

H. L. DE ZENG.
ILLUMINATOR.
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917,021.

Patented Apr. 6, 1909.

Fig. 1.

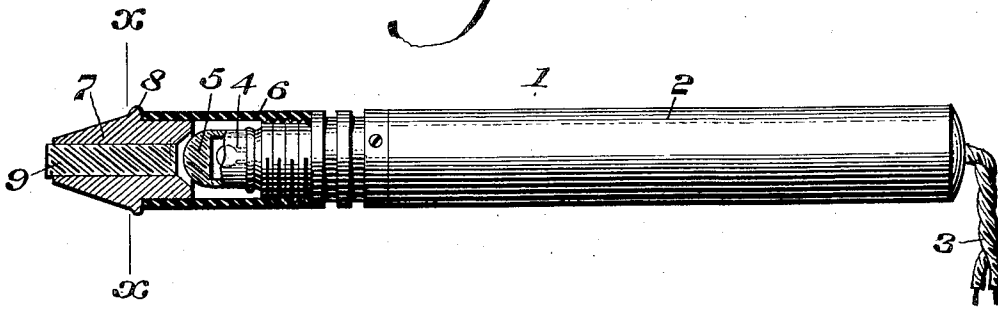


Fig. 3.

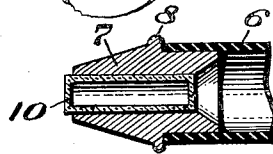


Fig. 4.

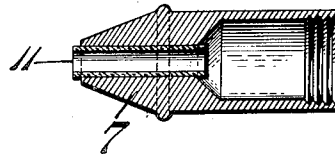
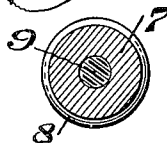


Fig. 2.



Witnesses
P. F. Nagle.
H. G. Dietrich

Inventor
Henry L. De Zeng.
By Wiedersheim & Taubman.
Attorneys

UNITED STATES PATENT OFFICE.

HENRY L. DE ZENG, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE DE ZENG-STANDARD COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

ILLUMINATOR.

No. 917,021.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed March 19, 1908. Serial No. 421,990.

To all whom it may concern:

Be it known that I, HENRY L. DE ZENG, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Illuminator, of which the following is a specification.

My invention relates to a new and useful illuminator and consists in providing a source of light, a suitable light conductor and a lens situated between the source of light and the conductor for the purpose of transmitting the light to the object.

It further consists of an electric lamp having a lens-tipped globe and a suitable light conductor for the purpose of transmitting light to the object.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a partial elevation and partial sectional view of an illuminator embodying my invention. Fig. 2 represents a sectional view on line $x-x$, Fig. 1. Figs. 3 and 4 represent sectional views of a portion of illuminators showing some of the forms of light conductors which may be employed.

My invention is designed for the purpose of transmitting a strong light to the object without the light source coming in close contact therewith. It is particularly adaptable to surgical and pathological diagnosis and general optical work.

In the drawings, I have shown a construction for carrying out my invention but it will be evident that other instrumentalities may be employed and the arrangement of the parts may be varied and I do not therefore desire to be limited in every instance to the exact construction as herein shown and described but desire to make such changes therein as may be necessary.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates an illuminator having a handle 2 which may be of any suitable material and size into which is led, in any suitable manner, the conductors 3 which are adapted to be connected with a suitable current supply.

4 designates an electric lamp which is screwed or otherwise secured in the handle, the globe of which, in the present instance, is

tipped with a lens 5 which serves as a light condenser and concentrates the volume of light passing through the end of the lamp globe.

6 designates a coupling which is adapted to be screwed or otherwise secured to the handle and to surround the lamp.

7 designates a tip which is preferably formed of hard rubber and which has a portion thereof adapted to engage with the coupling 6 so that the latter serves as a support for the tip, the latter having a head or shoulder 8 to prevent improper positioning of the parts, it being understood that the tip 7 can be adjusted in position in the coupling to provide for different length lamps 4. Carried by said tip is a light conductor 9 and in the drawings, I have shown the same as a glass rod, the same being of suitable proportions to properly conduct the light. It will be noted that the inner end of the rod 9 is suitably situated with respect to the lens 5, so that the latter will concentrate and direct rays of light into the rod or conductor which will project the light from the end thereof, making a very powerful light from a low voltage lamp, which prevents the parts from becoming heated, so that the instrument is adapted for optical and surgical work without danger to the patient. It will be understood that the tip and coupling can be made in one piece.

From the above it will be seen that by having a suitable source of light, a light conductor and a lens supported between the light source and the light conductor, I obtain an instrument of the highest efficiency.

In lieu of making a rod 9 of solid glass, I may employ a tube 10 as shown in Fig. 3 with closed ends, with the same results, or, as shown in Fig. 4, the light conductor may be formed of a tube 11 open at both ends and the tip and coupling may be of one piece, as above stated. The light conductors may be either plain or silvered, as desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an illuminator, an electric lamp having a lens tipped globe, a support for said lamp, and a glass conductor suitably supported with its inner end adjacent the lens of the lamp and in line therewith.

2. In a device of the character described, an electric lamp having a lens tipped globe, a support for said lamp, a tip carried by said support, and a glass conductor carried by
5 said tip.

3. In a device of the character described, an electric lamp having a lens-tipped globe, a support for said lamp a tip carried by said support, and a glass conductor carried by said
10 tip and projecting beyond the end thereof.

4. In a device of the character described, a handle, an electric lamp connected with said handle, a lens carried by said lamp, a tip con-

nected with said handle and a glass rod carried by said tip.

5. In a device of the character described, a
15 handle, an electric lamp connected with said handle, a lens carried by said lamp, a coupling connected with said handle and surrounding said lamp, a tip connected with
20 said coupling, and a glass rod carried by said tip.

HENRY L. DE ZENG.

Witnesses:

J. ERNEST REID,
CHAS. SCHMIDT.