

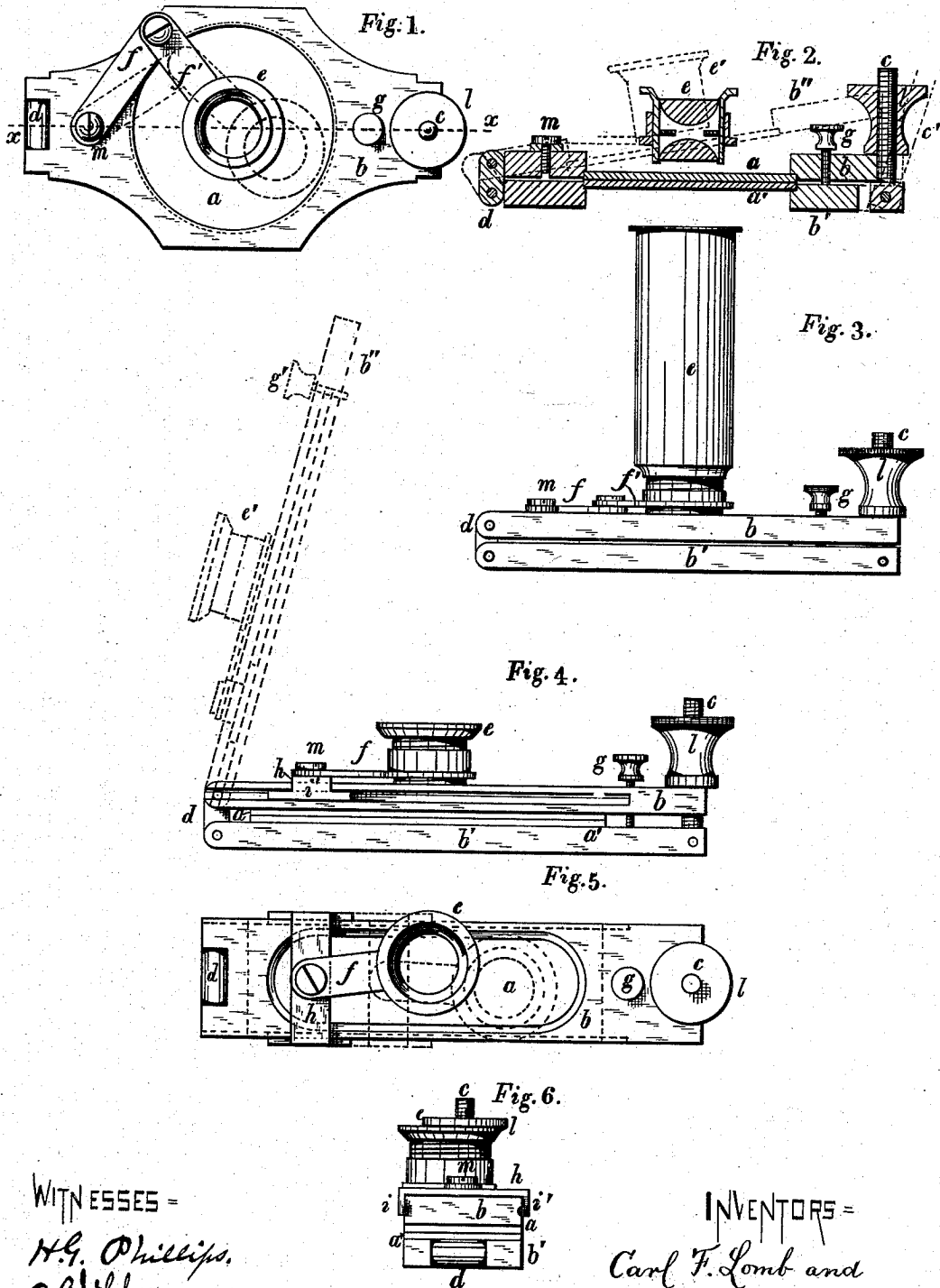
(No Model.)

C. F. LOMB & E. BAUSCH.

TRICHINOSCOPE.

No. 251,721.

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# UNITED STATES PATENT OFFICE.

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## TRICHINOSCOPE.

SPECIFICATION forming part of Letters Patent No. 251,721, dated January 3, 1882.

Application filed June 6, 1881. (No model.)

To all whom it may concern:

Be it known that we, CARL F. LOMB and EDWARD BAUSCH, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have jointly invented an Improved Trichinoscope, of which the following is a specification, reference being had to the annexed drawings.

Our invention has for its object the production of an improved trichinoscope or portable instrument for the detection of trichinæ; and it consists in combining a lens of sufficient magnifying power for the purpose with a pair of clamped compression-plates, so that it may be adjusted laterally in planes parallel to the plates between which the suspected object is flattened so as to become transparent, the whole forming a cheap and simple device, capable of being used by persons unskilled with the microscope.

Our invention also consists in the details of the arrangement, as hereinafter more fully pointed out.

Our improved trichinoscope is represented in the accompanying drawings, in which Figure 1 is a plan view. Fig. 2 is a central longitudinal section on the line  $x x$ , Fig. 1. Fig. 3 is a side elevation. Fig. 4 is a side elevation of a modified form of our improved trichinoscope. Fig. 5 is a plan view of the same. Fig. 6 is an end view of the same.

In the accompanying drawings, representing our improved trichinoscope,  $a a'$  are the glass plates between which the object to be examined is flattened;  $b b'$ , the frames containing the plates;  $c$ , the clamping-screw;  $d$ , the hinge, and  $e$  the microscope, attached to the upper frame by the swinging supporting-bars  $f f'$ .  $g$  is an adjusting-screw. The compression-plates  $a a'$  are formed of glass, with parallel faces, attached together by a suitable clamping device and so arranged that the slice or fragment of meat to be examined may be subjected to pressure between them for the purpose of crushing or flattening the same so as to render it transparent. The plates are preferably inclosed in frames  $b b'$ , hinged together at one end and provided with a clamping-screw,  $c$ , at the other. The arrangement will be readily understood from the sectional view, Fig. 2, in which  $a a'$  are the glass plates;  $b b'$ , the frames;

$d$ , the hinge by which they are attached together, so that they may be opened for the purpose of introducing the object, (see dotted lines  $b''$ ;) and  $c$  the clamp-screw, which is pivoted to one end of the lower frame,  $b'$ , so that it may swing outward, (see  $c'$ .) and is provided with the thumb-nut  $l$ . An adjusting-screw,  $g$ , passes through one of the frames and bears against the other, for the purpose of determining the thickness of the object.

Instead of the hinge  $d$ , clamps may be used at each end of the frames, so that the lower plate may be entirely removed when the object is introduced; and, if desired, the clamps may be applied directly to the glass plate, the frames being dispensed with. Any suitable form of clamp may be used, operated by a screw or eccentric.

The microscope  $e$  is moved laterally in a plane parallel with the faces of the glass plates, so that all parts of the object may be examined by means of the pivoted supporting-bars  $f f'$ . The bar  $f$  is pivoted to the frame  $b$  at  $m$ , while the bar  $f'$  is pivoted to the free end of  $f$ , so that the microscope, which is attached to the opposite end of the bar  $f'$ , may be adjusted to observe any portion of the field. The microscope may be of any usual construction possessing sufficient magnifying power. In Fig. 2 we have represented it as consisting of a double lens provided with a diaphragm. In Fig. 3 we have shown the body of a compound microscope as attached to the swinging bars  $f f'$ . The microscope, whatever form be chosen for it, is made adjustable in a direction at right angles with the compression-plates by means of a thread on the lower part thereof entering a socket on the free end of the bar  $f'$ . The tube may be so arranged as to slide through the socket. This arrangement enables the observer to adjust the object in focus, if it becomes necessary; but it will be observed that the construction is such that the lens, when once focused, remains practically at the same distance from the lower face of the compression-plate  $a$ , while it is freely adjustable in a plane parallel thereto for the purpose of examining different portions of the field, and that any object placed against that face will thus be always in focus, it being one of the objects of our invention to provide an apparatus which may be used with

as little manipulation as possible, and such object being accomplished by making the lower plate, *a'*, movable for the purpose of introducing the object between the plates, while the relationship of the lens and the upper plate, *a*, remains constant. The plate *a* is made as thin as is consistent with sufficient strength.

In Figs. 4, 5, and 6 we have represented a modification of our improved trichinoscope adapted to the use of the glass object-slides ordinarily employed by microscopists. The frames *b b'* are in this case made of a size and shape to inclose the slides *a a'*, and are provided with a hinge, *d*, and clamp *c*, as previously described. The lens *e* is mounted on the upper frame, *b*, so as to be adjusted longitudinally and transversely thereon by means of the slide *h* and the pivoted supporting-bar *f*. The upper frame, *b*, may be made slightly wider than the glass plates, in which case the ends of the slide *h* are simply bent over the edges of the upper frame; but we prefer the construction shown in the drawings, grooves being cut in the side of the frame and the slide *h* being provided with wings *i i'*, fitting the grooves. The grooves for the slide *h* may also be formed on the inside of the opening formed through the upper frame.

The manner of using our improved trichinoscope will be readily understood from the accompanying drawings. A slice or fragment of meat or other substance which is suspected of containing trichinæ is placed on the plate *a*, and it is then flattened or compressed by forcing the plate *a'* against it, any suitable liquid—such as water or glycerine—being employed to render the material transparent. The observer then ascertains the presence of trichinæ in the object by looking through the lens against any strong light, shifting the position of the lens so as to bring all parts of the object under examination.

Instead of the pivoted support *f*, as shown in Figs. 4 and 5, the lens may be attached to a cross-slide arranged to move transversely on the slide *h*.

It is obvious that our improved trichinoscope may be used for the examination of many other kinds of objects.

We are aware that microscopes have been heretofore constructed in which the body was supported over the stage on a jointed arm, so that it could be swung laterally from above the stage for the purpose of facilitating access to objects thereon, and such arrangement we do not claim.

We claim—

1. The herein-described trichinoscope, consisting of a suitable microscope arranged to be moved in a plane parallel with the compression-plates *a a'*, and attached thereto by a suitable support adapted to permit the said motion, substantially as and for the purposes set forth.

2. The combination of the compression-plates *a a'*, frames *b b'*, clamping-screw *c*, hinge *d*, microscope *e*, and movable support *f*, substantially as described.

3. The combination, with the compression-plates *a a'*, of the frames *b b'*, clamping-screw *c*, and microscope *e*, arranged to be adjusted parallel to the plates by means of slide *h* and suitable support, *f*, substantially as described.

4. The combination, with the compression-plates *a a'*, of the frames *b b'*, clamp *c*, adjusting-screw *g*, and microscope *e*, arranged to be adjusted in planes parallel to the plates, substantially as described.

5. The combination, with the clamped compression-plates *a a'*, of the microscope *e*, connected to the plates so as to be moved in a plane parallel therewith, and having a focusing adjustment at right angles thereto, substantially as described.

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Witnesses:

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