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54 **Constructable clothes hanging system.**

57 A constructable clothes hanging system comprising standard units in the form of bar elements (1) and coupling elements (2), in which the bar elements, cooperating with the coupling elements, are designed for being joined in many different formations on line with each other and at an angle to each other thereby providing an optionally large, high and voluminous clothes hanging rack on which consoles, clothes hanger arms (7) or any other means can be mounted in many different positions, and in which the bar elements (1) are intended to be used as vertical posts and as horizontal scaffold bars, which at the ends thereof are formed with connection means, for instance coupling plates (8) on which the coupling elements (2) are adapted to be connected and be used as intermediate elements between two or more bars (1), and in which the bars (1) are formed with a large number of cross slots (6) in which arms (7), consoles, hooks and other means can easily be hook-connected in an optional position, and which arms or similar means can be used for hanging of, for instance, gallows. The bar elements preferably are made of hexagonal profiles (5), whereas the coupling elements are formed as cubes, for instance regular hexagones having square sides.

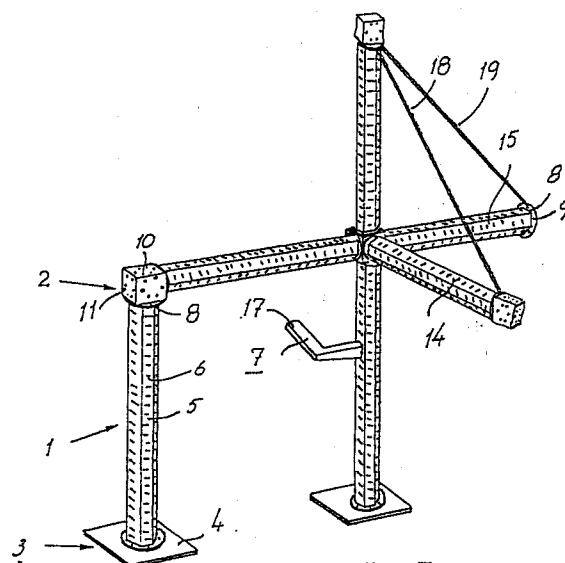


Fig. 7

Description

Constructable clothes hanging system.

The present invention relates to a constructable clothes hanging system comprising only a few standard units by means of which it is possible to build a clothes stand having vertical posts or wall bars and horizontal connection bars, and on which vertical and horizontal building elements clothes hangers or clothes hanger arms can be mounted on several places.

Rack systems, and in particular clothes hanging systems of this type are known, in which at least the vertical posts are formed as tubes having a circular cross section, and along which clamping muffs, for instance claw formed muffs can be clamp connected, and in which subsequently horizontal, generally circular-cylindric tubes, can also be clamp connected thereby connecting horizontal tubes between two vertical tubes.

Other systems are formed with vertical and horizontal rack elements in the form of square profile tubes and coupling elements, which are displaceable and lockable on said square profile tubes to make it possible to construct a rack substantially like the above mentioned rack and having outer circular profile tubes mounted outside each other.

The said priorly known apparatus are disadvantageous in some respects, for instance

- in that the vertical and horizontal tubes generally can not be joined length by length coaxially with each other but have to be length joined by means of some kind of an overlap joint;
- in that special coupling elements are generally needed for mounting of projecting arms on the vertical and horizontal tubes and on which arms gallows or other hangers can be hanged;
- in that the horizontal tubes normally only allow hanging of gallows on rows after each other;
- in that it can be difficult or impossible to mount several arms on the same horizontal level and on any chosen places round the vertical posts etc.

The present invention intends to provide a clothes hanging system which solves the above mentioned lacks, and which is formed so that the system can easily be constructed to several different formations, whereby both the vertical and the horizontal bars or tubes can be length joined on line (coaxially) with each other, in which hanger arms for gallows etc. quickly and easily and without the use of tools can be mounted on several different locations along the bars or tubes and on several different locations round same, and which system is stable, flexible and easily to construct into several different configurations depending on the form and size etc. of the premises in which the rack is to become built up.

According to the invention the clothes hanging system comprises rack bars of different standard lengths and intended to be used both as vertical posts and as horizontal rack bars and which at their ends are formed with connection means, for instance connection plates, and coupling elements or length joining elements adapted to be connected to said connection plates, and by means of which the

bars can be joined on line (coaxially) with each other or at an angle to each other in several different directions, and in which the bars are formed with a large number of cross slots in which the arms or any other means can easily be hooked in any desired position, and which arms or other means can be used for hanging of for instance gallows.

In a preferred embodiment of the invention the bar profiles has a regular hexagonal cross section, and both the connection plates and the coupling or joining elements are formed with six regularly spaced connection means, for instance through bores, so that they can be placed in six different positions in relation to each other. A coupling element or joining element can be formed as a cube, for instance a regular square cube (having six sides) or an octagone having two parallel hexagonal sides and between said sides six square sides, or as a ball having regular hexagonal sides.

Further characteristics and advantages of the invention will be evident from the following detailed specification in which reference will be made to the accompanying drawings of preferred embodiments of the clothes hanging system of the invention.

In the drawings figure 1 is a perspective view of a bar element and figure 2 is a perspective view of a coupling element. Figure 3 is a top plan view of a bar element without a coupling element, and figure 4 is a corresponding top plan view of a bar element including a coupling element. Figure 5 diagrammatically shows a bar element used as a post and having six gallow arms mounted spaced round the post. Figure 6 is a cross section of an arm which is hook-connected in a cross slot of the post, and figure 7 diagrammatically shows a clothes rack composed of several units.

The illustrated clothes hanging system generally comprises a bar element 1, a coupling element 2 and support means 3, for instance a support plate 4 or a roller stand of known type (not shown in the drawings). The bar elements and the coupling elements are adapted to be joined so as to give a clothes stand the form and size of which can be varied within wide ranges.

The bar element 1 is made of a tube profile having a polygonal cross section form, in a preferred embodiment the bar element is made of a hexagonal profile 5 which is along all sides formed with a large number of cross slots 6 in which arms 7 (figure 5), hooks or any other means can be hook-connected in an optional position. At both ends the bar element is formed with a coupling plate 8 which is preferably circular and which has a slightly larger diameter than a circle circumscribing the profile 5. The plate is formed with six evenly spaced through bores 9 each of which may be provided straight in front of the centre of a side of the profile.

For connecting bar elements on line following each other or at an angle to each other the system comprises coupling elements 2 which, in the embodiment shown in figure 2, is a regular hexago-

nal cube having a square side, and in which each side 10 is formed with six evenly spaced bores 11, which, with respect to the location and size, correspond to the the bores 9 of the bar coupling plates 8. A coupling element 2 which is screw connected to a coupling plate 8 of a first bar element thereby offers the possibiity of conneting a second bar element, or several further bar elements, in five different positions in relation to said coupling element 2, namely on line with the first bar element or in four different positions at right angles thereto, said positions being at an angle of 90° to each other in the horizontal plane, as best shown in figure 7. At the same time each coupling element 2 can be mounted in six different angular positions on a coupling plate 8. This means, in practice, that said each coupling element is mounted rotated in three mutual positions. In figure 4 one such position is marked with full lines and a second, rotated position is shown with dotted lines.

The coupling element can have more than six sides. It may for instance be an octaeder having two parallel hexagonal surfaces and two square sides therebetween, and this allows a connection of the bar element in six various positions in the horizontal plane, each position rotated 60° in relation to the adjacent positions.

In order to get a good stability of a post 1 it may be mounted on a support plate or a bottom plate 3 as shown in figure 1, or it may be formed with a roller stand of any known type. This is in particular suitable in case the apparatus is to be utilized as a post stand having gallow arms 7.

The joining of a coupling plate 8 and a coupling cube 2 can be made by means of a screw-nut connection engaging at least three of the cooperating bores 9 of the coupling plate 9 and the bores 11 of the cube 2. In structures which need to have a great stability and strength said screw-nut connection preferable is mounted in all six cooperation bores 9 and 11. For the said connection it is also possible to use simple pin elements which can be mounted without the use of any tool.

As shown in figure 6 the arms 7, the hooks or the consoles etc. can be formed with a connection hook 12 of known type which is introduced in a slot 6, whereupon the arm 7 is fold down until the console with a part 13 thereof is in contact with the hegagonal profile between two slots 6. The arms 7 can be formed as desired, for instance so as to extend in the horizontal plane at right angle to one side of the profile, but is may as well form an angle to the horizontal plane, either in the direction upwards or in a direction downwards from the connection slot 6. A suitable shape of the arms is the one shown diagrammatically in figure 5 or figure 7. In figure 5 it is indicated that clothes 16, by means of several gallows, are hanged on the outer angular portion 17 of the angle arms 7.

The number of slots may be varied as desired and the bars may be formed with any number of arms connected on any side of the hexagonal profile 5 and on any desired vertical level and with two or more arms above each other.

The bar elements can be made in any suitable

standard lengths, for instance 500 mm, 750 mm, 1000 mm, 1500 mm, or, as in a tested system, in standard lengths of 1300 mm, 1700 mm, 1950 mm and 2500 mm resp. For carrying or supporting free hanging clothes hanging bars, as indicated with the bars 14 and 15 of figure 7, wires 18 and 19 resp. can be connected to the top coupling plate of an upwardly projecting part of a vertical post.

It is obvious that the bar elements can be made of a tube profile having any other polygonal cross section form than the hexagonal form described above, for instance an octagonal cross section form, even if the hexagonal profile is a simple profile which is useful for many purposes.

It is obvious from the above that the clothes hanging system according to the invention can be varied and combined in many different ways, and that the clothes hanging system within very wide ranges can be adapted to the intended field of use and according to the place and premises in which the clothes hanging rack is intended to be used. It is also obvious to the expert that the above described and shown embodiments are only illustrating examples, and that many different modifications and variations may be presented within the scope of the appended claims.

Reference numerals

	1 bar element
	2 copuling element
	3 support means
	4 support plate
	5 hexagonal profile
	6 cross slot
	7 arm
	8 coupling plate
	9 bore
	10 side (of 2)
	11 bore
	12 connection hook (of arm 7)
	13 part (of arm 7)
	14 bar (free hanging)
	15 bar (free hanging)
	16 clothes
	17 angle portion (of 7)
	18 wire
	19 wire

Claims

1. A constructable clothes hanging system comprising standard units in the form of bar elements (1) and coupling elements (2), in which the bar elements in cooperation with the coupling elements, are designed for being joined in many different formations on line with each other and at angles to each other thereby providing an optionally large, high and voluminous clothes hanging rack on which consoles, clothes hanger arms (7) or any other means can be mounted in many different positions, **characterized** in that the bar elements (1) are

intended to be used as vertical posts and as horizontal rack bars, that the bar elements at the ends thereof are formed with connection means, for instance coupling plates (8) on which the coupling elements (2) are adapted to be connected and be used as intermediate elements between two or more bars (1), and in that the bars (1) are formed with a large number of cross slots (6) in which arms (7), consoles, hooks and other means can easily be hook-connected in an optional position, and which arms or similar means can be used for hanging of for instance gallows.

2. Clothes hanging system according to claim 1, **characterized** in that the bar elements (1) are of different standard lengths, so that optionally large and high hanging systems can be built free-standing or with the bar elements (1) connected to each other.

3. Clothes hanging system according to claim 1 or 2, **characterized** in that the bar elements (1) have a polygonal cross section form, preferably a hexagonal cross section form, and that the coupling plates (8) at each end of said bar elements are formed with six through bores (9) or similar means evenly spaced over the plate for enabling a connection of the coupling elements (2).

4. Clothes hanging system according to claim 3, **characterized** in that the coupling plates (8) and the ends of the bar elements (1) projects sideways outside the bar element, and in that the through bores (9) are provided in the part of the coupling plates located outside the bar element.

5. Clothes hanging system according to any of the preceding claims, **characterized** in that each coupling element (2) is formed as a polyeder which at each side has coupling means (11) completely coinciding with the coupling means (9) of the coupling plates (8), so that a coupling element (2) can be mounted in several different angles and positions in relation to the bar element (1).

6. Clothes hanging system according to claim 5, **characterized** in that the coupling element is a regular cube (hexaeder) having six square sides (10).

7. Clothes hanging system according to any of the preceding claims, **characterized** in that vertical bar elements (1) standing on the floor or on the ground are mounted on support plates (3) or roller stands having a larger support surface than the coupling plate (8).

8. Clothes hanging system according to claim 1, **characterized** in that the arms (7) are angularly bowed in the horizontal plane, and that the outer angle portion (17) thereof is used as a carrier for gallows (16) or similar means.

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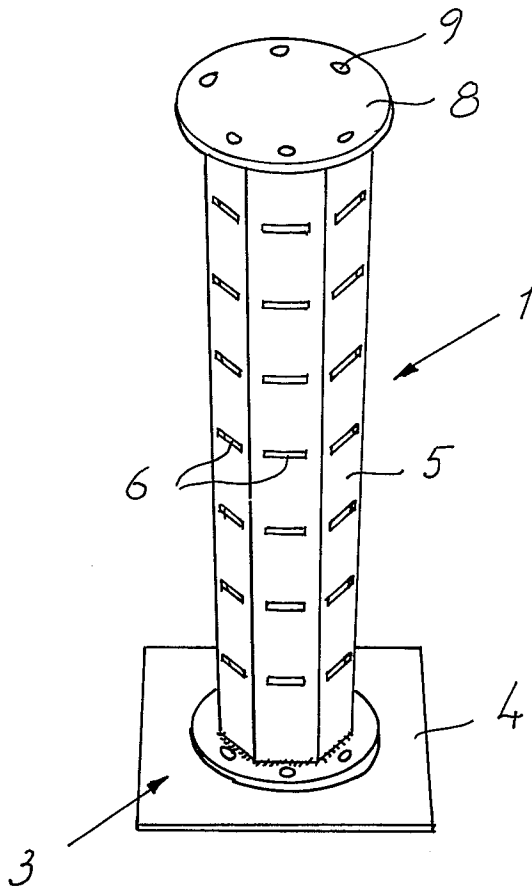


Fig. 1

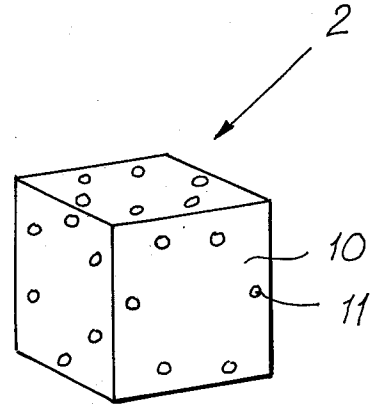


Fig. 2

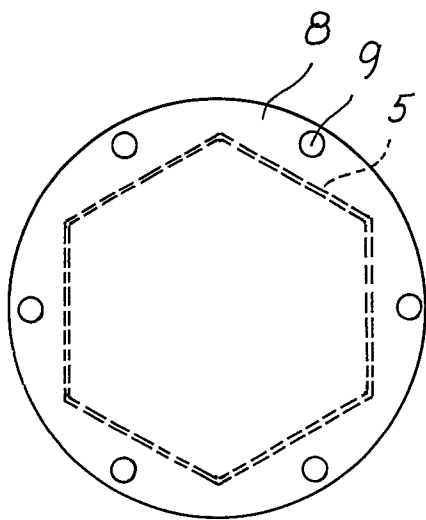


Fig. 3

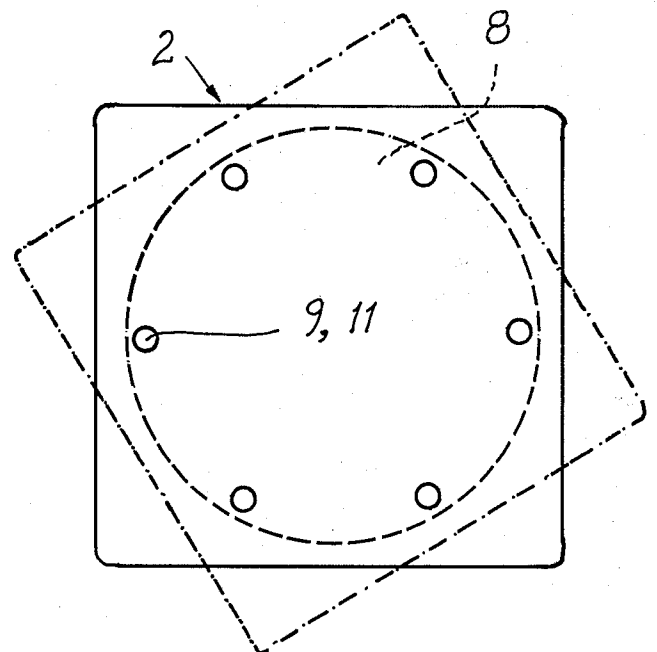


Fig. 4

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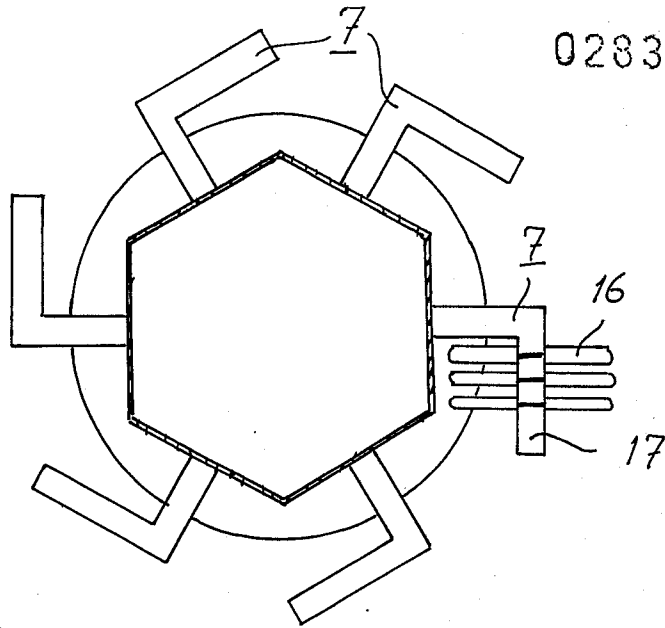


Fig. 5

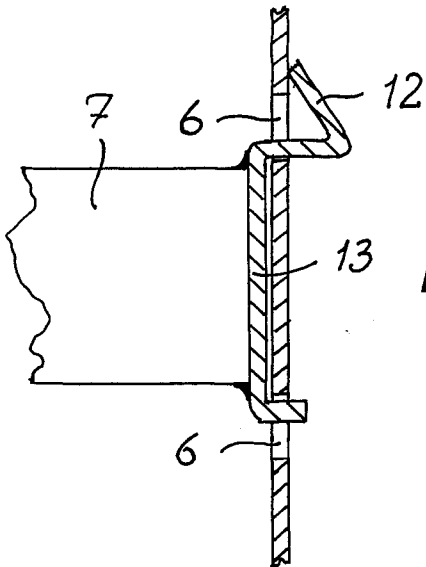


Fig. 6

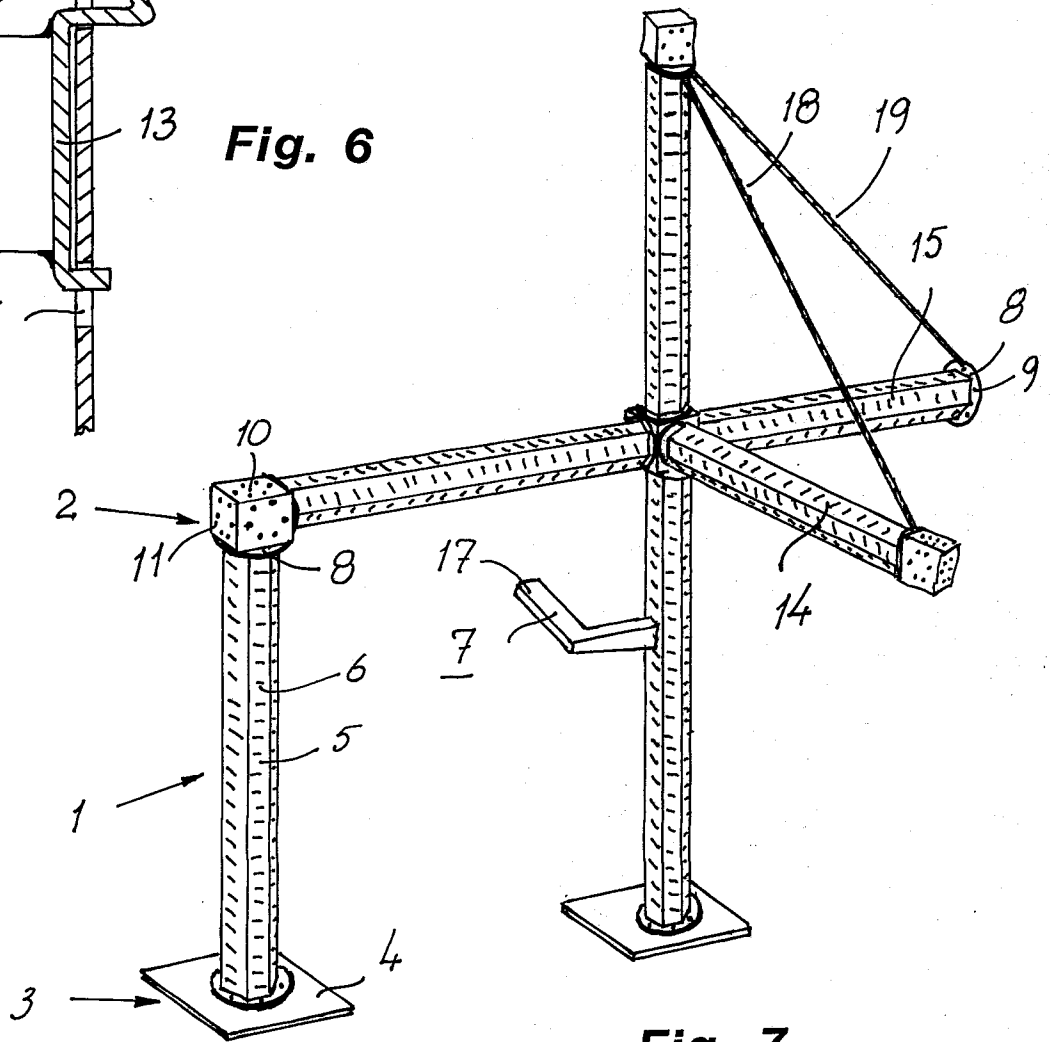


Fig. 7



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y A	FR-A-2 196 770 (FRANC) * Figures 1-4 * ----	1 2,7	A 47 F 7/24
Y A	FR-A-2 212 753 (VERKAUFSBÜRO DEINES) * Figures 6-9 * ---	1 3,4,7	
A	FR-A-2 534 794 (ENFI DESIGN) * Figures 7-10 * -----	1,7,8	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 47 G A 47 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-06-1988	Examiner BEUGELING G.L.H.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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