

(No Model.)

J. BOEKEL.
POCKET LARYNGOSCOPE.

No. 543,145.

Patented July 23, 1895.

Fig. 1.

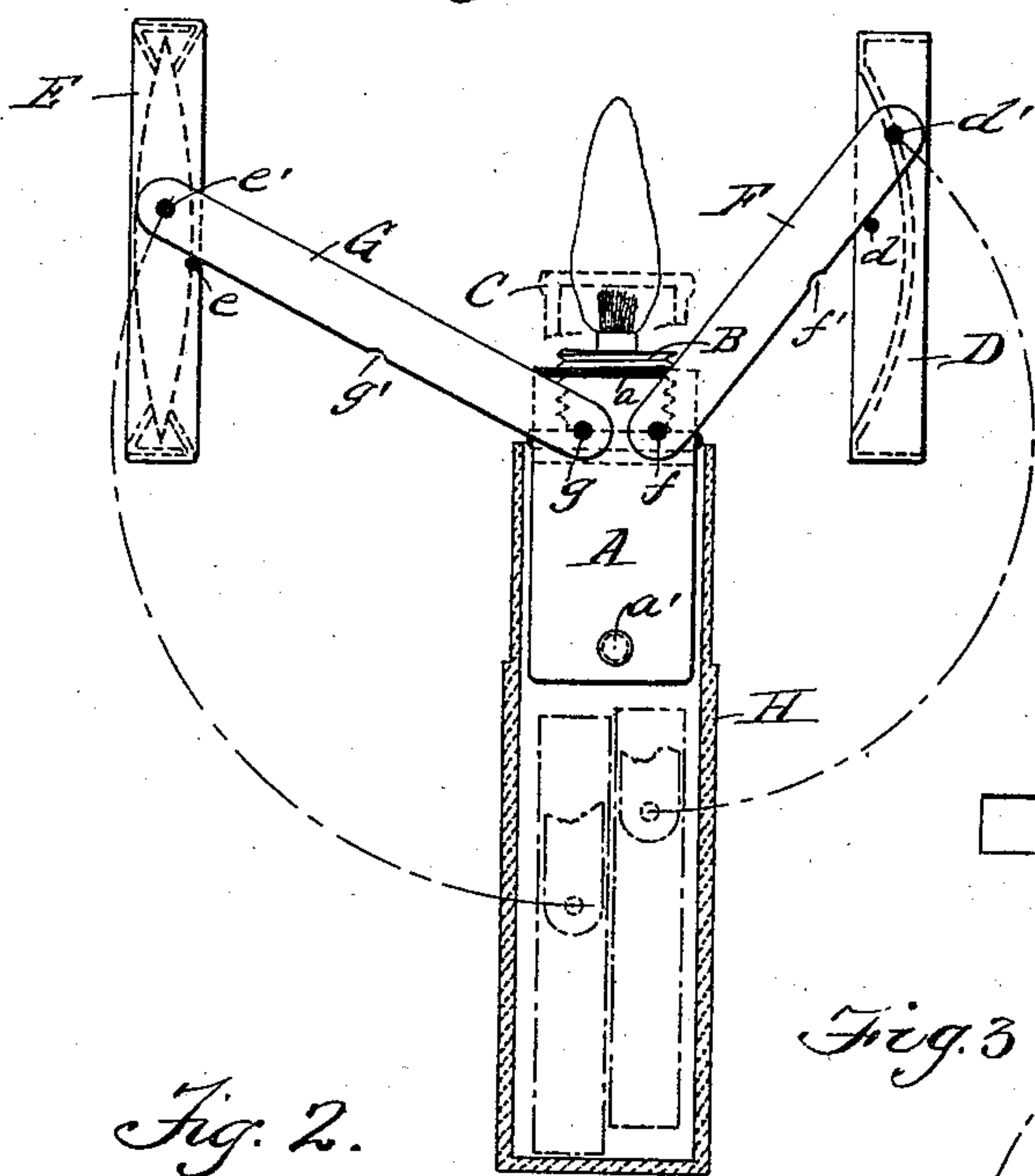


Fig. 2.

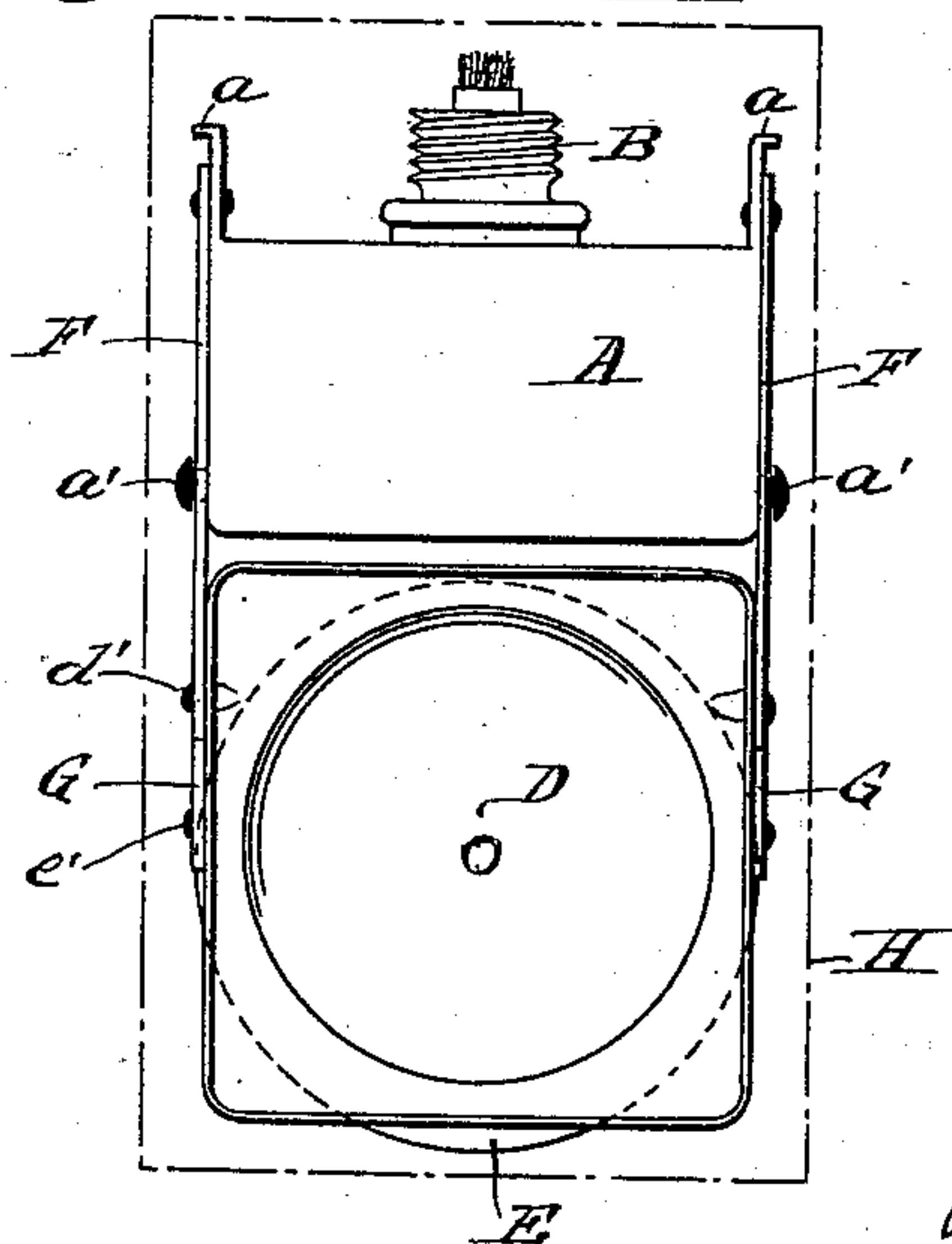
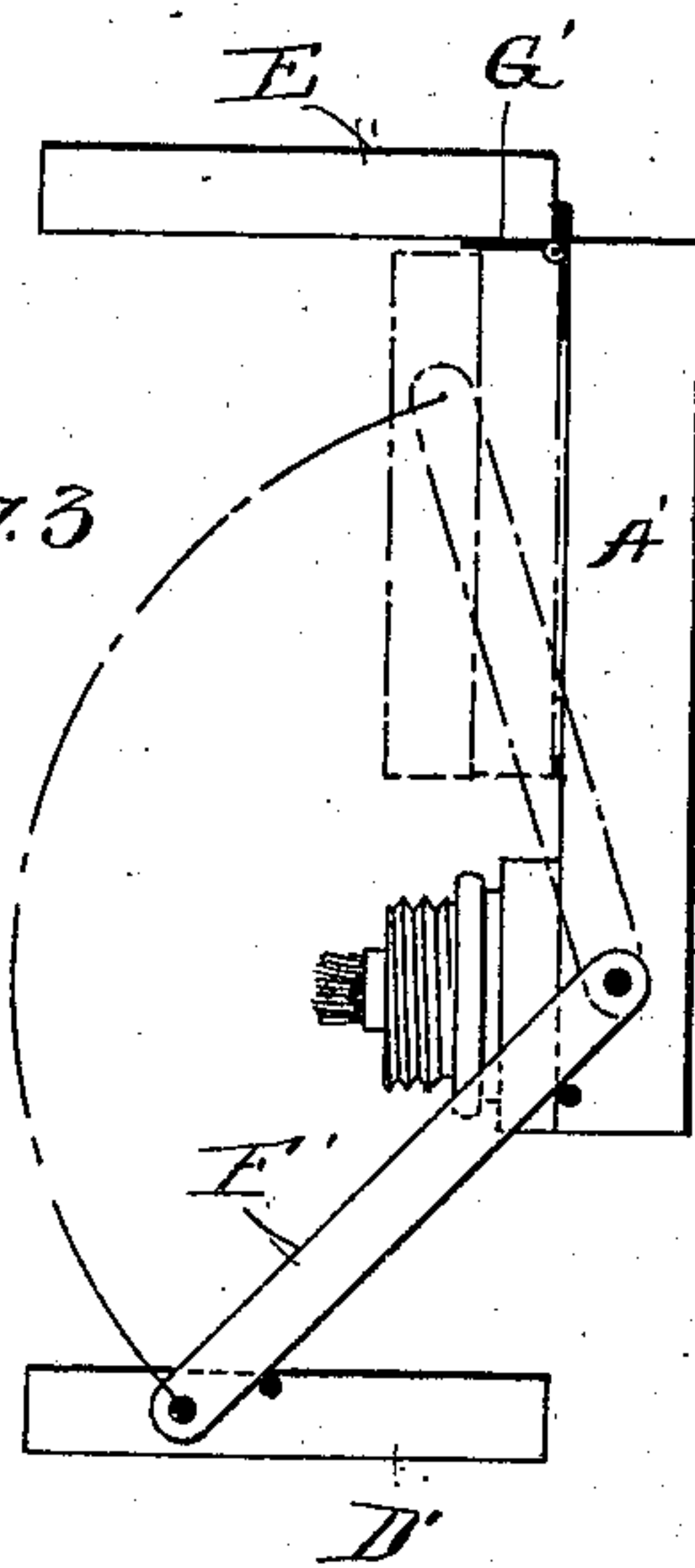


Fig. 3.



Witnesses:

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POCKET-LARYNGOSCOPE.

SPECIFICATION forming part of Letters Patent No. 543,145, dated July 23, 1895.

Application filed March 21, 1895. Serial No. 542,701. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BOEKEL, a citizen of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain Improvements in Pocket-Laryngoscopes, of which the following is a specification.

My invention relates particularly to laryngoscopes, and the main object of my improvement is to provide an improved instrument, the several parts of which may be readily folded into compact form suitable for the pocket, or easily and rapidly opened into proper relative position for examination of the patient.

The invention is fully described in connection with the accompanying drawings, and is specifically pointed out in the claims.

Figure 1 is a side elevation or edge view of a laryngoscope involving my invention, the full lines showing the same opened into proper position for inspecting and the dotted lines indicating the folded position of the parts when ready to be placed in the case, which is indicated in dotted section-lines. Fig. 2 is a front elevation of the instrument folded up, the inclosing-case being again indicated. Fig. 3 indicates a modified construction.

In the construction illustrated in Figs. 1 and 2, A represents a frame which is preferably formed to provide a receptacle for illuminating-oil, and when so formed will preferably be provided with a threaded projection B providing a passage for a lamp-wick and with a movable cap C screwing upon said projection.

D is a concave reflector preferably made of sheet metal highly polished, and E is a lens suitably mounted in a supporting-frame. The reflector and lens are both connected to the frame or illuminating apparatus by separate pairs of links marked, respectively, F and G, the inner ends of which are pivoted to the vessel A at points *f* and *g* on either side, while the outer ends are similarly pivoted to the reflector and lens at points *d'* and *e'*, respectively. The length of the links and the points of connection are so arranged as to permit both the reflector and lens to be folded down-

ward and brought face to face directly under the vessel A, as indicated in Fig. 1, a stop *a'* being provided on the vessel A to prevent excessive movement of the links in folding the parts together. In swinging the parts outward preparatory to using the apparatus the proper relative positions of the parts are determined by suitably-located stops, those marked *a* at the top of the vessel A being arranged to limit the upward swing of the links F and G, and those marked *d* and *e* on the reflector and lens, respectively, being adapted to stop the movement of those parts on the links, so as to bring them in parallel position on opposite sides of the light.

When not in use the reflector and lens are folded together into compact form with the cap C in place, as shown in the drawings, and the apparatus is inclosed in a suitable case H, preferably of rectangular form, similar to a card-case and capable of being conveniently carried in the pocket. When extended for use and lighted, the operator, holding the apparatus by means of the vessel A, places the lens near the mouth of the patient, which is brightly illuminated by the light concentrated upon it by the combined action of the reflector and lens, and looks over the top of the reflector directly into the mouth of the patient.

While the form of apparatus above described has been adopted by me as probably the most convenient in which my invention can be embodied, it may obviously be considerably modified without departing from the spirit of my invention—for instance, as in Fig. 3—or an illuminant other than oil may be employed. I do not therefore desire to limit myself to the exact construction described.

What I claim is—

1. A pocket laryngoscope, embodying an illuminating device, and a reflector, a lens, separate pairs of links each pivoted at their inner ends to the illuminating device and at their outer ends to the reflector and lens respectively, and stops upon the several parts to fix their relative operative positions, substantially as set forth.

2. The combination with a frame, of links pivoted thereto, and a reflector and lens piv-

oted to the outer ends of said links, whereby the reflector and lens may be folded together into the plane of said frame.

3. The combination with a frame, provided
5 with an illuminating device, of links pivoted thereto, and a reflector and lens pivoted to the outer ends of the respective links, said links being so arranged that when open the reflector and lens will be on opposite sides of

the illuminating device and will fold together so as to lie in the same plane as said frame, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS BOEKEL.

Witnesses:

A. F. MILLIKAN,
E. C. RROADS.