(No Model.)

# P. OUDIN. & H. O. KRATZ-BOUSSAC.

## ELECTRO MEDICAL LIGHTING APPARATUS.

No. 455,972. Patented July 14, 1891.

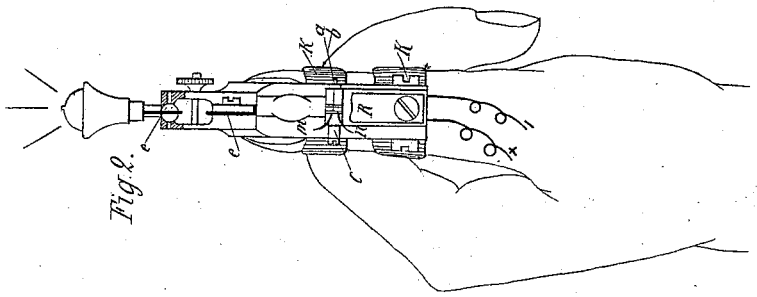

Fig. 2.

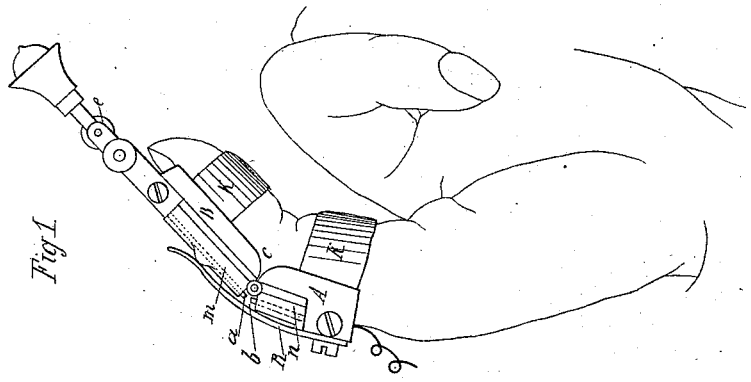

Fig. 1

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# UNITED STATES PATENT OFFICE.

PAUL OUDIN AND HENRI OTHON KRATZ-BOUSSAC, OF PARIS, FRANCE.

## ELECTRO-MEDICAL LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 455,972, dated July 14, 1891.

Application filed October 13, 1890. Serial No. 367,888. (No model.)

*To all whom it may concern:*

Be it known that we, PAUL OUDIN and HENRI OTHON KRATZ-BOUSSAC, residents of the city of Paris, in the Republic of France, have invented certain new and useful Improvements in Electro-Medical Lighting Apparatus, of which we declare the following to be a full, clear, and exact description.

The apparatus for which we solicit Letters Patent is designed to furnish physicians and surgeons a source of light by which to examine the different natural cavities of the human body. It is composed of two essentially distinct parts: first, a box containing a certain number of piles already patented—Gassner's elements—forming the electromotor which supplies the current for the incandescent lamps. This first part of the apparatus will always remain the same, with the reservation, nevertheless, of improvements which may be made later on the composition of these elements. Such as they are to-day, we employ a battery made up of from four to ten elements, forming together a single series or two series, which can, according to requirements, be used together or alternately. The lighting apparatus proper will vary according to its particular application, but embodies always an incandescent lamp whose contacts will be so disposed that the circuit will be closed when the apparatus is in working position, and on the contrary it (the circuit) will be broken automatically and the illumination will cease when the examination is terminated or the device is in other than an operative position. To obtain this result we have so arranged the different members of our apparatus that the contacts are normally held apart by a spring, the pressure of which is overcome in the act of using the apparatus. At the head of these instruments we will place a finger-sheath intended to be worn on the thumb or any other finger of the operator, hindering in no wise the movements of the hand or finger, and serving as a support to an incandescent lamp which will light up the different organs to which the hand is brought in proximity or the cavities in which the apparatus is inserted.

In the accompanying drawings, forming part of this specification, Figure 1 represents in side elevation our apparatus in position on operator's thumb, the contacts being separated. Fig. 2 is a plan view showing the thumb straightened and the contacts touching to complete the circuit and put the lamp in operation.

The finger-holder is composed of two concave metal plates A and B, shaped to fit the back of the finger, on which they are held by two bands of rubber K K. These two plates are connected by a hinge C, which will be placed opposite the first joint of the finger. A spring R, secured at one end on the convex side of one of the plates, or a coiled spring on the hinge-pintle, will continually maintain a demi-flexion, unless the operator straightening his finger overcomes the action of the spring. Different mechanical means can be employed to determine the closing of the electrical circuit.

In Figs. 1 and 2 the two metal plates united by a hinge form one of the conductors for the lamp, which is secured by a knee-joint to the free end of the outer plate B. The two halves of the knee-joint, each of which connects with one of the poles of the lamp, are insulated by a strip of ebonite *e*. The circuit is established through two metal stems *m* and *n*, mounted in insulating fittings, which serve to secure them to plates A and B. When the apparatus is straightened out, these two stems *m* and *n* are brought together, causing their contact-points *a* and *b* to meet above hinge C and so close the circuit, while as soon as the apparatus is left to itself the spring R, the pressing-point of which on the outer plate is insulated, will open the circuit and in consequence extinguish the lamp.

In Fig. 2 the outer end of the holder is supposed to be broken away to more clearly illustrate the construction.

Following the same principle we could apply incandescent lamps to all sorts of speculums, &c., and with such arrangements as would be easily imagined, according to the nature of each apparatus.

What we claim is—

1. The combination of an incandescent electric lamp, a section or support therefor mounted upon the extremity of the finger by rubber band K, a second section secured upon another joint of the finger by a similar band,

and contacts at the adjacent ends of said sections, whereby the circuit is completed through the lamp by flexing or reflexing the finger, substantially as set forth.

2. The combination of an incandescent electric lamp, a section or support therefor adapted to be mounted upon the extremity of the finger, a second section adapted to be secured upon another joint of the finger, and contacts at the adjacent ends of said sections, whereby the circuit is completed through the lamp by flexing or reflexing the finger, substantially as set forth.

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

PAUL OUDIN.
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Witnesses:
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JOSEPH COURNIO.