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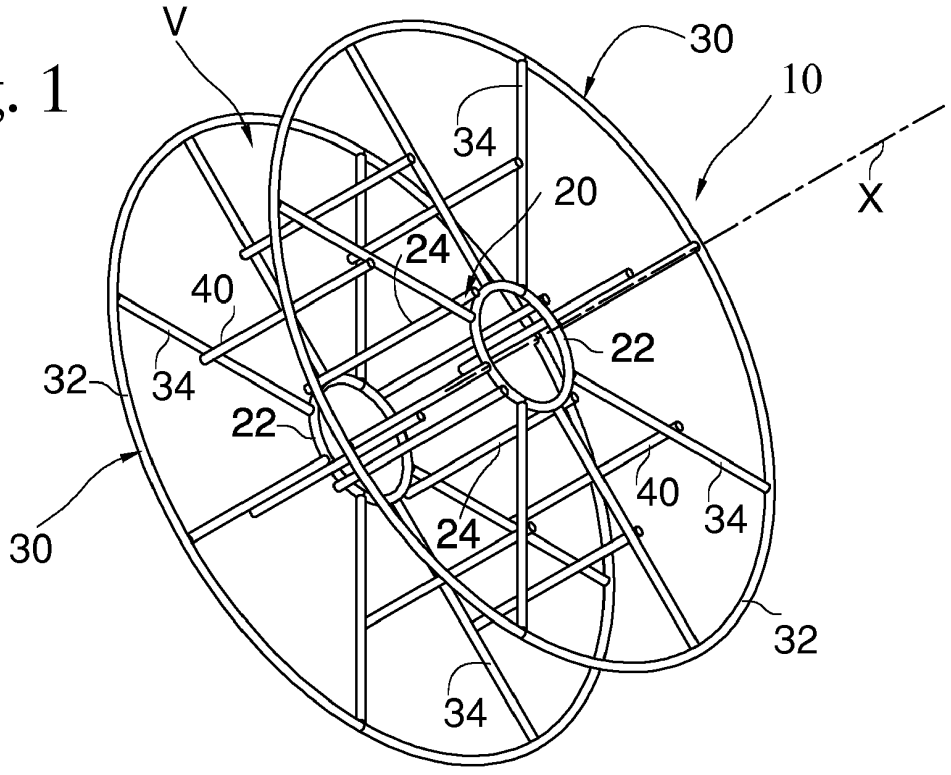
(54) **REEL SUPPORT**

(57) A support is described for coils of cable, welding wire or the like, comprising:
a central hub (20) constituted by two first rings (22) respectively fixed to the ends of, e.g. mutually parallel, rods (24) of substantially equal length ;
two annular flanges (30) integral respectively with two opposite ends of the hub to define an annular space around the hub inside which to house the coil, the flanges being constituted by two second rings (32) with larger diameter than the first rings, each second ring being connected concentrically and rigidly to a first ring by radial rods (34).

To avoid accidental injury to the user, the outer edge of at least one end (66) of each rod comprises a blunting (80).

Fig. 1



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Description

[0001] The present invention relates to a support for reels of cable, welding wires or the like.

[0002] Known supports for reels of cable, welding wires or the like, such as for example those described in US821708 or US4519556, essentially consist of a central hub and two annular flanges integral with the hub which delimit an annular space to accommodate the coil into.

[0003] A subset of these supports has a peculiar lattice construction. The center hub consists of two rings rigidly spaced by parallel rods, and the annular flanges are made up of rings of larger diameter that are rigidly connected concentrically to a ring of the hub by radial rods (see also Figure 1).

[0004] The rods are usually produced by cutting a longer bar and, normally, in the final shearing stage an acuminate burr is formed on at least one end of a rod. The burr, by the way the support is built, ends up in some cases facing outwardly, and thus could pose a potential injury hazard for the operators who will come into contact in subsequent manipulations.

[0005] The main object of the invention is to improve this state of art.

[0006] Another object is to provide a support of the aforesaid type having a lower level of danger for the operator who handles it.

[0007] An aspect of the invention relates to a support for coils of cable, welding wire or the like, comprising:

a central hub constituted by two first rings respectively fixed to the ends of, e.g. mutually parallel, rods of substantially equal length;
two annular flanges integral respectively with two opposite ends of the hub to define an annular space around the hub inside which to house the coil,
the flanges being constituted by two second rings with diameter larger than the first rings, each second ring being connected concentrically and rigidly to a first ring by radial rods;
wherein the outer edge of at least one end of each rod comprises a blunting.

[0008] The blunting may consists of a portion inclined by 45 degrees with respect to the longitudinal axis of the rod, or of a rounded portion or with an increased curvature radius.

[0009] As variants, preferably one or each ring:

consists of a segment bent or curved circularly so that the ends of the segment join or meet; and/or
has circular or polygonal shape; and/or
is made of metal; and/or
is a hollow tubular element.

[0010] As variants, to be added to each of the above, preferably one or each rod:

consists of a straight or curved segment; and/or
is made of metal; and/or
is a hollow tubular element.

[0011] Another aspect of the invention relates to a method for constructing an aforementioned support, with the steps of:

taking some rods and blunting the outer edge of at least one end of each rod;
attaching, e.g. by welding, the rods to two first rings and to two second rings with diameter larger than the first rings, so that

- each second ring is rigidly connected concentrically to a respective first ring by radial rods, and
- the two first rings and the two second rings are concentric, wherein
- the first rings are connected by rods parallel to each other.

[0012] Another aspect of the invention relates to a method to produce rods that make up a support as defined above, with the step of:

blunting the outer edge of at least one end of each rod before fixing the rods to said rings.

[0013] The above-mentioned blunting step may be performed in several ways.

[0014] For example, from the sharp edge of the edge of the rod, e.g. with an inclined cut by 45 degrees, the extremity prism is removed; or
the end of the rod may be beveled or filed or polished.

[0015] Preferably, the blunting step occurs during the cutting of a rod from a longer member, so as to shorten the production cycle. In particular, the blunting step is performed by cutting said longer member with a cutting edge that rotates about the longitudinal axis of the longer member (and therefore also about the longitudinal axis of the produced rod). This way, the rod can be cut and blunted at the same time, thereby avoiding burr formation.

[0016] Upon considering an axial cross-section of the rod, preferably the step of blunting generates on said edge an inclined plane or a corner with a radius of curvature greater than or equal to 0.25 mm.

[0017] In each variant, the blunting processing may be done either manually or by a machine, preferably a numerical-control machine.

[0018] The present invention is hereafter further described in a preferred embodiment of support with reference to the accompanying drawing, in which:

Figure 1 shows a perspective view of a known support;
Figure 2 shows in perspective and zoomed view a rod of the support in Fig. 1;

Figure 3 shows in lateral view a production step of a support;

Figure 4 shows in lateral view a rod belonging to a second support according to the invention.

[0019] In the figures, same numbers indicate similar or equal elements.

[0020] To avoid crowding the drawings, equal elements are not always marked.

[0021] A support 10 for a solder-wire coil (not shown) comprises a central hub 20 and two annular flanges 30.

[0022] The hub 20 consists of two equal circular rings 22 which are fixed at the ends of parallel rods 24 of substantially equal length. The rods 24 are preferably spaced angularly in uniform manner around the rings 22. By construction, then, the hub 20 results kind of a cylindrical cage.

[0023] The flanges 30 are respectively integral with the two opposite ends of the hub 10 and serve to delimit an annular space V around the hub 10 in which to accommodate the coil.

[0024] Each flange 30 is constituted by a circular ring 32 having diameter larger than a ring 22's. Each ring 32 is rigidly connected to a ring 22 by radial rods 34 of essentially equal length. The rods 34 are preferably angularly distributed in uniform manner around the rings 22. By construction, then, on each side of the support 10a ring 32 is concentric with a ring 22, and all the rings 22, 32 are concentric with each other (the center of each ring 22, 32 lies on the axis X of the hub 20).

[0025] Optional rods 40 are fixed to, and orthogonally to, two rods 34 attached at their ends to different rings 32. The axis of the rods 40 is away from the X axis more than the axis of the rods 24, therefore the coil can in practice be wound on a hub of larger diameter.

[0026] The rods 24, 40 are parallel to the X axis while the rods 34 are orthogonal to the X axis.

[0027] Fig. 2 shows a known rod making up the support 10, any rod among those described.

[0028] The cutting operations from a longer member to create the rod generate at least at one of its ends a radial burr 50, which can cause injury to who will handle the support 10.

[0029] Fig. 3 shows a rod for composing a support like the support 10 but produced according to the invention, in order to avoid injuries to the person handling the support.

[0030] From a thread-like member 60 a linear portion 62 is cut, which will correspond to any one of the rods 24, 34, 40. The cutting operation takes place via a rotating knife 70 comprising at least one edge or blade 72 engaging the surface of the member 60 and rotating circularly (see arrow F) around the longitudinal axis Y of the member 60 itself.

[0031] Preferably, the edge or blade 72 is also pressed against the member 60 during the rotation and/or the cut.

[0032] Fig. 4 shows the obtained rod 62, having a longitudinal axis W. It is appreciated that the outer edge 64 of at least one end 66 of the rod 62 comprises a blunting 80, and, however, there is no burr like the burr 50.

[0033] The blunting 80, which e.g. may be an inclined plane with respect to the axis W or a rounded segment, prevents the accidental injury of those who touch the rod 62 when it is used for making up a support like the one in fig. 1.

Claims

1. Support for coils of cable, welding wire or the like, comprising:

   a central hub (20) constituted by two first rings (22) respectively fixed to the ends of, e.g. mutually parallel, rods (24) of substantially equal length;
   two annular flanges (30) integral respectively with two opposite ends of the hub to define an annular space around the hub inside which to house the coil,
   the flanges being constituted by two second rings (32) with diameter larger than the first rings, each second ring being connected concentrically and rigidly to a first ring by radial rods (34);
   wherein the outer edge of at least one end (66) of each rod comprises a blunting (80).

2. Support according to claim 1, wherein the blunting consists of a portion inclined by 45 degrees with respect to the longitudinal axis (W) of the rod, or of a rounded portion or with an increased curvature radius.

3. Method for constructing a support (10) for coils of cable, welding wires or the like, with the steps of:

   taking some rods (62) and blunting the outer edge of at least one end (66) of each rod;
   attaching the rods to two first rings (22) and to two second rings (32) with larger diameter than the first rings, so that
   each second ring is rigidly connected concentrically to a respective first ring by radial rod (34), and the two first rings and the two second rings are concentric, wherein the first rings are connected by road (24) parallel to each other.

4. Method according to claim 3, wherein the step of blunting comprises the step of removing from the sharp edge of the margin of the rod the extremity prism.

5. Method according to claim 3 or 4, wherein the step of blunting comprises the step of beveling or filing or polishing the ends of the rod.

6. Method according to claim 3 or 4 or 5, wherein the step of blunting occurs during the cutting of a rod (62) from a longer member (60).

7. Method according to claim 6, wherein the step of blunting is performed by cutting said longer member (60) with a cutting edge (72) that rotates about the longitudinal axis (Y) of the longer member.

8. Method according to claim 3 or 4 or 5 or 6 or 7, wherein the step of blunting generates on said edge an inclined plane or a corner with a radius of curvature greater than or equal to 0.25 mm.

9. Method for producing rods which compose a support (10) as claimed above, with the step of:

blunting the outer edge of at least one end (66) of each rod bofre attaching the rods to said rings (22).

10. Method according to claim 9, wherein the step of blunting comprises the step of removing from the sharp edge of the margin of the rod the extremity prism.

11. Method according to claim 9 or 10, wherein the step of blunting comprises the step of beveling or filing or polishing the ends of the rod.

12. Method according to claim 9 or 10 or 11, wherein the step of blunting occurs during the cutting of a rod (62) from a longer member (60).

13. Method according to claim 12, wherein the step of blunting is performed by cutting said longer member (60) with a cutting edge (72) that rotates about the longitudinal axis (Y) of the longer member.

14. Method according to claim 9 or 10 or 11 or 12 or 13, wherein the step of blunting generates on said edge an inclined plane or a corner with a radius of curvature greater than or equal to 0.25 mm.

Fig. 1

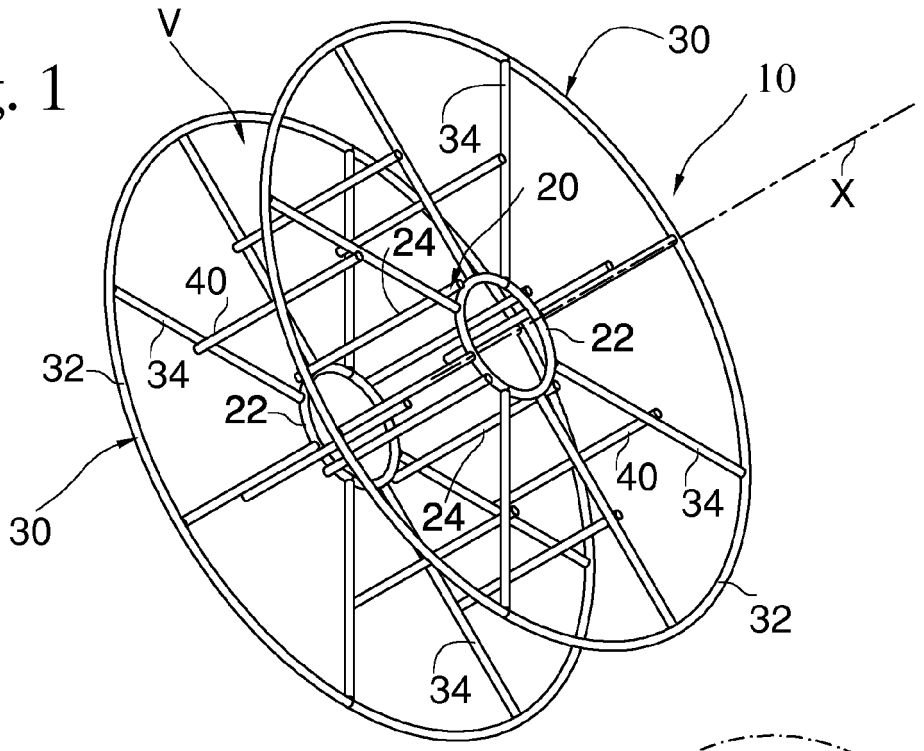
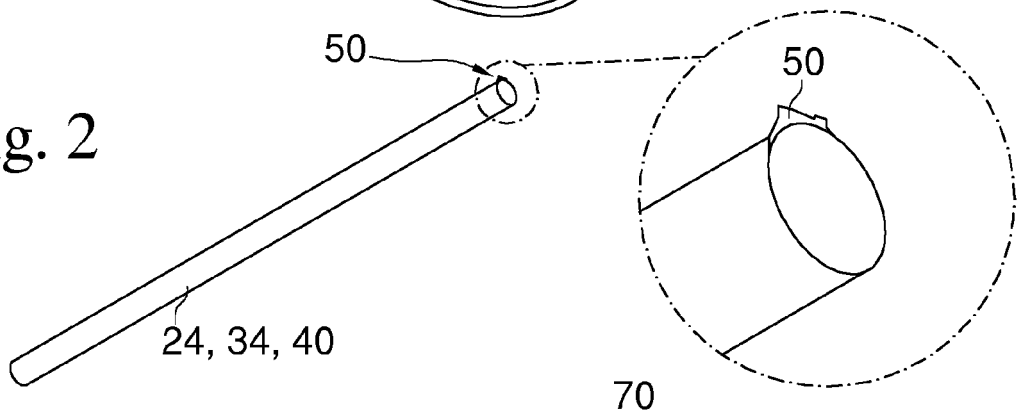


Fig. 2



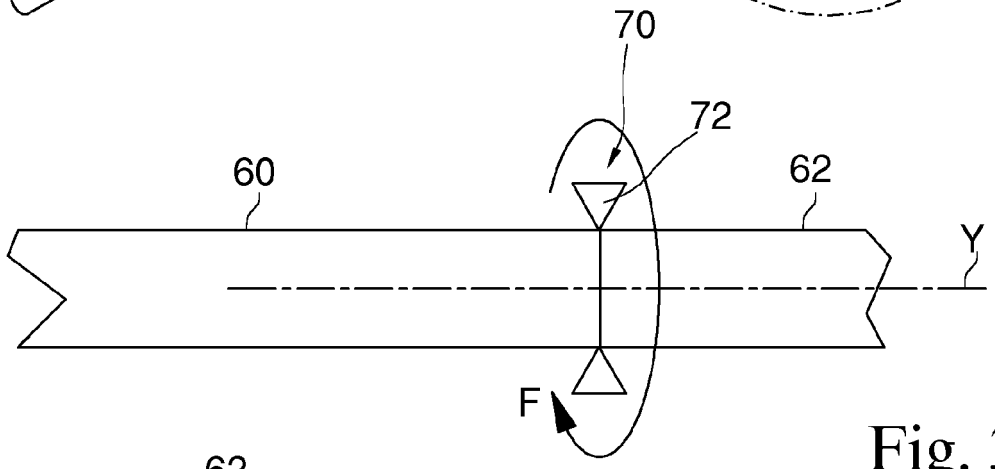


Fig. 3

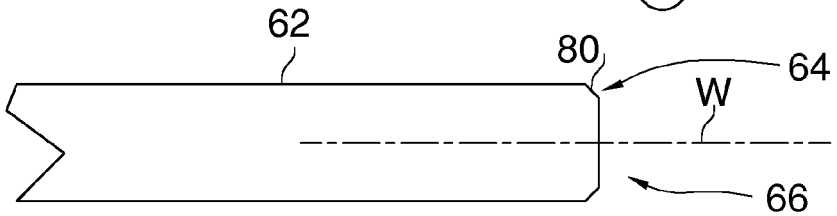


Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 17 16 8879

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	JP 2001 310873 A (KAWASAKI STEEL CO; KOBE STEEL LTD; SUMIKIN WELDING IND LTD; DAIDO STEE) 6 November 2001 (2001-11-06) * abstract; figures * -----	1-14	INV. B21F11/00 B65H75/20
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	4 August 2017	Lemmen, René

CATEGORY OF CITED DOCUMENTS

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