

Dec. 13, 1938.

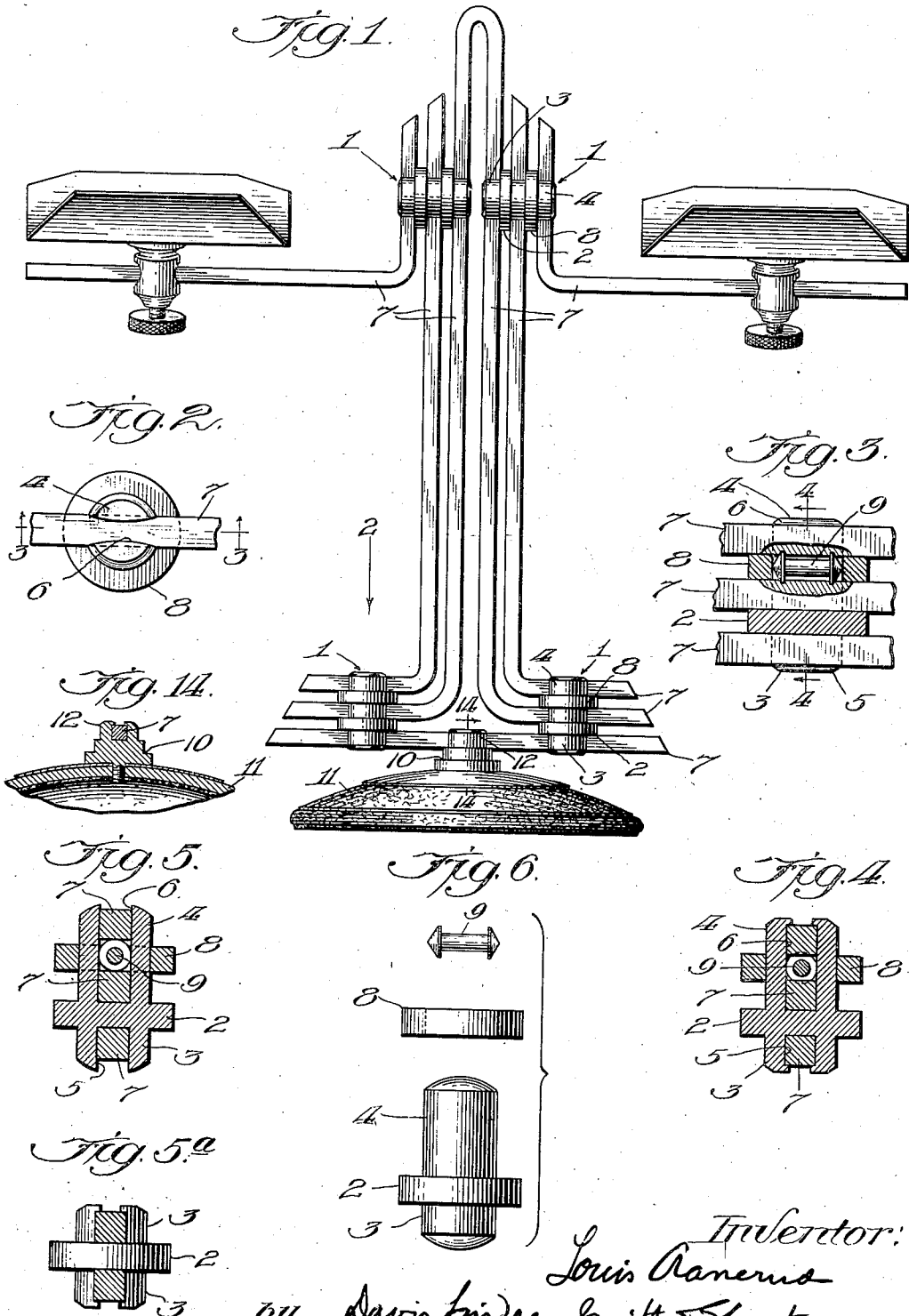
L. AANERUD

2,139,649

DISPLAY STAND

Filed May 11, 1936

2 Sheets-Sheet 1



Inventor:
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2 Sheets-Sheet 2

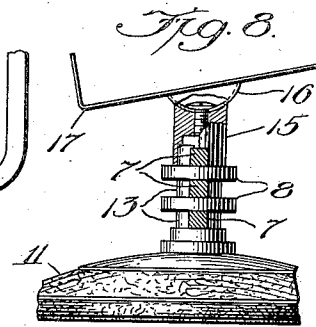
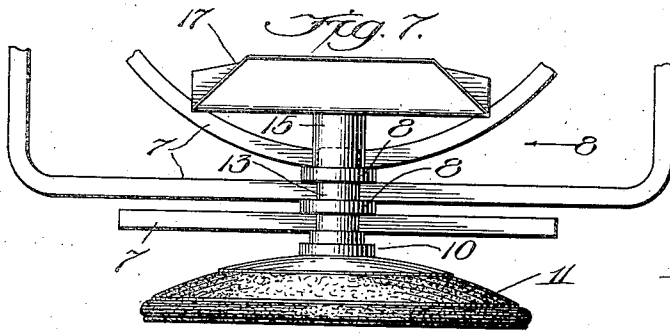


Fig. 10.

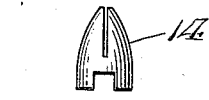


Fig. 9.

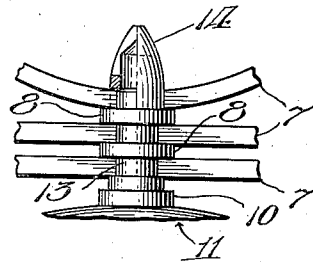


Fig. 17.

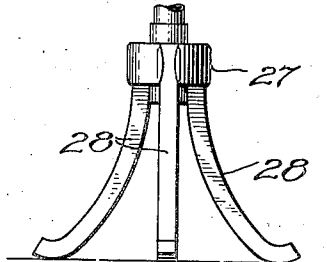


Fig. 15.

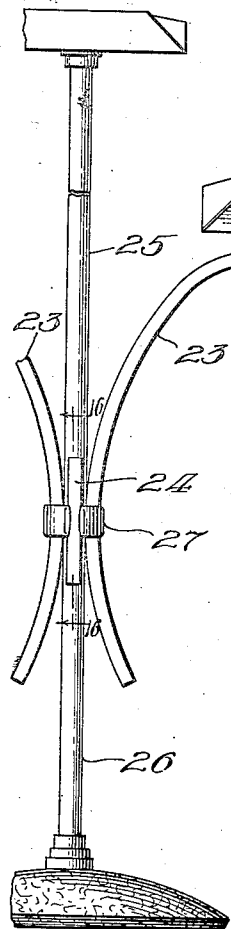


Fig. 11.

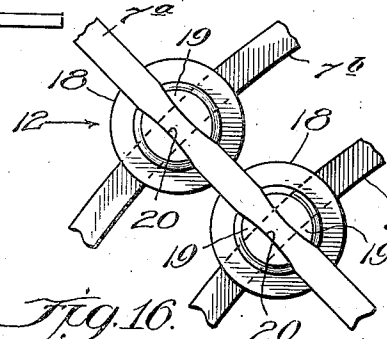


Fig. 12.

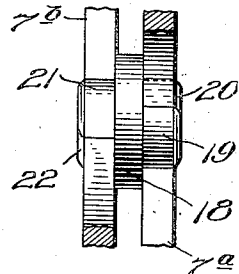


Fig. 16.

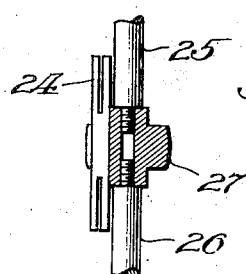


Fig. 18.

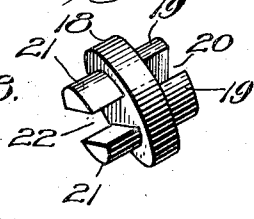


Fig. 18.



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UNITED STATES PATENT OFFICE

2,139,649

DISPLAY STAND

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Application May 11, 1936, Serial No. 79,090

6 Claims. (Cl. 287-103)

The present invention relates to devices for connecting two or more wires, usually square in cross-section, though wires of other forms may be employed, to form various kinds of useful and ornamental articles, such as display stands for supporting and displaying various articles of jewelry and like objects, baskets, trays, music, magazine and letter racks, and a great many kinds of articles constructed of sections of wire or bars secured together, both curved and straight, parallel or intersecting with each other, in a great variety of patterns and designs.

Usually, the wire members of such articles have been secured together by soldering, or brazing, or in some cases by means of rivets, but the methods heretofore practiced are open to various objections. It is difficult in soldering to always make a clean job, and the joint is weak and brittle. It is usually desirable in fabricating such structures as those in question to first finish the different wire and frame members and give them the desired plating, and then secure them together. When plated with chromium, which is largely used today as an ornamental finish, the parts cannot be soldered together, while if the wires are soldered together before plating, they cannot then be completely and effectively plated with chromium, and some other metals, as the soldered joint will not be effectively covered. While the same difficulties do not arise to the same extent with gold and silver plated parts, yet such plated parts cannot be soldered together without tarnishing and discoloring the finish at and near the soldered joint, and this is likewise the case with most other kinds of plating.

Such separate fastening means as rivets or screws are unsightly, and tend to mar the appearance of the article, which is an important matter, as a pleasing appearance is a primary consideration in the construction of such articles, and the work of securing the parts together by screws or rivets is inconvenient and slow, so that the cost of production by employing such fastening means is excessive.

The object of my invention is to provide sightly and ornamental connecting devices for securing together the wires or bars of which articles such as those before mentioned are composed which shall to a large extent obviate the objections mentioned, and which shall on the other hand possess the correlative advantages of being strong and durable, clean and attractive in appearance, easy and quick of application in assembling the parts, adaptable to the rapid and economical production of articles of almost every conceivable

pattern and design, and which in general shall facilitate the production and manufacture of such articles and be highly desirable for the purposes in view. Although my invention is particularly adapted for use in making up display frames of wire which are square or rectangular in cross-section, yet it is not limited exclusively to the employment of wire of that kind.

In carrying out these general purposes I have devised forms of my invention particularly adapted for connecting groups of parallel wires, wires which intersect one another, connectors for connecting one or more wires to a base support, connectors for connecting a plurality of wires to a central shaft, and connectors for supporting display attachments, as will hereinafter be described in detail in the various embodiments of my invention illustrated in the accompanying drawings, the essential elements of my invention being more particularly pointed out in the appended claims.

In the drawings—

Figure 1 is a front elevation of one form of ornamental display stand in which one form of my novel connectors are used as means for supporting the display frame and for connecting the several frame parts together;

Fig. 2 is an end, or top plan view of one of such connectors, the direction of view being indicated by the arrow on Fig. 1;

Fig. 3 is a front view, partly in section, of the connector and engaged parts of the frame, as indicated by the dotted line 3-3 of Fig. 2;

Fig. 4 is an axial section of the same parts, as indicated by the dotted line 4-4 of Fig. 3;

Fig. 5 is a similar section of the same parts, assembled and ready to be swaged into connection, but before the ends of the connector are swaged into connected relation;

Fig. 5^a is a side view of a more simple form of connector used for connecting two parallel wires;

Fig. 6 is a side view of the connector parts alone, detached from each other;

Fig. 7 is a front view of another form of display stand, in which a modified form of my connector is employed for connecting the base of the stand to a pair of horizontally disposed frame members;

Fig. 8 is a view of the connector members and portions of the connected parts, partly in section, the point of view being indicated by the arrow in Fig. 7;

Fig. 9 is a front view, partly in axial section, of a portion of the same frame and connector parts as shown in Fig. 8, but showing a card-

supporting tip supported by the connector member;

Fig. 10 is a side view, at right angles to the portion of the parts illustrated in Fig. 9, showing the card-supporting tip detached;

Fig. 11 is a fragmentary front view of a modified form of connector employed to secure together two frame wires disposed at right angles to each other;

Fig. 12 is a side view of part of the same parts, the direction of view being indicated by the arrow in Fig. 11;

Fig. 13 is a perspective of the form of connector illustrated in Figs. 11 and 12, shown detached;

Fig. 14 is an axial section of the supporting base plug shown in Fig. 1 and fragmentary portions of the connected parts, as indicated by the dotted line and arrow on Fig. 1;

Fig. 15 is a front view of a display stand in which a modified form of connector is employed;

Fig. 16 is a fragmentary side view, partly in section of the connector and portions of the connected members, in a plane indicated by the dotted line and arrow on Fig. 15;

Fig. 17 is a view, showing the form of connector illustrated in Figs. 15 and 16, used as a means for connecting wire leg members to the central shaft of a different form of display rack.

Fig. 18 is a plan view of the connector shown in Figs. 15, 16 and 17, shown detached.

Like reference characters indicate like parts in all the figures of the drawings.

As will be apparent from comparison of Figs. 1, 7, 15 and 17, my invention is not concerned at all with the particular design of any given display rack or other article, but relates only to the connecting members, or connectors, for securing the structural elements of the frame to each other.

Describing first the form of my invention illustrated in Figs. 1 to 6, inclusive, which illustrates a connector device adapted to connect three parallel square wires, the connector includes three members, one of which is a body portion including a block 1, formed with an intermediate flat transverse wall portion which in the present instance is disk-like in shape, though it may be square or polygonal or of other shape from the opposite sides of which extend on the one side, which for convenience of description will be termed the lower side, a pair of engaging portions 3—3; and on the other, upper side, a pair of similar, but longer engaging portions 4—4, the outer faces of the portions 3 and 4 being formed on cylindrical surfaces, axially of a line passing through the center of a lower slot 5 separating the sections 3—3 and an upper slot 6 which separates the sections 4—4, see Figs. 5 and 6. The ends of the lower portions 3, and likewise the ends of the upper portions 4, it will be noted, are formed in a convex surface, the portions extending or projecting beyond the faces of the wires in the slots (see Fig. 5) so that they may be swaged down thereover, as hereinafter described.

The slots 5 and 6 are of such size as to snugly receive the square wires 7 of which the framework of the rack, whatever its design, is constructed.

Another member of the device is a spacing ring 8, which for the sake of symmetry of appearance, though not necessarily, is of the same thickness and external diameter as the disk portion 2 of the body of the connector and the bore of which fits

smoothly over the upper engaging portions 6 of the connector.

The remaining member of the connector is a locking pin 9 of suitably hard metal arranged to be received within the slot 6 and within the opening inside the spacing ring, this pin being provided with opposite sharp projections extending (before the parts are secured together) beyond the planes of the upper and lower faces of the spacing ring. In the present instance this locking pin is in the form of a hard double-headed rivet, the heads of which are formed with sharp edges, which, after the parts of the frame have been assembled and the joints then closed forcing the parts together, will bite into the wires 7 (which are of softer material) and thus prevent longitudinal movement of the engaged wires in the slots of the body of the connector.

The wires 7 to be secured together being engaged in the slots of the connector and the parts of the connector being assembled as shown in Fig. 1, with the lower wire between the portions 3—3, and the intermediate wire in the lower part of the slot 6 between the portions 4—4 and the upper wire 7 in the upper portion of the same slot above the spacing ring and locking pin, as shown in Fig. 5, the joint is closed by a suitable tool through which the material at the ends of the connector will be turned inward and forced down on the outer wires, at the same time closing up the space above the spacing ring and forcing the upper and lower wire onto the heads of the locking pin so that all the parts are firmly united together (see Figs. 2, 3 and 4). In the completed joint the lower wire is securely held by the firm grip of the turned-in edges of the portions 3, while the intermediate and upper wires are locked together by the pin 9, and similarly secured in the slot 6 by the inturned edges of the portions 4. The spacing ring 8 of course prevents any longitudinal displacement of the interlocked intermediate and upper wires and pin as a whole in the groove 6.

In case but two parallel wires are to be connected together by one connector, a more simple form of connector may be employed, in which the disk portion 2 is connected on both sides with engaging portion (all marked 3) of such length as to receive but a single wire, as shown in Fig. 5a.

The base plug of the display rack (see Figs. 1 and 14) is arranged to support said rack through a single horizontal wire 7, and therefore consists of a block 10 formed with a depending axial screw by which it secured to the base block 11, and having the convex top faces of its upper portions 12—12 arranged to be turned down on the wire as before described.

In case a pair of frame wires are to be engaged by a base plug, the upwardly extending separated portions of the plug will be made longer, and a spacing ring 8 interposed between the wires, a locking pin 9 being preferably also in such case interposed within the spacing ring.

In case three frame wires are engaged by the base plug, as illustrated in Figs. 7, 8 and 9, the upwardly extending portions of the base plug, marked 13—13, are of such height as to permit assembly of the three wires, separated by spacing rings 8 on each side of the intermediate wire, and locking pins 9 and arranged within the spacing rings.

The forms of connector above described provide also for means for displaying cards and

brackets to the display frame. In Figs. 9 and 10 I have illustrated a card holder 14 in the form of a conical chambered block adapted to seat over the base plug of such a form of display stand as illustrated in Fig. 7 or over the top of either one of the vertically disposed connectors illustrated on opposite sides of the center of the lower portion of the display stand shown in Fig. 1. The plug is hollowed out on its lower side to provide a depending skirt which is notched to fit over the wire below it, and slitted at the top to receive a card.

In Figs. 7 and 8, I have shown a display attachment which may be employed in the same manner. This display attachment comprises a block 15, recessed below to fit over the vertical connector member and having a concave face at the top to support the convex bearing portion 16 of the bracket or shelf, marked 17, the portion 16 being slotted to receive a screw which is threaded in an axial seat in the block 15. As is obvious, the slotted connection provides for adjustment of the shelf on its support.

In most designs of display stands, it is necessary to provide for connections of wires which cross each other, usually at a right angle. A form of connector which I have devised for this purpose is illustrated in Figs. 11 and 12, this connector being formed with a central disk-like portion 18, on one side of which are formed the portions 19—19 separated by slot 20 to receive a wire 7^a, and on the other side of which are formed the portions 21—21 disposed so that they are separated by a slot 22 extending at right angles to the slot 20, to receive a cross wire 7^b, the convex end of the portions being swaged down over the engaged wires as before explained. A plurality of the connections may be employed to connect any desired number of wires with any desired number of cross-wires, as for instance as illustrated in Fig. 11, in which the single wire, marked 7^a, is connected by a pair of connectors to the wires 7^b and 7^c.

From the explanation already given it will be obvious that groups of parallel wires may be connected with a single intersecting wire or a group of parallel intersecting wires by a single connector, the engaging portions of the connector being made of such length as to accommodate the number of parallel wires connected, and spacing rings and locking pins used between the wires as herebefore explained.

A modified form of my invention is illustrated in Figs. 15 and 16, in which the connector device is used to connect frame-wires 23 (in the present instance two in number) and a card holder 24 to upper and lower sections marked 25 and 26, of a vertical shaft forming a supporting standard for a display stand. This form of connector consists of a central body portion 27, screw-threaded at top and bottom to engage the sections 25 and 26 of the central standard, and integral therewith engaging portions separated by vertical slots adapted to receive the frame wires 23, the peripheral faces of these sections being convex, whereby they may be swaged down over and upon the wires to firmly secure them in their grooves. In the display frame shown in Fig. 15, the wires 23 are diametrically opposite curved wires arranged to produce an ornamental effect and afford a support for display shelves or holders, or the like, and the front intermediate wire is slit to serve as a card holder.

In the display stand embodying a similar modified form of my invention shown in Fig. 17, the connector is formed with four wire-receiving slots providing means for connecting the four ornamental legs 28 through which the vertical central shaft and other parts of the framework of a display stand are supported.

It is obvious that my novel connectors above described lend themselves to rapid and economical construction of all designs of display frames of the type described. The wires, previously cut and bent to proper shapes can easily be assembled by sliding them in the connector slots and the parts quickly secured together by proper tools. Furthermore, the connectors enhance the ornamental appearance of the display frame, and contribute in that respect to the value of the invention.

I claim:

1. A device for connecting a plurality of parallel wires comprising a body formed with a transverse wall and a pair of separated engaging portions integral with said transverse wall and with plane inner faces defining a slot adapted to receive said wires, and a spacing ring arranged to fit over said engaging portions of the body and space said wires apart, the ends of said engaging portions projecting beyond the outermost wire in the slot and being arranged to be swaged thereover into gripping engagement therewith.

2. A device for connecting a plurality of parallel wires comprising a body formed with a transverse wall and a pair of separated engaging portions integral with said transverse wall and with plane inner faces defining a slot adapted to receive said wires, a spacing ring arranged to fit over said engaging portions of the body and space said wires apart, and a locking member confined in said slot in the space within said spacing ring, the ends of said engaging portions projecting beyond the outermost wire in the slot and being arranged to be swaged thereover into gripping engagement therewith.

3. A device for connecting a plurality of parallel wires comprising a body formed with a transverse wall and a pair of separated engaging portions integral with said transverse wall and with plane inner faces defining a slot adapted to receive said wires, a spacing ring arranged to fit over said engaging portions of the body and space said wires apart, and a hard metal locking member confined in said slot in the space within said spacing ring, said locking member being formed with projections adapted to bite into the wires on opposite sides when the parts are forced together, and the ends of said engaging portions of the body projecting against the outermost wire in the slot and being arranged to be swaged thereover to make gripping engagement therewith and force the locking member into engagement with the wires.

4. A connecting device according to claim 3 in which the locking member is a pin having at one end at least a sharp-edged head of greater diameter than the thickness of the spacing ring.

5. A connecting device according to claim 3 in which the locking member is a double headed pin.

6. A connecting device according to claim 3 in which the locking member is a pin formed with a sharp projection.

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