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(54) JOINING ARRANGEMENT FOR EXTENDED SCAFFOLDING ELEMENTS IN A BUILDING SCAFFOLDING OR SIMILAR.

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Description

Technical field

The present invention relates to a joining arrangement for extended scaffolding elements in a building scaffolding or similar, which is so arranged as to join one end of one scaffolding element facing towards one end of the second scaffolding element with a first part of the joining arrangement forming a female component and a second part of the joining arrangement forming a male component, which in the joined state extends inside the female component, whereby the female component and the male component exhibit joining surfaces extending essentially concentrically with one another and facing towards one another.

Background

Prior-art joining arrangements for extended scaffolding elements in the form of sleeves or pins are attached to one or both ends of a scaffolding element and are intended to interact with one end of another scaffolding element in such a way that the latter end is introduced into the sleeve or is slid over the pin. In order to produce the necessary stability in the joint, it has been necessary until now in prior-art arrangements to design the sleeve or the pin with a cross-section such that it does not deviate excessively from the corresponding dimension of the end with which it interacts. The presence of excessive clearance between the joining surfaces will, in fact, produce free play of such magnitude as to render the stability of the scaffolding inadequate. The presence of only a little clearance between the joining surfaces will, however, in time give rise to difficulties in erecting and dismantling the scaffolding elements. This is attributable to the formation of rust on the joining surfaces or to the fact that plaster or other waste has been deposited on the joining surfaces, making them difficult to fit together.

The patent specification EP—A1—0 004 806 shows a joining device for scaffolding elements. This known device shows a male component in the shape of an especially designed end of one of the scaffolding elements, and a female component in the shape of an especially shaped end of the other scaffolding element. The known device has in certain sections a cross-sectional shape, where depressed portions are present in the male component as well as in the female component, in which case there is substantially no play between male component and female component. By means of the depressed portions of the known device there is obtained a relatively stable joint, which does not allow any rotational movement between the scaffolding elements. However, in course of time there will arise difficulties to assemble and disassemble the joint because of the fact that dirt and corrosion arises in the joining surfaces. The female component has also had to be provided with a flanging in its

insertion end in order to facilitate the insertion of the male component.

Technical problem

The object of the present invention is to eliminate the aforementioned shortcomings and to propose a joining arrangement which possesses stability and which at the same time is easy to erect and dismantle.

The solution

The stated objective is achieved by means of a joining arrangement in accordance with the present invention, which is characterized in that said joining surfaces are so dimensioned as to cause a space to be formed between them, and in that only one of said joining surfaces exhibits at least one set of at least three peripheral, symmetrically positioned and radially facing local portions projecting from said joining surface which form load-bearing supporting members located at a certain distance from one another for the opposing joining surface and located in such a way that the female component exhibits an essentially cylindrical jacket-shaped insertion end and locates the male component so that said space is defined uniformly around substantially the entire joining surface of the male component.

Brief description of drawings

The invention is described in greater detail below on the basis of a few typical embodiments with reference to the accompanying drawings, of which Fig. 1 shows a partially interrupted view of a central longitudinal section through the joining arrangement along the line I—I in Fig. 2 in a first embodiment, Fig. 2 is a section along the line II—II through the joining arrangement shown in Fig. 1, Fig. 3 is a partially sectioned view of the joining arrangement in a second embodiment, and Fig. 4 is a partially sectioned view of the joining arrangement in a third embodiment. Figs. 5 and 6 show examples of scaffolding elements having joining arrangements in accordance with the first and second embodiments, whereas Fig. 7 shows a scaffolding element having a joining arrangement in accordance with a fourth embodiment, and Fig. 8 shows an example of a building scaffolding having joining arrangements in accordance with the invention.

Best mode of carrying out the invention

The joining arrangement 1 in accordance with the invention consists in the case of the first embodiment shown in Figs. 1 and 2 of a sleeve component 2 which is securely attached to one end 3 of an extended scaffolding element 4. Fig. 5 shows an example of two scaffolding elements 4, 5 which are connected together by means of the joining arrangement 1 in accordance with the first typical embodiment. The two scaffolding elements 4, 5 are in the form of uprights forming part of a building scaffolding shown in a typical example in Fig. 8. For the sake of clarity, however, the Figure does not show any platforms, etc.,

which are usually supported by certain of the horizontal scaffolding elements 6 of the building scaffolding. Each upright 4, 5 also has distributed over its length a number of cup-shaped coupling elements 7 intended to accept the horizontal scaffolding elements 6, 8 of the building scaffolding. As may be seen from Fig. 5, both the scaffolding elements 4, 5 shown here, i.e. the uprights in the examples shown, are provided at their lower ends 3 with the sleeve component 2, whereas their upper end 9 is entirely bare and is intended to be inserted into the sleeve component 2. The two uprights 4, 5 shown by way of example are designed to be of identical diameter and have end surfaces 10, 11 which, once the arrangement has been assembled, provide support for each other.

The sleeve component 2 thus forms a female component, whilst one end 9 of the upright 5 forms a male component which extends into the female component through the opening 12 at its end. The sleeve component 2 is executed in the form of a length of tube of strong metal, for example steel, and the uprights 4, 5 may be executed in the same material. The sleeve component 2 has a significantly greater transverse dimension than the uprights 4, 5 and is executed with circular cross-section in the example shown, as may be appreciated from Fig. 2. At the inner end 13 of the sleeve component, the sleeve component is provided with an annular impressed area 14 which is in contact with the periphery of the upright 4. The annular impressed area 14 then becomes a conical edge 15, thereby providing the space for a welding run 16 to hold the sleeve component securely to the end 3 of the upright 4.

In accordance with the invention the sleeve component 2 has a transverse dimension such that a clear space 17 is formed between the sleeve component and the upper end 9 of the upright 5. The sleeve component 2 also has two sets of local impressed areas 18, 19, of which one outer set of impressed areas 18 is situated at the opening 12 at the outer end of the sleeve component and at a short distance from it, and the second, inner set of impressed areas 19 is situated close to the inner end 13 of the sleeve component. The impressed areas are four in number in the example shown and are produced by local deformation of the wall of the sleeve component, achieved by the use of a special press tool which may, with advantage, be so arranged that it will simultaneously produce the annular impressed area 14 and the conical edge 15. The local impressed areas 18, 19 are distributed around the periphery of the sleeve component 2 and are also of identical size in the example shown in Fig. 1 and Fig. 2. In the examples, the impressed areas 18, 19 are shown to be of slightly oval shape, thereby ensuring that they extend for a greater distance in the longitudinal sense of the sleeve component 2 than in its transverse sense, resulting in the smallest possible distance in the transverse sense of the sleeve component in relation to the size of the

impressed areas. This provides the greatest possible free space 17 between the impressed areas, as may be appreciated from Fig. 2, thereby providing space for particules of dirt and waste plaster and similar. In this example, the supporting surfaces 20 of all the impressed areas 18, 19 are situated at the same relative radial distance from the longitudinal axis 37 of the sleeve component 2.

The impressed areas 18, 19 form supporting members to provide support for the male component in the joining member, i.e. the upper end 9 of the upright 5 in the example shown in Fig. 1 and 2. This end 9, by which is meant the entire part which is introduced into the sleeve component 2, is cylinder jacket-shaped in the first example shown and forms a joining surface or supporting surface against which the impressed areas 18, 19 are intended to provide support for an outer part, thus forming the supporting surface 20. Point contact should be achieved theoretically, although in practice the contact extends over a surface of a certain area due to a certain amount of deformation and wear in the course of using the joining arrangement. The impressed areas 18, 19 are so dimensioned in relation to the transverse dimension of the male component as to provide a certain small amount of free play between the supporting surfaces 20 of the impressed areas and the supporting surface 21 of the male component 9. This free play is necessary in order to provide certain manufacturing tolerances and in order to permit the insertion and withdrawal of the male component. This means in practice, as shown in the drawings, that when under load contact will be achieved only against certain of the impressed areas 18, 19.

When the uprights 4, 5 are erected, the end 9 of the upright 5 will be able easily to be inserted into the opening 12 at the end of the sleeve component 2, which has an internal diameter which exceeds by a considerable amount the external diameter of the end 9 of the upright, at the same time as the smallest possible amount of free play is provided between the supporting surfaces 20, 21.

In the second typical embodiment shown in Fig. 3 the female component consists instead of the end 22 of the upper support 4, whereas the male component is formed by a pin component 24 permanently attached to the upper end 23 of the lower upright 5. For this purpose the end 22 of the upright 4 is provided with impressed areas 23 which, in the case of this particular embodiment, are in the form of only a single set of four impressed areas. In this particular embodiment the pin component 24 is, in fact, slightly tapered in the direction of its free end 25, whereby the impressed areas 23 are situated in proximity to said end. The transverse dimension, i.e. the diameter, of the pin component 24 provides a fit at its point of fixing to the end 23 of the upright 5 and thus on a level with the edge part 25 of the upright 4 such that only a small amount of free play is present between the pin component 24

and said edge part 25 in the assembled state. A corresponding amount of free play is provided substantially between the supporting surface 27 of the impressed areas 23 and the outer surface 28 of the pin component 24.

In this embodiment a particularly large amount of free play is obtained between the end 25 of the pin component 24 and the edge part 26 when the joining arrangement is assembled, thereby facilitating the fitting together of the scaffolding elements. A reduction is thus achieved in the assembled state in the amount of free play between the contact surfaces, which will thus be present at the bottom between the edge part 26 of the female component and the lower part of the outer surface 28 of the male component.

The third embodiment illustrated in Fig. 4 is similarly executed with a male component in the form of a pin component 29 and a female component in the form of the lower end 30 of the upper upright. In this example the pin component 29 is, however, cylinder jacket-shaped in the area of its joining surface or supporting surface 31. Also, the sets of impressed areas 32, 33 are two in number, with an outer set of impressed areas 32 being located at the outer end of the female component at a certain distance from its end edge part 23 and with an inner set of impressed areas being located further in, so that the impressed areas are present in proximity to the free end 35 of the male component, or more precisely at a small distance from it. In this particular embodiment the outer set of impressed areas 32 exhibits a greater amount of free play in relation to the supporting surface 31 of the pin component 29 than the corresponding free play between the inner set of impressed areas 33 and the supporting surface of the pin component. This is achieved by designing the press tool in such a way that the impressed areas 32 are made less deep than the impressed areas 33. The supporting surfaces 36 of the impressed areas 32 are thus located at a greater radial distance from the longitudinal axis 37 of the female component than the corresponding distance between the supporting surfaces 36 of the inner impressed areas 33 and the longitudinal axis. This facilitates the assembly of the joining arrangement by providing a greater amount of free play at the outer end of the female component than at its inner end. The free play between the male component and the female component may be said to change in three stages, these being firstly the largest amount of free play at the edge part 34 at the end of the female component between it and the free end 35 of the male component, secondly a gradual transition to a reduced amount of free play between the outer impressed areas 32 and the male component, and finally the minimum amount of free play between the inner impressed areas 33 and the male component. This third embodiment is also shown in Fig. 6, which is a partially interrupted view of two scaffolding elements 4, 5 joined together, of which each upright exhibits at its upper end the pin

component 29 and is executed at its lower end as the female component 30. As may be appreciated from this Figure, the pin component 29 is secured to the upper end of the uprights 4 and 5 respectively by means of a part projecting into the tubular upright and which is either formed into the upright by pressing or is welded to it.

Fig. 7 finally shows a fourth variant of the joining arrangement which basically resembles the embodiment in accordance with Fig. 4, but where all the ends of the uprights 4, 5 are executed as female components with two sets of impressed areas, and where the joining arrangement exhibits a separate joining piece in which two male components 38, 39 are securely attached to a centre piece 40 for holding the separate joining piece in position. The centre piece 40 may, for example, be in the form of a length of tube through which the two pin components 38, 39 extend. In this embodiment, as also shown in Fig. 4, the impressed areas may be of different depths, but may in accordance with a modified embodiment be of identical depth throughout in conformity with the first embodiment in accordance with Figs. 1 and 2.

The joining arrangement is thus able to satisfy the until now irreconcilable requirements for ease of assembly and dismantling combined with stability. Moreover, increased resistance to lateral bending stresses in relation to smooth surfaces is obtained due to the fact that the impressed areas exhibit greater resistance to deformation than a smooth outer surface.

The invention is not restricted to the typical embodiments specified above and in the drawings and illustrated in the drawings, but is defined by the following Patent Claims. For example, the typical embodiment shown in Fig. 4 may be modified so that all the impressed areas 32, 33 are of identical depth. Furthermore, the male components may be executed either in a solid material or in a tubular material throughout. The number of impressed areas and also the number of sets of impressed areas may vary.

Claims

1. A joining arrangement (1) for extended scaffolding elements (4, 5) in a building scaffolding or similar, which is so arranged as to join one end (3) of one scaffolding element (4) facing towards one end (9) of the second scaffolding element (5) with a first part of the joining arrangement forming a female component (2/ 22/ 30) and a second part of the joining arrangement forming a male component (9/ 24/ 29), which in the joined state extends inside the female component, whereby the female component and the male component exhibit joining surfaces extending essentially concentrically with one another and facing towards one another, characterized in that said joining surfaces are so dimensioned as to cause a space (17) to be formed between them and in that only one of said joining surfaces exhibits at least one set of at least three

peripheral, symmetrically positioned and radially facing local portions (18, 19/ 23/ 32, 33) projecting from said joining surface which form load-bearing supporting members located at a certain distance from one another for the opposing joining surface (21/ 28/ 31) and located in such a way that the female component (2/ 22/ 30) exhibits an essentially cylindrical jacket-shaped insertion end and locates the male component so that said space (17) is defined uniformly around substantially the entire joining surface of the male component.

2. A joining arrangement (1) as claimed in Claim 1, characterized in that the supporting members (18, 19/ 23/ 32, 33) comprise radially inward-facing depressions formed by deformation in the wall of the body of the female component (2/ 22/ 30).

3. A joining arrangement (1) as claimed in Claim 2, characterized in that the female component (2/ 22/ 30) exhibits at least two sets of supporting members (18, 19/ 32, 33), of which an outer set of supporting members (18/ 32) is positioned towards an area at the outer opening end (12) of the female component and an inner set of supporting members (19/ 33) is positioned towards the inner end of the female component.

4. A joining arrangement (1) as claimed in Claim 3, characterized in that the joining surfaces of both the male component (9) and the female component (2) are essentially cylinder jacket-shaped and in that all the supporting members (18, 19) have their supporting surfaces (20) located respectively at the same distance from the longitudinal axis (37) of the female component.

5. A joining arrangement (1) as claimed in Claim 3, characterized in that the male component (24) tapers in an essentially conical fashion in its transverse dimension in the direction of its free end (25), whilst all the supporting members (23) have their supporting surfaces (27) located respectively at the same distance from the longitudinal axis (37) of the female component (22).

6. A joining arrangement (1) as claimed in Claim 3, characterized in that the joining surface (31) of the male component (29) is essentially cylinder jacket-shaped and in that the inner set of supporting members (33) has its supporting surfaces (36) located at a slightly smaller distance from the longitudinal axis (37) of the female component (30) than the corresponding distance for the outer set of supporting members (32).

7. A joining arrangement (1) as claimed in any of the Claims 1—3, 4, 5 or 6, characterized in that the female component (2) is formed by a sleeve component attached to the end (3) of one of the scaffolding elements (4) which contains said supporting members (18, 19) facing radially inwards, whereby the male component (9) is formed by the end of the other scaffolding element (5), the outer surface (21) of which forms its joining surface, intended to be supported against at least two of the supporting members.

8. A joining arrangement (1) as claimed in Claims 1—3, 4, 5 or 6, characterized in that the female component (22/ 29) is formed by the end

of one of the scaffolding elements (4) which contains said supporting members (23/ 33) facing radially inwards, and in that the male component (24/ 29) is formed by a pin component projecting from the other scaffolding element (5).

9. A joining arrangement (1) as claimed in Claim 8, characterized in that the joining arrangement (1) includes a detachable joining piece consisting of a centre piece (40) for holding the joining piece in position against the ends of the scaffolding elements, and in that two male components (38, 39) project from the joining piece, whereby both ends of the scaffolding elements are in the form of female components with supporting members.

10. A joining arrangement as claimed in any of the previous Claims, characterized in that the two scaffolding elements (4, 5) are both in the form of uprights having ends of identical diameter.

Patentansprüche

1. Verbindungseinrichtung (1) für langgestreckte Gerüstelemente (4, 5) eines Baugerüsts o.ä., die zwecks Verbindung eines Endes (3) eines Gerüstelements (4), das einem Ende (9) eines zweiten Gerüstelements (5) gegenübersteht, mit einem ersten Teil der Verbindungseinrichtung, der eine Mutterkomponente (2/22/30) bildet, und einem zweiten Teil der Verbindungseinrichtung, der die männliche Komponente (9/ 24/29) bildet, die im zusammengesetzten Zustand in die Mutterkomponente einsteckt, angeordnet ist, wobei die Mutterkomponente und die männliche Komponente Verbindungsflächen aufweisen, die sich hauptsächlich konzentrisch mit einander laufen und einander gegenüberstehen, dadurch gekennzeichnet, dass die erwähnten Verbindungsflächen derart dimensioniert sind, dass ein Zwischenraum (17) zwischen denselben entsteht, und dass nur eine der erwähnten Verbindungsflächen mindestens einen Satz von mindestens drei peripherischen, symmetrisch gelegenen und einander radial gegenüberstehenden Teilen (18, 19/23/32, 33) aufweist, welche von der erwähnten Verbindungsfläche vorspringen und die tragende Abstützbauteile bilden, die für die gegenüberstehende Verbindungsfläche (21/28/31) in einem bestimmten Abstand von einander gelegen sind, und ausserdem in solcher Weise gelegen sind, dass die Mutterkomponente (2/22/30) ein hauptsächlich zylindrisches hülsenförmiges Einstanzende aufweist und die männliche Komponente ortet, sodass der Zwischenraum (17) ringsum hauptsächlich die ganze Verbindungsfläche der männlichen Komponente gleichmässig abgegrenzt ist.

2. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 1, dadurch gekennzeichnet, dass die Abstützbauteile (18, 19/23/32, 33) nach innen radial gerichteten Kerben umfassen, die durch Deformierung in der Wand des Körpers der Mutterkomponente (2/22/30) gebildet sind.

3. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 2, dadurch gekennzeichnet, dass

die Mutterkomponente (2/22/30) mindestens zwei Sätze von Abstützteilen (18, 19/32, 33) aufweist, wovon ein Aussensatz von Abstützteilen (18/32) in der Richtung nach einer Fläche bei dem äusseren Öffnungsende (12) der Mutterkomponente gelegen ist, und ein Innensatz von Abstützteilen (19/33) in der Richtung nach dem inneren Ende der Mutterkomponente gelegen ist.

4. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 3, dadurch gekennzeichnet, dass die Verbindungsflächen sowohl der männlichen Komponente (9) wie der Mutterkomponente (2) hauptsächlich eine zylindrische Hülseform haben, und dass alle abstützende Teile (18, 19) ihre abstützende Flächen (20) in derselben Entfernung von der Längsachse (37) der Mutterkomponente gelegen sind.

5. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 3, dadurch gekennzeichnet, dass die männliche Komponente (24) in einer hauptsächlich kegelförmigen Art und Weise in ihrer Querdimension in der Richtung ihres freien Endes (25) abschrägt, während die abstützenden Flächen (27) aller abstützenden Teile (23) in derselben Entfernung von der Längsachse (37) der Mutterkomponente (22) gelegen sind.

6. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 3, dadurch gekennzeichnet, dass die Verbindungsfläche (31) der männlichen Komponente (29) hauptsächlich eine zylindrische Hülseform hat, und dass die abstützenden Flächen (36) des innren Satzes von abstützenden Teilen (33) in einer etwas kleineren Entfernung von der Längsachse (37) der Mutterkomponente (30) als die entsprechende Entfernung der abstützenden Teile (32) des äusseren Satzes gelegen sind.

7. Eine Verbindungseinrichtung (1) gemäss irgend einem der Patentansprüche 1—3, 4, 5 oder 6, dadurch gekennzeichnet, dass die Mutterkomponente (2) von einer Hülsekomponente gebildet ist, die am Ende (3) eines der Gerüstelemente (4) angeschlossen ist, das die erwähnten abstützenden Teile (18, 19) enthält die radial nach innen gerichtet sind wobei die männliche Komponente (9) von dem Ende des anderen Gerüstelements (5) gebildet ist, dessen äussere Fläche (21) dessen Verbindungsfläche bildet, die den Zweck hat, gegen wenigstens zwei der abstützenden Teile abgestützt zu werden.

8. Eine Verbindungseinrichtung (1) gemäss den Patentansprüchen 1—3, 4, 5 oder 6, dadurch gekennzeichnet, dass die Mutterkomponente (22/29) von dem Ende eines der Gerüstelemente (4) gebildet ist, das die erwähnten Teile (23/33) enthält und radial nach innen gerichtet ist, und dass die männliche Komponente (24/29) von einer Zapfenkomponente, die von dem anderen Gerüstelement (5) vorspringt, gebildet ist.

9. Eine Verbindungseinrichtung (1) gemäss Patentanspruch 8, dadurch gekennzeichnet, dass die Verbindungseinrichtung (1) einen abnehmbaren Verbindungsteil umfasst, der aus einem Mittelteil (40) zwecks Festhaltens des Verbindungsteils in einer Lage gegen die Enden

der Gerüstelemente besteht, und dass zwei männliche Komponenten (38, 39) von dem Verbindungsteil vorspringen, wobei beide Enden der Gerüstelemente in der Form Mutterkomponenten mit abstützenden Teilen sind.

10. Eine Verbindungseinrichtung gemäss irgend einem der vorhergehenden Patentansprüche, dadurch gekennzeichnet, dass die zwei Gerüstelemente (4, 5) die Form aufrechtstehender Pfosten mit Enden von gleichem Durchmesser aufweisen.

Revendications

1. Arrangement de joindre (1) pour des éléments d'échafaud ou quelque chose du même genre, qui est arrangé pour joindre une extrémité (3) d'un élément d'échafaud (4) situé en face d'une extrémité d'un second élément d'échafaud (5) avec une première part de l'arrangement de joindre constituant un composant femelle (2/22/30) et une seconde part de l'arrangement de joindre constituant un composant mâle (9/24/29), qui dans l'état joint s'étend dans l'intérieur du composant femelle, le composant femelle et le composant mâle exhibant des surfaces des joindre, qui s'étendent essentiellement concentriquement en relation de l'un à l'autre et se trouvent en face de l'un à l'autre, caractérisé en ce que les susdites surfaces de joindre sont dimensionnées à l'effet d'avoir pour résultat la formation d'un espace (17) entre elles et en ce que seulement l'une des susdites surfaces de joindre exhibit au moins un jeu de au moins trois parties locales (18, 19/23/32, 33) périphériques, symétriquement arrangées et faisant face radialement, qui projettent de la susdite surface de joindre et forment des membres supportants pour supporter des charges situé à une certaine distance de l'un à l'autre pour les surfaces opposées (21/28/31) de joindre et situé de manière que le composant femelle (2/22/30) exhibit une extrémité d'insertion essentiellement formée comme un manchon cylindrique et localise le composant mâle, afin que le susdit espace (17) soit uniformément mâle, afin que le susdit espace (17) soit uniformément défini autour essentiellement la surface de joindre entière du composant mâle.

2. Arrangement de joindre (1) selon revendication 1, caractérisé en ce que les membres supportants (18, 19/22/32, 33) comprennent des étranglements radialement orientés vers l'intérieur et formés par déformation dans la paroi du corps du composant femelle (2/22/30).

3. Arrangement de joindre (1) selon la revendication 2, caractérisé en ce que le composant femelle (2/22/30) exhibit au moins deux jeux de membres supportants (18, 19/32, 33), dont un jeu extérieur de membres supportants (18/22) est situé vers une surface à l'extrémité (12) ouvrante à l'extérieur du composant femelle et un jeu intérieur de membres supportants (19/33) est situé vers une surface à l'extrémité intérieur du composant femelle.

4. Arrangement de joindre (1) selon revendication 3, caractérisé en ce que les surfaces de joindre tant du composant mâle (9) que du composant femelle (2) sont essentiellement formées comme un manchon cylindrique et en ce que tous les membres supportants (18, 19) ont leurs surfaces (20) supportantes situées respectivement à la même distance de l'axe longitudinal (37) du composant femelle.

5. Arrangement de joindre (1) selon revendication 3, caractérisé en ce que le composant mâle (24) s'amincit d'une manière essentiellement conique dans sa dimension transversale dans la direction de son extrémité (25) libre, tandis que tous les membres supportants (23) ont leurs surfaces supportantes (27) situées respectivement à la même distance de l'axe longitudinal (37) du composant femelles.

6. Arrangement de joindre (1) selon revendication 3, caractérisé en ce que la surface de joindre (31) du composant mâle (29) est essentiellement formée comme un manchon cylindrique, et en ce que le jeu intérieur de membres supportants (33) a ses surfaces supportantes (36) situées à une distance légèrement plus petite de l'axe longitudinal (37) du composant femelle (30) que la distance correspondante pour le jeu extérieur de membres supportants (32).

7. Arrangement de joindre (1) selon revendications 1—3, 4, 5 ou 6, caractérisé en ce que le composant femelle (2) est formé par un composant en forme d'un manchon et attaché à

l'extrémité (3) d'un des éléments d'échafaud (4), que renferme les susdits membres (18, 19) radialement orientés vers l'intérieur, le composant mâle (9) étant formé par l'extrémité de l'autre élément d'échafaud (5), dont la surface (21) extérieure forme sa surface de joindre destinée à être supportée contre au moins deux des membres supportants.

8. Arrangement de joindre (1) selon revendications 1—3, 4, 5 ou 6, caractérisé en ce que le composant femelle (22/30) est formé par l'un des éléments d'échafaud (4), qui renferme les susdits membres (23/33) radialement orientés à l'intérieur, et en ce que le composant mâle (24/29) est formé par un composant de cheville, qui projette de l'autre élément d'échafaud (5).

9. Arrangement de joindre (1) selon revendication 8, caractérisé en ce que l'arrangement de joindre (1) comprend une part de joindre détachable, qui se compose d'une part centrale (40) pour maintenir la part de joindre en position contre les extrémités d'éléments d'échafaud, et en ce que les deux composants mâles (38, 39) projettent de la part de joindre, les deux extrémités des éléments d'échafaud étant en forme de composants femelles avec des membres supportants.

10. Arrangement de joindre selon quelconque des revendications précédentes caractérisé en ce que les deux éléments d'échafaud (4, 5) sont tous les deux en forme de poteaux avec des extrémités du diamètre égal.

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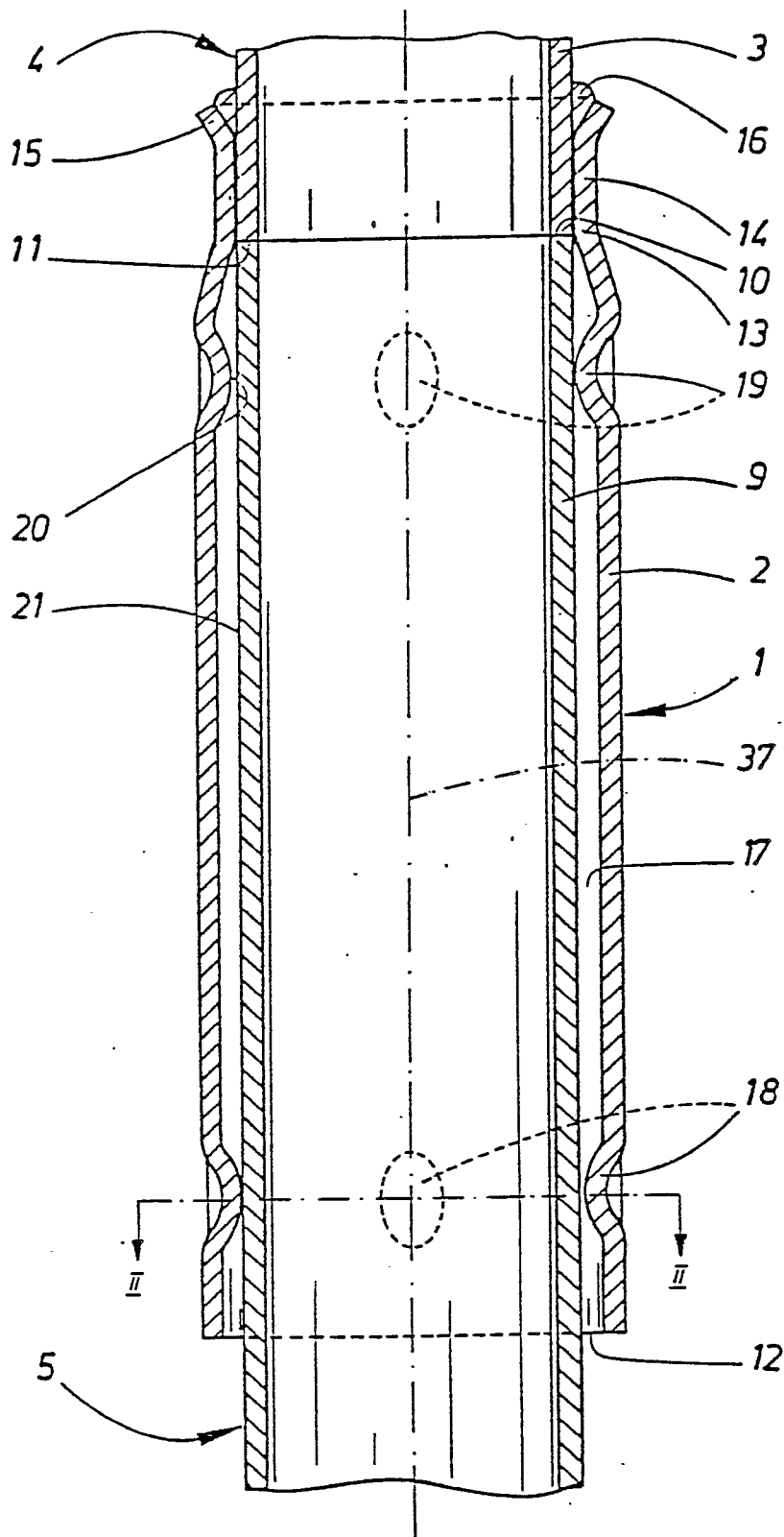


FIG. 1

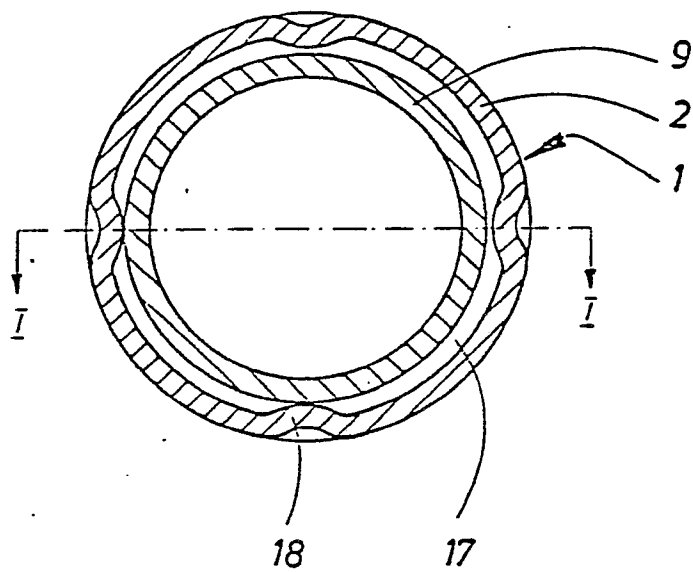


FIG. 2

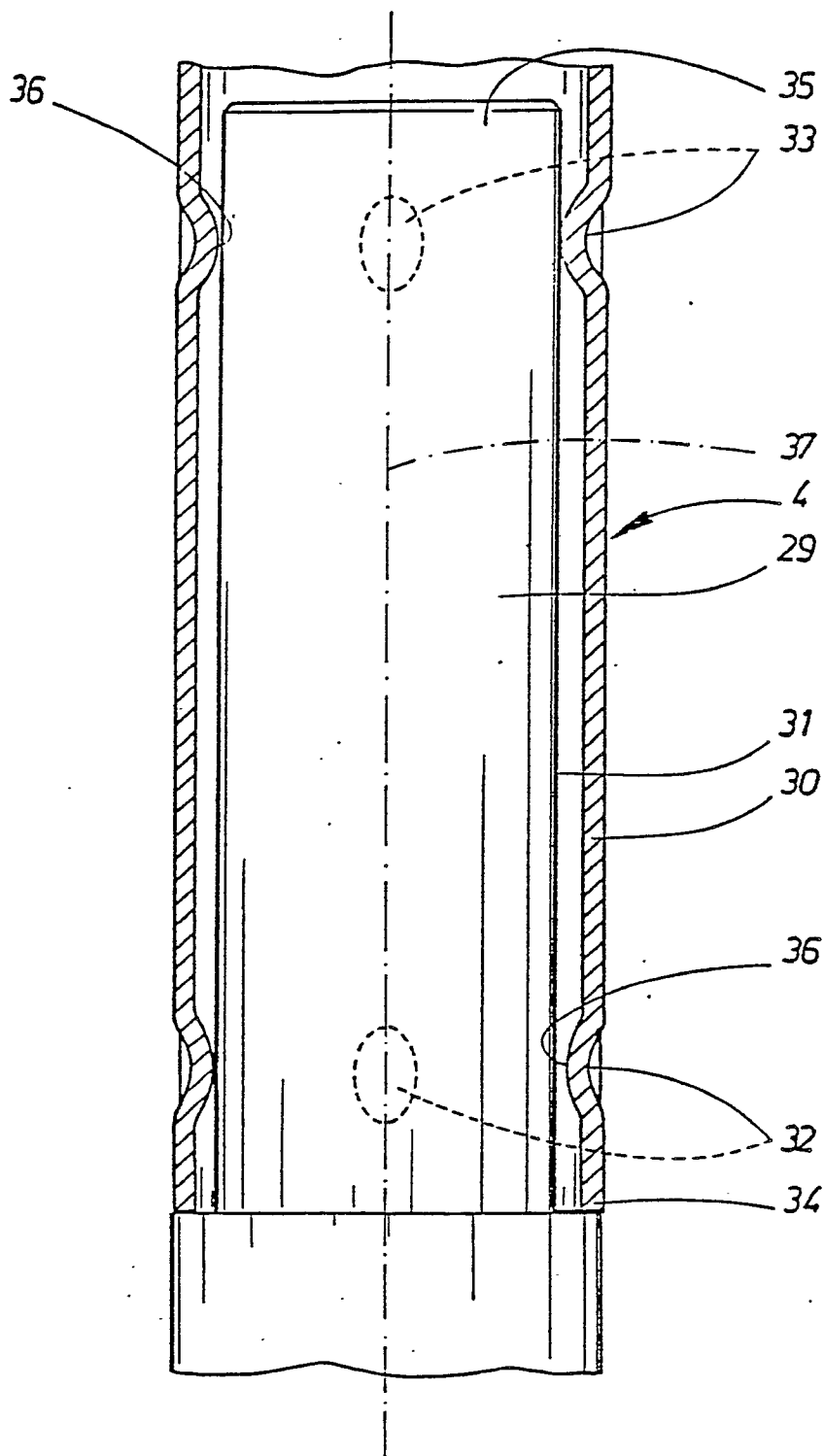


FIG. 4

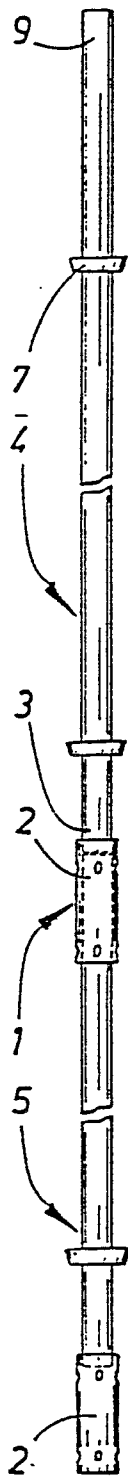


FIG. 5

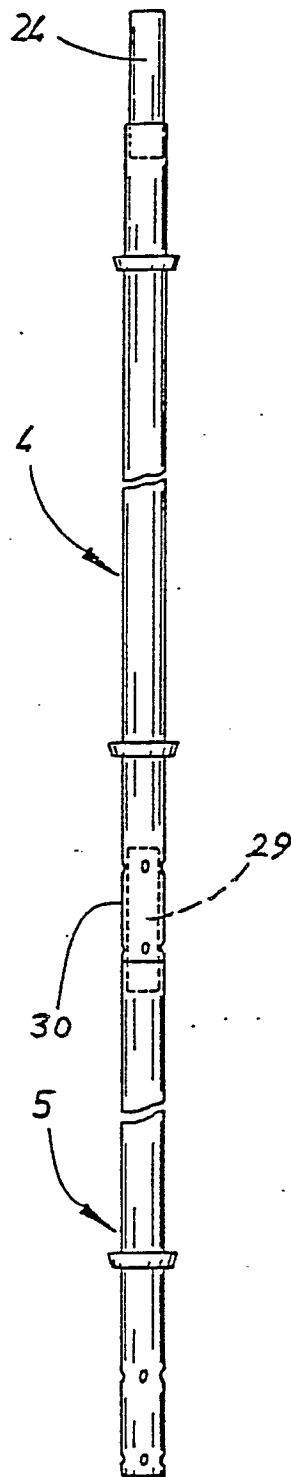


FIG. 6

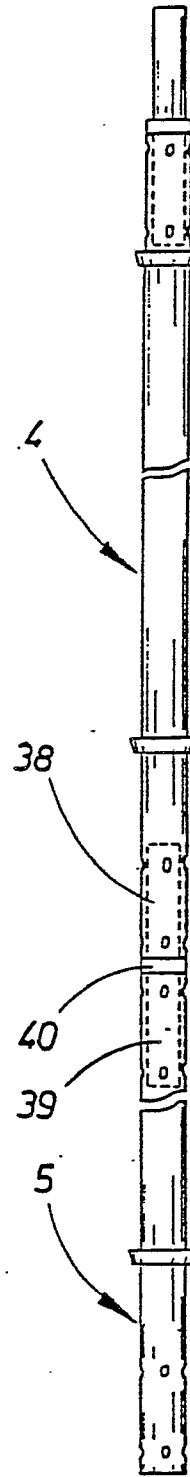


FIG. 7

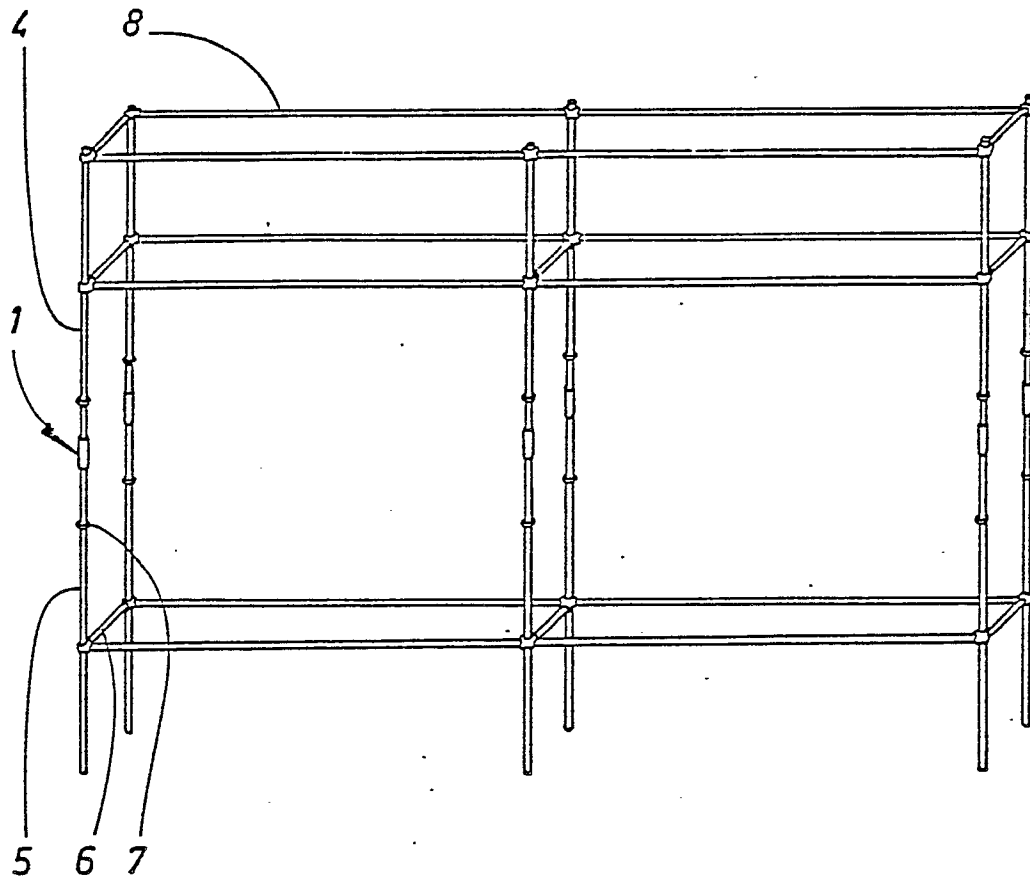


FIG. 8