piece, while their inclined inner faces are separated by angular notches *g g'*, which are closed in bending the branches horizontally. The contiguous edges of these notches are then secured by soldering. These triangular tubes are easily and cheaply made of a minimum amount of sheet metal, and are very strong and durable, while they offer little obstruction to the light.

h h represent the horizontal guide-loops, which are secured to the inner sides of the side tubes, B, and through which the lift-wires *d d'* pass.

I represents a spring-catch, which is secured with its lower end to one of the side tubes and passes through the guide-loop *h* between the lift-wire *d* and the inner edge of the side tube. The spring-catch I is provided above the loop *h* with a horizontal thumb-piece, *i*, which projects forwardly. The lift-wire *d* is provided below the loop *h* with a thumb-piece, *j*, formed by a bend in the lift-wire. The upper portion of the spring-catch I presses in its normal position against the rear side of the loop *h* and wedges the lift-wire *d* against the inner side of the loop, as represented in Fig. 4, thereby creating a friction between the lift-wire and the loop, which tends to hold the globe-frame in position when it is elevated, in order to afford access to the burner, or when lowered upon the burner.

In order to hold the globe-frame still more securely on the burner the side wire, *d*, is provided with a bent portion or shoulder, *k*, which engages against the under side of the loop, and is clamped against the same by the spring-catch when the globe rests on the burner. Upon pressing on the thumb-piece *i* of the spring-catch, the spring-catch is drawn forwardly against the front portion of the loop *h*, whereby the catch is withdrawn from the lift-wire *d*, as represented in Fig. 5, permitting the lift-wire and the globe-frame of which it forms part to be freely raised and lowered. The spring-catch is readily operated by placing the index-finger under the thumb-piece *j* on the lift-wire *d* and the thumb on the thumb-piece *i* of the catch. The spring-catch, being located on one side of the globe, is always cool, so that it can be conveniently handled.

The globe-frame is easily raised and lowered by taking hold of the thumb-piece *j* of the side wire.

I claim as my invention—

1. A tubular lantern provided with side

tubes of triangular cross-section, each arranged with its flat back outwardly and with one edge toward the burner, substantially as set forth.

2. The combination, with the tubular-lantern frame having its side tubes provided with guide-loops *h*, of a lifting globe-frame provided with side wires, *d*, passing through said loops, and having a thumb-piece, *j*, formed on one of said side wires below the guide-loop, through which it passes, substantially as set forth.

3. The combination, with the tubular-lantern frame provided with a guide-loop, *h*, of a lifting globe-frame provided with a side wire, *d*, passing through said loop, and having a thumb-piece, *j*, below said loop, and a spring-catch, *I*, arranged in said loop, and provided above the latter with a thumb-piece, *i*, substantially as set forth.

Witness my hand this 24th day of May, 1887.

LEWIS F. BETTS.

Witnesses:

CHARLES L. BETTS,

JOHN WARNECK.