(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 445 082 B1**

(12) # EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **06.09.95** (51) Int. Cl.[6]: **D06F 57/08**

(21) Application number: **91830031.0**

(22) Date of filing: **04.02.91**

(54) **Connection for foldable tubular members.**

(30) Priority: **26.02.90 IT 693590 U**

(43) Date of publication of application:
04.09.91 Bulletin 91/36

(45) Publication of the grant of the patent:
06.09.95 Bulletin 95/36

(84) Designated Contracting States:
AT CH DE DK ES FR GR IT LI NL

(56) References cited:
DE-U- 8 905 090
FR-A- 2 511 403
GB-A- 858 835

(73) Proprietor: **FAC DI CARENINI S.R.L.**
41 C.so Europa
I-24032 Calolziocorte (Bergamo) (IT)

(72) Inventor: **Carenini, Giovanni Pietro**
43 C.So Europa
I-24032 Calolziocorte, (Bergamo) (IT)

(74) Representative: **Manzoni, Alessandro**
MANZONI & MANZONI,
UFFICIO INTERNAZIONALE BREVETTI,
P.le Arnaldo 2
I-25121 Brescia (IT)

EP 0 445 082 B1

Description

The present invention generally relates to a joint for connecting tubular members designed to be folded one on the other, and more particularly a joint suitable for connecting tubes which form the folding legs of a space-saving clothes-horse.

Patent FR-A-2 511 403 (on which the preamble of claim 1 is based) discloses a folding removable clothes airer comprising a vertical frame and tilting grids with a soil spike. The soil spike comprises the bottom ends of the vertical support connected with parallel crosspieces and a secondary U-shaped frame arranged crosswise with respect to said crosspieces. The secondary frame rotates around a vertically articulating axis, and a locking device positions the secondary frame at a right angle with respect to the vertical frame crosspieces so as to keep the airer in the drying position.

The locking device of the secondary frame is in the shape of dual pliers forming two overlapped and perpendicularly arranged fixed-forks, with one fork being integral with a crosspiece of the vertical frame, and the other being designed to receive a crosspiece of the secondary revolving frame. The vertical articulating axis passes through the crosspieces involved in the locking device.

Clothes-horses with a grid and possible extension grids held by two pairs of crossed legs which are pivoted to each other and in which the legs of a first pair have a central articulation which allows for them to fold so as to close the clothes-horse, are already know. In said clothes-horses, the folding of the legs with central articulation and subsequent accidental closure of the clothes-horse are possible in the case of knocks or incorrect movements. An uncontrolled closure of the clothes-horse can however be dangerous for people, especially children and it is therefore strongly advisable not to use.

For this reason, a way of blocking the articulation with the legs open has already been proposed. This method though requires the fitting of an extra element that interacts with the joint which connects the folding elements.

On the other hand, the locking device of the clothes-airer disclosed by the above FR-A-2 511 403 patent is not suitable for use with clothes airers on stand, in which the two tubes of the folding legs must be locked in line, and not crosswise, and then folded one on top of the other while keeping them connected to their ends.

The object of the present invention is to propose a joint for connecting two foldable elements, one on top of the other, such as the tubular members which form the folding legs of a clothes-horse. The joint has safety means which block the elements connected to each other in an open position, that is to say aligned to each other.

A second object of this invention is to propose a joint made as a single piece advantageously achieved through moulding and with a new configuration which allows it to be easily fitted onto the elements to be connected.

A further object of the invention is to propose a joint made as a single piece which contemporarily connects the two folding elements and automatically blocks the elements so as to avoid an accidental folding when they are aligned to each other.

Said aims are achieved with a joint which is in accordance with claim 1.

An example of realization of the joint will however be described with references to the attached drawing in which:

- Fig. 1 is a perspective view of the joint;
- Fig. 2 is the joint connecting two elements;
- Fig. 3 is a cross section of the joint in the blocking position ; and
- Fig. 4 is a clothes-horse with a pair of legs which can be folded due to the joint which is in accordance with the invention.

The joint in question is made of a single piece (10) with a part which delimits a hole (11) open towards an end of the body and a U-shaped part which delimits a channel (12) open on one side of said body. On the inside of the facing tabs (12a) of the U-shaped part, protruding parts (12b) pointing towards the centre and designed to reduce the opening of the channel (12) are formed (Fig. 3).

The above described joint is used to connect two tubes (13, 14) which are foldable on top of each other due to the rotation of one of them. Said tubular elements (13, 14) can be made up of the two tubes which form the foldable legs (15) of a clothes-horse (16) like the one in Fig. 4 of the drawing.

The joint is fitted to the two tubular elements (13,14) to be connected by forcing, and/or through the use of adhesive, and/or with a pin, an end of the lower element (13) into the hole (11) of the body (10) and by pivoting the lower end of the upper element (14) into the channel (12) through the use of a tranversal pin (14a). In this way the joint is rigidly constrained to the lower element (13) whilst the upper element (14) is foldable on the first so as to rotate round the relative pin (14a). When the two elements (13, 14) have to be opened, in other words aligned, the upper element is rotated until it is blocked into the channel (12) of the joint.

The element (14) is then forced to clip into the channel (12) through a tight opening of the protruding parts (12b), making use of the elasticity of the tabs (12a) which define the hole itself. The element is then blocked into the hole and is therefore in position due to said protruding parts (12b) (Fig 3)

which prevent the folding of the elements and therefore the accidental closing of a clothes-horse with folding legs.

Claims

1. A joint for connecting two tubes which fold one on the other, in particular for connecting tubes which form the folding legs of a space-saving clothes-horse, where the joint is formed of a body (10) having:
   - a part with a hole (11) open at least towards one end of the body:
   - a U-shaped part whith facing tabs (12a) delimiting a channel (12) which is open on one side of said body: and
   - protuding parts (12b) at the inside of the facing tabs (12a) of said channel (12) formed so as to tighten the opening of said channel (12),

   characterized in that said hole (11) open at least twards one ende of said body (10) is designed to hold the upper end of a first lower element (13) to be joined to a second upper element (14), and in that the lower end of said second upper element (14) is pivoted into the channel (12) of said U-shaped part through the use of a transversal pin (14a), said second element (14) being blocked in place into the channel (12) when it is aligned to the first element (13).

2. A joint as claimed in claim 1, characterized in that said body (10) is made of plastic; the end of the first element (13) to be connected is fitted and blocked by pressure and/or with adhesive in said hole (11); the facing tabs (12a) (12a) which delimit the channel (12) are elastic so as to allow for a blocking and unblocking of the second element (14).

Patentansprüche

1. Gelenk zum Verbinden von zwei übereinander klappbaren Rohren oder rohrförmigen Stangen, insbesondere zum Verbinden der zusammenklappbaren Beine von Wäscheständern bzw. Wäschetrockenständern verringerbaren Raumaufwands, welches Gelenk aus einem Körper (10) besteht, der folgende Teilstücke enthält und Merkmale aufweist:

   a) ein erstes Teilstück mit einer zumindest nach einem Ende hin offenen Bohrung (11);

   b) ein zweites, U-förmig ausgebildetes Teilstück mit zwei vorspringenden, einander gegenüberliegenden flügelartigen Partien (12a), die miteinander einen Kanal (12) begrenzen, der zu einer Seite des Körpers hin offen ist, wobei

   c) an den Innenseiten der flügelartigen Partien (12a) des Kanals (12) Vorsprünge (12b) so vorgesehen sind, daß die öffnung des Kanals (12) verengt wird;

   dadurch gekennzeichnet, daß die mindestens nach einem Ende des Körpers (10) zu offene Bohrung (11) dazu bestimmt ist, das obere Ende eines ersten unteren mit einem zweiten oberen Stützelement (14) zu verbindenden Stützgliedes (13) aufzunehmen und daß das untere Ende des zweiten oberen Stützelementes (14) im Kanal (12) des zweiten, U-förmig ausgebildeten Teilstückes mit Hilfe eines Querstiftes (14a) schwenkbar angebracht und in seiner Stellung im Kanal (12), blockierbar ist, wenn es mit dem ersten unteren Stützglied (13) geradlinig ausgerichtet ist.

2. Gelenk nach Anspruch 1, dadurch gekennzeichnet, daß der Körper (10) aus Kunststoffmaterial besteht, daß das Ende des ersten Stützgliedes (13) unter Pressdruck und/oder mit Hilfe von Klebstoff in die Bohrung (11) eingesetzt und in dieser befestigt ist und daß die den Kanal (12) begrenzenden flügelartigen Partien (12a, 12b) elastisch sind, derart, daß sie ein Blockieren und Lösen des zweiten oberen Stützelementes (14) möglich machen.

Revendications

1. Une jointure pour relier deux tubes qui se plient l'un sur l'autre, notamment pour relier les tubes qui constituent les jambes d'un séchoir-chevalet pliant, ladite jointure étant formée par un corps (10) ayant:
   - une pièce présentant un orifice (11) ouvert vers l'une au moins des extrémités du corps;
   - une pièce en forme de U avec deux oreillettes (12a) situées l'une en face de l'autre, délimitant un canal (12) ouvert sur un côté dudit corps; et
   - des pièces saillantes (12b) sur la partie interne des oreillettes opposées (12a) dudit canal (12), taillées de façon à rétrécir l'ouverture du canal (12).

   caractérisée par le fait que ledit orifice (11) ouvert vers l'une au moins des extrémités dudit corps (10) est destiné à recevoir l'extrémité supérieure d'un premier élément inférieur (13) à relier à un deuxième élément supérieur (14), et que l'extrémité inférieure dudit deuxième élément supérieur (14) est articulée sur le canal (12) de ladite pièce en forme de U au moyen d'une cheville transversale (14a), ledit deuxième élément (14) étant bloqué dans son

logement à l'intérieur du canal (12) lorsqu'il est en alignement avec le premier élément (13).

2. Une jointure conforme à la revendication 1, caractérisée par le fait que le corps (10) est fabriqué en matière plastique; l'extrémité du premier élément (13) à relier est emboîtée et bloquée par pression et/ou à l'aide de matériau adhésif dans ledit orifice (11); les oreillettes opposées (12a) qui délimitent le canal (12) sont flexibles de façon à permettre le blocage et le déblocage du deuxième élément (14).

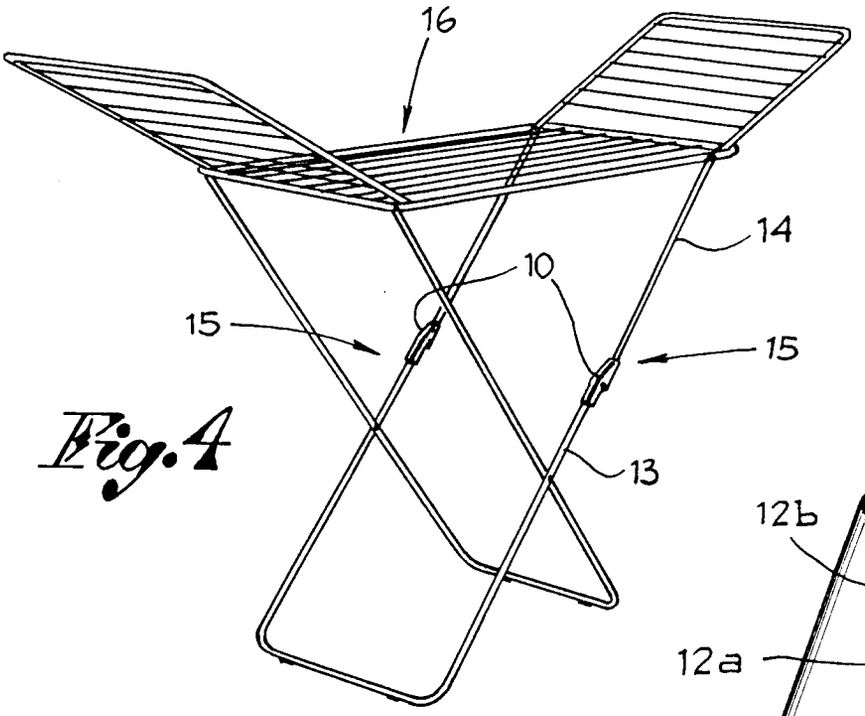

Fig.4

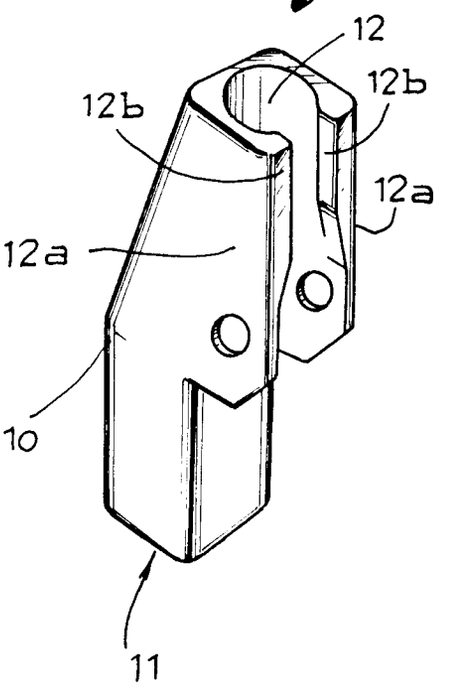

Fig.1

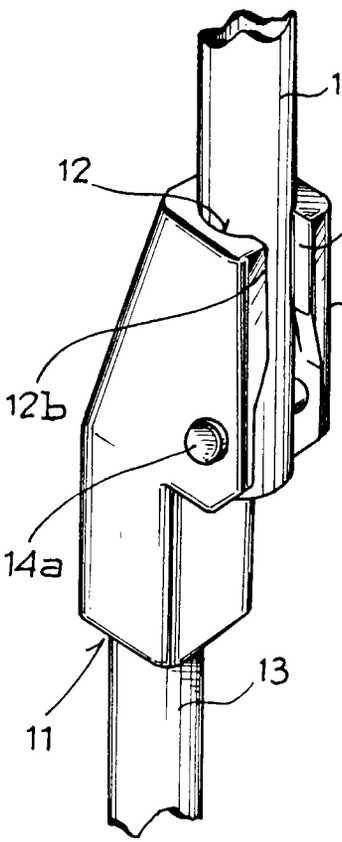

Fig.2

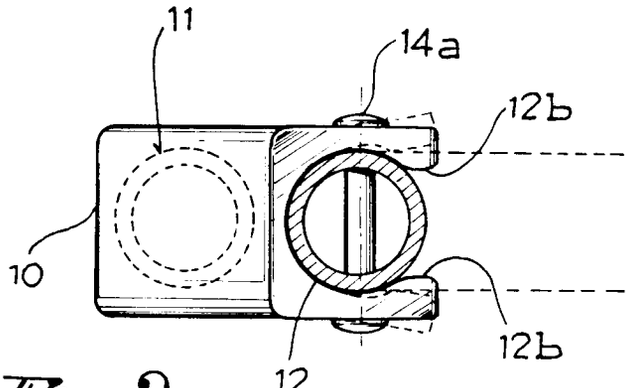

Fig.3