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(54) Support structure for wine barrels

(57) The support structure consists of four saddle pieces (1), which may stand directly on the floor or joined to other supports in a stacking arrangement, each of which saddle pieces is joined to a framework comprising two lower diverging tubes (6), which, as well as forming part of the support's load bearing structure, act as support elements on which the barrel (7) is rested, and likewise comprising two upper, vertical tubes (10), acting as spacers between supports when in a stacking arrangement; said frameworks are linked in pairs, in a lateral, coplanar fashion, such that the two front, joined frameworks, are joined to the rear pair by means of crosspieces (12). The saddle pieces (1) feature openings (2) through which may be inserted the prongs of a forklift truck and, on their lower part, receptacles (3) tapering upwards, with an opening on their lower face, designed to fit onto the vertical tubes (10) when several supports are stacked upon each other, enabling the self-centering of same.

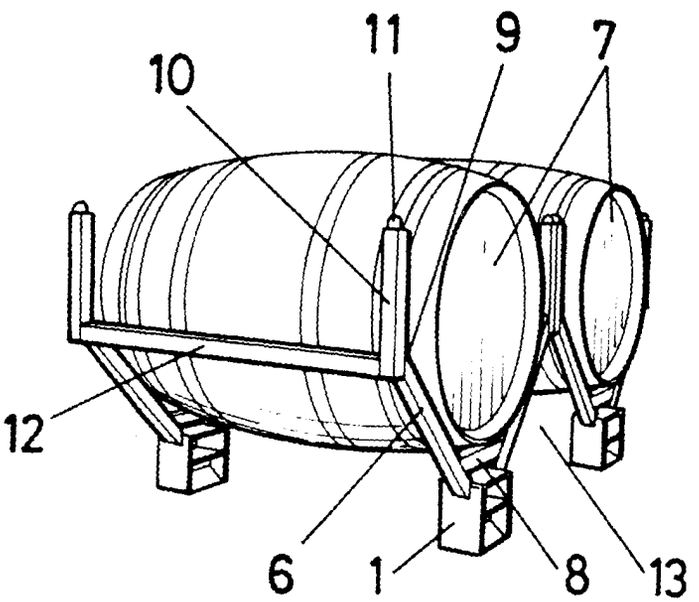

FIG.3

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a support structure for barrels, specially devised for application in large wine cellars, to enable the stacking of same, resting in a stable horizontal position, without said barrels having to withstand the weight of those stacked above them, since the support structure has a modular configuration, and is essentially designed to support two barrels arranged collaterally, such that only the support structures, coupled together when stacked, take the weight above them, while the barrels only support their own load.

[0002] The object of the invention is to achieve a maximum structural simplification of said support structure, with the attendant cost savings, without impairing its functional performance; it allows the handling of the supports with a forklift truck or similar equipment to stack and unstack the support structures; it provides for perfect stabilisation of the barrels and a quincunx arrangement, once the support modules have been coupled together after assembly inside the cellar, thus providing optimum access to any of the barrels.

BACKGROUND OF THE INVENTION

[0003] In large cellars, the ageing of wines in barrels involves stacking same in a horizontal position, i.e., with their bases in a vertical plane, such that the lowest row of barrels rests on the floor between parallel beams with a number of chocks suitably placed to prevent any sideways movement, thus achieving the stable positioning of the barrels.

[0004] The next row has the barrels resting between the barrels in the lower row, in a quincunx arrangement, using wooden chocks to keep them in position. The barrels are thus stacked up to as many rows as required, with the obvious limit of the height of the cellar.

[0005] This stacking system, commonly used in large wine cellars for ageing wine, entails a number of problems and disadvantages, namely:

- Little safety in the stability of the barrels, since such stability is achieved only by means of the wooden chocks, and should these 'fail', this would result in the barrels rolling sideways, which would cause the whole stacked arrangement to collapse. This constitutes a safety hazard for any workers present inside the cellar at the time, and would entail a considerable financial loss.

- Barrels stacked in rows resting on each other are difficult to handle.

- The barrels in the lower rows must withstand the weight of all the barrels above them. Barrels are evidently constructed taking into account their intended use and the weight of their contents when full. Therefore, barrels are normally not made to withstand great weights and hence stacking, as described above, may cause deformation and even damage to the barrels.

[0006] Wishing to solve this problem, the applicant is the holder of the Spanish patent number U9801070, consisting in a support for barrels with a rectangular structure, consisting of longitudinal and transverse sections, onto which are fitted a number of rods for resting the barrels. From this structure, which constitutes the base of the support, there emerge a number of struts or columns from each of its vertices, which constitute the spacing elements for the platform or structure immediately above it in the arrangement of stacked supports and hence stacked barrels.

[0007] According to this design, the struts or columns between the various superimposed support structures are in vertical alignment, and so are the barrels. Therefore, if the most efficient use is made of the available space, the barrels in the various superimposed levels are very close to each other, thus making access to same very difficult, both for the purpose of regular cleaning and for the regular transfer of the wine in a barrel to a barrel below, since access to their openings is dramatically reduced due to their proximity. This means that, in order to perform such handling operations, the barrels must be temporarily unstacked, which is a very costly procedure.

[0008] European patent with application no. 99500085.8, also submitted by the present applicant, describes a support for wine barrels which satisfactorily solves the problem described in the foregoing paragraphs, by means of two intermediate struts, fitted to the middle point of the longer sides of the rectangular support structure, i.e. the front and back sides. This enables the supports to be stacked in an overlapping arrangement, such that any support is positioned astride two supports in the lower row, and hence the rows of barrels also overlap, in quincunxes, such that any one barrel has over it the space between the two barrels immediately above it, which provides optimum access for the former barrel.

[0009] However, the structure of this support, consisting of a base structure made up of longitudinal and transverse sections forming a rectangular base from which there emerge six vertical struts and fitted, both on the front and rear parts, with a number of rods suitably arranged to prevent rolling of the barrels when resting on the platform, is a complex, and therefore costly structure which, furthermore, impairs access to the barrel, since the aforesaid platform is positioned transversally and immediately above the barrels under it.

DESCRIPTION OF THE INVENTION

[0010] The barrel support featured in the present invention, while retaining the advantageous features of the structure described in European patent 9500085.8, has been substantially simplified from a structural viewpoint and at the same time improved from a functional viewpoint, with the attendant advantages as regards cost and handling.

[0011] Specifically, said support comprises four saddle pieces, essentially prismatic-quadrangular in shape, featuring on their upper part a transverse opening to accommodate the prongs of a forklift truck or similar device, and on the lower part a downward-facing receptacle for matching together with another support to form a stacking arrangement. There emerges from each saddle piece a framework of tubes made of metal, like the saddle piece, which framework consists of a lower inverted isosceles trapezoidal part, of suitable dimensions to accommodate the corresponding extremity of the barrel, resting on the middle part of the side sections, and an upper part, consisting of two struts emerging from the ends of the trapezoidal part, parallel to each other and vertically oriented when installed, which allow the barrels to move freely to their resting position and act as spacers between supports; they likewise feature on their free end a rounded shoe piece for inserting in the lower receptacle of the saddle piece of the support immediately above .

[0012] Said lower receptacle of the saddles tapers upwards, for example with a dihedral profile, and its mouth is of considerable dimensions. Thus, this special configuration facilitates the handling of the support, for example with a forklift truck, since there is no need to achieve perfect alignment when stacking the various supports; one only has to position the upper end of each strut within the catchment area of the corresponding saddle piece, such that when the upper support is lowered, it will 'centre' itself on the lower one.

[0013] The whole support assembly comprises four frameworks, corresponding to the four saddle pieces: two on the front part, linked together by means of their adjacent struts, for example by welding, and two on the rear, fitted in the same manner. The pair of front frameworks is joined to the rear ones by means of cross pieces fitted to the area where the trapezium-shaped parts are joined to the upper struts.

[0014] By means of this arrangement, the saddle pieces of the support structure provide a perfect base for standing on the ground, as well as a matching coupling with other supports in the stacked arrangement. The barrels rest directly on the frameworks which form part of the support structure, without any need for any additional devices for this purpose, and the formerly used base platform is done away with, since it is the very elements which hold or stabilise the barrels that essentially constitute the structure of the support, thus providing improved access to the upper part of each barrel.

DESCRIPTION OF THE DRAWINGS

[0015] By way of a supplement to the present description, in order to provide a clearer understanding of the characteristics of the invention, following an example of the preferred embodiment of same, a set of drawings is included, forming an integral part of said description, which represent the following, by way of illustration, with no restrictive intent:

[0016] Figure 1.- Shows a front elevation view of a barrel support designed in accordance with the object of the present invention.

[0017] Figure 2.- Shows a side elevation view of the same support.

[0018] Figure 3.- Shows a perspective view of the support featured in the previous figures, in this case supporting two barrels.

[0019] Figure 4.- Shows a lower plan view of one of the saddle pieces making up the support.

[0020] Figure 5.- Shows a cross-section of the saddle piece featured in the previous figure, along the line A-B in said figure.

PREFERRED EMBODIMENT OF THE INVENTION

[0021] Upon examination of these figures, it becomes apparent that the barrel support described by the present invention comprises four saddle pieces (1), with an essentially prismatic-rectangular shape, featuring a wide upper opening (2), of suitable dimensions to enable it to easily accommodate the prongs of a forklift truck in order to handle the whole support assembly, with or without load; on each saddle piece (1), below the aforesaid opening (2), there is a receptacle (3), with an opening on its underside and tapering upwards, defined, for example, by a number of inner walls (4) forming the lateral surfaces of a quadrangular pyramid. The specific purpose of said pyramid-shaped receptacles (3) in the saddle pieces is to ensure the correct centering of the supports when these are stacked on top of one another, thus ensuring that they are suitably stabilised in a transverse direction.

[0022] Each saddle piece (1) is joined, on its upper base (5) to a framework consisting of two lower tubes (6) diverging upwards, which make up the first section, having an invented isosceles trapezium shape, of suitable dimensions to accommodate the corresponding end of the barrel (7), such that said barrel rests tangentially on the middle part of the aforesaid tubes (6), which may be reinforced in their lower part by means of a crosspiece (8), and whose upper ends (9) have a spacing slightly greater than the maximum diameter of the barrels (7) for which the support has been designed; onto the upper end (9) of the diverging tubes (6) are fitted other tubes (10) which rise vertically, parallel to each other, having at their free end a rounded appendix (11), such that these vertical tubes (10) act as spacers in the barrel stacking arrangement. For such a purpose, these

tubes must be of a suitable length so that, together with the height of the saddle pieces (1) the supports, and hence the barrels, are stacked with a suitable vertical spacing between them.

[0023] Each saddle piece (1), with its framework (6-10) is fitted in a coplanar fashion to another identical assembly, since the support is designed to accommodate two barrels (7), and these two frameworks with their saddle pieces, located, for example, at the front of the support, is joined to another pair of frameworks at the rear, by means of a number of crosspieces (12) suitably fitted onto the angle points (9) of said frameworks, the length of the crosspieces being approximately the same as that of the longitudinal axis of the barrels (7), such that the barrel ends may rest on the respective frameworks (6).

[0024] Such a design provides a support structure with four saddle pieces (1), which may be resting directly on the floor, providing perfect stability to the support structure and its load, and further enabling the easy stacking of said supports, by coupling the free upper end of the vertical tubes (10) with the saddle pieces (1) of the supports on top of them, which saddles have openings of great size and provide for perfect self-centering, thanks to the receptacles (3) in the saddle pieces having the shape of a truncated pyramid or another similar shape, as well as perfect transverse stability, since the supports fit in an transversally overlapping arrangement, which leads to the same overlap between adjacent rows of barrels (7) such that there is optimum access to the upper part of each barrel, not only because of its being laterally offset relative to the barrels immediately above, it, but also because the actual support does not hinder access to said upper part of the barrel, which is left essentially clear, thanks to the shape of the support structure and more specifically the wide triangular space (13) between each pair of frameworks (6) of the support.

Claims

1. A support structure for wine barrels, specifically designed for application in large cellars for holding wine ageing barrels, featuring a structure whereby a single support structure accommodates two barrels, which barrels will be arranged in quincunxes when the various supports are stacked upon each other; said structure is characterised by comprising four saddle pieces (1) for resting on the ground or on other supports, onto each of which there is joined a framework comprising two lower tubes (6) clearly diverging upwards, and two upper or end tubes (10) perpendicular to the plane on which the saddle pieces (1) are resting; every pair of these frameworks (6-10) forms a coplanar arrangement, with the frameworks linked together by means of the adjacent vertical tubes (10), while the other pair of frameworks is located in a plane parallel to the former one, and linked to the other pair by means of a number of crosspieces (12) considerably shorter in length than the longitudinal axis of the barrels, while the inclination of the diverging tubes (6) of the various frameworks is such as to ensure that the barrels (7) rest on the middle part of same, their length being such that the spacing between the upper tubes (10) is large enough to enable the barrels (7) to be introduced between them and rested on the suitable support elements.

2. Support structure for wine barrels, as per claim 1, characterised by the fact that each saddle piece (1) is essentially prismatic-rectangular in shape and features on its upper part a wide opening (2) through which can be inserted the prongs of a forklift truck or a similar device, and on its lower part a receptacle (3), open at its bottom part and tapering upwards, preferably with a pyramid shape, which receptacle (3) is intended to accommodate the free end of the vertical tubes (10) when the various supports are stacked upon each other; for this purpose, said vertical tubes (10) are provided at their free ends with rounded protuberances (11) which fit in the bottom of the receptacles (3).

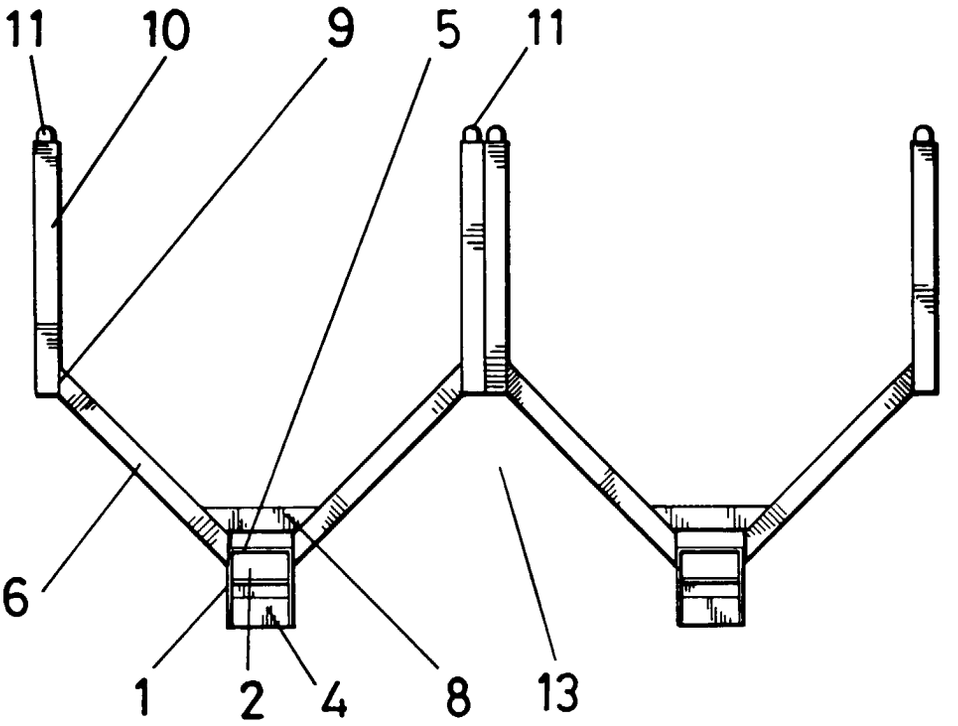


FIG.1

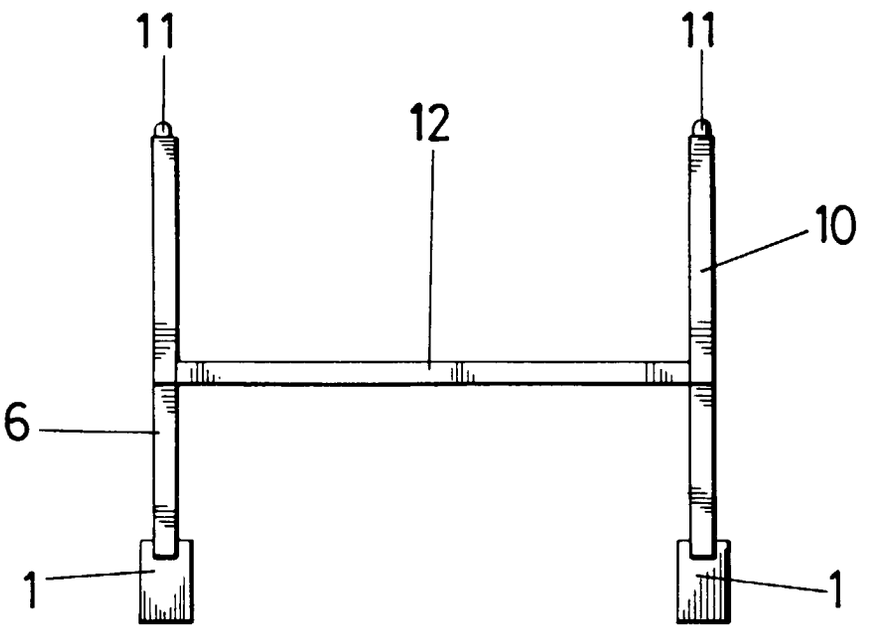


FIG.2

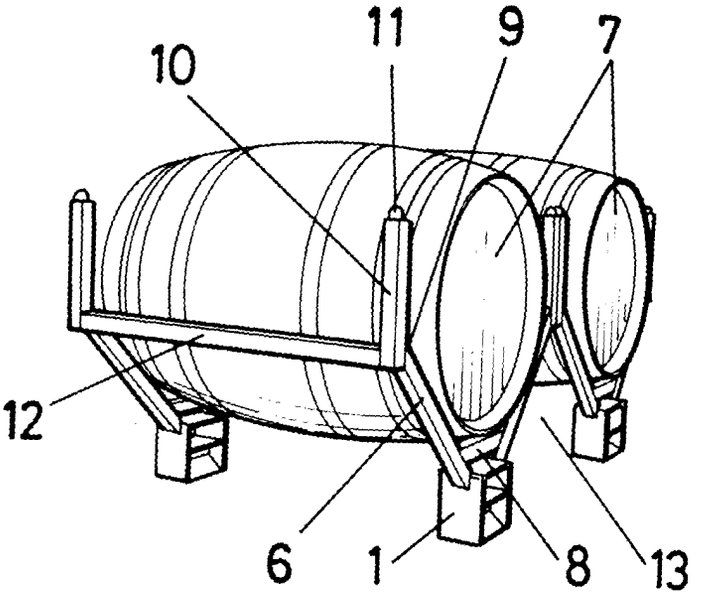


FIG.3

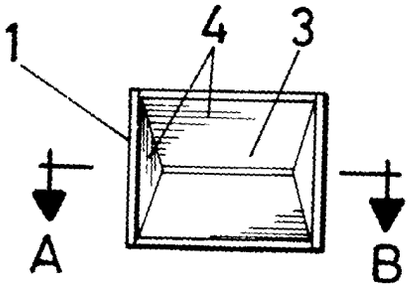
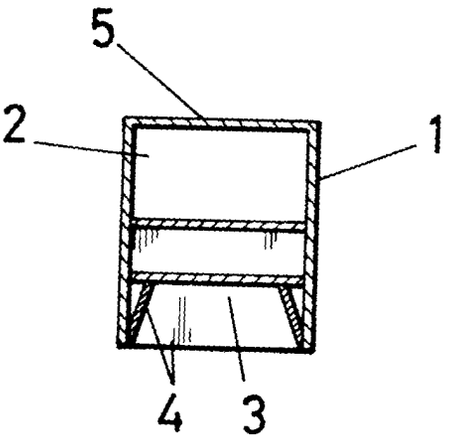


FIG.4



A-B

FIG.5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 50 0111

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.7)
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 November 1999	Jones, C

CATEGORY OF CITED DOCUMENTS

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