

Jan. 5, 1954

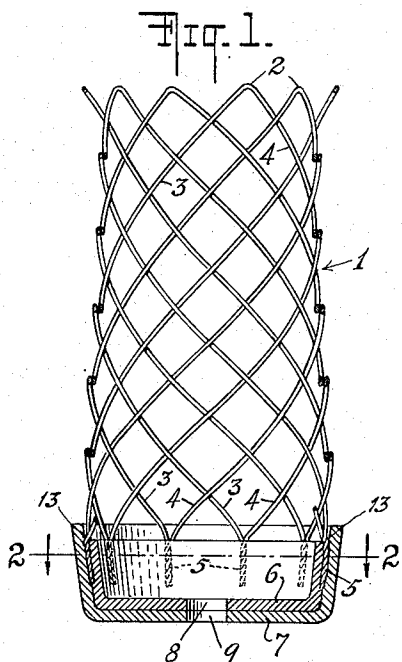
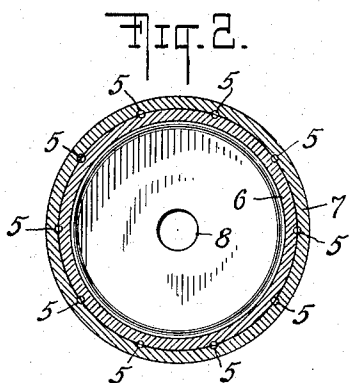
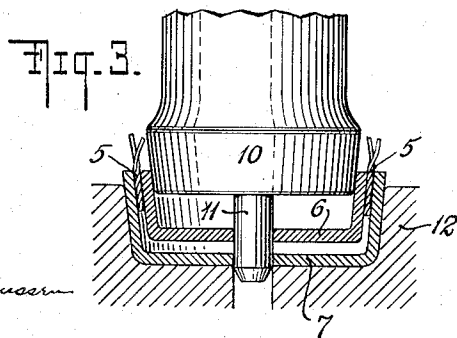
E. E. KELLEMS

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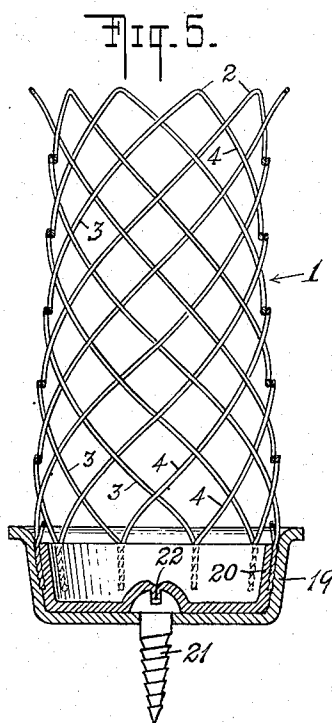
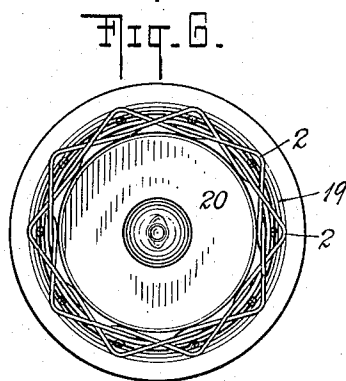
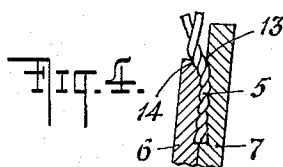
ARTICLE HOLDING DEVICE

Filed Dec. 18, 1948

2 Sheets-Sheet 1



WITNESS
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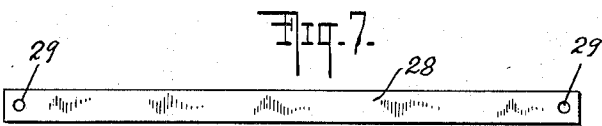
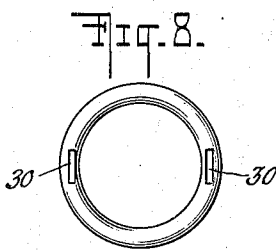
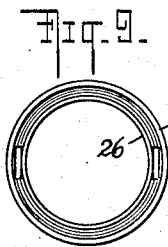
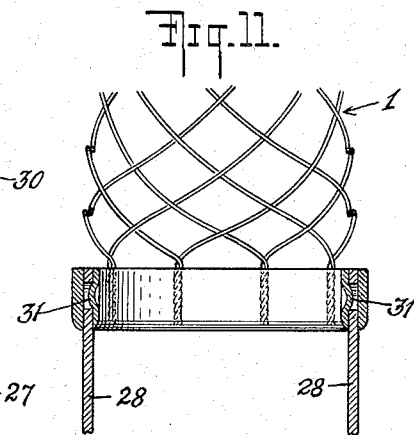
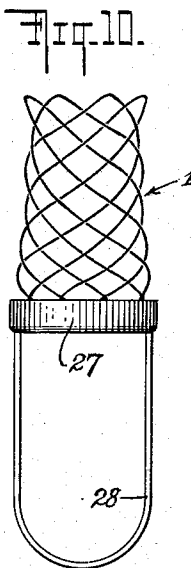
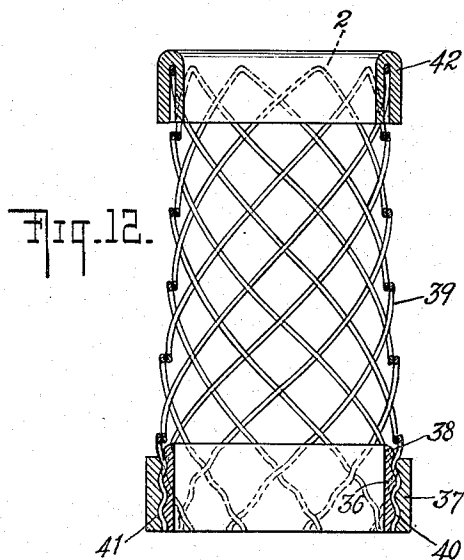
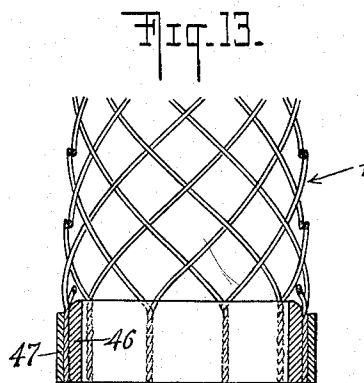
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ARTICLE HOLDING DEVICE

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2 Sheets-Sheet 2



WITNESS
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UNITED STATES PATENT OFFICE

2,664,609

ARTICLE HOLDING DEVICE

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17 Claims. (Cl. 24—123)

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The invention relates to the manufacture of article supports in which the article holding or supporting member is constituted of an open meshed structure or tube capable of being varied in a radial direction by endwise compression and extension thereof to accommodate and hold articles having varying shapes and sizes.

The principal object of the invention is to provide the open meshed tube with an improved attachment or coupling to minimize the possibility of separation of such elements, to simplify the construction of the holder, and to reduce substantially the cost of its manufacture.

A further object of the invention is to provide an improved holder of the indicated type in which the open meshed tube and attachment or coupling are inseparably connected together without the use of solder or applied heat.

The invention is illustrated in the accompanying drawings, in which Fig. 1 is a central vertical section of an article holder constructed in accordance with the invention; Fig. 2 is a horizontal sectional view of the device shown in Fig. 1, the section being taken along the line 2—2 of Fig. 1; Fig. 3 is an elevational view, partly in section and shows the relation between the die, one end of the open meshed tube and the two parts which form the coupling prior to effective action on the part of the die; Fig. 4 is a fragmentary sectional view showing the effects produced on the attached end of the open meshed tube by the dieing operation; Fig. 5 is a central vertical sectional view of a modified form of the holder; Fig. 6 is a top plan view of the holder shown in Fig. 5; Fig. 7 is a plan view of a handle blank which may be secured to the coupling; Fig. 8 is a bottom plan view of a form of coupling member to which the handle of Fig. 7 may be attached; Fig. 9 is a top plan view of the coupling member shown in Fig. 8; Fig. 10 is an elevational view showing the open meshed tube, coupling member and handle in assembled condition; Fig. 11 is an enlarged view, in vertical section, of the central portion of the device shown in Fig. 10; Fig. 12 is a central vertical sectional view of a further embodiment of the invention and Fig. 13 is a partial enlarged view, in vertical section, of another form of coupling member for the holder.

In the form of the invention illustrated in Figs. 1 through 4 of the drawings, the numeral 1 indicates generally the open meshed structure or tube of the holder. The tube 1 is constructed of a plurality of wire strands which are of substantially uniform length and preferably are each bent midway of its ends to form a loop 2

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at the open end of the holder. The two sides or sections 3, 4 of each piece of wire extend toward the other end of the structure and are woven in spiral fashion in opposite directions about the longitudinal axis of the holder with the sections 3, 4 of the other wires or strands to form the braided or open meshed tube 1. As thus constructed, the open meshed tube 1 may be considerably varied in a radial direction by endwise compression and extension thereof. Thus, by exerting endwise compression on an end of the tube 1, the cross-sectional area defined thereby will be materially increased to facilitate the insertion of an article therein or the removal of an article therefrom. On the other hand, when force is exerted tending to extend the tube 1 lengthwise, the cross-sectional area defined by such tube will be substantially reduced. The tube 1 is preferably constructed for any particular article, so that when the article is properly positioned therein, the strands of the tube will exert a gripping force on the inserted portion of the article sufficient to reliably support the article, but not so great as to prevent ready removal of the article when desired by slightly compressing such tube. At the unlooped end of the holder, the free end of each section 3 is paired with the free end of the section 4 of another wire and such paired ends are twisted together as at 5, to provide a plurality of circumferentially disposed twisted ends at the other end of the tubular structure (note Figs. 1 and 2). After the tube 1 has thus been formed, the twisted ends 5 of the tube 1 are positioned between two metal cups 6 and 7 in the manner indicated in Fig. 3 of the drawings. The cups 6 and 7 are each made of a malleable or ductile metal, such as aluminum, and cup 7 is made sufficiently larger than cup 6 in cross-sectional area to enable the twisted ends 5 of the tube 1 to be positioned therebetween (note Fig. 3). The circumferential walls of cups 6 and 7 are tapered or inclined so that when they are forced together in any suitable manner, the twisted ends 5 of the tube 1 will be tightly held in jammed relation between the inner wall of cup 7 and the outer wall of cup 6. This assembly, that is, the two cups 6 and 7 with the twisted wire ends 5 tightly wedged therebetween, is then placed on a mandrel having a tapered working end 10. The exterior dimensions of the tapered end 10 of the mandrel are sufficiently greater than the interior dimensions of cup 6 so that such end enters into cup 6 only a slight distance (note Fig. 3). The mandrel with the assembled cups 6 and 7 and tube 1 mounted on its working end 10, is then

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placed in a punch press having a ram provided with a die 12 whose seat has the same configuration as the exterior surface of cup 7 but which is slightly larger in cross-sectional area than cup 7. The mandrel may be provided with a projection 11 which extends through the aligned apertures 8 and 9 of cups 6 and 7, respectively, and enters into a suitable recess provided in the die 12 (note Fig. 3). These apertures and projection facilitate the assembly of the parts and maintain the cups concentric with relation to each other during the operation of the punch press. As the punch press is operated, the working end 10 of the mandrel is forced down into cup 6 thus causing the cup 6 to be forced down into the cup 7 and the twisted ends 5 of the tube to be forced down from the positions shown in Fig. 3 to the position shown in Fig. 1 relative the cups 6 and 7, and at the same time causing the ductile material of cup 6 to be forced outward radially against the side walls of cup 7. This in turn forces cup 7 snugly against the walls of the seat in die 12. After cup 7 is snug in the die, the ductile material of cups 6 and 7 will flow around the twisted ends 5 of the tube 1 embedding such ends in the metal of both cups. The dimensions of the working end 10 of the mandrel and the seat of die 12 with respect to the dimensions of the cups 6 and 7, are such that when the ram has completed its stroke, the material of cup 6 will have flowed radially outwardly so that the exterior surface of such cup will be in engagement with the interior surface of cup 7, with the twisted ends 5 of the tube 1 entirely embedded between the metal of both cups, as is shown more clearly in Figs. 1 and 2 of the drawings. Flowing the material of the cups 6 and 7 radially outwardly forms a better embedding of such twisted ends 5 and a more reliable and tenacious grip of such ends by the metal of such cups. At the same time this method has the advantage that there is no tendency of the material of the cups to crinkle during the forming operation. A further advantage of this method is that the assembly is caused to stick to the working end 10 of the mandrel during the return stroke of the ram, thus stripping the assembly from the die 12 as the latter moves away from the mandrel. The assembly can then be readily removed from the mandrel.

Attention is called to the circumstance that the peripheral wall of outer cup 7 has a different length or depth than the wall of cup 6. For example, in the construction shown in Figs. 1 and 3, the peripheral wall of cup 7 is longer than the wall of cup 6. The result of these configurations is to cause the portions of the wire strands of tube 1 between cups 6 and 7 to be forced into the material of both cups until the upper edge of cup 6 is reached, where the wire is bent or kinked, due to the pressure being relieved on the cup 6 side. What happens as a result of this configuration of the cups is best shown in the detailed view of Fig. 4. It will be noted that the major portions of the twisted ends 5 of the wire strands between cups 6 and 7 are tightly embedded and in effect consolidated with the material of both cups. As the wire approaches the upper end of the peripheral wall of cup 6, it is turned inwardly toward cup 6 at 13 in Fig. 4, and then bent again at the upper end of cup 6 at 14, to pass out from the interior of cup 7 in a position in alignment with the area or region defined by the inner and outer walls of cup 6.

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Experimentation has proved that having the walls of cups 6 and 7 of different lengths in order to obtain this kinking or bending effect in the end portions of the strands of the tube 1, results in two important advantages. In the first place, there is provided a much stronger bond between the cups 6 and 7 and the tube 1 than if the twisted ends were wholly straight. Secondly, this construction enables the cups 6 and 7 to be made of substantially harder material than the wire strands of tube 1 without crushing the wires during the forming operation and reducing their strength or the bond between them and the cups. Tests have proven that in holders of this construction, the tube will always give way or break at a point spaced from the bonded parts and approximately in the region of the first cross in the open mesh tube 1 spaced from such bond. After the cups 6 and 7 have been bonded together with the twisted ends 5 of the wire strands of the open meshed tube 1 in the manner described, such composite holder unit may form part of a portable tool or may be connected to a suitable support by means of a screw which extends through the apertures 8 and 9 of the bonded cups 6 and 7, respectively.

Instead of providing both cups 6 and 7 with central apertures, such as the apertures 8 and 9 of such cups, and providing a separable attaching member, such as a screw, the attaching member may form part of the bonded unit in the manner shown in Figs. 5 and 6 of the drawings. In this construction, the outer cup 19 is provided with a central aperture adapted to receive the screw 21, while the inner end wall of the inner cup 20 is left unperforated. In assembling this form of the invention, the screw 21 is first placed in the aperture of cup 19 and then the twisted ends of the open meshed tube 1 are assembled with cups 19 and 20 in the manner previously described with respect to cups 6 and 7. The cups 19 and 20 are then bonded together on the tube 1 in the same manner previously described, with respect to cups 6 and 7, except that for such operation the working end 10 of the mandrel is provided with a central depression or recess instead of the aligning pin or projection 11. Thus, when the die 12 is raised to bond the parts together, the metal of the portion of cup 20 overlying the head of the screw 21 is stretched around the head of screw 21 and is caused to flow into the slot of such head, so that the screw 21 will be firmly anchored against rotation between the end walls of both cups 19 and 20. The holder then can be readily mounted on a base or support by simply turning it as a unit to secure the screw 21 in the material of such base; the portion 22 of the metal of cup 20 that has flowed into the slot of screw 21 during this operation, fixing the screw against rotational movement. The upper edge of the outer cup also may be flanged in the manner shown in Fig. 5 of the drawings, during the bonding operation, or left straight as is shown in Fig. 1 of the drawings.

In the embodiment shown in Figs. 7 through 11 of the drawings, the holder connection or coupling, instead of being formed from two cups 6 and 7 as has previously been described, is made in the form of a ring having an inner wall 26 and an integral, spaced outer wall 27. In assembling this ring on the endless weave or braid 1, the twisted ends of the latter are inserted between the walls 26 and 27 of such ring and then the walls may be expanded outwardly in the

manner previously described, to inseparably clamp such ends therebetween. It will be noted that in the illustrated form of this construction, the inner wall 26 is preferably made thinner than wall 27 to facilitate the expansion of wall 26. This practice may also be followed in the construction of the connection made from the cups 6 and 7. It will be noted also, that this ring-form of connection with its open end, enables the article that is to be held, to be thrust through the holder. This construction is of advantage for use in receiving and holding many types of articles of an elongated shape. Should it be desired to provide the holder with a handle, this can be accomplished by taking a strip 28 of metal provided with apertures 29, 29 at its ends (note Fig. 7), and inserting such apertured ends of the strip through slots 30, 30 provided in the ring member prior to the dieing operation. When wall 26 is expanded during the assembly of the ring into the holder 1, portions 31, 31 of such wall will enter into the apertures 29, 29 as is shown more clearly in Fig. 11, and clamp or lock such handle securely in position on the ring. This form of device is ideally suited for replacing radio tubes or the handling of other objects of a like form and size.

Instead of having the outer wall of the coupling or connection of greater length than the inner wall as in the case of the coupling formed from the cups 6 and 7, or of the same length as the inner wall as in the case of the above described integral ring, the coupling may have an inner wall greater in length than its outer wall. A coupling so constructed is illustrated in Fig. 12 of the drawings; the numeral 36 designating the inner wall of this coupling and the numeral 37 designating the outer wall thereof. In this construction, the upper or inner end 38 of the inner ring or wall 36 is preferably rounded to facilitate the gripping action of the open or meshed tube 39 on the object, and to prevent damage to, or weakening of, the strands of such tube in the region of such end through usage. It will also be noted that in this construction, the outer surface 40 of wall 36 and the inner surface 41 of wall 37 are corrugated in form or provided with matched grooves so that when such walls are swedged together, the wire strands of the tube 39 will be bent or wrapped on such corrugations. This construction is not necessary when the material of the walls or rings are soft and the loads which the holder is designed to carry are light. When however it is desired to have relatively short rings and heavy wires, this construction provides a stronger anchorage of the wires to the coupling. Instead of having the opposed surfaces of the rings grooved to match, as in rings 36 and 37, either the inside ring 36 or the outside ring 37 may be grooved and the opposing surface of the other ring be plain or smooth. In this latter connection, when the rings are swedged together, metal from the smooth surfaced ring will flow into the grooves of the other ring to effectively secure the woven wires of the tube 39 therebetween. It will be further noted from Fig. 12 of the drawings, that the coupling members herein above described, may not only be secured to the twisted ends 5 of the strands as in the constructions of Figs. 1 and 5, but also on the endless weave of the holder, as are the rings 36, 37, or on the end loops 2 of the braid, as illustrated by the ring 42 in Fig. 12 of the drawings. In this connection also, rings of the type of rings 36 and 37 may be secured in spaced

relation to long lengths of the braided wires and then the braid cut adjacently to each pair of secured rings. When employing this method of construction of the holders, the secured rings will prevent unraveling of the braid.

The construction shown in Fig. 13 of the drawings includes two rings 46 and 47 whose opposed surfaces were originally plain and smooth. The inner ring 46 is longer than the outer ring and its projecting upper end is rounded in the same manner as the upper end of ring 36 (see Fig. 12). It will be noted also, that in this construction, the inner ring 36 is thicker than the outer ring 47 and the two rings may be swedged together by compressing the outer ring 47 inwardly on ring 46 by means of a rotary swedging machine. The construction illustrated in Fig. 13 as well as the constructions previously described, demonstrates that the inner and outer walls of the coupling or connection may be of equal thickness, the outer wall thereof thicker than the inner wall, or the inner wall of the coupling thicker than the outer wall. From these constructions also, it will be understood that in some cases it may be advisable to expand one or both rings outwardly to secure them on the braid, while in other cases it may be desired to compress one or both of the rings inwardly, or compress one ring and expand the other in order to anchor such rings on the braid. It will also be understood from the construction illustrated, that the holder may be provided at one end with either of the connections illustrated and provided at its other end with the same or a different form of connection. It will be further understood that other modifications and changes may be made in the holder of this invention without departing from the spirit of the invention or the scope of the appended claims.

I 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 having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, a coupling for said wire structure including a metal member having an annular wall extending lengthwise of said wire structure and encircling said terminal portions of said structure and said common axis, and an annular metal member disposed within said encircling member so that said terminal portions of said wire structure are located between both of said members, the metal materials of which said members are constituted being in an expanded condition with the metal of said annular member being expanded to a greater extent than the metal of said encircling member to bring the inner surfaces of the former in the spaces between said terminal portions into tight expanded contact with the surrounding wall of said encircling member and to embed said terminal portions in the material of both members, the reactive stresses of the said two members holding said terminal portions embedded in the surfaces of such members against forces acting on the

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body of said wire structure and said terminal portions being located in depressions formed in the opposed inner surfaces of both of said deformed members and being permanently anchored in fixed relation between both members.

2. A holder for articles, comprising an open meshed structure composed of a plurality of wire strands interwoven about a common axis and having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, a coupling for said wire structure including a metal member having an annular wall extending lengthwise of said wire structure and encircling said terminal portions of said structure and said common axis, and an annular member disposed within said encircling member so that said terminal portions are located between both of said members, the metal material of which said annular member is constituted being in tight contact with the surrounding wall of said encircling member in the spaces between said terminal portions, and said terminal portions being embedded between the material of both members and the reactive stresses of the said two members holding said terminal portions embedded in the material of such two members against forces acting on the body of said wire structure and said terminal portions being located in depressions formed in the inner surface of at least one of said members, whereby said terminal portions are permanently anchored in fixed relation between both members, the width of the wall of said annular member being different from the width of the surrounding wall of said encircling member and said terminal portions being kinked in the region of the inner end portion of the narrower of said members.

3. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis and having terminal portions extending substantially lengthwise of such structure and disposed in circumferential relation about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, a coupling for said wire structure including a metal member having an annular wall extending lengthwise of said wire structure and encircling said terminal portions of said structure and said annular axis, and an annular metal member disposed within said encircling member so that said terminal portions of said wire structure are located between both of said members, the material of which said annular member is constituted being in tight contact with the surrounding wall of said encircling member in the spaces between said terminal portions and said terminal portions being embedded in the material of both members and the reactive stresses of the said two members holding

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said terminal portions embedded in the material of such two members against forces acting on the body of said wire structure and said terminal portions being located in depressions formed in the inner surface of at least one of said members, whereby said terminal portions are permanently anchored in fixed relation between both members, the width of the wall of said annular member being less than the width of the surrounding wall of said encircling member and having the end from which the wire structure extends spaced inwardly from the associated end of said encircling member, and said terminal portions in the region of such end of the annular member being each turned inwardly toward the axial center of such member and then projecting outwardly from such annular end.

4. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis and having terminal portions extending substantially lengthwise of such structure and disposed in circumferential relation about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, a coupling for said wire structure including a pair of cup-shaped metal members disposed one within the other and having longitudinally extending side walls disposed about said common axis and substantially shorter than the length of the body of said structure, said terminal portions being located between the side walls of said members, the opposing surfaces of the side walls of said members being in tight contact in the spaces between said terminal portions and embedded in the material of both members and the reactive stresses of the said two members holding said terminal portions embedded in the material of such two members against forces acting on the body of said wire structure and said terminal portions being located in depressions formed in the inner surface of the side wall of at least one of said members, whereby said terminal portions are permanently anchored in fixed relation between the side walls of said cup-shaped members.

5. A holder such as defined in claim 4, including a fastening member projecting outwardly through the end wall of the outer cup-shaped member and having an enlarged portion positioned intermediate the end walls of said cup-shaped members, the enlarged portion of said fastening member being provided with a predeterminedly-shaped depression and the metal material of the end wall of the inner cup-shaped member having been flowed into said depression to firmly anchor said fastening member to said coupling.

6. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed

one within the other in concentric relation about said common axis, the said terminal portions of said wire structure being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the surfaces of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in depressions formed in the inner surfaces of both walls, whereby said terminal portions are permanently anchored in fixed relation between both walls.

7. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of such structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis and having dimensions longitudinally of the holder substantially less than the length of said wire structure, the said dimensions of one of said annular walls being substantially greater than that of the other annular wall, the said terminal portions of said wire structure being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the surfaces of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in depressions formed in the inner surfaces of both walls, whereby said terminal portions are permanently anchored in fixed relation between both walls.

8. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis, the said terminal portions of said wire structure being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such two walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surface of at least one of said walls, whereby said terminal portions are permanently anchored in fixed relation between both walls, the inner annular wall having a

greater width than the outer annular wall and projecting into the interior of said wire structure, the exterior surfaces of the projecting portion of said inner annular wall being convexly shaped.

9. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis, the opposed inner surfaces of said annular walls being provided with annularly-shaped depressions about such common axis, the said terminal portions of said wire structure being located between said annular walls and extending transversely of said annular depressions, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surface of at least one of said walls, whereby said terminal portions are permanently anchored in fixed relation between both walls.

10. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis, both of said walls having dimensions longitudinally of the holder substantially less than the length of said wire structure and one of said annular walls having a greater thickness than the other, the said terminal portions of wire structure being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surfaces of at least one of said walls, whereby said terminal portions are permanently anchored in fixed relation between both walls.

11. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation with a portion of an article inserted therein, one end of said structure having

terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis, the said terminal portions of said wire structure being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surface of at least one of such walls, whereby said terminal portions are permanently anchored in fixed relation between both walls, the ends of said walls beyond said wire structure being integrally connected so that the gripped end of said wire structure is wholly enclosed by said coupling.

12. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending lengthwise of said structure and disposed in circumferential relation about such axis, and an annularly-shaped ring enclosing said terminal portions and including a pair of walls disposed one within the other in concentric relation about said common axis, the said terminal portions being located between said annular walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surface of at least one of such walls, whereby said terminal portions are permanently anchored in fixed relation between both walls, a handle member composed of a strip of metal having apertures at its ends, the latter of which extend through openings in the closed end of said ring and up between the walls of said ring, the material of the walls of said ring being disposed within the areas defined by such apertures and securely anchoring said handle to said ring.

13. A holder for articles adapted to receive into one end a portion of an article to be held and comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on such article portion, the other end of said structure having terminal portions extending substantially lengthwise of said structure and disposed in circumferential relation about such axis, a coupling for said wire structure including a pair of annularly-shaped metal walls disposed one within the other in concentric relation about said common axis, the said terminal portions being located between said annular

walls, the opposed inner surfaces of said walls between said terminal portions being in tight contact, said terminal portions being embedded in the material of both walls and the reactive stresses of the said two walls holding said terminal portions embedded in the material of such walls against forces acting on the article gripping part of said wire structure and said terminal portions being located in substantially longitudinally extending depressions formed in the inner surface of at least one of said walls, whereby said terminal portions are permanently anchored in fixed relation between both walls, and a handle member extending from said coupling in a direction opposite to that of said wire structure, said handle having a plurality of end portions located between said annular walls and being secured tightly in position by the material of said walls.

14. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis and having terminal portions at one end thereof disposed about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, a pair of hollow metal walls disposed one within the other in concentric relation and about said common axis, the said terminal portions of said wire structure being located between said walls, at least one of said walls being constituted of malleable metal material and being deformed in a radial direction, the opposed inner surfaces of said walls in the spaces between said terminal portions being in tight contact, and said terminal portions being tightly embraced between non-contacting portions of the opposed inner surfaces of such walls by the reactive stresses of the said two walls to hold said terminal portions between the surfaces of such walls against forces acting on the body of said wire structure and being located in depressions formed in the inner surface of said deformed wall by said terminal portions, whereby said terminal portions are permanently anchored in fixed relation between both walls.

15. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis and having terminal portions at one end thereof disposed in circumferential relation about such axis, the portions of the strands in the body of said wire structure being movable relative to each other to enable such body to be placed in surrounding gripping relation on a portion of an article to be held and the terminal portions of such strands being fixed against movement relative to each other and being substantially shorter in length than the strand portions forming the body of said structure, an annularly-shaped metal wall enclosed by said terminal portions and a second annularly-shaped metal wall enclosing said terminal portions, said annularly-shaped walls being disposed one within the other in concentric relation about said common axis with said circumferential terminal portions located therebetween, at least one of said walls being constituted of malleable metal material and being deformed in a radial direction, the opposed

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inner surfaces of said annular walls in the spaces between said terminal portions being in tight contact, and said terminal portions being tightly embraced between non-contacting portions of the opposed inner surfaces of such walls by the reactive stresses of the said two walls to hold said terminal portions between the surfaces of such walls against forces acting on the body of said wire structure and being located in indentations formed in the inner surface of said deformed wall by said terminal portions and embedded in the metal material of both walls, whereby said terminal portions are permanently anchored in fixed relation between both walls.

16. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on the portion of an article inserted therein, the wires at one end of said structure being divided into groups and twisted together to form a plurality of terminal twisted portions extending lengthwise of such structure and positioned in spaced relation about such axis, a pair of hollow metal walls disposed one within the other in concentric relation about said common axis, the lengthwise dimensions of said walls being substantially less than the length of said wire structure and said terminal twisted portions of the latter being located between said walls, at least one of said walls being constituted of malleable metal material and being deformed in a radial direction, the opposed inner surfaces of said walls between said spaced terminal twisted wire portions being in tight contact, and said twisted wire portions being tightly embraced between the spaced, non-contacting portions of the opposed inner surfaces of such walls by the reactive stresses of the said two walls to hold said twisted wire portions between the surfaces of such walls against forces acting on the article gripping part of said wire structure and being located in spaced, longitudinally extending depressions formed in the inner surface of said deformed wall by said twisted wire portions, whereby said terminal twisted wire portions are permanently anchored in fixed relation between both walls.

17. A holder for articles comprising an open meshed wire structure composed of a plurality of wire strands interwoven about a common axis to enable such structure to be placed in surrounding gripping relation on the portion of an article inserted therein, the wires at one end of said structure being divided into groups and twisted

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together to form a plurality of terminal twisted portions extending lengthwise of such structure and positioned in spaced relation about such axis, a coupling for said wire structure including a pair of cup-shaped metal members disposed one within the other and with their side walls in concentric relation about said common axis, the lengthwise dimensions of such side walls being substantially less than the length of said wire structure and the terminal twisted portions of the latter being located between said side walls, at least one of said side walls being constituted of malleable metal material and being deformed in a radial direction, the opposed surfaces of said walls between said spaced terminal twisted wire portions being in tight contact, and said twisted wire portions being tightly embraced between the spaced non-contacting portions of the opposed surfaces of such walls by the reactive stresses of the said two walls to hold said twisted wire portions between the surfaces of such walls against forces acting on the article gripping part of said wire structure and being located in spaced, longitudinally extending depressions formed in the inner surface of said deformed wall by said twisted wire portions, whereby said terminal twisted wire portions are permanently anchored in fixed relation between both walls, the side walls of said members tapering outwardly from the end walls thereof, and at least one of the end walls of said members being formed to secure a fastening member to said holder.

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