

No. 827,896.

PATENTED AUG. 7, 1906.

O. H. F. VOLLBEHR.  
MICROGRAPHIC MICROSCOPE.  
APPLICATION FILED AUG. 3, 1904.

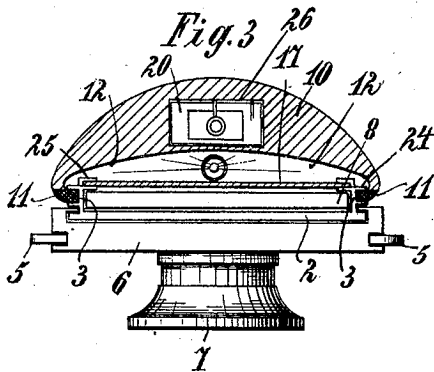
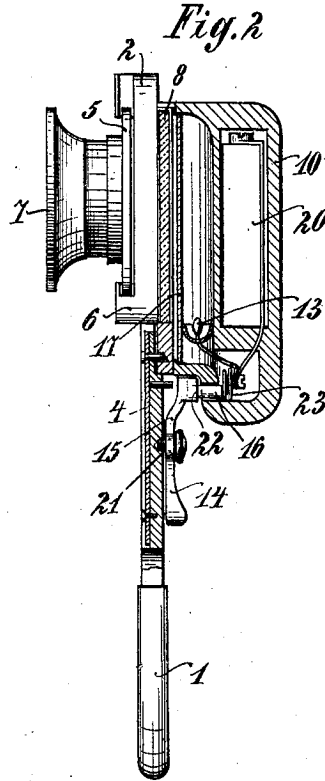
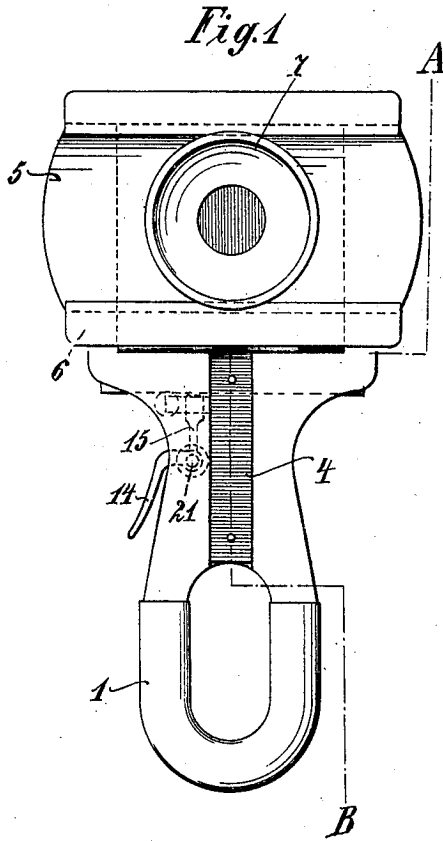
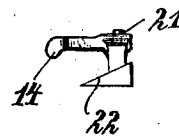


Fig. 4



Witnesses:

George G. Schoenlank  
Thomas Kirkpatrick

Inventor:

Otto Heinrich Fritz Vollbehr  
by Howard Deere  
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# UNITED STATES PATENT OFFICE.

OTTO HEINRICH FRITZ VOLLBEHR, OF HALENSEE, NEAR BERLIN,  
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## MICROGRAPHIC MICROSCOPE.

No. 827,896.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed August 3, 1904. Serial No. 219,404.

*To all whom it may concern:*

Be it known that I, OTTO HEINRICH FRITZ VOLLBEHR, a subject of the German Emperor, and a resident of No. 130 Kurfürstendamm, Halensee, near Berlin, Germany, have invented certain new and useful Improvements in Micrographic Microscopes, of which the following is a description.

The present invention relates to that class of microscopes or magnifying devices for magnifying micrographic representations, and more particularly to those instruments used for the purpose of magnifying maps.

The invention consists, essentially, in providing apparatuses or instruments of the kind with a lamp, so as to render their use in the night-time possible.

The invention further consists in arranging the lamp so that the micrographic representation shall be properly illuminated, but the lamp shall not be visible from the back, so that in case the instrument is used for a war map or chart in time of war, the light shall not constitute a mark for the enemy's fire.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar numerals of reference denote similar parts throughout the several views.

Figure 1 is a front elevation of the instrument; Fig. 2, a vertical section on the line A B of Fig. 1; Fig. 3, a plan showing the lamp-holding case or box in cross-section, and Fig. 4 a detail plan of a contact-lever hereinafter described.

The instrument itself is of the ordinary kind, consisting of a frame 2, provided with a handle 1. The frame is provided with grooves 3 3 for the reception of the micrographic representation, a vertical slide 6 to move up and down on said frame, and a horizontal slide 5, mounted in said slide 6 and carrying the objective 7, enabling thus the latter to be adjusted to any part of the representation. The glass plate 8, containing the micrographic representation, is retained in proper position in the frame by means of the spring-catch 4 in the known manner. A case or box 10 is provided having inwardly-turned vertically-disposed flanges 11 to fit vertical grooves 24 in the frame, and this case or box has a miniature incandescent electric lamp

13 fixed in the lower part of the same. The walls of the box which face the back of the micrographic representation are parabolic in form and serve as a reflector for the lamp 13, the said wall being indicated at 12. The back of the box is provided with a recess or pocket 26 for the reception of a small dry battery 20 to supply current to the lamp 13. The conductors from the battery to the lamp are normally kept interrupted—*i. e.*, the circuit is kept open by means of a spring 23, which forces a contact-pin 16 outwardly—but when it is required to use the lamp a small lever 14 is turned on its pivot 21 by pressing its free end with the thumb or finger, and a cam-surface or incline 22 at the upper end of the said lever 14 forces the contact-pin 16 inwardly and closes the circuit from the battery to the lamp, so that the latter is caused to glow and illuminates the micrographic representation. The back or part 10 being opaque, there is no illumination at the back or rear of the instrument.

During the day-time the box or case 10 is removed and the instrument used in the ordinary manner; but at night-time the box with the lamp is affixed to the frame 2 by sliding its flanges into the grooves 24, and it may be retained in position by any suitable spring-catch device. (Not shown.) When the map is to be inspected, the lever 14 is pressed toward the handle 1 and the contact thus made, when the lamp 13 will glow and the micrographic representation may be inspected. In order to diffuse the light more evenly over the micrographic representation, a plate of ground glass 17 is advantageously inserted between the lamp and the representation in the grooves 25.

The lamp-box is very compact and can be conveniently carried in the pocket during the day-time. The method of attaching the lamp-box, of fixing the same in position, of arranging the lamp and dry battery therein, as also of making and breaking the circuit may be varied in a great number of ways without departing from the essential feature of my invention.

I claim as my invention—

1. A microscope for magnifying micrographic representations having a translucent micrographic plate, a box with an opaque rear wall detachably secured at the rear of

the said plate and a lamp and electric battery within the said box, substantially as described.

5 2. A microscope for magnifying micrographic representations having an opaque box detachably fixed to the back of the instrument, a battery within the said box, a lamp mounted at the lower part of the box, conducters from the battery to the lamp and  
10 means for normally holding the circuit open, substantially as described.

3. A microscope for magnifying micrographic representations having a box of

opaque material detachably fixed to the rear of the same, an electric lamp mounted in the 15 lower part of the said box, a battery also mounted in the said box and conductors from the battery to the lamp, the interior wall of the said box forming a reflector, substantially as described. 20

In witness whereof I have hereunto set my hand in presence of two witnesses.

OTTO HEINRICH FRITZ VOLLBEHR.

Witnesses:

HENRY HASPER,

GEORGE GUSTAV SCHOENLANK.