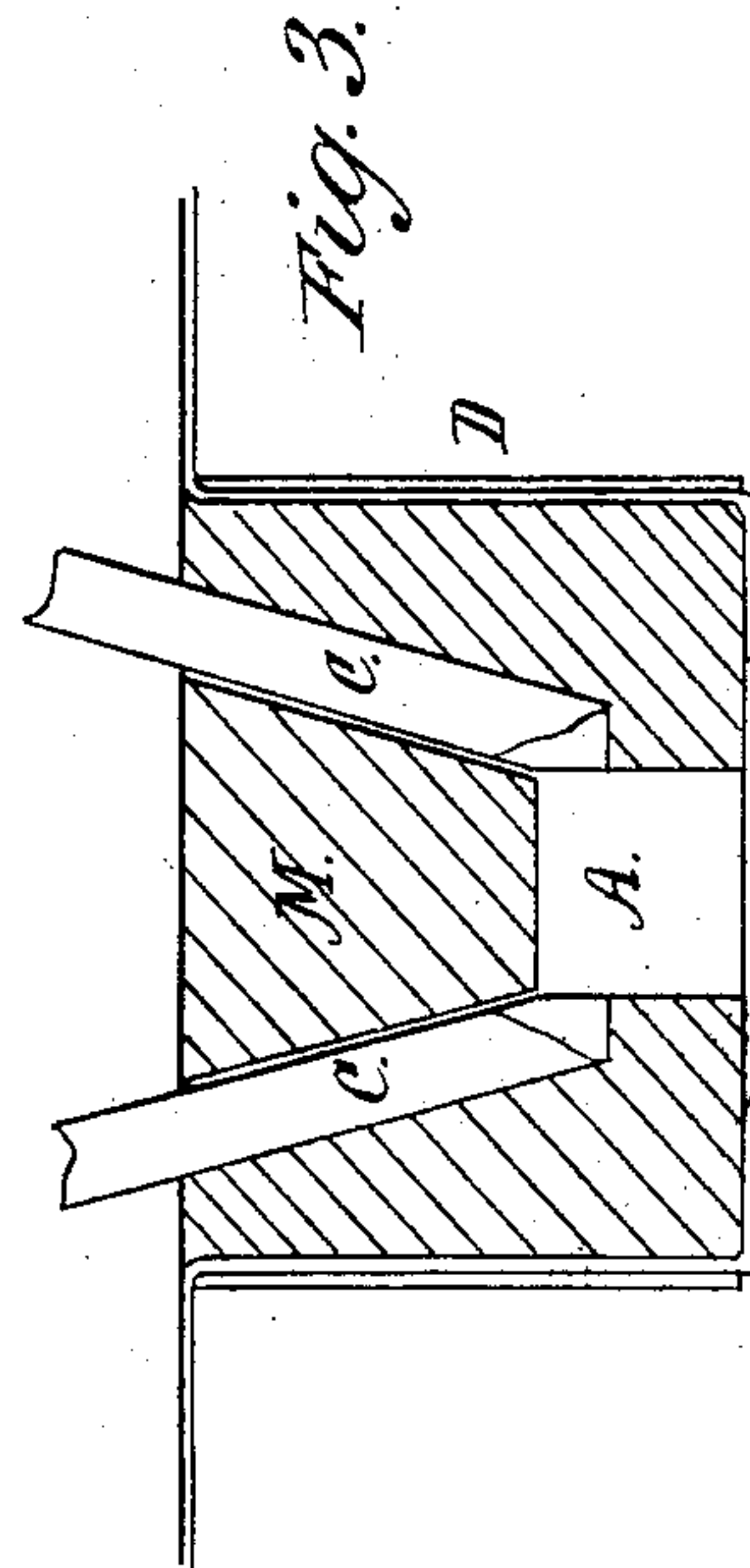
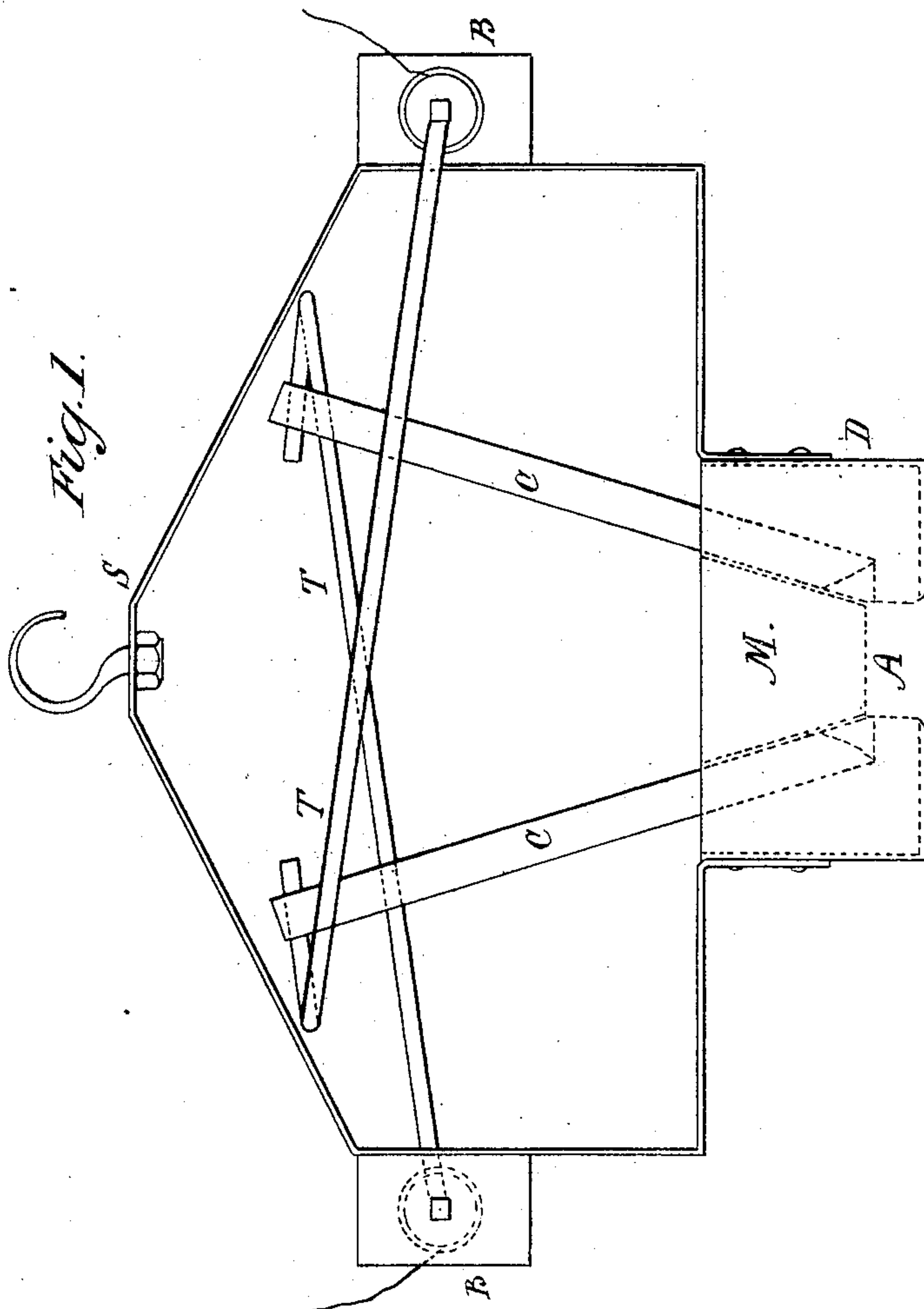
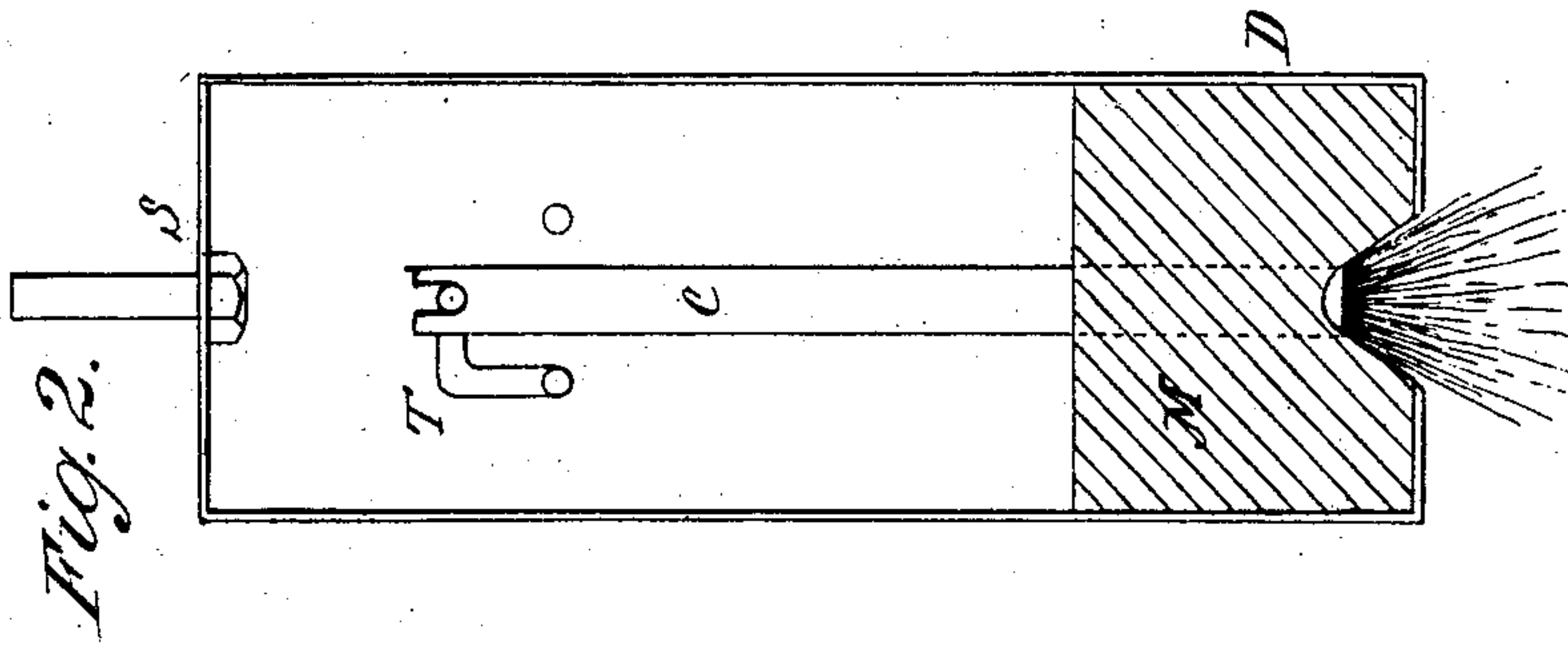


(No Model.)

A. BUREAU.  
Electric Lamp.

No. 242,747.

Patented June 14, 1881.



Witnesses  
C. Wetter  
J. O. Hume.

Inventor  
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# UNITED STATES PATENT OFFICE.

ANTOINE BUREAU, OF GHENT, BELGIUM.

## ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 242,747, dated June 14, 1881.

Application filed May 27, 1880. (No model.) Patented in Belgium March 3, 1880.

*To all whom it may concern:*

Be it known that I, ANTOINE BUREAU, of Ghent, in the Kingdom of Belgium, have invented a new and useful Improvement in Electric Lamps, (for which I have obtained a patent in Belgium bearing date March 3, 1880,) of which the following is a specification.

My system of lamps is based on a new principle, which consists in surrounding the electrodes of the voltaic arc type of electric lamps by a block of refractory material—for instance, marble—which protects the poles against the air, compels the voltaic arc to take a prescribed line, and may be used to give a special tint to the electric light. For this purpose the contiguous extremities of the carbons are embedded in the refractory material, and the latter cut out so as to form a vault directed toward the side which is to be illuminated. At the top of this vault are two orifices which communicate with the points of the carbons, thereby forcing the arc to take the prescribed way. This principle reduces the consumption of the carbons by protecting them against the destructive action of the air—that is to say, by avoiding more or less their combustion—it secures also, by the high temperature of the refractory block, a disaggregation of the carbons favorable to the formation of the voltaic arc and permits the application of currents of small quantity. The carbons are made to advance, in proportion to their consumption, either by their own weight or by means of counter-weights and springs. The lighting of the lamp is effected by means of rods of plumbago or other suitable material connecting the carbons through the said orifices.

For operating the lamps continuous or alternating currents may be used, as desired.

In view of the small quantity of electricity necessary, the shape and dimensions of the carbons may be greatly varied. One of the carbon electrodes may be replaced by a metallic electrode.

The refractory material employed may be formed of one or more pieces joined together or simply placed near each other. It can be cut out so as to place the carbon points in the direction desired, and the shape of the vault may vary according to the nature of the space to be illuminated.

This lamp makes any mechanism or superintendence unnecessary, and permits a prolonged use with carbons of small length.

I am aware that blocks of refractory material have been used for guiding the electrodes and for limiting their motion. I do not therefore claim the application of refractory material generally, but the special manner of applying the latter, whereby its function becomes essentially different from that hitherto assigned to it. In my lamp the refractory material serves to force the arc—that is to say, to compel it to take a way from which it cannot deviate—so that the arc cannot travel from the point to the base of the cone formed by the carbons. Experience has shown me that this is the only means of obtaining by the arc an absolutely fixed light.

In my lamp the carbon points are not seen, the light being produced by the heating effect of the carbon vapors of the voltaic arc on the incandescent material.

As regards the color of the electric light, I have found that it is absolutely necessary to hide the carbon points from view if the blue and violet beams of light—so great an objection to existing systems—are to be avoided.

In my lamp, where the carbon points are completely embedded in the refractory material, leaving only the two orifices for the arc, the color of the light is the color of the heated refractory material—generally a peculiar gold color.

In my lamp the voltaic arc touches the refractory material on its whole length without destroying the latter, the present arrangement having also the advantage of protecting the arc against cooling by surrounding it with refractory material, and thus increasing the useful effect, the length of arc obtainable being much greater than in older lamps.

As refractory material I prefer to use marble, which has given me the best result, but has not been used in other systems of electric lamps.

The carbons serve only to produce carbon vapors. The shape and dimensions of the carbons are quite immaterial, and the carbon may also be of moderate purity, because its function is not to produce light, but to supply carbon vapors, (having little illuminating but



much heating power,) which are utilized in a similar manner as Drummond has utilized the oxyhydrogen jet to produce the lime-light.

The annexed drawings show a suspension-lamp embodying my invention, and constituting one of a great many applications of my principle.

Figure 1 is a side elevation. Fig. 2 a cross-section, and Fig. 3 a section through the carbon-guides.

S designates the frame; D, a case containing the refractory material; M, the block of refractory material; A, the way of the voltaic arc (crown of the vault); B B, binding-posts or joints for the current-conductors; T T, bars turning on centers and conducting the currents to the carbons; C C, carbons.

I do not limit myself to the special form of lamp shown and described, because it may be varied in many ways without departing from the principle of my invention; but

What I claim is—

1. In an electric lamp, the combination, with two converging electrodes arranged to be fed by gravity, of a block of refractory material provided with converging passages or sockets in which the poles of the electrodes are received and hidden from view, the lower face of the block being cut out like a vault for the light, substantially as set forth.

2. The combination of carbons C with guide-block M, and conducting-rods T, turning on centers, substantially as and for the purpose described.

3. The combination of carbons C with guide-block M, inclosed in casing D, conducting-rods T, turning on centers, and suspension-frame S, substantially as and for the purpose described.

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

Witnesses: ANTOINE BUREAU.  
PAUL SWIMBERGHE,  
ALFRUS LEFEBVRE.