Aug. 3, 1926. 1,594,792

A. C. MORTIMER

TEST TUBE HOLDER

Filed July 16, 1925

Fig. 1

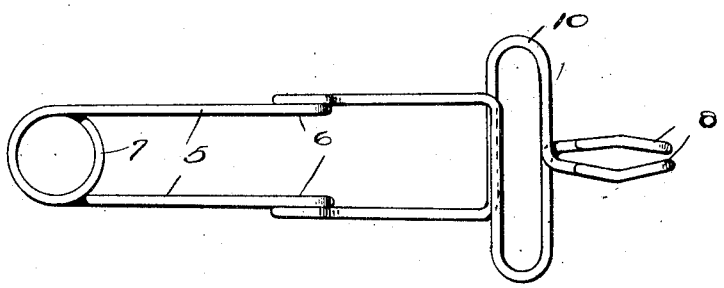


Fig. 2

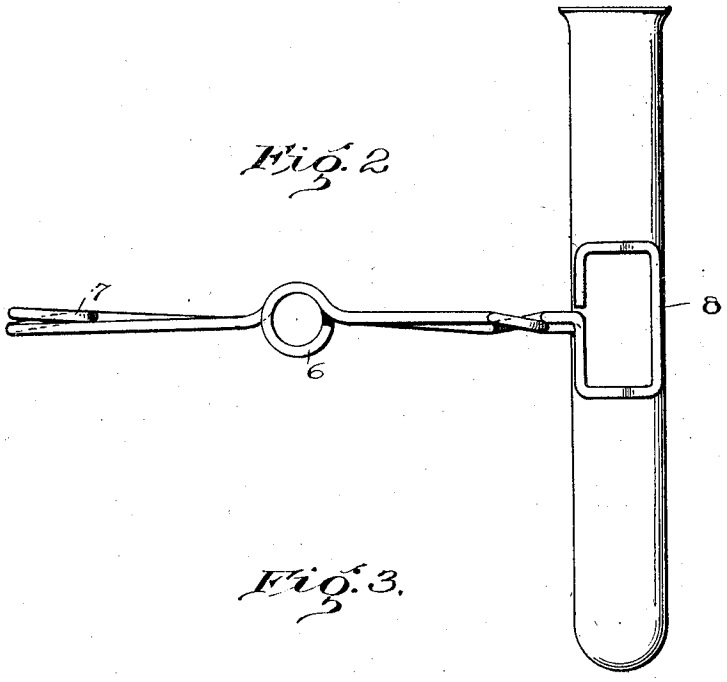
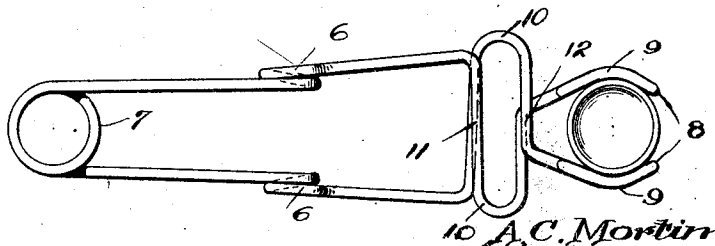


Fig. 3.



Inventor

A. C. Mortimer

By

Attorney

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UNITED STATES PATENT OFFICE.

ALFRED C. MORTIMER, OF WINTHROP, MASSACHUSETTS, ASSIGNOR TO L. E. KNOTT APPARATUS COMPANY, OF CAMBRIDGE, MASSACHUSETTS.

TEST-TUBE HOLDER.

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This invention relates to improvements in holders and clamps, and more specifically to test tube holders as used by chemists, altho it is, of course, to be understood that the holder or clamp may be used for many other purposes without departing from the scope of the present invention.

Holders or clamps now so extensively used, for example, by chemists and students in laboratories are of that type adapted to grip a test tube by reactive spring pressure, but are open to the objection that if the holder is grasped too firmly, there is a tendency to relieve this gripping action, causing the test tube to slip out of its holder.

It is, therefore, one of the objects of the present invention to provide a simple and practical holder or clamp so constructed as to increase the pressure or gripping action upon the article clamped such as a test tube, rather than relieve such pressure, if the holder is held more tightly by the operator.

A further object is to provide a holder or clamp of the above character, which will securely hold and grip an article as a test tube, which will not tend to turn in the hand while being held, and which may be easily and conveniently manipulated to release the tube when desired.

A further object is to provide a clamp or holder which may be either opened to release an object or closed to clamp an object, by straight pressure of the hand on the handle thereof applied at different places along its length.

A further object is to provide a device of the character above described preferably constructed from one piece of wire in order that the same may be inexpensively manufactured.

A further object is to provide a holder of the above general character which will be durable and strong in construction, reliable in use and operation, and which may be easily and conveniently held and operated under all circumstances.

Other objects will be in part obvious and in part hereinafter pointed out in connection with the accompanying sheet of drawings, illustrating one of the various embodiments of the present invention and in the several views of which corresponding parts are indicated by similar reference characters.

In these drawings,—

Figure 1 is a plan view of the device in normal position.

Figure 2 is a side elevational view of the device with a test tube held thereby.

Figure 3 is a plan view of the device in the position shown in Figure 2.

Referring now to the drawings in detail, 5 indicates what may be termed as the handle portion, the entire device being preferably constructed of a single piece of wire. This handle portion consists of two substantially parallel parts provided near their centers with a coil 6 presenting a relatively flat surface, thereby to lessen the tendency of the handle to turn while being held. The rear ends of this handle portion are connected by a coil 7 which provides the necessary spring action for holding the opposite ends or gripping jaws 8 in the normal position shown in Figure 1. These jaws 8 are preferably bent to form a rectangular outline, as shown in Figure 2, thereby to embrace a relatively large portion of the objects desired to be held or clamped, of which a test tube may be regarded as typical. It is obvious, however, that any type of clamping jaw may be provided for adaptation upon the particular object for which the clamp is to be used.

It will be noted that the jaws 8 are connected with the handle portions by double reverse bends 10 which cross each other at the points 11 and 12, and normally extend beyond the sides 5 of the handle, as shown in Figure 1. Thus it will be seen that in the normal position, the jaws 8 are relatively close together, but with the device held with the portions 5 grasped in the palm of the hand and the thumb applied to the bend 10 and pressure exerted, the jaws 8 will separate and assume the position shown in Figure 3, whereby the test tube or other object may be held securely therebetween. On release of pressure by the thumb at the point 10, the coil spring 7 causes the jaws 8 to exert a sufficiently strong gripping action

on the tube to hold the same against slipping. If the one using the device is nervous, due to reactions which may be occurring in the test tube, and inadvertently grips the handle portions 5 more firmly, this pressure, due to double return bends 10, causes a still greater pressure to be exerted upon the tube, thus eliminating the possibility of the tube slipping from the holder as frequently occurs in those devices now in general use.

As shown in Figure 3, the bends 10 form what may be regarded as an extension or elongation of the handle portion 5, and the hand of the person holding the clamp will naturally also extend about the bends 10. As hereinbefore described, pressure exerted on the portion 5 will act to close the jaws 8, while pressure on the bends 10 will serve to separate or release the jaws. This construction of clamp thus enables the clamp jaws to be either opened or closed by straight pressure of the hand applied at different places along the length of the handle.

As the construction, operation and use of the above device is clear from the above description, it is believed unnecessary to present a further statement of operation. While the invention is herein described with particular relation to its use and application as a test tube holder, it is, of course, to be understood that without material modification, the invention may be applied to other uses, as desired.

It will thus be seen that the present invention contemplates a simple and practical apparatus which may be inexpensively manufactured and assembled, and which will be substantially fool-proof in use and operation.

Without further analysis, the foregoing will so fully reveal the gist of the invention that others can, by applying current knowledge, readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims.

I claim:

1. In a holder of the character described, in combination, a handle portion comprising a wire bent back upon itself, gripping jaws and intervening connections including a reverse bend at each side of the handle, whereby, as the handle portion is more tightly gripped, a corresponding pressure is exerted by the gripping jaws.

2. In a holder of the character described, in combination, a handle portion comprising a wire bent back upon itself, gripping jaws and intervening connections including a reverse bend at each side of the handle, whereby, as the handle portion is more tightly gripped, a corresponding pressure is exerted by the gripping jaws, said reverse bend extending beyond the sides of the handle whereby pressure may be exerted thereon to release the gripping pressure of the jaws.

3. In a holder of the character described, in combination, a handle portion comprising a wire bent back upon itself, gripping jaws and intervening connections including a reverse bend at each side of the handle, whereby, as the handle portion is more tightly gripped, a corresponding pressure is exerted by the gripping jaws, and spring means associated with the handle portion for providing the normal gripping pressure.

4. In a holder of the character described, in combination, a handle portion comprising a wire bent back upon itself, gripping jaws and intervening connections including a reverse bend at each side of the handle, whereby, as the handle portion is more tightly gripped, a corresponding pressure is exerted by the gripping jaws, and spring means associated with the handle portion for providing the gripping pressure, said spring means comprising a coil of wire connecting the handle portions at one end thereof.

5. A holder of the character described, formed from a single piece of wire bent to provide a handle portion and gripping jaws, said handle portion having at one end a coil, and terminating at its opposite end with gripping jaws urged together by said coil, said handle portions and gripping jaws being connected by reverse bends extending beyond the sides of the handle, whereby pressure may be exerted thereon to separate the jaws.

6. A holder of the character described, formed from a single piece of wire bent to provide a handle portion and gripping jaws, said handle portion having at one end a coil, and terminating at its opposite end with gripping jaws urged together by said coil, said handle portions and gripping jaws being connected by reverse bends extending beyond the sides of the handle, whereby pressure may be exerted thereon to separate the jaws, said handle portion being provided at its sides with coils thereby to provide a flat portion for engaging the palm of the hand tending to eliminate a turning movement of the handle while being held.

7. A holder or clamp of the character described, comprising a handle portion and a clamp portion, the ends of the handle portion being crossed and continued to form a loop intermediate the handle and clamp portions, the loop portion forming an extension of the handle, the clamp portion adapted to open when pressure is exerted on the loop portion and to close when pressure is exerted on the handle portion.

8. A holder or clamp of the character described, comprising a handle portion having the ends thereof crossed and continued to form a loop serving as an extension to the handle, the ends of the loop being crossed and continued to form a clamp portion, the clamp portion being adapted to open as pressure is exerted on the loop portion, and to close when pressure is exerted on the handle portion.

Signed at Winthrop, Massachusetts, this 9th day of July, 1925.

ALFRED C. MORTIMER.