Oct. 21, 1947. M. D. BARNES 2,429,305

HOLDER FOR TEST TUBES

Filed May 2, 1944 2 Sheets-Sheet 1

Fig. 1

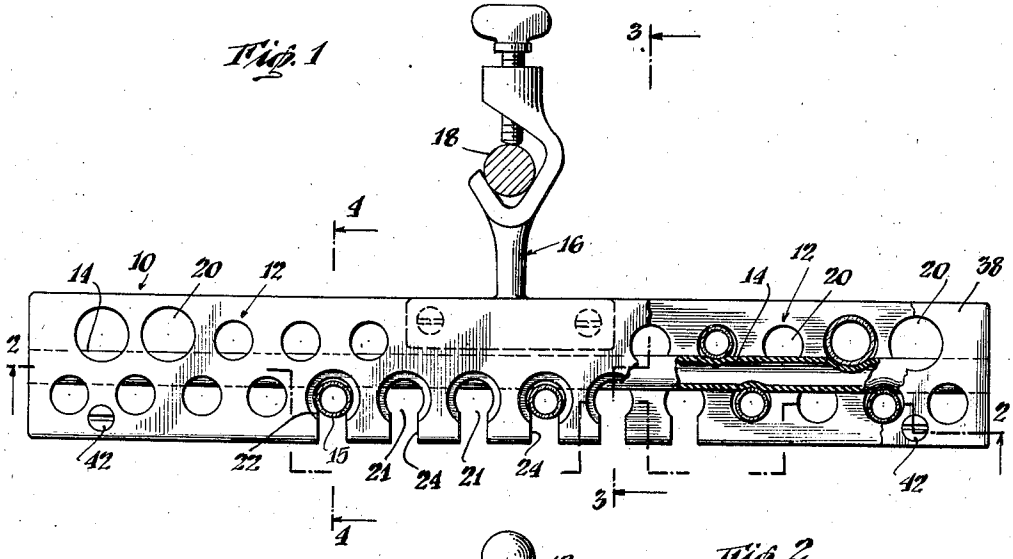


Fig. 2

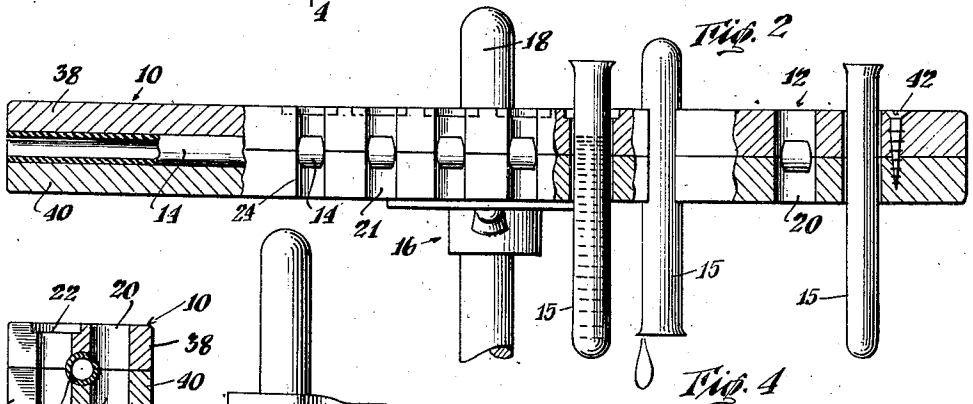


Fig. 4

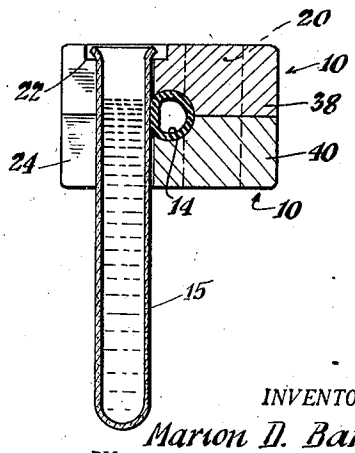
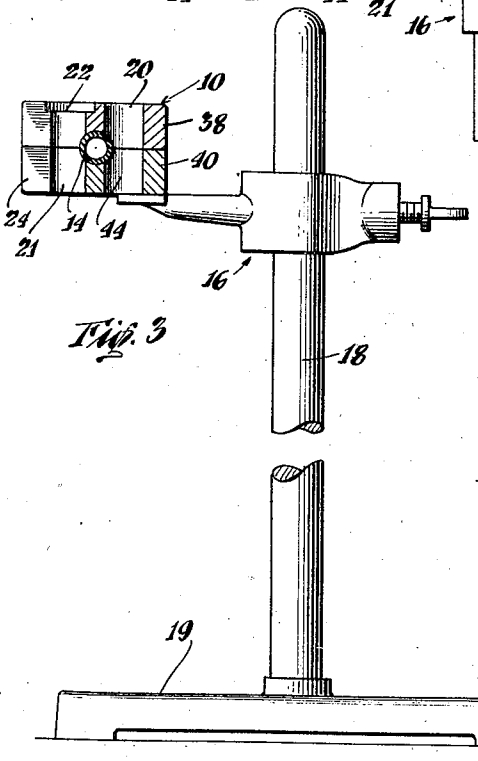


Fig. 3



INVENTOR.
Marion D. Barnes
BY
Robert Calvert
ATTORNEY

Oct. 21, 1947. M. D. BARNES 2,429,305

HOLDER FOR TEST TUBES

Filed May 2, 1944 2 Sheets-Sheet 2

Fig. 5

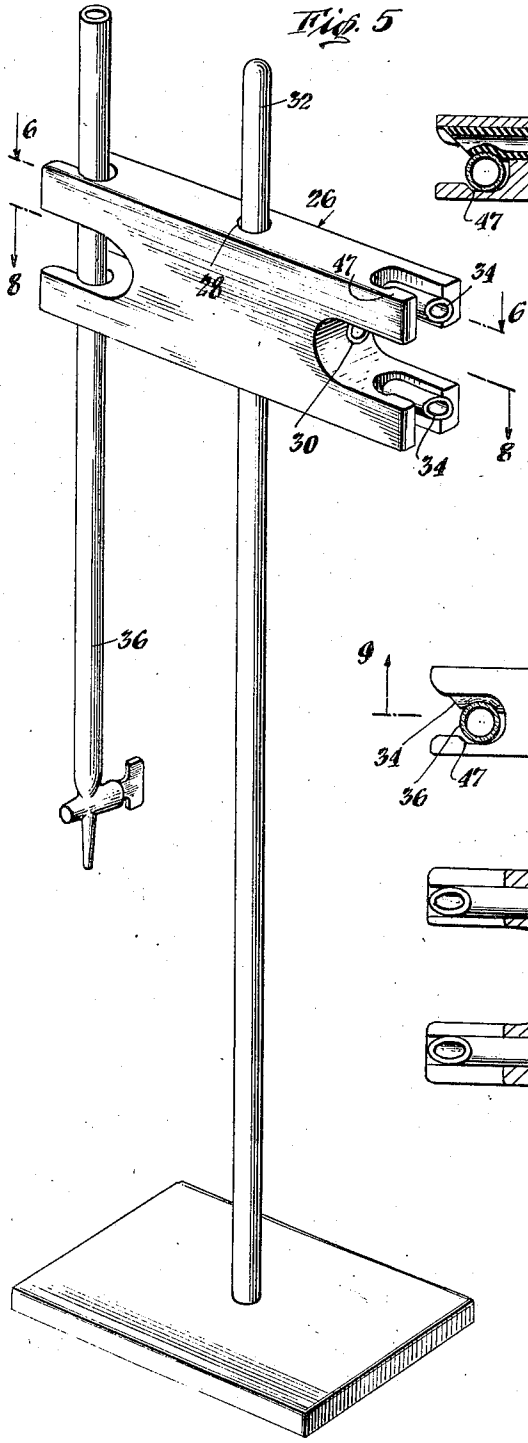


Fig. 6

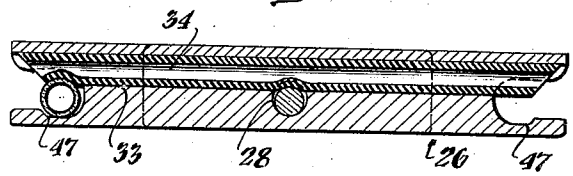


Fig. 7

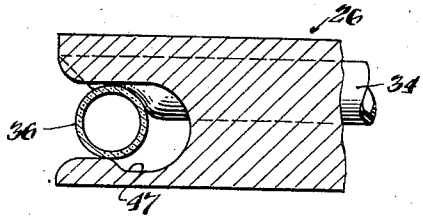
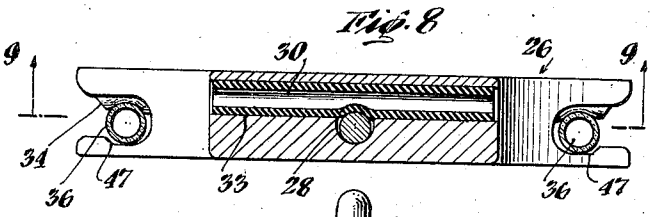


Fig. 8



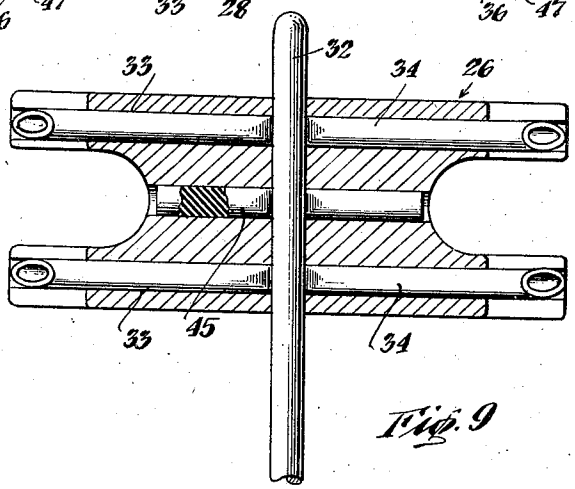


Fig. 9

INVENTOR.
Marion D. Barnes
BY
Robert Calvert
ATTORNEY

Patented Oct. 21, 1947

2,429,305

UNITED STATES PATENT OFFICE

2,429,305

HOLDER FOR TEST TUBES

Marion D. Barnes, New York, N. Y.

Application May 2, 1944, Serial No. 533,768

5 Claims. (Cl. 211—69)

1

This invention relates to a holder and particularly to a holder which resiliently engages articles and permits the convenient insertion or withdrawal of them from the holder.

The holder is adapted for use in connection with any shape retaining article, especially small articles such as toothbrushes, pencils, test tubes, burets, and other types of elongated laboratory equipment. Thus, the holder may be used in connection with flasks which, although not elongated as a whole, have elongated portions that, for the present purpose, classifies the flasks as elongated articles.

The invention provides a simple and inexpensive but improved means for holding such articles at any level within the holder and in orderly alinement with each other.

Briefly stated, the invention comprises a rigid member such as a generally rectangular block provided with a hole for each article to be held and a resiliently compressible holding element intersecting the hole so as to define with the wall of the hole a space to receive the article, the article being pressed by a side of the holding element against th part of the wall of the hole that is opposite the said side of the element. In the preferred embodiment, the base member of the block is provided with a series of holes or a plurality of series, with the resilient element intersecting the holes so as to provide a plurality of spaces to receive and hold articles. When two series of holes are present, the holes in adjacent series are preferably out of register in direction perpendicular to the direction of extension of the resilient holding element, so that there is rigid material of the block member directly behind the resilient holding element at positions where the element intersects holes in the block. In a modification of the invention, the block member is provided with a hole intersected similarly by the resilient holding element, this particular hole serving the purpose of engaging a rod support when the rod is inserted through the hole.

The holder of the kind described makes possible the holding of test tubes, burets or other elongated objects when inserted to any depth beyond the level of the resilient holding element. Furthermore, it makes possible holding them in predetermined upright, inverted, or inclined position. It holds the articles under pressure of the resilient member so that they do not rattle even when the holder is shaken.

The invention will be illustrated by description

2

in connection with the attached drawing to which reference is made.

Fig. 1 is a top view of the holder with a rod support in the form of a laboratory ring stand, with parts broken away for clearness of illustration.

Figs. 2, 3, and 4 are sectional views on line 2—2, 3—3, and 4—4 respectively, of Fig. 1.

Fig. 5 is a perspective view of a modification of the invention.

Fig. 6 is a horizontal section on line 6—6 of Fig. 5.

Fig. 7 is an enlarged view on line 6—6 of Fig. 5 showing a corner of the support.

Fig. 8 is an enlarged horizontal section on line 8—8 of Fig. 5.

Fig. 9 is a vertical section on line 9—9 of Fig. 8 but with a modified form of holding strip.

There are shown the rigid member 10 constituting in the embodiment shown a generally rectangular block. This member is provided with the holes 12 of size or sizes somewhat larger than the articles to be held. Through it extends the resiliently collapsible holding element 14 that, in the form shown, is a rubber tubing.

The articles held in Fig. 2 are test tubes 15.

The means for supporting the holder proper include in Figs. 1–3 a metal attachment 16 with a clamp for holding the attachment to rod 18 with a usual type of base 19.

The holes may be generally circular as shown at 20 or they may be in the form of slots 21 having shoulders 22 and mouths 24 opening at an edge of the member 10.

It will be noted that the holes 20 are arranged in a row and that these holes extend through the integral rigid member 38, from top to bottom. The second hole which receives the resilient tubular element 14 extends through the block, in direction from end to end and generally parallel to an imaginary line connecting the centers of the first mentioned holes. The spaces defined by the wall of the tube 14 and the walls of the holes which the tube intersects are of size that is substantial into which the articles may be inserted when the tube is compressed, as shown for instance in Fig. 4.

In a modification of the invention the means for supporting the holder include the block 26, provided with hole 28, and a resiliently collapsible element 30 intersecting the hole at a side thereof and defining a space to receive the rod 32 of a conventional support. In this modification there are other openings 33 that open in the direction of the length of the block. The re-

siliently compressible elements 34 that extend within, i. e., intersect, the openings 33 are suitably beveled at the end, to facilitate insertion of an object to be held, as, for example, a buret 36.

In this and other embodiments, one resiliently collapsible holding element may intersect more than one hole or opening and thus serve the function of a plurality of such elements.

By the spacing apart of the top and bottom of the block 26, as shown, there is obtained improved alinement of a long object, such as a buret, although this spacing apart is not essential to obtaining alinement that is satisfactory for most commercial uses.

In all embodiments, the resilient holding element intersects the holes to receive the elongated articles and also projects into the holes as shown for instance in Fig. 1, defines with the side of the wall opposite the said element a space that is of substantial width but normally somewhat less in the shorter dimension than the thickness of the object to be held, say the diameter of a test tube or buret or the shortest dimension of the handle of a toothbrush. In other words, the space is substantially reduced by the intersecting resilient holding element and normally is of lesser width in its shorter dimension than the width of the part of the article to be held. Thus, in Fig. 1, the distance between the exposed wall of the tube 14 in normal (i. e., uncollapsed condition) and the wall on the opposite side of the hole is less than the shortest dimension of the articles to be held. Holes of various sizes may be present in one holder to accommodate articles of different sizes. The space so defined however is of such size that when the article is inserted into the space and pressed home alongside the holding element, the element is compressed, the space left is just the distance across of the article to be held, and the article is resiliently pressed by the holding element against the opposite and alining side of the wall of the hole.

Any conventional materials of construction for the rigid parts may be used, as, for example, wood, plastic or metal. Ordinarily the block 10 is made in two parts, say halves 38 and 40 held together by suitable means, as, for example, screws 42 of which only one is shown. The halves in this instance are provided with registering semicircular grooves, so that when the two halves are brought together, the grooves in the halves form the hole 44 extending throughout the block. The resilient holding element is suitably laid in one of the grooves before the assembly is completed. Or, the element may be pulled through the hole in the completed block assembly, as by means of a leader cord first threaded through the hole. The holding element should fit snugly within the hole.

The modification shown in Figs. 5–8 contains in effect three holding elements 30, 34, and 34, the intermediate one 30, which may be omitted, engaging only the rod member 32 when the rod is inserted to support the holder.

Here also the same part may serve two functions. Thus, the longer ones of the holding elements 34 serve as the resilient element to contact the rod of the support and also hold burets or the like at the ends of the upright clamp.

In the form shown in Fig. 9, there is used a resiliently compressible rod like holding element 45. This element may take the place of the rubber tubing shown in any of the other embodiments of the invention and may be constructed of relatively soft cured rubber, sponge rubber, sponge viscose such as cellulose in the form in which it is used as a bath sponge, or a metal spring. None of the rod-like holding elements are as desirable, however, as the relatively inexpensive and convenient rubber tubing which is preferred for the purpose.

In using the holder of the present invention, test tubes or like articles with rounded or sloped ends are suitably inserted from above or below, as by being pushed downwardly or upwardly into the holes or grooves of the assembly of Fig. 1. Draining test tubes, wet stirring rods, or the like are preferably inserted from below. Into the holder of Fig. 5, burets, test tubes, or the like may be pushed in from the side. Once in position the tubes are forced by the pressure of the resilient holding member against the opposite side of the wall of the groove, and are prevented from disengagement laterally and are alined by the shoulder 47 on one side at least of the rigid block.

It will be understood that it is intended to cover all changes and modifications of the example of the invention herein chosen for the purpose of illustration which do not constitute departures from the spirit and scope of the invention.

What I claim is:

1. A holder for retaining elongated articles in upright position comprising an integral rigid member provided with a plurality of holes extending from top to bottom of the member, arranged in a row, and adapted to receive the said articles and provided with a second hole intersecting the said holes and extending through the said member generally parallel to a line connecting the centers of the said holes, a resiliently compressible tubular element disposed in the second hole and intersecting and projecting into the holes in the row so as to define with the walls thereof spaces of substantially reduced size but normally of somewhat lesser widths in the shortest dimension than the thickness of the articles to be held and of width to receive the said articles when the tubular element is compressed, so that the tube forces the articles resiliently against the walls of the holes arranged in a row and the walls of the said holes serve to aline the articles.

2. A holder as described in claim 1, the holes arranged in a row having mouths opening on an edge of the said rigid member and in direction away from the tubular element and the rigid member having pairs of shoulders partly closing the said mouths so as to form restricted openings.

3. A holder as described in claim 1, the said rigid member being provided with a second series of holes extending each from top to bottom of the member and arranged in a row generally parallel to the row of holes first mentioned, the said second hole intersecting the holes in both of the said rows, and the holes in a row on one side of the resiliently compressible element being in offset relation to the nearest holes on the other side of the said element.

4. A holder for retaining an elongated article and a rod support for the holder, the holder being provided with a hole to receive the rod support and a resiliently compressible element extending across a side of the hole and defining with the wall of the hole a space to receive and hold resiliently the rod support, and the holder including means for securing the said article within the holder.

5. A holder as described in claim 4, the said means including a cut out portion of the holder, means resiliently closing a part of the space in the cut out portion and defining with the wall of

the said portion a space to receive and hold the said article.

MARION D. BARNES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
350,523	Bodley	Oct. 12, 1886
407,560	Wilson et al.	July 23, 1889
854,486	Gibson	May 21, 1907
1,894,974	Bleckley	Jan. 24, 1933
1,222,844	Caldemeyer	Apr. 17, 1917
1,853,632	Buhrke	Dec. 8, 1931
1,876,284	Fried	Sept. 6, 1932

FOREIGN PATENTS

Number	Country	Date
262,621	Great Britain	Dec. 16, 1926