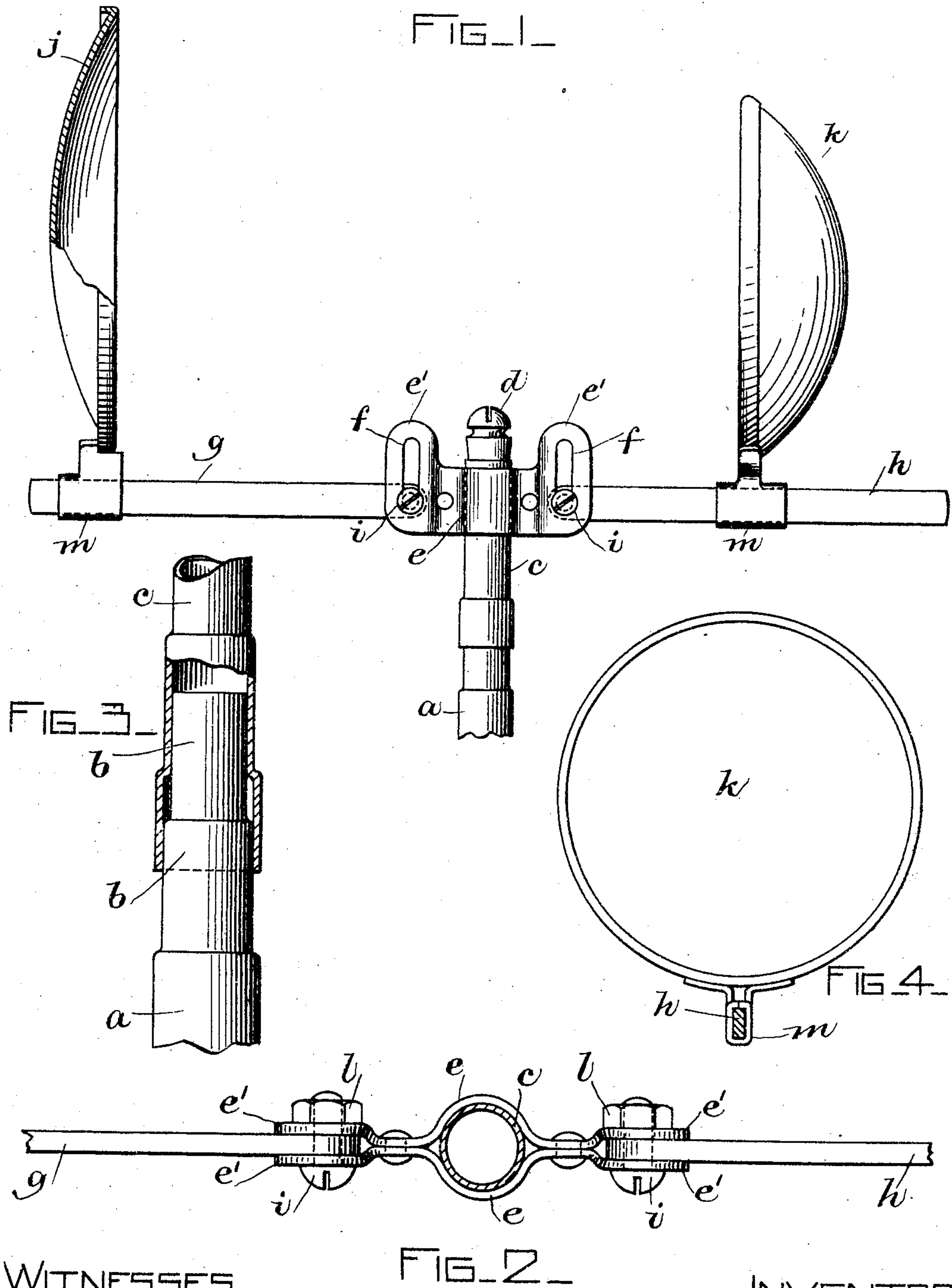


No. 779,563.

PATENTED JAN. 10, 1905.

H. P. ROBERTS.  
DEVICE FOR REFLECTING AND DIRECTING LIGHT.

APPLICATION FILED OCT. 27, 1904.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR REFLECTING AND DIRECTING LIGHT.

SPECIFICATION forming part of Letters Patent No. 779,563, dated January 10, 1905.

Application filed October 27, 1904. Serial No. 230,219.

*To all whom it may concern:*

Be it known that I, HENRY PITT ROBERTS, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Devices for Reflecting and Directing Light, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to devices used for artificial illumination; and it is especially applicable to household purposes or to the uses of workmen in various industries. It often happens in such cases that the fixture furnishing illumination, as a gas-jet, is inconveniently located in regard to the place where work is being performed or it is desired to utilize the light of the jet, and it is the purpose of this invention to supply devices to direct the light from the jet to the place required for use. It is known that mirrors, reflectors, and lenses of many types have been used for such purposes; but the mountings of such previous constructions have not been adapted for convenient use in the manner indicated.

My invention consists in mounting the jet so it may be revolved upon the gas-fixture to enable the operator to place the jet in the most favorable position for illumination, as the flat side of the jet furnishes more light than the edge thereof. Mirrors and lenses are attached to the jet-tube so that they will face the flat side of the jet as it is revolved on the gas-fixture, and being clamped to the jet-tube they will necessarily maintain positions to reflect and refract the greater portion of the light of the gas-jet. Suitable adjustments are provided so the mirror or reflector and lens may be moved to and fro with regard to the gas-jet, and thus vary the distance from the flame of each independently of the other in accordance with the requirements of the user of the light. Other adjustments are supplied for the mirror and lens, so the axis of one or both may be varied as to height or inclination to enable the light from the jet to be directed in the required direction.

The invention consists, further, in such details of construction as will be more particu-

larly pointed out in describing my preferred construction.

The drawings show, in Fig. 1, a side elevation of my illuminating device; Fig. 2, an enlarged plan view of parts about the jet-tube; Fig. 3, an enlarged detail of the gas-fixture and jet-tube, and Fig. 4 a detail of the sliding adjustment of the lens.

The gas-fixture *a*, which is ordinarily fixed to the building, terminates in a tube, which may be finished in steps, as at *b*, and the jet-tube *c* is fitted to the steps of the fixture to make gas-tight joints, but at the same time to permit the jet-tube *c* to be revolved upon the end of the gas-fixture *a*. The usual lava tip *d* is inserted in the end of the jet-tube *c* in the manner commonly followed. To the jet-tube *c* I fasten a bracket *e*, which may be made of two pieces of sheet metal riveted to each other, and both may be soldered to the jet-tube *c*, while ears *e'* are formed at the extremities of the bracket. In the ears *e'* vertically-located slots *f* are formed on opposite sides of the jet-tube. Bars *g* and *h*, mounted on bolts *i*, which are placed in the slots *f*, extend from the bracket, upon one of which bars a mirror *j* is arranged to slide and upon the other bar the lens *k* may slide. By means of the clamping-nuts *l* of the bolts *i* sufficient force may be applied so the bars may through the friction developed at the ears *e'* resist rotation on the bolts of the bracket after being placed in a selected position. It will be noticed that the bars may be revolved on the bolts to change the inclination of the axis of either the lens or mirror independently of the other, besides which the bars may be adjusted at different heights by moving the bolts *i* in the slots *f* of the ears *e'* without altering the angles of their axes. The bars may be of rectangular section to prevent the lens and mirror from rocking crosswise on the bars, while permitting sliding adjustment, the connection for this purpose between the parts consisting of sleeves *m*, of sheet metal, folded over the bars *g* to form tight sliding fits thereon, the mirror and frame of the lens being soldered or otherwise attached to the sleeves. The sleeves *m* fit the bars tightly enough to



maintain an adjusted position against accidental sliding motions.

To use the device, the jet-tube *c* is turned on the gas-fixture *a* until the flat side of the jet faces the operator's work. Then the bars *g* are inclined until the light reflected by the mirror is projected in the proper direction, and the lens may similarly be brought into line. The lens and mirror are moved to and fro on the bars until the best effect from the gas-jet is attained. Acting together, a large proportion of the light of the gas-jet may be utilized, as the concave mirror *j* bends rays of light upon the lens *k* at favorable angles for concentration upon the work.

The arrangement of the ears *e'* upon each side of the bars *g* furnishes a good support against lateral vibration, which might cause annoyance to the user of the light.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an illuminating device, a jet-tube mounted to revolve on a gas-fixture and a bracket attached to the jet-tube, combined with bars pivoted on opposite sides of the bracket, a mirror on one of the bars, a lens on the other bar, and means permitting adjustment of the bars on the bracket and adjustment of the mirror and lens on the bars, substantially as described.

2. In an illuminating device, a jet-tube mounted to revolve on a gas-fixture and a bracket fixed to the jet-tube, combined with

bars pivoted in slots of the bracket, sleeves on the bars, a mirror and lens attached to the sleeves, and means to secure the bars in position on the bracket and the mirror and lens in position on the bars, substantially as described.

3. In an illuminating device, a mirror, a lens, a revoluble jet-tube and means to support the mirror and lens upon the jet-tube, combined with means to independently vary the distance of the mirror and lens from the jet-tube, and devices to independently change the direction of the axes of the mirror and lens at angles to the plane of revolution of the jet-tube, substantially as described.

4. In an illuminating device, a jet-tube mounted to revolve on a gas-fixture, a bracket fixed to the jet-tube, a bar extending from the bracket, ears of the bracket grasping both sides of an end of the bar, a bolt and nut in slots of the ears upon which the bar is supported and maintained in adjustment by the friction between the ears and bar, a sleeve mounted to slide upon the bar but restrained by friction between the parts, and a lens or mirror carried by the sleeve, substantially as described.

In testimony whereof I have hereunto subscribed my name this 25th day of October, A. D. 1904.

HENRY PITT ROBERTS.

Witnesses:

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MABEL MALBONE BREWERTON.