April 7, 1942. V. KELLEMS ET AL 2,279,237

ARTICLE HOLDER

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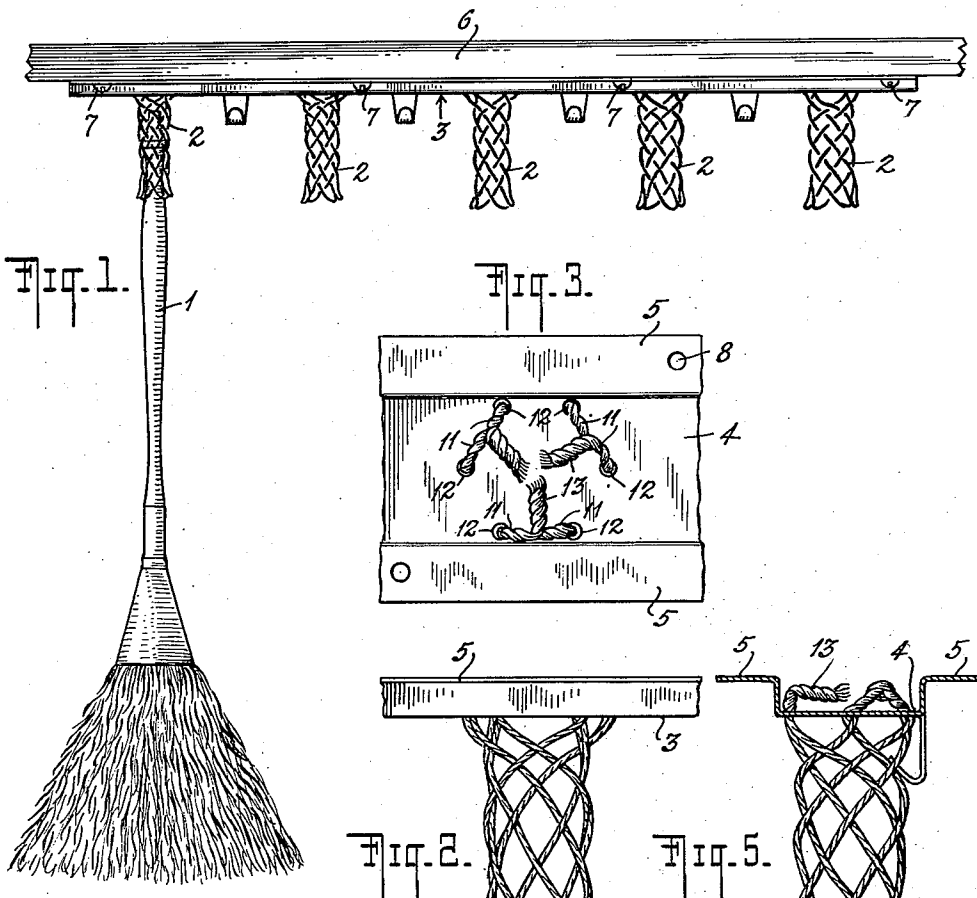

Fig. 1.

Fig. 3.

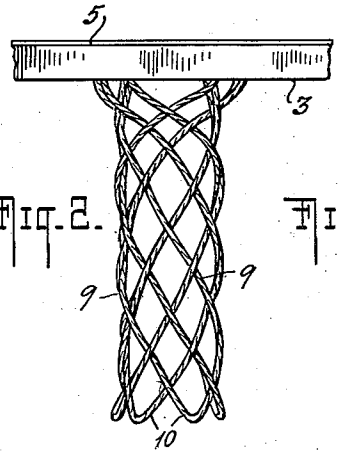

Fig. 2.

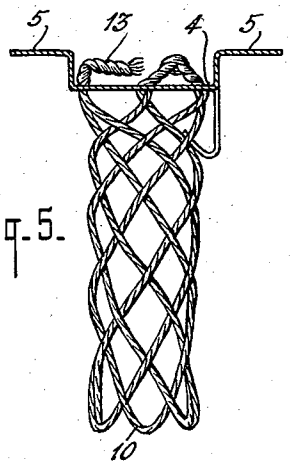

Fig. 5.

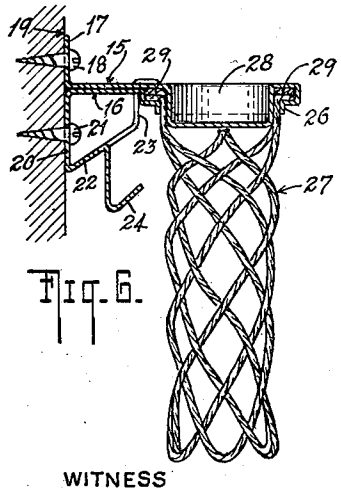

Fig. 6.

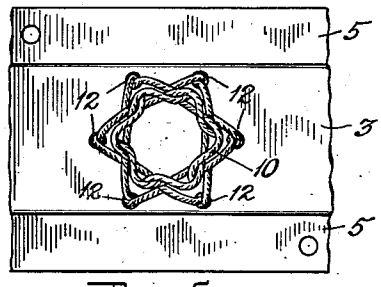

Fig. 4.

WITNESS

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Fig. 7.

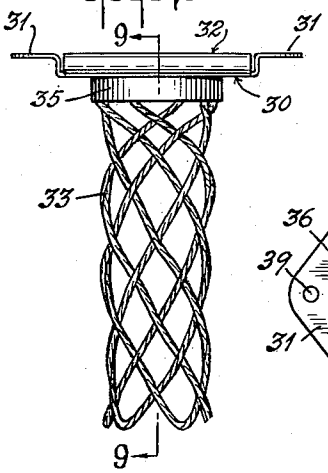


Fig. 8.

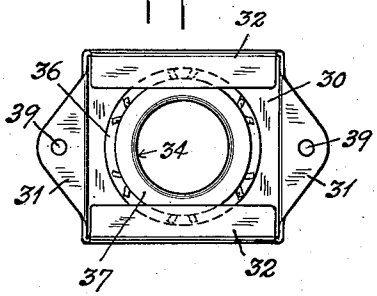


Fig. 9.

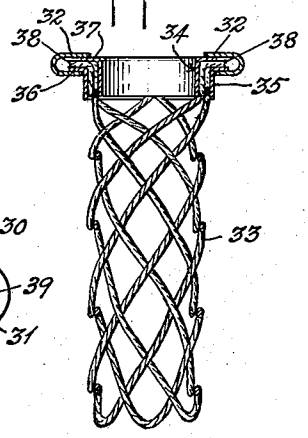


Fig. 10.

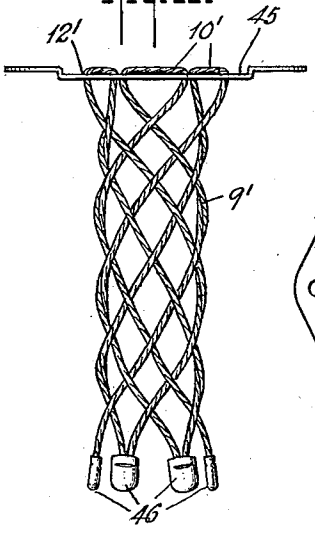


Fig. 12.

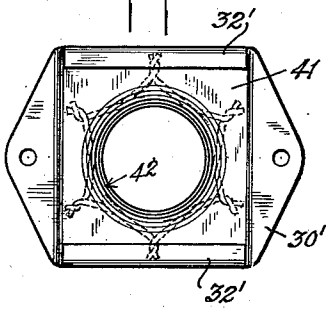
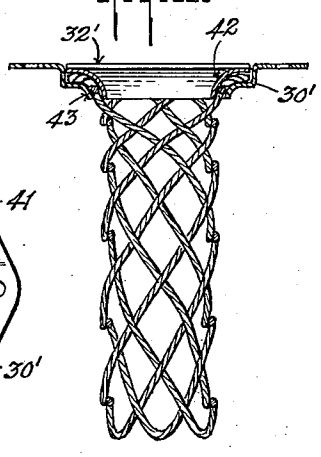


Fig. 11.



WITNESS

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UNITED STATES PATENT OFFICE

2,279,237

ARTICLE HOLDER

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Application August 17, 1939, Serial No. 290,542

5 Claims. (Cl. 248—309)

This invention relates to supports for household articles such as brooms, candles, tools, utensils and the like, and has for its object the provision of a novel device of this character which is simply constructed, easy to manufacture and inexpensive, and adapted to be used universally in the home for supporting a variety of articles having handles or gripping portions of widely varying shapes and sizes. With these ends in view the present invention provides a support composed of a plurality of strands which are sufficiently rigid and so arranged with relation to a base portion that the handle or the portion of the article to be supported may be inserted readily into the structure formed by such strands without any manipulation of the same and can be readily detached therefrom whenever desired, the article during its attachment to the device being reliably supported thereby. The strands are made of short pieces of wire which are of substantially uniform length and preferably are bent midway their ends, the bent portion of each strand being positioned at one end of the structure and the two sides or sections of the strand formed by such bend extending towards the other end of the structure and spiralling in opposite directions around the longitudinal central line of the wire structure. The several bent strands thus arranged form an open meshed tube which may be considerably varied in a radial direction by endwise compression and extension thereof to accommodate handles having widely varying shapes and sizes. We are aware that open meshed structures made of wire strands have heretofore been incorporated in devices for connecting an article or object to some other means because of the natural tendency of such a structure to secure a firm grip on the portion of the article enclosed thereby and to more firmly grip such portion whenever forces come into existence tending to separate the article from the gripping member. It is of course evident that such a condition would not be at all satisfactory in the use of a holder for household articles for in the use of such a holder the housewife should be able to easily and readily detach the broom or article supported by the holder at will and with a simple longitudinal pull. We have found, however, that if the open meshed structure were made relatively short and if the strands of such structure were arranged in a peculiar manner with relation to a supporting base, we were enabled to provide a satisfactory support into which household articles could be readily inserted and detached therefrom. The present invention therefore consists in certain novel details in the construction, arrangement and combination of the parts constituting the holder of this invention which are explained in detail in the following description and illustrated in the accompanying drawings in which Fig. 1 is a front view of a rack provided with a plurality of holders of varying sizes; Fig. 2 is an enlarged detail of Fig. 1 to show more clearly the arrangement of the wires in a holder; Fig. 3 is a top plan view of the parts shown in Fig. 2 and illustrating the manner in which the holder is secured to the rack; Fig. 4 is a bottom plan view of the parts illustrated in Fig. 2; Fig. 5 is a side view of the portion of the holder illustrated in Fig. 2; Fig. 6 is a side view of a modified form of the invention, the rack therefor being shown in section; Fig. 7 is a front elevational view of another embodiment of the invention; Fig. 8 is a top plan view of the device shown in Fig. 7; Fig. 9 is a central vertical section of the device shown in Fig. 7, the section being taken along the line 9—9 of Fig. 7; Fig. 10 is a front elevational view of another form of the invention; Fig. 11 is a central vertical section of still another form of the invention and Fig. 12 is a top view illustrating the manner in which the wire structure illustrated in Fig. 11 is attached to its supporting base.

In Fig. 1 of the drawings there is shown a duster which is designated 1 and which is supported by one of a plurality of supports or holders 2 made in accordance with the invention. The several holders 2 are of varying diameters to enable them to accommodate articles having handles of varying shapes and sizes such as brooms, mops, etc. The upper ends of the holders 2 are secured to a bracket 3 formed from a strip of sheet metal which has been formed to provide a longitudinally extending channel-shaped portion 4 and longitudinally extending edge portions 5, 5. The bracket 3 is secured to a supporting surface 6 in any suitable manner, as by means of screws 7 extending through apertures 8 provided in the edge portions 5, 5 thereof and screwed into the material of the supporting surface. Intermediate the supports 2 the bracket 3 may also be formed to provide hooks adapted to receive whisk brooms or other articles which are usually provided with loops of cord or wire and by which they may be hung on such hooks.

The holders 2 are each constructed of a series of wire strands of substantially uniform length, as is shown more clearly in Figs. 2 and 5. The strands of each support or holder 2 are arranged in pairs and those of each pair are preferably

made of a continuous piece of wire or other suitable material bent or folded substantially midway between its ends to form a loop 10 at the open end of the holder, the two sides or sections 9, 9 of each piece of wire extending toward the bracket 3 and spiralling about the longitudinal axis of the holder to form with the other sections of the wires or strands an open meshed tube. The free end 11 of each section of strand 9 extends through an opening 12 provided in the channelled portion 4 of the bracket 3 (see Figs. 3 and 5) and the adjacently disposed ends of such strands are twisted together as at 13 to securely fasten the holder to the bracket. The depth of the channelled portion 4 of the rack 3 within which the twisted ends of the wires are enclosed is preferably such that such twisted ends will be maintained against unraveling when the rack is secured to the supporting surface 6.

The two sections 9 of each wire strand are preferably of such length that they do not spiral through an angle of greater than 360° and do not form more than two loops throughout the length of the holder. In other words, the maximum length of the two sections of each wire with respect to the length of the woven tube should preferably be such to enable them to emerge from the same opening 12 then spiral around the tube in opposite directions through 360° to form two complete loops disposed in angular relation, the connected ends of such sections at the outer end of the tube being in this case disposed substantially above the opening 12 from which they emerge. It will also be observed from Figs. 3 and 4 of the drawings, that the group of apertures 12 for receiving the free ends 11 of the strands of each holder, are arranged in a somewhat circular fashion in the channel-shaped portion of the bracket 3 and define an area which is greater than the cross-sectional area of the open meshed structure formed by such strand sections 9. These structural features insure a sufficient rigidity of the open meshed structure to enable the handle of an article to be inserted therein without danger of such structure bending along its longitudinal axis or collapsing during such insertion while enabling such structure to expand radially to receive the handle of the article. The housewife is thus enabled to readily attach the handle of an article to the holder by simply forcing the end of the handle against the open end of the wire structure which will expand sufficiently under the longitudinal force to receive the handle and yet will not buckle or collapse under such force. When the handle of the article is in proper position, the strands of the open meshed structure will exert a gripping force on the same of sufficient intensity to reliably support the article. The arrangement of the wires with relation to the rack 3, however, is such as to enable the article to be readily removed from the holder by simply pulling the article away from the holder.

In the embodiment of the invention illustrated in Fig. 6 of the drawings, the free ends of the strands forming the open meshed structure are spread radially outwardly and are securely clamped in position between two sections of a wall bracket, thereby further rigidifying the open meshed structure so that the possibility of its bending along its longitudinal axis or collapsing when the handle of an article is forced therein is reduced to a minimum. The bracket comprises two metal sections 15 and 16 which are made from a single piece of metal and which are folded on each other so that the interior surfaces of such sections are substantially in engagement, the folded end connecting the sections 15 and 16 forming the projecting end of the bracket and the fold being so made that the portions of sections 15 and 16 adjacent to such folded end are slightly spaced apart to permit the reception of the free ends of the strands intermediate such portions. The free end of the section 15 is turned upwardly to form a flange 17 which is provided with apertures through which screws 18 may be inserted to attach such section to a supporting surface 19. The lower section 16 is bent downwardly at the line of bend forming the flange 17 of the upper section, to form an intermediate portion 20 which rests on the supporting surface 19 and is provided with apertures through which screws 21 may be inserted for securing such portion to the supporting surface. At the lower end of the portion 20, the lower section 16 is again bent upwardly at an oblique angle to form an obliquely disposed intermediate portion 22, and at the upper end of such latter portion is again bent upwardly so that the free end 23 of section 16 is in parallelism with the portion 20. The free end 23 of section 16 is in engagement with the under-side of the section 16 so that the portions 20, 22 and 23 of the latter serve as a support for the sections 15 and 16 intermediate their folded outer ends and the supporting surface 19. The portion 22 may have stamped out of it one or more hook members 24 on which articles may be hung and to provide openings through which a screwdriver may be inserted for threadedly securing the screws 21 to the support 19. The free end 23 of section 16 is latched against a down-turned flange 26 formed in the outer end of section 16 adjacently to the outer folded end which integrally connects the sections 15 and 16 and defining an aperture in the outer end of such section 16 having a diameter at least as great as the diameter of the open meshed structure 27. In the region defined by the aperture, the overlapping section 15 is stamped downwardly to provide a depressed or cupped portion 28 which extends downwardly through the aperture in the overlapped section 16, the exterior diameter of the cupped portion 28 being only slightly less than the interior diameter of the down-turned flange 26. Extending upwardly intermediate the depressed portion 28 of the upper section 15 and the downwardly extending flange 26 of the lower section 16, is the upper end portion of the wire structure 27, the free ends 29 of the strands thereof extending radially outwardly between the adjacent horizontal portions of sections 15 and 16. The upper end of the open meshed structure 27 is therefore by this construction, tightly wedged between the flange or collar 26 and the cupped portion 28 and the free ends 29 of the strands are securely clamped in position between the sections 15 and 16 of the bracket, so that a relatively rigid open meshed wire structure is provided which will not bend or buckle in use and will be firmly and securely attached to the bracket.

In the embodiment illustrated in Figs. 7 to 9 of the drawings, the support for the open meshed structure of the holder is made of three separate pieces of material instead of one piece as in the embodiments illustrated in Figs. 1 to 6. The support of this embodiment comprises a metal plate member 30 of rectangular shape and having integrally formed along two opposed edges a pair of triangularly-shaped members 31, 31 and along

the two other opposite edges a pair of rectangularly-shaped flaps 32, 32. The member 30 is provided with a centrally disposed aperture of greater diameter than the open meshed structure 33 through which extends a pair of concentrically disposed cylindrical members or collars 34 and 35. Both collars are flanged at their upper ends, the flange 36 of the outer collar 35 contacting the upper surface of the member 30 while the flange 37 of the inner collar 34 overlies the flange 36 and is spaced from such surface of the member 30. Intermediate the collars 34 and 35 is disposed the upper end of the wire structure, the diameter of such collars being such that the wire structure is tightly wedged therebetween. The free ends 38 of the strands of the wire structure extend radially outwardly and are clamped between the flanges 36 and 37 of the collars 35 and 34, respectively. The two flanged collars 34 and 35 and the open meshed structure 33 are fixedly secured to the plate member 30 by the flaps 32, 32 which are bent over and bear against the flange 37 of the inner collar 34. The structure may be secured to a supporting surface by means of screws extending through the apertures 39, 39 in the triangularly-shaped members 31, 31, the latter of which are preferably upturned from their line of juncture with the plate member 30 and then bent outwardly in parallelism with the latter, as is shown more clearly in Fig. 7, in order that the support will sit flatly and securely against the supporting surface.

In accordance with another form of the invention, the two flanged collars may be dispensed with and in their stead a flat covering plate utilized, as is illustrated in Figs. 11 and 12 of the drawings. In this embodiment the covering plate 41, is secured to the plate member 30' by two folded flap portions 32', 32' in the same manner as were the flanged collar members 34 and 35 to the plate member 30 of the above described construction. The plate 41 is formed to provide a downwardly extending flange 42 which extends through the central aperture of the plate member 30' and securely clamps the upper end of the wire structure in the same manner as the construction above described. In order to provide as rigid a construction as the previously described one, the edge of the aperture in the plate member 30' may be formed to have a downwardly extending flange portion 43 which cooperates with the flange 42 to securely clamp the upper end of the wire structure to its support.

Instead of attaching the free ends of the open meshed wire structures to the support as is the case in the constructions illustrated in Figs. 1 to 9 and 11 and 12 of the drawings, the intermediate portions 10' of the strands may be anchored to the support 45, as is illustrated in Fig. 10, the strands 9' in this construction extending through the apertures 12' and being interwoven together on the other side of the support 45. The free ends of adjacent pairs of strands at the lower end of the holder may be twisted together in the manner illustrated in Fig. 3 or bound together by a plurality of coupling members 46, as is illustrated in Fig. 10. In attaching the coupling members 46 to the free ends of the strands, the former are first inserted over the ends of adjacent pairs of strands and then flattened in the manner illustrated in Fig. 10 to firmly coniect the enclosed strands together.

While we have described and illustrated several forms in which the invention may be utilized in practice, it will be understood that other modifications and changes may be made in the holder of the invention without departing from the spirit and scope of the invention as set forth in the appended claims.

We claim:

1. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis and adapted to receive a portion of the article to be held, a base for said wire structure including an annular member disposed within one end of said structure and means encircling said annular member and tightly clamping said end of the structure on said annular member.

2. A holder such as is defined in claim 1 in which the wires of the secured end of said structure are bent outwardly from the longitudinal axis of said structure and said annular member and encircling means are formed with outwardly projecting portions adapted to clamp such bent portions of the wire together.

3. A holder such as is defined in claim 1 in which the wires of the secured end of said structure are bent outwardly from the longitudinal axis of said annular member and said structure, and said annular member has an integral portion overlying said bent portions of the wire structure and means for clamping said integral portion of said annular member and said bent portions of the wire structure to said base.

4. A holder for articles comprising a base formed to be placed against a supporting surface, a unitary, open meshed structure projecting from said base and adapted to receive into its free end a portion of the article to be held, said structure being relatively short, having a tubular configuration throughout its entire length and being composed of a plurality of wire strands interwoven about a common axis whereby said structure is variable lengthwise by endwise compression and extension thereof to increase and to decrease, respectively, the cross-sectional area enclosed by said interwoven strands, and means for fixedly connecting said open meshed tubular structure to said base, said means permanently fixing the cross-sectional area enclosed by the attached tubular end of said structure and imparting to said structure a greater resistance against longitudinal bending than is normal with said structure per se under compressive forces applied longitudinally thereof while enabling the unattached portions of said structure to be varied in a radial direction under such forces, whereby said short, tubular structure is enabled to receive portions of articles forced into the free end thereof without longitudinal bending and to be compressed to increase its transverse dimensions under the forces set up by such insertion without buckling.

5. A holder such as is defined in claim 4, in which the attached tubular end of said structure has a diameter greater than the diameter of any other portion of said structure in the normal, formed condition of the latter to increase the resistance of such structure against buckling.

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