April 26, 1955 J. C. BROWN 2,707,052

BROOM AND TOOL RACKS

Filed Dec. 11, 1953

Fig. 1.

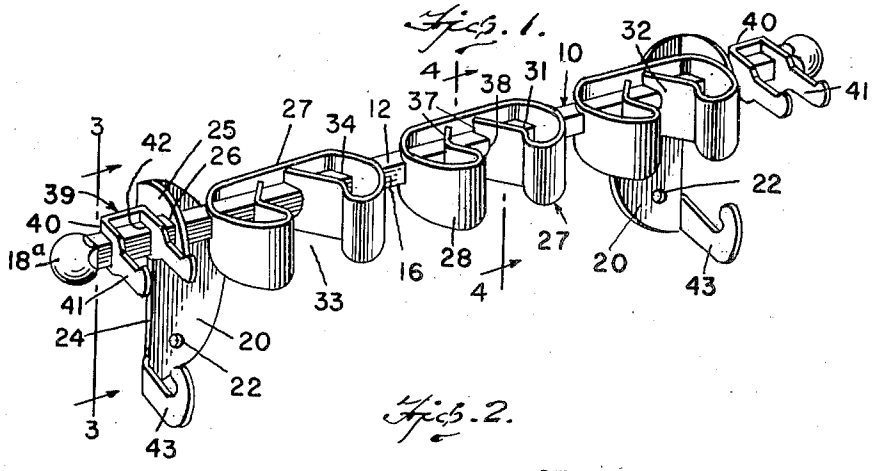


Fig. 2.

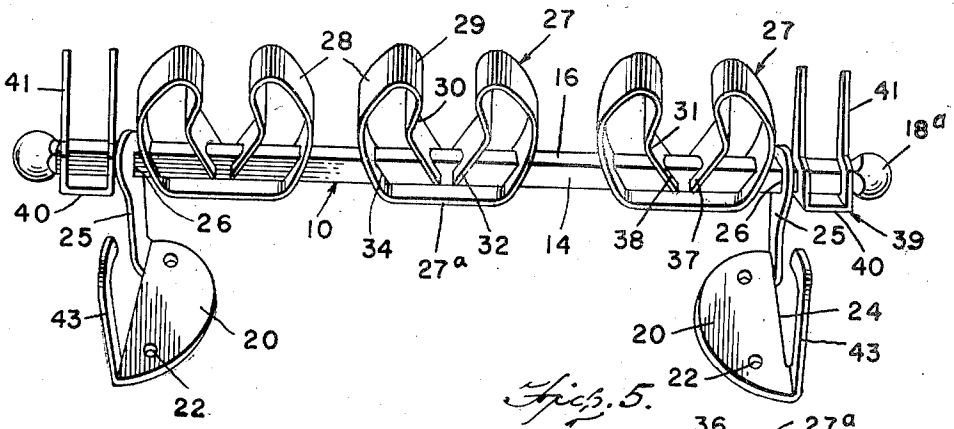


Fig. 5.

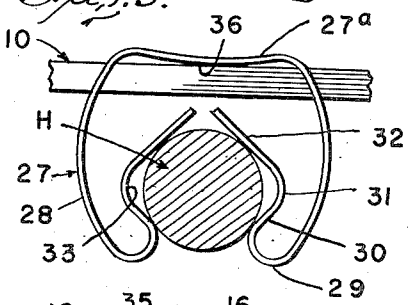
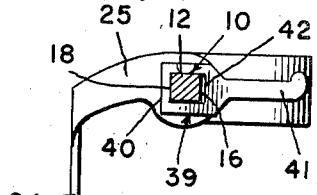


Fig. 3.



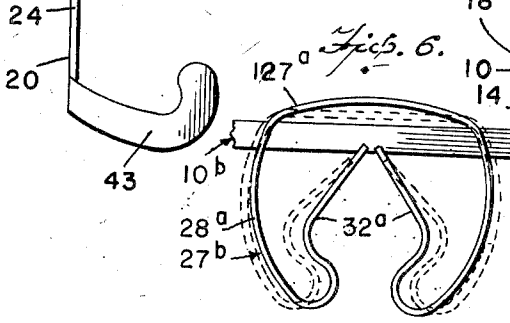
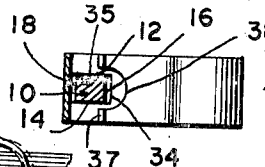


Fig. 6.

Fig. 4.



INVENTOR

John Clark Brown

ATTORNEY

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BROOM AND TOOL RACKS

John Clark Brown, Upper Montclair, N. J.

Application December 11, 1953, Serial No. 397,514

1 Claim. (Cl. 211—65)

This invention relates generally to the class of hangers or supports and is directed particularly to improvements in supporting racks designed to facilitate the hanging of such domestic articles as brooms, mops and the like as well as other types of handled tools, whereby such articles can be kept in neat order and readily accessible for use.

The present invention is particularly directed to a hanger bracket or support employing a modified form of spring clip such as that illustrated in Patent 1,711,730 of May 7, 1929. Spring clips of the type illustrated in this patent are comprised of a single strip of material of ribbon form which is bent upon itself at the ends to provide a central portion which is attached to a supporting structure such as a well or the like and inwardly turned opposing end portions which form spring jaws between which the handle of a broom, mop or other object is frictionally held. In this type of spring clip, a single aperture is provided in the back portion for the passage of a screw or other holding element whereby the clip is firmly fixed to the wall or other support and because of the manner of fixing the back of the clip at the central part thereof, the spring action is confined to the back portion at the two sides of the holding element so that the metal tends to become fatigued at opposite sides of the holding element and eventually breaks.

Another undesirable feature associated with the use of spring clips of the type referred to is that if a number of the clips are used in side-by-side relation, after they are once set up, the spacing between them cannot be changed. If a number of objects such as sweeping brushes or brooms are to be hung up, the heads of such objects will interfere with one another and the articles cannot be hung in a satisfactory manner unless in the initial mounting of the clips, they are spaced in anticipation of the use of such articles.

In the light of the foregoing, a particular object of the present invention is to provide in an article support employing spring clips of the character stated, a novel means for supporting the clips whereby the spring action extends uninterruptedly throughout the full length of the strip of metal from which the clip is formed thereby providing greatly increased overall resilience and spring action as well as lessening the tendency of the metal to become fatigued so that the life of the article will be greatly increased.

Another object of the present invention is to provide an improved rack or support making use of the spring clips of the general type above referred to wherein such clips are mounted in a novel manner upon a supporting bar to permit them to be adjusted relative to one another in accordance with the sizes of the articles held by them.

Another object of the invention is to provide a support of the character stated, wherein the clips in one embodiment are of novel design to be automatically secured against free movement on the bar after the resilient jaws thereof are forced apart as by the insertion of a broom or mop handle between them so that the position of the clip remains stationary after an article has been mounted thereon.

The foregoing and other objects are attained by the provision of a supporting bar of polygonal cross-section upon which a plurality of the spring clips are relatively loosely mounted for movement therealong. Such spring clips are mounted upon the supporting bar by providing the inbent arms of the clips with openings conforming generally in contour to the cross sectional form of the

supporting bar, such openings being located in close proximity to the back part of the clip so that when the spring jaws are forced apart, thus spreading the arms, the flexing of the clip is extended or distributed through the major portion of the clip instead of being concentrated through a small area, and the possibility of breakage substantially eliminated. Suitable mounting plates are provided having forwardly extending arms with openings through which the bar passes whereby the bar and clips can be mounted upon a supporting wall surface or other body in spaced relation with the latter, and additional accessories are provided on the bar such as movable spaced, forwardly extending fingers upon or between which smaller objects can be hung.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of the specification, with the understanding that the invention is not confined to a strict conformity with the showing of the drawing but may be changed or modified within the scope of the appended claim.

In the drawing:

Fig. 1 is a view in top perspective of a support for a rack constructed in accordance with the present invention.

Fig. 2 is a perspective view of the same looking toward the underside thereof.

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken substantially on the line 4—4 of Fig. 1.

Fig. 5 is a detail view, on an enlarged scale, illustrating the manner in which the back portion flexes or bows forwardly for frictional engagement with the supporting bar, when an object such as a broom handle or the like is forced into position between the opposing holding or gripping jaws.

Fig. 6 is a view in top plan of another embodiment of the spring clip illustrating the position assumed by the back portion when the arms are spread apart.

Referring more particularly to the drawing, the numeral **10** generally designates a bar of arbitrary length and of polygonal cross section as illustrated in Figs. 3 and 4, the cross section here illustrating the bar as being square or rectangular thus providing the flat top and bottom faces **12** and **14** and the front and rear faces **16** and **18** respectively.

The two ends of the bar may be finished off in any suitable manner as by the provision of the knobs **18***a*.

For mounting the bar and the elements carried thereby, there are provided the two flat mounting plates **20** provided with suitable openings **22** for the passage of screws, nails or other suitable securing elements, not shown.

The mounting plates **20** are here shown as being of substantially semi-circular form but it will be readily apparent that the invention is not restricted to a plate of this design.

Extending in perpendicular relation to the plate **20** from a side edge **24** thereof is an arm **25** which, at its outer or forward end is provided with an aperture **26** of the same form or contour as the cross sectional form of the bar **10**. Thus, when th mounting plates **20** are secured to a supporting surface, in spaced relation to maintain the bar **10** in horizontal position, the bar will be held forwardly spaced from the supporting surface, it being understood, of course, that the arms **25** will project forwardly from the plates as shown in Fig. 1. Since the bar **10** has a cross-sectional form corresponding to the form of the opening **26** it will be seen that it will be held against turning movement.

The bar **10** supports between the arms **25**, a plurality of spring clip members each of which is generally designated **27**.

Each of the spring clips **27** is formed to be generally C-shaped or horseshoe-shaped from a single piece or strip of spring metal of ribbon form which is bent upon itself to produce the about to be described parts whereby the functions and objects above set forth are attained.

As illustrated, each clip is bent to provide a relatively long substantially flat back portion **27***a* from each end of which extends a curved arm **28** doubled back

upon itself. These arms **28** are thus bowed so that their concave sides or faces are in opposed relation as illustrated.

The bent-back or outer portion of each arm **28** joins the reversely bent knee portion **29** which curves inwardly and joins a straight terminal or free end portion **30**. Thus the bent-back portions of the clips are substantially V-shaped in plan view. These straight portions **30** are directed inwardly and rearwardly in diverging relation and merge through a rounded corner or angle portion **31** with a straight inner jaw-forming portion **32**. These jaw portions **32** have their inner ends normally disposed close together and in inwardly converging relation and the jaw portions **32** and the straight inner end portions **30** of the knees **29** form an article receiving recess or cove **33** at the juncture of the V-shape designed to effectively engage one side of a body of circular or other cross-sectional form.

At the back or rear end of each of the arms **28**, the arm has formed therethrough an opening or aperture **34** having the same contour as the bar **10**, the opening here shown being rectangular as is most clearly seen in Fig. 4, with the parallel top and bottom edges disposed parallel to the longitudial edges of the arms **28**, such top and bottom edges of the opening being designated at **35**. The rectangular bar thus fits fairly snugly between the top and bottom edges of the openings through which it passes so that the spring clips are maintained against turning or tilting movement about the bar. The openings **34** are, however, of a length slightly greater than the thickness of the bar between its front and back faces **16** and **18**, as shown in Fig. 4, so that while the clip cannot turn on the bar, it has some freedom of movement backwardly and forwardly.

As previously stated, the openings **34** are at the rear ends of the bowed arms **28** and in close proximity to the back portion **27***a* of the clip. In this embodiment, when the bowed arms **28** are forced apart as in the operation of placing a tool handle between the jaws **32**, the entire back portion **27***a* will be flexed or bowed forwardly as indicated at **36** in Fig. 5. In this figure, the back portion **27***a* has been illustrated as having contact with the back face **18** of the bar **10** whereby a fractional engagement with the bar is had which will tend to hold the spring clip against sliding movement when an article has been forced between the arms as shown. It will also be seen that, in this action, a greater range of flexibility of the clip is obtained so that the stresses are distributed over the length of the back portion of the clip and failure of the metal to retain its resiliency is avoided. While this frictional engagement of the back portion of the clip is a novel feature, it is to be understood that the clip may be designed so that the back portion **27***a* will be spaced from the bar to permit the forward bowing or flexing without bringing about such frictional engagement since a principal objective of the invention is to mount the clip in such a manner as to permit the desired flexing without weakening the metal rather than the attaining of this holding action on the bar.

When the arms of the clip are in their normal relative positions, the knee portions **29** will be closer together than shown in Fig. 5 and the inner ends of the jaws **32** will move rearwardly and, in order to provide for maximum length of such jaws without interference from the bar **10**, the free inner edges **37** of the jaws are cut out or recessed, as indicated at **38** to receive the bar as illustrated in Figs. 1, 2 and 4.

Fig. 5 illustrates the manner in which a circular body, such as a broom or a mop handle, is held between the jaws of the spring clip, such handle being designated H. As shown, such a circular body is engaged at four points, lying, as illustrated, in the recesses or coves **33** so that the inner sides of the knees **29** contact the front part of the body and the jaws **32** contact the body at the rear side.

As will be readily apparent, the circular character of the jaw knees **29** facilitates the placement of the handle body H between the jaws and its removal therefrom.

Fig. 6 illustrates a modified form of the spring clip

wherein provision is made for maximum spreading of the arms without bowing the back portion of the clip into engagement with the supporting bar. In this figure, the supporting bar is generally designated **10***b* and the spring clip is designated **27***b*. As illustrated, the back bar portion designated **127***a* of this modified clip construction is bowed outwardly or rearwardly with respect to the inwardly converging jaw portions **32***a*. Thus, when the arms **28***a* are spread apart as indicated by the dotted outline positions thereof, the rearwardly bowed portion **127***a* will flex toward the bar **10***b* and be brought to a substantiailly straight condition, as shown, so that the clip will still be free for sliding movement on the bar while holding an article inserted between the leg jaws.

The two described embodiments of the spring clip constitute species of the invention embodying the principal features of providing a means for supporting the clips in such a manner as to permit a greater range of flexibility and thereby avoid failure of the metal, and are not equivalents.

In addition to the spring clips **27** provision is made for hanging other smaller objects on the bar **10** in the form of the U-shaped members **39**. These members are also preferably formed from flat strip material bent transversely along two parallel lines to provide the back part **40** and the spaced parallel fingers **41**. The fingers **41**, adjacent to the short straight back portion which is perpendicular to the fingers, are provided with suitable openings **42** to receive the bar **10**, such openings having the same contour as the cross section of the bar whereby the elements **39** are maintained with the fingers **41** extending forwardly from the bar and, while the elements can be shifted on the bar, they cannot turn thereon, as will be readily apparent.

In addition to the forwardly extending arms **25**, each of the mounting plates **20** may be provided with the forwardly projecting hook **43**. This hook, as well as the arm **25**, may be cut or stamped with the mounting plate **20** from a single piece of metal and then bent to extend forwardly at right angles to the plate as illustrated.

From the foregoing, it will be apparent that the bar **10** may be provided in any length to take, or carry, any desired number of spring clips. Thus a plurality of clips can be set up for use by the mounting of two plates **20** between which the bar **10** is supported, whereas much more time and effort would be required to mount a corresponding number of individual clips and there would not be had the advantage of being able to adjust the spacing of the clips as is had with the claimed invention.

In addition to the above stated advantages the clips, mounted on the bar as herein set forth, can be repeatedly sprung or flexed and will not lose their resiliency or break, thereby giving a rack having a long life.

I claim:

A handled implement rack comprising a bar of polygonal cross-section having means for supporting the bar while spaced from a wall surface, a plurality of generally horseshoe-shaped spring clips having correspondingly apertured oppositely curved arms adapted to be sprung farther apart than normal for gripping between them the handle of the implement and whose free ends are doubled back upon themselves to be substantially V-shaped in plan view terminating with a recess in their free ends, said clips being threaded onto the bar that passes through the correspondingly apertured arms of the clips while their terminal recesses also engage the bar that thus forms the sole support for the clips whereby the clips are substantially non-tiltable about the bar while having relatively free longitudinal movement thereon yet whose spring action is transmitted freely throughout the full length from end to end of each clip.

References Cited in the file of this patent

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