Jan. 27, 1925. 1,524,016

E. G. CAMPBELL

MICROSCOPE

Filed Oct. 20, 1922

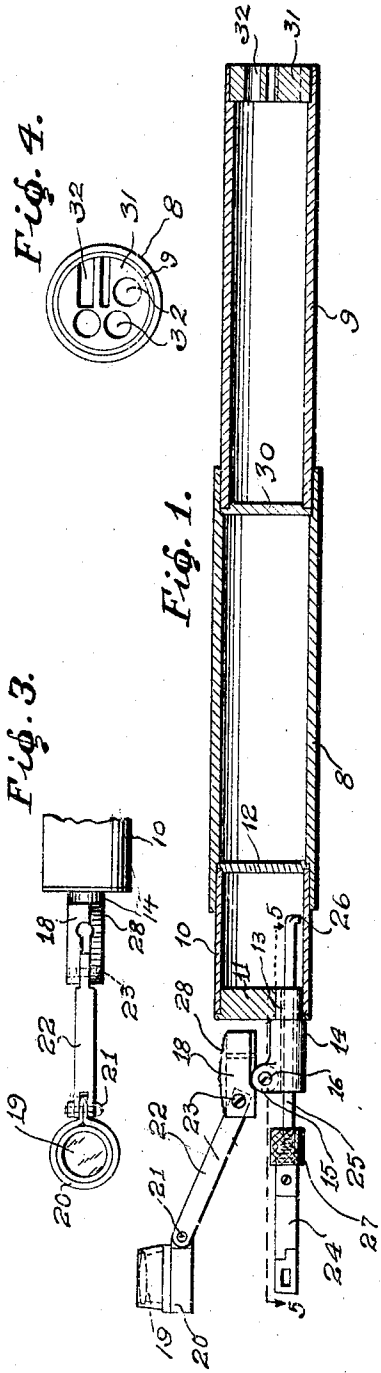


Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

Inventor

Elmer G. Campbell

By Milo B. Stevens & Co.

Attorneys.

Patented Jan. 27, 1925. 1,524,016

# UNITED STATES PATENT OFFICE.

ELMER GRANT CAMPBELL, OF WEST LAFAYETTE, INDIANA.

## MICROSCOPE.

Application filed October 20, 1922. Serial No. 595,835.

*To all whom it may concern:*

Be it known that I, ELMER G. CAMPBELL, a citizen of the United States, residing at West Lafayette, in the county of Tippecanoe and State of Indiana, have invented new and useful Improvements in Microscopes, of which the following is a specification.

This invention relates to microscopes, and its object is to provide a simple and efficient instrument of this kind designed for examining small objects and for general nature study, including taxonomic study of insects and plants, and also to provide an instrument of this kind which shall be small and compact in form so that it may be conveniently carried in the student's pocket.

Other objects and advantages of the invention will be pointed out in the detailed description appearing hereinafter.

In order that the invention may be better understood, reference is had to the accompanying drawing, wherein—

Figure 1 is an elevation of the instrument partly in section;

Fig. 2 is a similar view showing the instrument folded and closed up;

Fig. 3 is a plan view of certain parts shown in Fig. 1;

Fig. 4 is a rear end view of the instrument and

Fig. 5 is a horizontal section on the line 5—5 of Fig. 1.

Referring specifically to the drawing, the instrument consists of a handle, and a lens or magnifying glass, as well as an object or specimen holder carried thereby. The handle is composed of two tubular sections 8 and 9 respectively, which are separably connected, the section 9 being insertable into one end of the section 8. The other end of the section 8 carries a support for the lens and the object holder. This support is a short piece of tubing 10 closed at one end by a plug 11 and at the other end by a cap 12. The tubing 10 is insertable into the tubular handle section 8. The ends of the handle section 8 are shouldered internally, as shown in Figures 1 and 2, to limit the extent of insertion of the parts 9 and 10.

The plug 11 is apertured to receive at a tight fit the reduced inner end 13 of a base member 14 which projects outwardly from the plug and has a pair of laterally spaced ears 15 through which passes transversely a pivot screw 16. Between the ears 15 seats a lug 17 extending laterally from a block 18. The screw 16 passes through the lug 17, and hence the block 18 is pivotally supported.

The lens or magnifying glass 19 is carried by a frame 20 which is pivoted, as shown at 21, to one end of a link 22 having its other end pivoted, as shown at 23, to the block 18.

The object holder is a tweezers-like member 24 carried by a support in the form of a rod 25 which is slidably supported by the base member 14, the same having a longitudinal aperture to seat the rod, and the rear end of the latter extending into the tube 10 and having here a lateral bend 26 to limit the extent of withdrawal of the rod.

The support 25 for the object holder 24 is slidable in order that the latter may be correctly positioned with respect to the lens 19. The support is also rotatable to bring all sides of the object into view. In order to facilitate manipulation of the support, the same has a knurled finger piece 27.

The pivoted mounting of the block 18 is to obtain a proper focus of the lens 19, said block being tiltable for this purpose to bring the lens closer to or farther away from the object to be viewed. To facilitate manipulation of the block 18, it has a serrated ridge 28 adjacent to one side. The pivot joint of the block 18 works tight so that the block remains in adjusted position.

The link connection 22 between the block 18 and the lens-supporting frame 20 materially increases the range of adjustment of the lens, it being understood that the pivot joints 21 and 23 also work tight to maintain the adjusted position of the lens-supporting frame.

Figure 1 shows the instrument ready for use. It will be held in the left hand and adjusted by the thumb and forefinger, leaving the right hand free for picking the object and recording the facts observed. The dissecting and other tools (shown at 29 in Figure 2) are mounted in the tubular

handle section 9. One end of this section is closed by a cap 30, and to its other end is fitted a plug 31 having apertures 32 through which the tools 29 are removable. When the instrument is to be used, the handle section 9 will be fitted to the rear end of the handle section 8 in such a manner as to leave the apertured end plug 31 exposed for removal of the tools 29. When the instrument is not in use, the handle section 9 will be reversed so as to locate the plug 31 inside the handle section 8 and thus guard against loss of the tools. The tube 10 will also be reversed so as to position the lens, the object holder, and all the parts associated therewith inside the handle section 8, whereby said parts are effectually guarded against damage. The device now presents the appearance of a simple tube which is compact and can be conveniently carried in the student's pocket.

By the use of the hereinbefore described instrument a quick, general observation of an object is made very easy, and if a detailed examination is desired, the object may be held firmly in focus while it is being needled or revolved for views from all angles. The dissecting and other tools are readily accessible, and when the examination is completed, the instrument may be closed and placed in the pocket.

I claim;

1. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, a block pivotally supported by the base member, a link connection between the block and the magnifying glass frame, said block serving as a finger piece for actuating said magnifying glass and frame to proper position, and an object holder carried by the base member.

2. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, a block pivotally supported by the base member transversely thereof, a link connection between the block and the magnifying glass frame, said block constituting an actuating lever for said frame, and an object holder carried by the base member, said holder being adjustable relative to the glass.

3. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, a block pivotally supported by the base member transversely thereof, a link connection between the block and the magnifying glass frame, said block serving as a finger piece for actuating said magnifying glass and frame to proper position, a rod loosely supported by the base member, and an object holder carried by the rod.

4. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, a block pivotally supported by the base member, a link connection between the block and the magnifying glass frame, an object holder, and a slidable and rotatable support for said holder carried by the base member.

5. The combination of a magnifying glass and its frame, a handle concentric therewith and at one end thereof, a base member carried by the handle, pivoted supporting means for the aforesaid frame carried by the base member, a thumb operated controlling lever therefor, and an object holder carried by the base member.

6. The combination of magnifying glass and its frame, a handle concentric therewith and at one end thereof, a base member carried by the handle, pivoted supporting means for the aforesaid frame carried by the base member, a thumb operated controlling lever therefor, and an object holder carried by the base member, said holder being adjustable relative to the glass.

7. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, pivoted supporting means for the aforesaid frame carried by the base member, a rod loosely supported by the base member, and an object holder carried by the rod.

8. The combination of a magnifying glass and its frame, a handle, a base member carried by the handle, pivoted supporting means for the aforesaid frame carried by the base member, an object holder, and a slidable and rotatable support for said holder carried by the base member.

9. The combination of a hollow handle, a magnifying glass and its frame, and supporting means for said frame detachably and reversibly fitted to one end of the handle for insertion of the glass and its frame thereinto.

10. The combination of a hollow handle, a magnifying glass and its frame, an object holder, and supporting means for said frame and holder detachably and reversibly fitted to one end of the handle for insertion of the glass, its frame and the object holder thereinto.

11. The combination of a hollow handle, a magnifying glass and its frame, supporting means for said frame detachably and reversibly fitted to one end of the handle for insertion of the glass and its frame thereinto, and a tool holder removably fitted to the other end of the handle.

12. The combination of a hollow handle, a magnifying glass and its frame, an object holder, supporting means for said frame and holder detachably and reversibly fitted to one end of the handle for insertion of the glass, its frame and the object holder thereinto, and a tool holder removably fitted to the other end of the handle.

13. The combination of a magnifying glass

and its frame, a handle, a base member carried by said handle, a block pivotally supported by the base member, a controlling connection between said block and the magnifying glass frame, said block constituting a controlling lever for said frame, an adjustable object holder carried by said base member, and said object holder having controlling means adjacent said block whereby both the magnifying glass frame and object holder may be conveniently manipulated by the fingers of one hand.

In testimony whereof I affix my signature.

ELMER GRANT CAMPBELL.