

No. 751,208.

PATENTED FEB. 2, 1904.

F. J. RUSSELL.
PRISMATIC LAMP.
APPLICATION FILED MAR. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

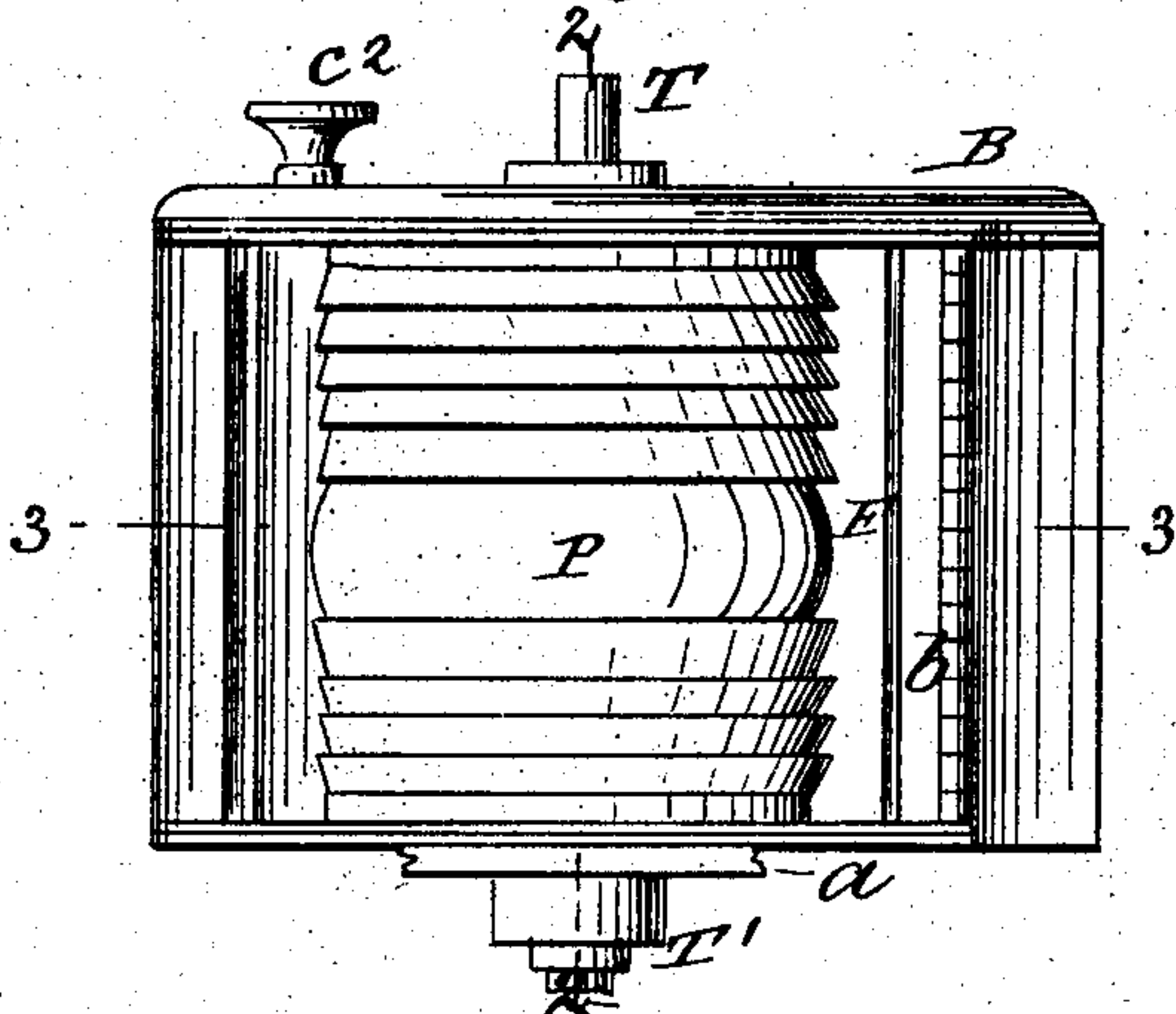


Fig. 2.

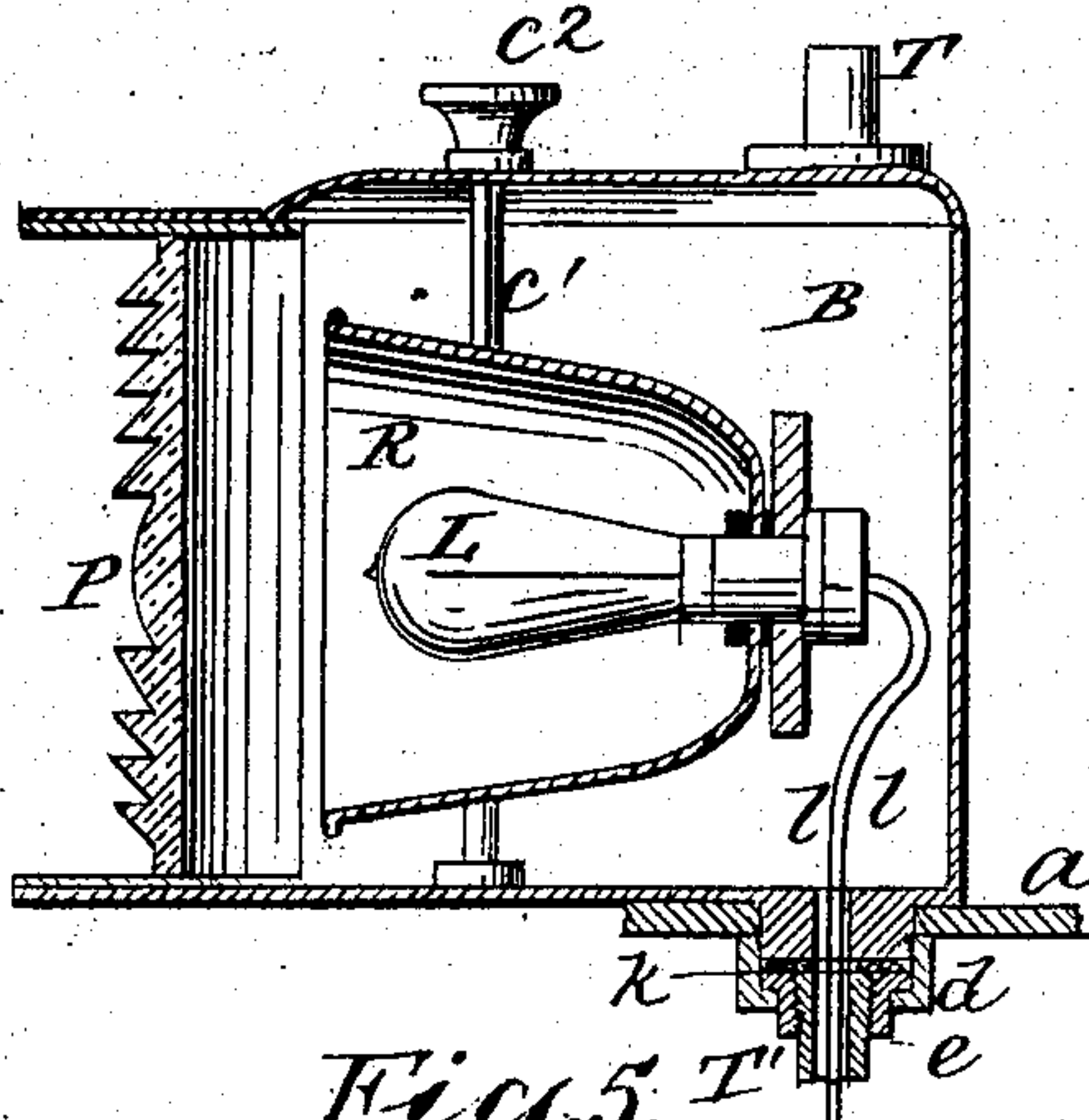


Fig. 3.

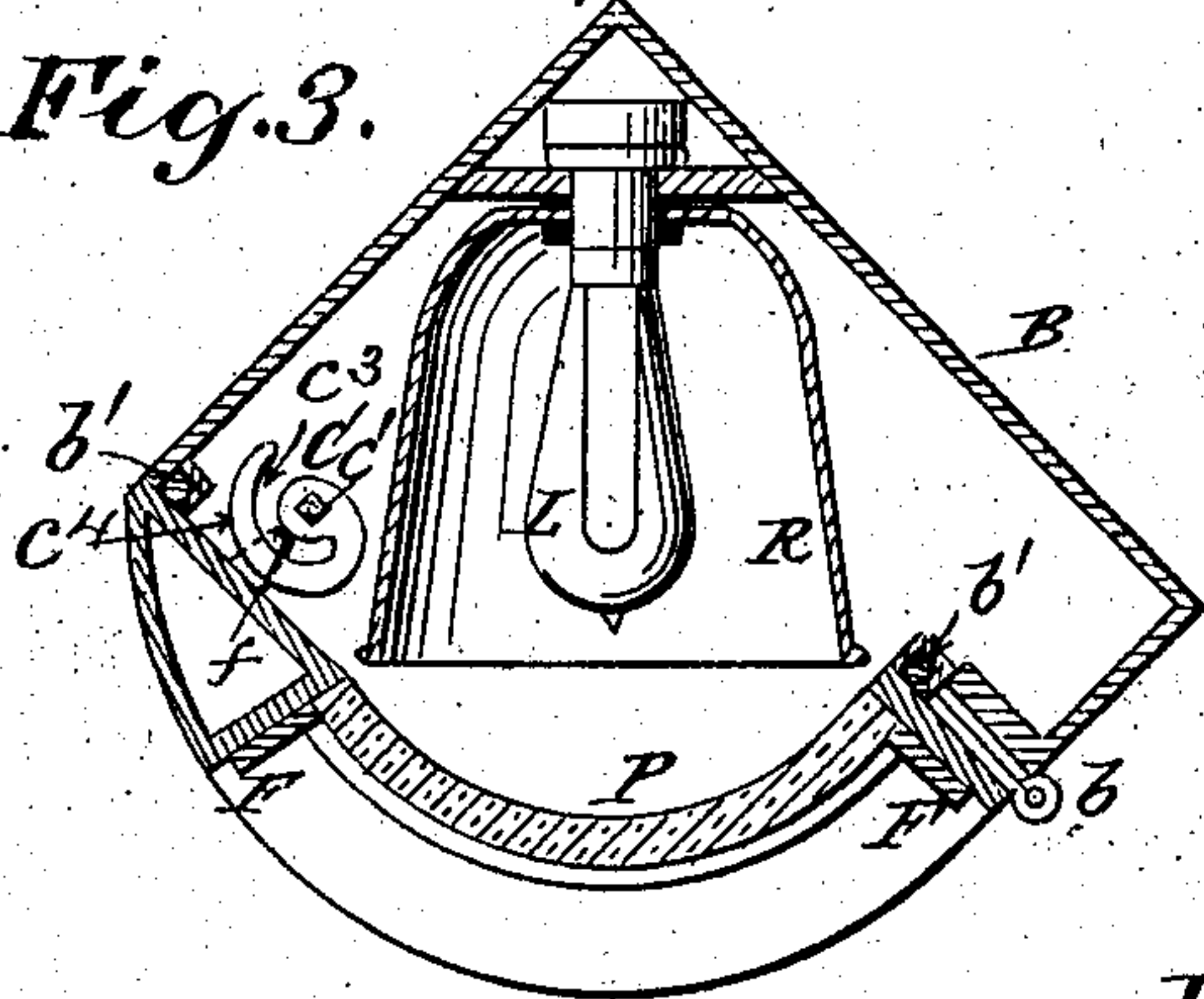


Fig. 5.

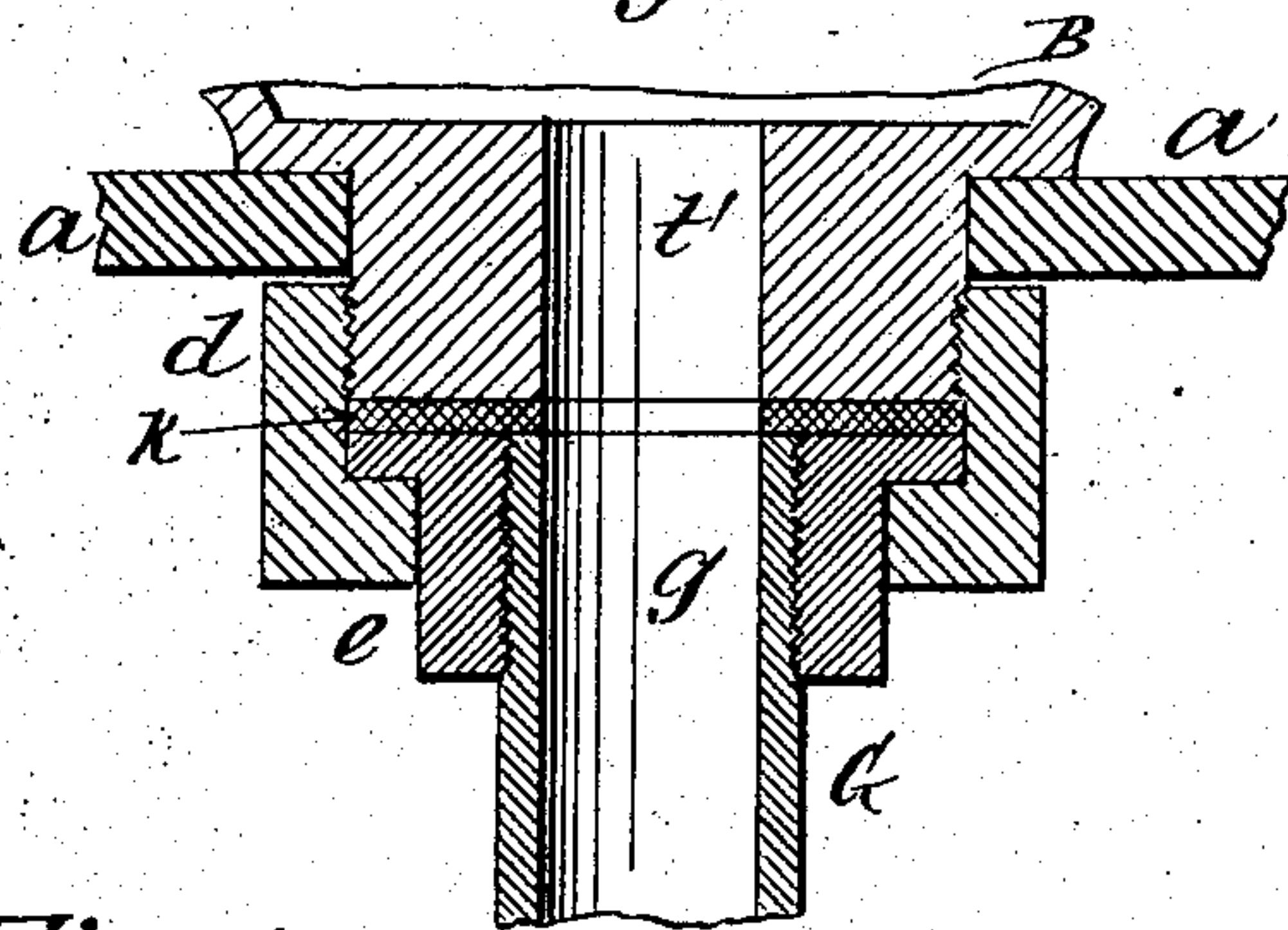
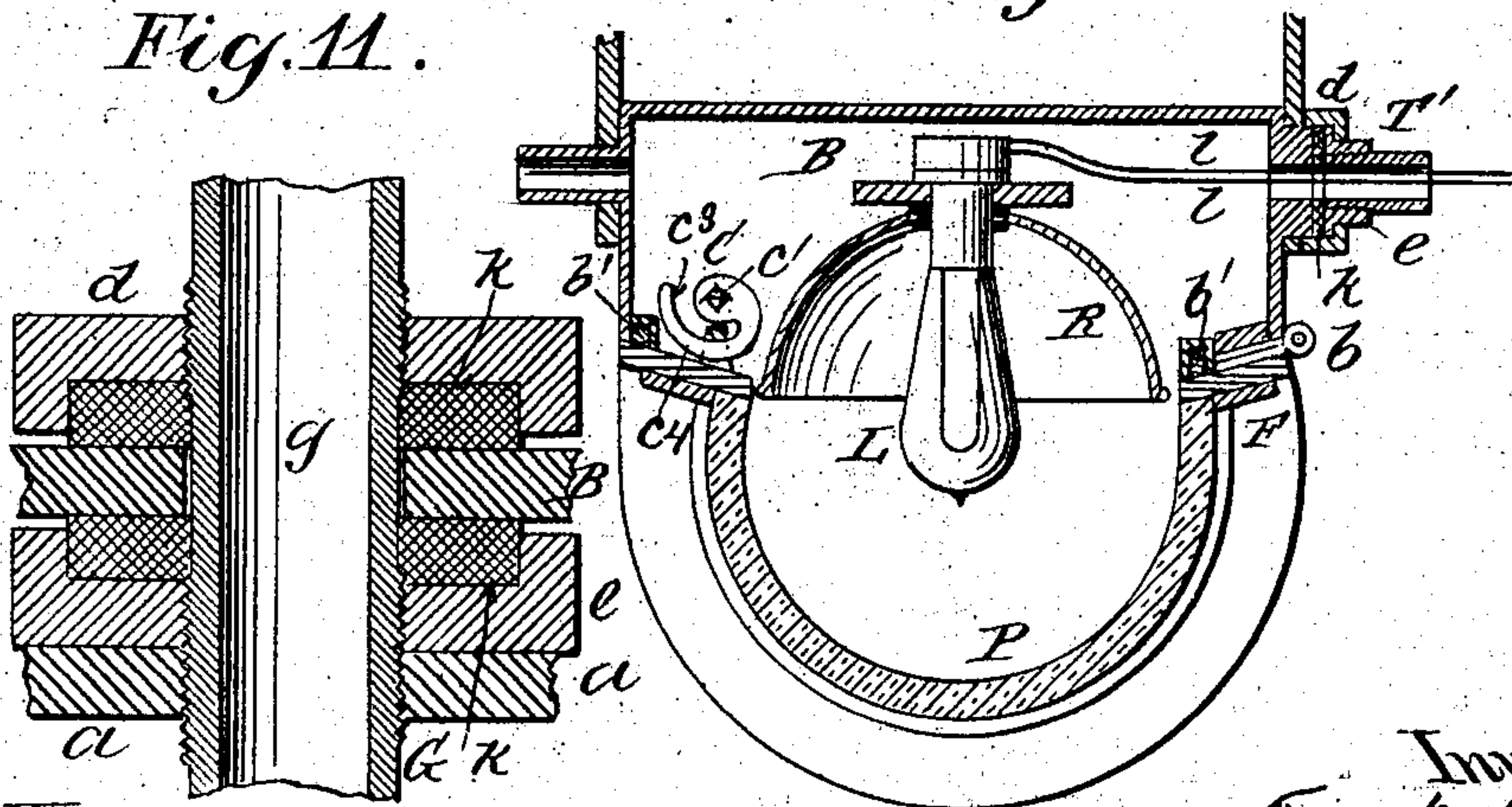


Fig. 4.



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Fig. 6.

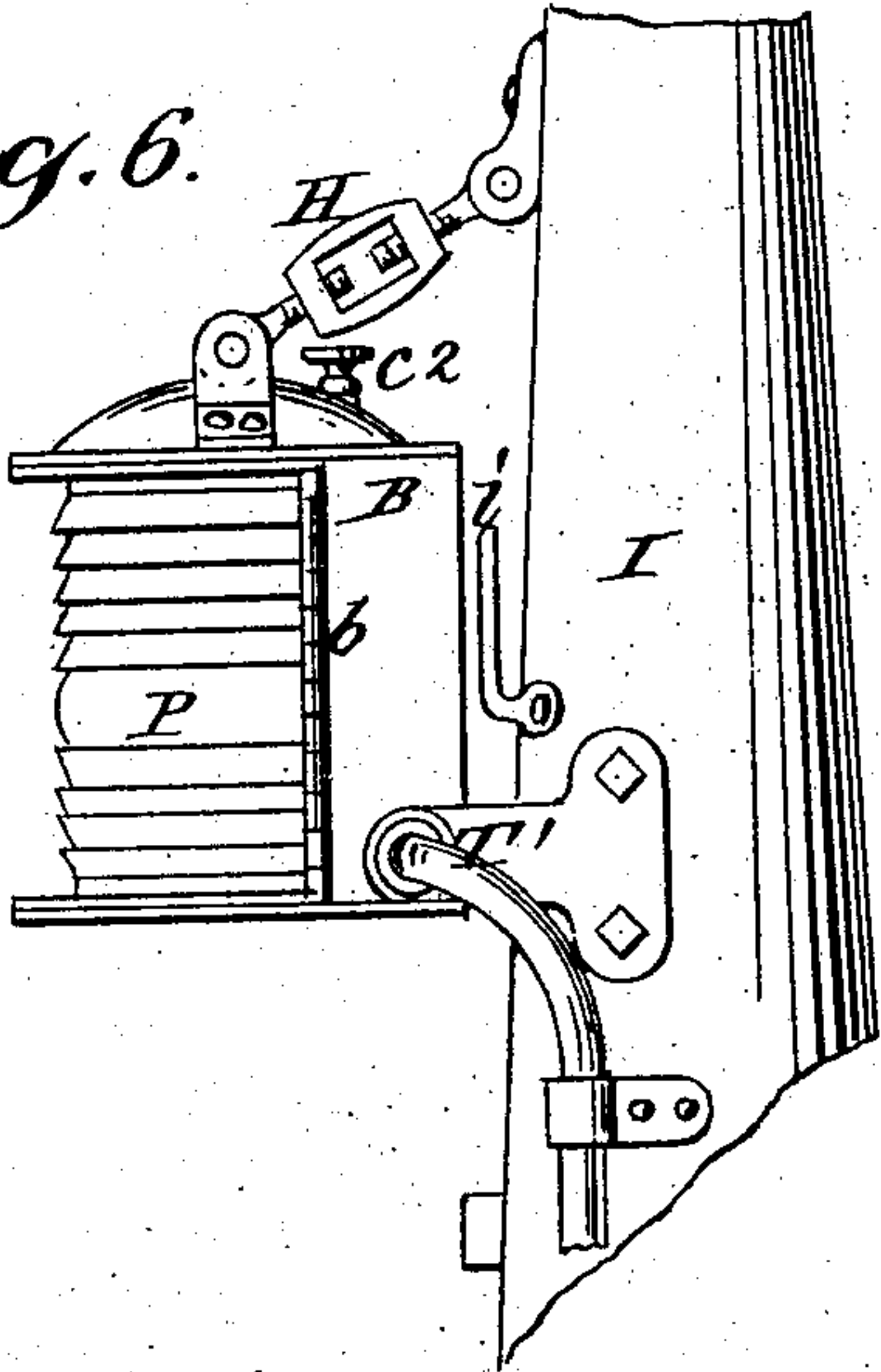


Fig. 7.

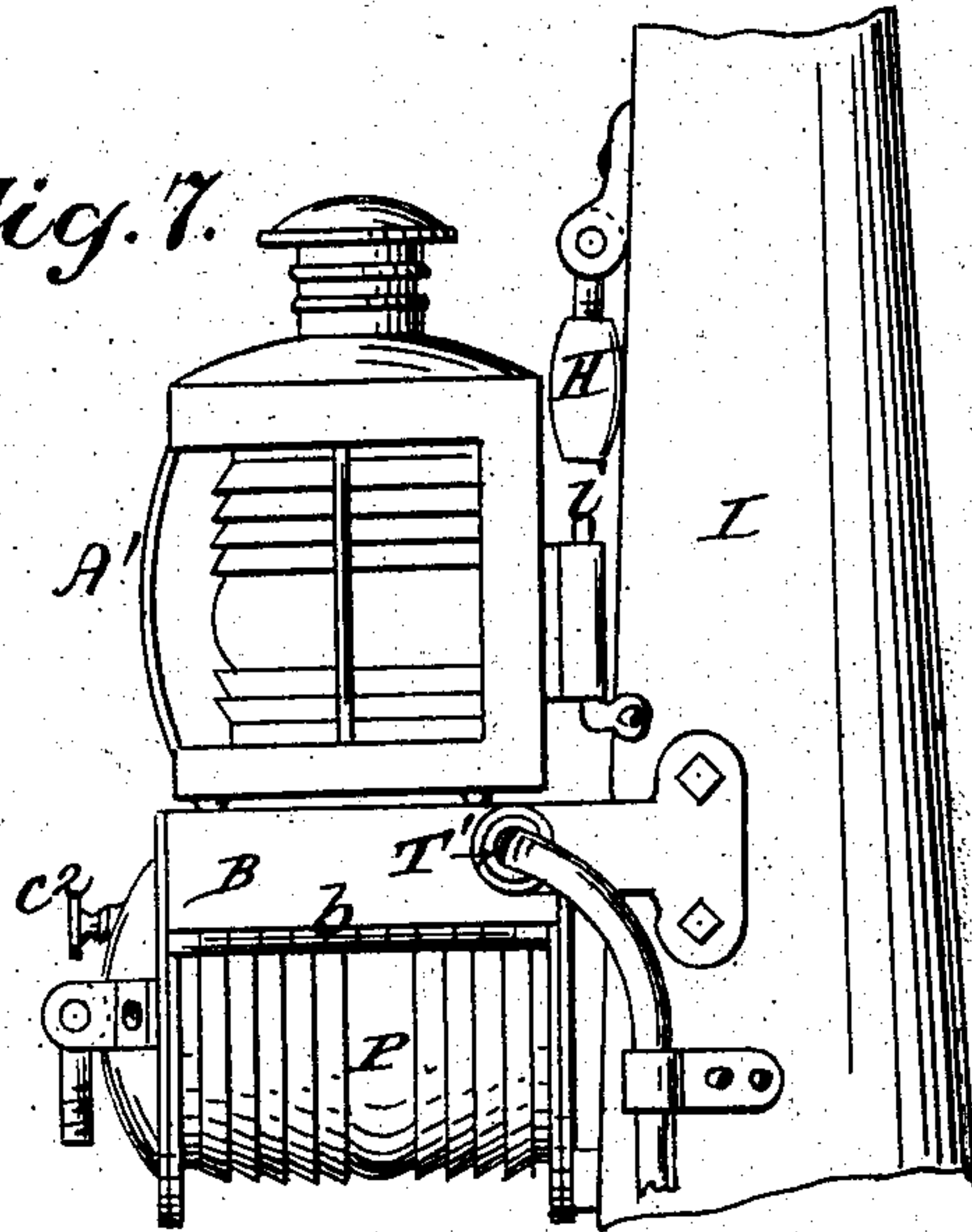


Fig. 8.

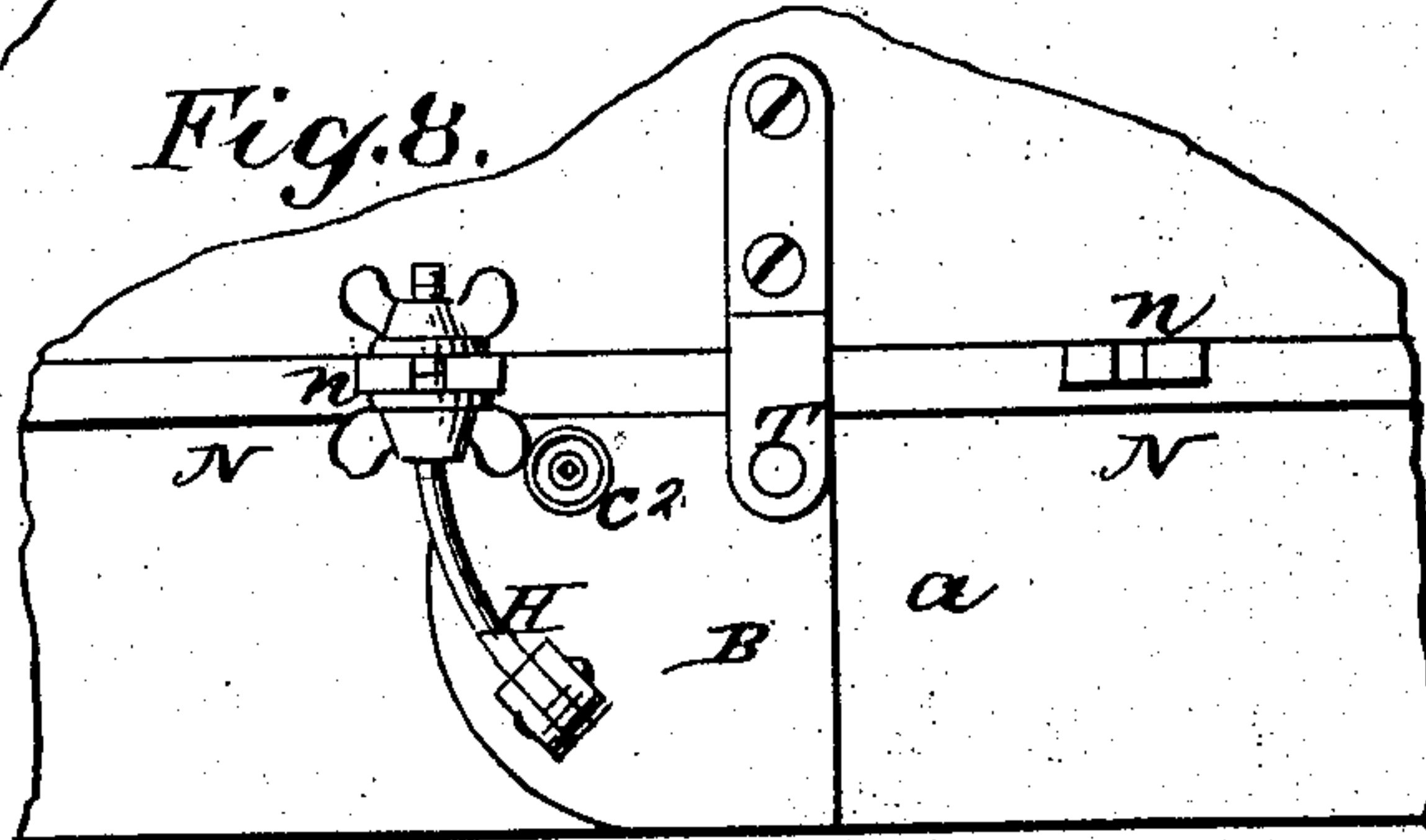


Fig. 10.

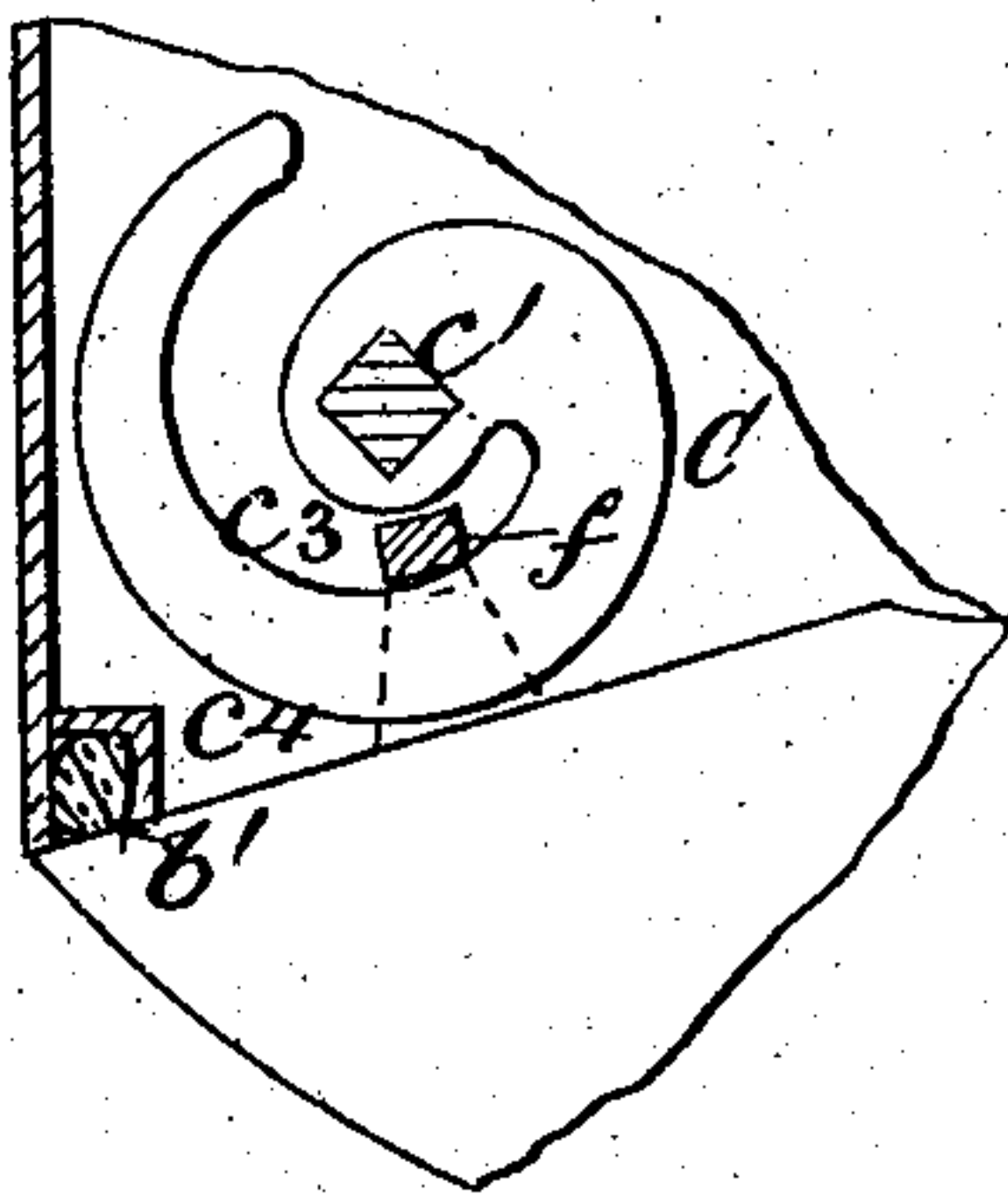
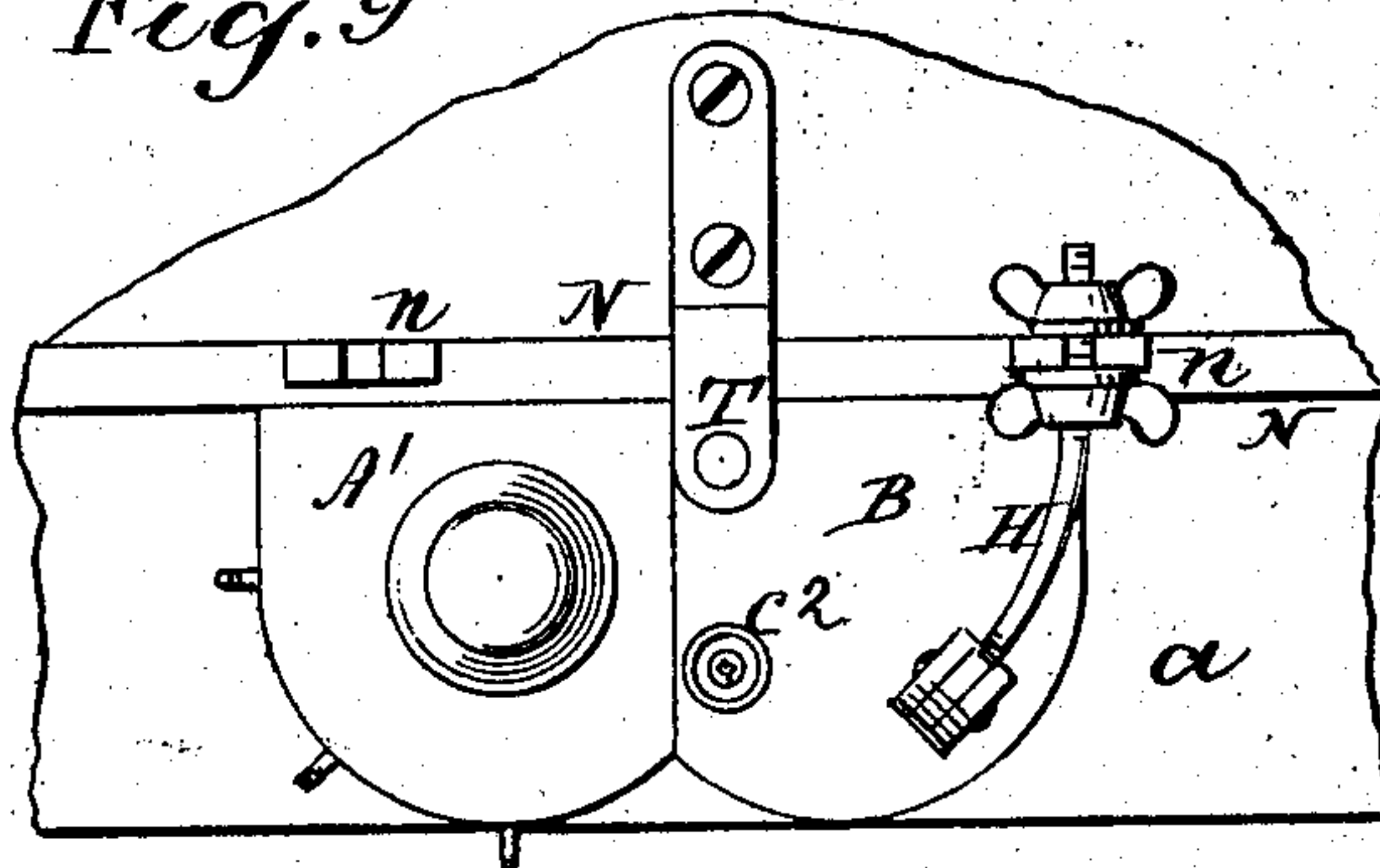


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK J. RUSSELL, OF NEW YORK, N. Y.

PRISMATIC LAMP.

SPECIFICATION forming part of Letters Patent No. 751,208, dated February 2, 1904.

Application filed March 2, 1903. Serial No. 145,701. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. RUSSELL, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Prismatic Lamps, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to signal-lamps, ship running-lamps, and other lamps in which the rays of light are projected through prisms.

A distinguishing feature of my invention consists in pivotally holding such lamps in position by means which admit of the adjustment of each lamp in such manner that the light projected by the prismatic lens may be directed with accuracy, the angle at which the light may be seen being of special importance in marine and signal lamps.

Another important feature of my invention consists in utilizing the pivotal support of the lamp as a means through which to introduce the source of light whereby the lamp may be turned pivotally without disturbance or derangement of parts.

My invention also includes certain other features in the construction and arrangement of parts hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1 is a front elevation of a ship "side light" or running-light made in accordance with my invention. Fig. 2 is a vertical section upon plane of line 2 2, Fig. 1. Fig. 3 is a horizontal section upon plane of line 3 3, Fig. 1. Fig. 4 is a horizontal section of a ship's bow, masthead, or similar lamp of semicylindrical form. Fig. 5 is a sectional detail, upon an enlarged scale, illustrating a practicable method of introducing the source of light through one of the pivotal supports of the lamp. Fig. 6 is an elevation of a masthead-lamp in position. Fig. 7 is an elevation showing a masthead-lamp swung downward and affording support to an auxiliary lamp. Fig. 8 is a plan showing a ship running-lamp or side light in position; Fig. 9, a similar view showing the lamp swung horizontally and supporting an auxil-

iary lamp. Fig. 10 is a detail view of the lens-frame fastening. Fig. 11 shows a modified form of pivotal conduit for the source of light.

In the drawings I have illustrated the practical application of my invention to marine lamps of semicylindrical form, such as bow or masthead lamps, as well as to those approximating quadrantal form, such as "side" or "running" lamps, the structures being essentially the same, except that the pivotal supports for the first-named lamps are arranged horizontally, while those for the latter-named are arranged vertically. In each case the prismatic lens P is mounted in a frame F, hinged to the lamp-body B, the frame and lens constituting a door by opening which access may be had to the interior of the lamp-body B.

b represents a hinge of ordinary construction, and C a door-catch of special construction designed to overcome the objection to the ordinary screw-fastenings used on marine lamps arising from the corrosive action of the sea air. This catch C consists of an eccentric hook or cam rigidly attached to a spindle c' , mounted in the top and bottom plates of the lamp-body B and provided with an external knob or handle c'' , by means of which the catch C may be manipulated. The catch itself is formed with a concave eccentric surface c^3 and with a convex cam-surface c^4 , as will be seen clearly by reference to Fig. 10 of the drawings, wherein the concave eccentric surface is shown as engaging with an eye-bolt or projection f on the lens-frame F, thereby locking the door, the eccentricity of the surface c^3 being utilized in binding the edges of the door firmly against the packing or gasket b' in the edge of the lamp-body B. In like manner by turning backward the catch C the cam-surface c^4 is utilized in starting or forcing the door open against the frictional resistance which occurs in exposed lamps.

The lamp-body B is pivotally supported by and between pivots or trunnions T T', arranged either vertically or horizontally, according to the use to which the lamp is to be applied. If for use as a bow or masthead light, the lamp is pivotally supported upon horizontal pivots or trunnions, as illustrated

in Figs. 4, 6, and 7. If designed for use as a side or running light, it is pivotally supported upon vertical pivots or trunnions, as in Figs. 1, 2, 3, 8, and 9. In either case one or both of the pivotal supports T T' may be made hollow and utilized for the introduction into the lamp of the source of light. Thus in the drawings an electric lamp L is shown as connected with wires *l l*, passing through the pivot or trunnion T', although it is obvious that gas or other source of light may be introduced in like manner through the trunnion T' to supply a lamp or burner of suitable construction.

The hollow pivot or trunnion T' may be constructed in various ways without departing from the spirit and intent of my invention in this respect, and I do not confine myself to the structures shown in Figs. 5 and 11, which are given by way of illustration only as forms of air and water tight joints suitable for use in carrying out my invention in connection with marine lamps.

In Fig. 5, T' represents a boss or trunnion integral with the lamp-body B and resting in and passing through a stationary bearing *a*, where it is coupled by nuts *d* and *e* and packing *k* to a pipe or conduit G, the interior of which opens into the conduit *t'* through the trunnion T'. In Fig. 11 the pipe G itself forms the pivotal support or equivalent of the trunnion T', the pipe G being secured to the stationary bearing *a* and passing through the lamp-body B, so that the latter may turn thereon, the nuts *d* and *e* and packing *k* forming a tight joint between the parts.

The lamp or its equivalent is arranged horizontally within the lamp-body B and centrally within a parabolic or cone-shaped reflector R, which latter directs the rays of light from the lamp L to the prism-lens P at right angles to the inner surface of the prism, thereby attaining a uniform maximum degree of light from the lens. In other words, by this arrangement of the lamp and reflector horizontally or at right angles to the rear surface of the prismatic lens the said lamp and reflector are made to act in unison in the most effective position for collecting and projecting the light through the prisms of the lens, thereby concentrating and intensifying the light-rays projected by the lens to the fullest possible degree.

In order to provide for the projection of the light from the lens P at the required angle with accuracy, I provide adjusting devices H, which act in conjunction with the trunnions T T' to support and brace the lamp-body B, at the same time controlling its position and inclination with relation thereto. Thus in Figs. 6 and 7 the device H consists of two hinged screws coupled together by a link-nut or turnbuckle, while in Figs. 7 and 9 a screw-rod with hinge attachment to the lamp-body is provided with set-nuts, which engage should-

ers *n n* on the color-board N. Two of these screw-couplings may be used, one on each side of the lamp-body, if desired. In either case it will be seen that the adjusting device H regulates the angle at which the lamp-body B is set on the pivots or trunnions T T', so that the rays of light from the lens P may be projected in a given direction.

An incidental advantage attained by my method of pivotally supporting the lamp-body B is that it may be readily swung out of position to admit of the substitution of an auxiliary lamp, if necessary for any cause, as by the failure of the source of light or for the purpose of effecting a temporary change in the color of the light, &c., without disturbing the stationary or rigidly-fixed conduit through which the source of light is introduced into such pivotally-supported lamp. Not only may the lamp-body B be swung out of position, but it may also be utilized as a support for the auxiliary lamp. This feature is illustrated in Figs. 7 and 9, in the first of which the auxiliary lamp A' is shown as resting upon the lamp-body B, being held thereon by the pintle *i* upon the mast or other support I, while in Fig. 9 the lamp-body B is shown as swung around the color-board N and as affording a backing or support for the auxiliary lamp A', which has been substituted in position on said color-board N.

By my invention the light-box has the advantage of being securely mounted, while the source of light can be carried into the light-box by means of a stiff heavy armored pipe or conduit, all as a protection against injury to the light-supply to the box, whether electric wires, oil, gas, &c. Notwithstanding the stable nature of all these parts the light-box may be adjusted so as to vary the angle of light, and in case of anything making it necessary to replace the light-box my lamp may be swung out of place without derangement of the light connections to the box. This eliminates all trouble of disconnecting the various connections, which is not only often difficult to do, but subjects the disconnected parts to serious injury from weather, &c. This type of lamp-box may be used in double or multiple form with all the beneficial results retained.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to both assist in releasing the frame and to lock it in its closed position and an internal lighting device, said lamp being pivotally supported, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus, substantially as and for the purpose set forth.

2. The combination of a pivotally-supported lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens,

means cooperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus and means for adjusting said lamp upon its pivotal supports, substantially as and for the purpose set forth.

3. In a lamp, the combination of a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means cooperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device arranged substantially at right angles to said prismatic lens, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus, for the purpose set forth.

4. In a lamp the combination of a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means cooperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device, and a parabolic reflector within the arc described by said lens and arranged to direct the rays of light to the prismatic lens in lines substantially at right angles thereto, as set forth.

5. The combination with a pivotally-supported lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means cooperating with said frame to lock it closed and to assist in releasing it, and

an internal lighting device, of a pivotal support formed with a conduit through which the source of light is conducted to said internal lighting device and a parabolic reflector disposed oppositely to said lens, substantially as and for the purpose described.

6. The combination with the lamp-body, and an internal lighting device, of a prismatic lens mounted in a frame which is hinged to the lamp-body and a gasket on the lamp-body arranged to engage the lens-frame, substantially as and for the purpose set forth.

7. The combination with the lamp-body and an internal lighting device, of a prismatic lens mounted in a frame hinged to the lamp-body, a gasket on the lamp-body arranged to engage the said lens-frame, and an eccentric hook for securing the lens-frame in position, substantially as set forth.

8. The combination with the lamp-body and an internal lighting device, of a prismatic lens mounted in a frame hinged to the lamp-body, a gasket on the lamp-body arranged to engage the said lens-frame, and an eccentric hook for securing the lens-frame in position, said eccentric hook being formed with a cam surface for positively releasing the lens, substantially as set forth.

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