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[54] CORNER POST SUPPORT, PREFERABLY FOR LOAD PALLETS

10 Claims, 4 Drawing Figs.

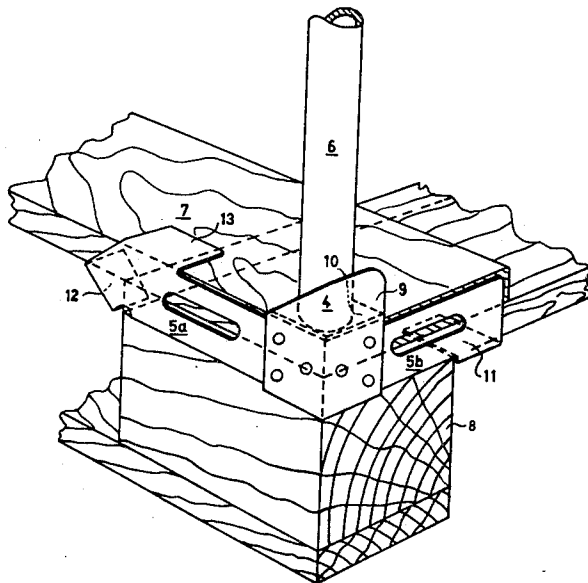
[52] U.S. Cl..... 108/53
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[50] Field of Search..... 108/51-
—58; 248/222, 300

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ABSTRACT: A detachable corner post support for a load pallet. A bracket is bent at an angle to fit against the two vertical sides of the pallet which form the corner, and the bracket extends above the load supporting surface of the pallet. A corner plate attached to the inside of the bracket lies against the top of the load supporting surface and forms with the inside of the bracket a three-sided mounting for a corner post. Two attachment wings are attached to the bracket and extend one along each of the vertical sides which form the corner and in a direction away from the corner. Hook-formed elements extend from each wing inwardly beneath the load supporting surface and generally perpendicular to its respective vertical side, each hook-formed element engaging a side of the corner foot of the pallet which lies at an angle to its respective vertical side. The hook-formed element of at least one attachment wing is movable out from its position perpendicular to its respective vertical side to facilitate assembling the corner post support onto the pallet.



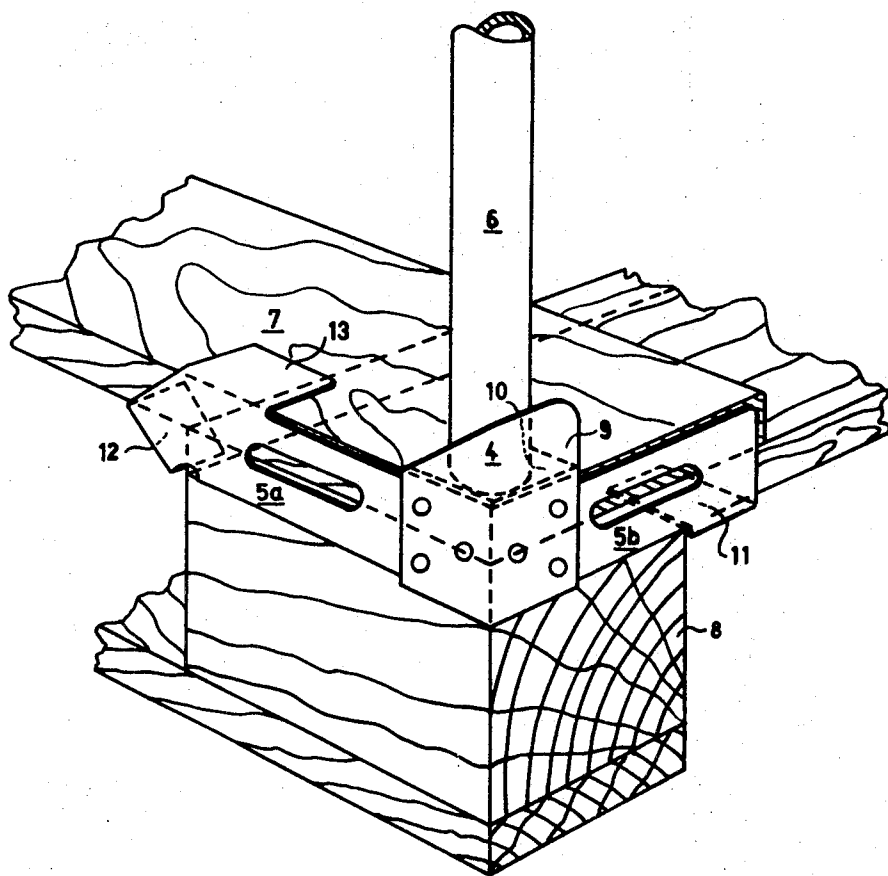


FIG. 1

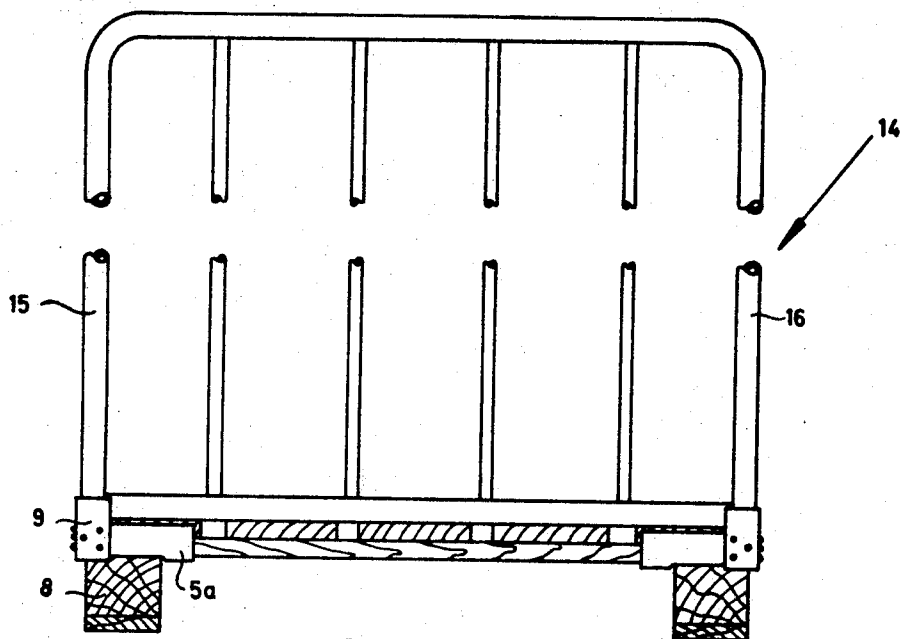


FIG. 2

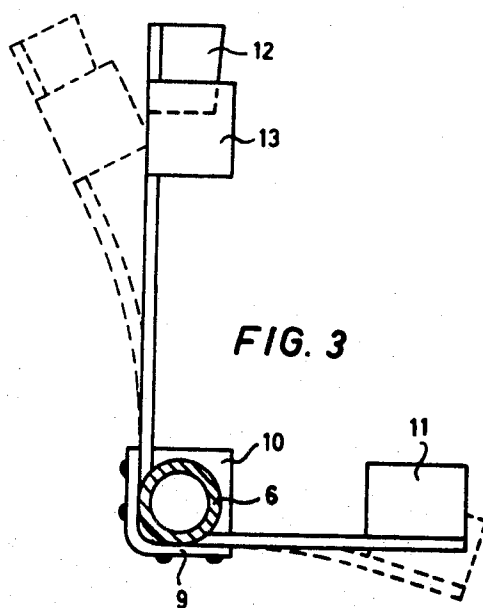


FIG. 3

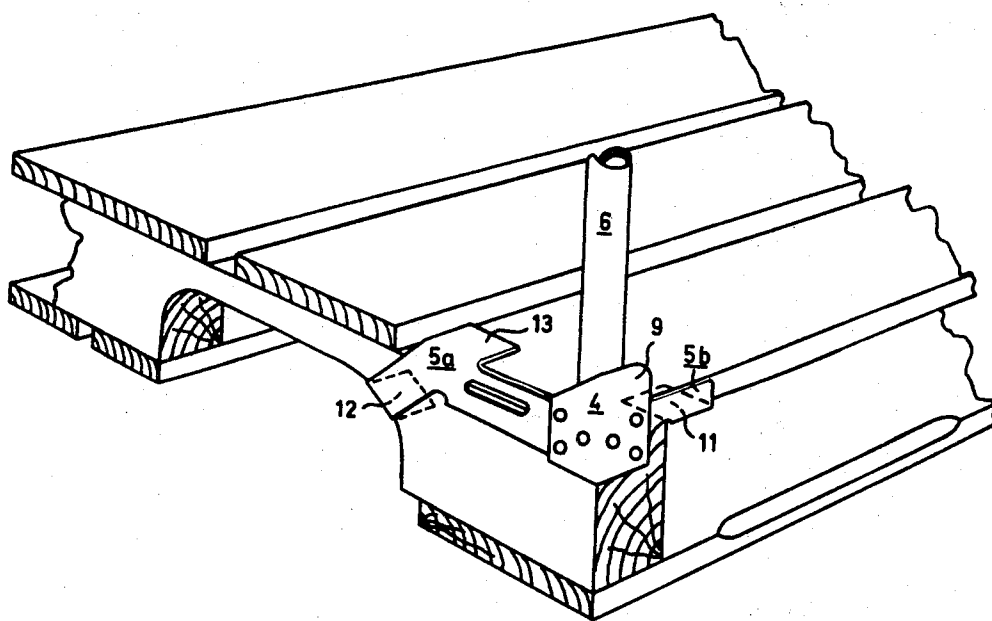


FIG. 4

CORNER POST SUPPORT, PREFERABLY FOR LOAD PALLETS

The present invention refers to a corner post support preferably for load pallets having corner feet, comprising a corner fitting formed as a vertical angle member adapted to rest against the vertical sides of the load pallet corners and a horizontal corner member fixed attached to the angle member and being adapted to rest against the upper side of the load pallet and a mounting plate attached to each side of the angle member of the corner fitting.

A corner post support of the kind mentioned may be used for various purposes, but the corner post support according to the present invention will in the following for the sake of simplicity substantially only be described with reference to an embodiment thereof intended to be used in combination with a load pallet of the well-known kind including a load platform having feet mounted in the corners at the underside thereof.

Corner post supports of this kind mentioned are previously known, which are formed with a horizontal corner plate adapted to rest against the upper side of the load platform and downwards extending side plates connected to said corner plate and each being adapted to rest against one side of the load pallet corners. One of said downwards extending side plates used to be formed with a hook-formed means at its end turned away from the corner for fastening the corner post support to the load pallet in one direction, said hook-formed means in attaching the corner post support to the load pallet being hooked behind the foot of the load pallet or some recess thereof, whereby the corner post support is secured for instance in the longitudinal direction in relation to the load pallet.

A securing of the corner post support in the transverse direction in relation to the load pallet has thereby not been obtained, and this fixation has at common hitherto known arrangements been established by the corner supports two and two being transversally interconnected by means of solid bars, lattice ends, end plates or the like. In order to get a firm attachment in the transverse direction of the load pallet said ends have usually been so formed and so mounted to the corner post support that said supports have only to a small extent been movable to and from each other seen in the transverse direction of the load pallet.

This lends to the essential disadvantage that such a combination of corner post supports and a pallet end have not been adaptable to load pallets of various widths and lengths respectively, and the manufacturer has consequently been forced to keep a very great assortment of at least side ends in order that the arrangement might be used for most of the common sizes and types of load pallets.

A further essential disadvantage with said previously known arrangement is that the load pallet has not been applicable for the transportation of goods being longer than the average distance between two opposite ends of the load pallet or the extension in the horizontal plane of which in any other way exceeds the average distance between two or in occurring cases four lattice and side ends respectively connected to each other.

Corner fittings and pallet ends are fairly expensive in relation to the load pallet itself, and after the transportation it is therefore often necessary to send the corner fittings and the pallet ends and the side ends respectively back to the manufacturer or the seller of the transported goods, and it is consequently often a need that the corner fittings and pallet ends should be easily disengagable from the load pallet. Also at the return—transportation of emptied load pallets it is a need for space-saving purposes that the pallet ends or the corner fittings are disengagable from the load pallet so that they might be transported lying planely on the load pallet. In order that the corner fittings of the kind mentioned might be transversally put into engagement with the load pallet so that the hook-formed members will come into engagement with the foot of the load pallet or some recess thereof it is necessary that the pallet ends either be so formed that they might be

somewhat stretched in the transverse direction, so that the hook-formed members of the corner fitting may pass outside the load platform, which will make the arrangement far more expensive or so that the pallet ends at the attachment of the corner fittings may be unfastened therefrom, which in turn will give complicated and expensive attaching means between the pallet ends and the corner fittings.

The present invention is intended to remove the above mentioned inconveniences and disadvantages of the previously known arrangements and to provide a disengagable corner post support preferably for load pallets of said previously known kind, which corner post support will make the transportation possible of goods being longer and/or wider than the load pallet itself, which is easy and cheap to manufacture, which will give a good and firm joint between the load pallet and its corner post, and at which the corner fittings might with very simple means be disengagable from the load pallet itself also when they are two and two interconnected by means of pallet ends and side ends respectively.

Further characteristics and distinctions of the invention will be evident from the following detailed description and from the accompanying drawings.

The invention will thus be described in respect to a preferred embodiment thereof with reference to the accompanying drawings. Of the drawings;

FIG. 1 is a perspective view of a corner post support according to the present invention mounted to a corner of the load pallet.

FIG. 2 is a vertical projection of a load pallet provided with corner fittings being two and two interconnected by solid pallet ends.

FIG. 3 schematically indicates the method of mounting a pallet end having corner fittings showed in FIG. 2.

FIG. 4 finally shows a somewhat modified embodiment of the corner post support according to FIGS. 1—3 adapted to be mounted to a corner of a load pallet not having corner feet.

The corner post support showed in the drawings comprises a corner fitting 4 having attachment wings 5a and 5b connected thereto and a corner post 6 carried by the corner fitting. The corner post support is intended to be mounted to for instance a load pallet of the well-known kind having a load platform made of wood, in FIG. 1 indicated by the reference number 7 and the corner feet 8 in the corners at the underside thereof.

The corner fittings 4 includes an angularly bent bracket 9 forming two angularly to each other standing, vertical sides and being intended to project somewhat above the upper side of the load platform 7 when the corner post support is mounted to the corners of the load pallet. In the same plane as the upper side of the load pallet the corner fitting includes a horizontal corner plate 10 attached to the inside of the angle bracket 9 in the same plane as the upper side of the load platform 7, so that the corner plate 10 will form a carrier plate for the corner fitting against the load pallet in the vertical direction.

At the corner formed by the two inner sides of the angle bracket 9 and the upper side of the corner plate 10 the corner post 6 is mounted to the corner fitting. Said mounting maybe effected in any suitable way, for instance by welding. Due to the fact that the bracket 9 preferably extends somewhat above the upper side of the corner plate 10 it will form a support for the corner post 6 in two directions, whereby said corner post 6 becomes firmly connected to the corner fitting 4. The angle bracket 9 is of such a height that it extends so far downwards, that the height thereof located below the upper side of the load platform 7 is at least as large as the height of the load pallet located above the pallet foot. The attachment wings 5a and 5b are in any suitable manner, for instance by means of rivetting attached to the part of the angle bracket 9 located under the upper side of the load platform. For the purpose of identifying the attachment wings one wing 5a will below be called the longitudinal attachment wing, while the other attachment wing 5b will be called the transverse attachment

wing, with what is meant that a wing 5a runs, parallel to the longitudinal direction of the load pallet and the wing 5b parallel to the transverse direction of the load pallet. The two attachment wings are of a height substantially corresponding to the height of the part of the load pallet located above the load pallet foot, and the two attachment wings are of a length to such an extent exceeding the length and the width respectively of the pallet foot, that there is a possibility of hooking the hooking means at the outer ends of the attachment wings to each one side of the pallet foot.

The transverse attachment wing 5b has a hook 11 running in the longitudinal direction of the pallet and at right angle to the attachment wing 5b itself, and said hook 11 is positioned at such a distance from the corner fitting 4, that it will firmly seize hold of the inner longitudinal side of the pallet foot 8. The attachment wing 5b preferably has a height not exceeding the height of the part of the pallet located above the pallet foot 8, and the under edge thereof preferably runs in flight with the underside of said part of the pallet. The hook 11 preferably formed of the same piece as the rest of the attachment wing 5b and it might thereby be formed as a tongue extending from the under edge of the attachment wing 5b and having been bent at an angle to said wing so as to run substantially parallel to the under edge of the wing.

The attachment wing 5a is of substantially the same height as the wing 5b and is likewise formed with an inwardly bent hook 12 provided at such a distance from the corner fitting 4 that it will firmly seize hold of the inner transverse side of the pallet foot 8. Generally load pallets are so formed, that the height of the load platform 7 at the part of the pallet, where the hook 12 seizes hold of the pallet foot is smaller than its corresponding height at the hook 11 of the transverse attachment wing 5b, and in this case the hook 12 of the longitudinal attachment wing 5a is preferably provided at such an angle to the transverse vertical plane, that an edge of the hook 12 will seize hold of the short end of the pallet foot 8, while another edge of the hook 12 will rest against the underside of the load platform 7. The longitudinal attachment wing 5a is close to or at the end thereof turned away from the pallet corner provided with a support tongue 13 extending from the upper end of the wing and being bent into horizontal position so as to fairly firmly rest against the upper side of the load platform 7. Further to the two hooks 11 and 12 seizing under the pallet platform 7 the corner post support thereby gets two further spaced vertical supporting means embodied by the corner plate 10 and the support tongue 13, and this effectively contributes to a further stabilizing of the corner post 6.

For the purpose of making the corner post support disengagable from the load pallet at least the longitudinal attachment wing 5a is made of a springy material, so that the wing 5a in disengaging the corner support from the load pallet or mounting same to the pallet might be bent so far outwards, that the hook 12 may run freely outside the pallet foot 8 in the longitudinal direction thereof.

The mounting of a corner post support might thereby be so effected, that the longitudinal attachment wing 5a is bent outwards in the above mentioned way, and the arrangement is then being moved in the longitudinal direction of the pallet so far inwards over same that the transverse attachment wing 5b comes into engagement with the transverse edge of the pallet and its hook 11 seizes behind the inner longitudinal vertical side of the pallet foot 8. Thereupon the longitudinal attachment wing 5a turned outwards is being left hold of, so that its support tongue will come into engagement with the upper side of the load platform and the attachment hook 12 to engagement both against the inner transverse vertical side of the pallet foot and against the underside of the load platform 7. In a modified embodiment of the invention the longitudinal as well as the transverse attachment wing 5a and 5b respectively are formed of a springy material, and the corner post support may thereby be mounted to the load pallet either in the transverse direction as described above or in the longitudinal direction thereof.

The mounting of the corner post support in the longitudinal direction of the load pallet is being so effected, that the corner post support is being moved against the pallet in the longitudinal direction thereof but at such an angle to the longitudinal horizontal plane, that a hook 11 of the transverse wing 5b might run freely above the upper side of the load platform 7. The longitudinal attachment wings 5a are being bent outwards so as to run freely out of the side edge of the pallet, and the corner support is being moved so far inwards over the load platform 7 that the hook 12 of the longitudinal attachment wing will be completely disposed behind the imaginary vertical line along the short end of the pallet foot 8 turned away from the corner. Thanks to the attachment hook 12 being provided at a certain angle to the horizontal plane the longitudinal attachment wings 5a may now be pushed downwards over the pallet, so that the hooks 12 will seize under the load platform and behind the pallet foot 8. The corner support is then being turned down into horizontal position at the same time as the transverse attachment wings 5 are being bent outwards so as to run freely outside the pallet to be moved inwards under the load platform and behind the pallet foot 8.

In order to obtain a firm mounting it may show suitable to form the hook 12 of the longitudinal attachment wing 5a somewhat converging seen from the connection with the attachment wing 5a, so that a certain wedge effect will arise while moving same into the angle between the pallet foot 8 and the underside of the load platform 7, whereby a firm grasp will arise between said attachment wing and the load pallet.

In FIG. 4, is showed an embodiment of the corner post support, which is slightly modified over the embodiment thereof showed in FIGS. 1—3 and which is adapted to be mounted to a load pallet of the general U.S. standard. Instead of having separate corner feet like the above described "European pallet" the load platform is attached to two or more carrier beams having recesses for facilitating the handling thereof by means of fork trucks or the like. In this case the transverse attachment wing 5b is fairly short so that the hook 11 thereof may closely rest against the inner side of the carrier beam while the hook 12 of the longitudinal attachment wing 5a is closely resting against the recess of the carrier beam in the same manner as at the above described European load pallet. The support tongue 13 also in this case rests against the upper side of the load platform and the same firm mounting will consequently be obtained as at said European load pallet.

In the case that the attachment wings 5a and 5b are made of a stiff or thick material it may be suitable to form same with weakening means for instance in the form of slots provided centrally in the wings and running a short or long distance in the longitudinal direction thereof for facilitating the springy bending outwards of said attachment wings.

If on the other hand the wings are made of an easily bendable material it may shown suitable or necessary to form the wings 5a and/or 5b with stiffening means for instance in the form of noselike upsettings provided substantially at the same places as the above mentioned slots.

A corner post support mounted in the above described manner is braced as well in the longitudinal as the transverse direction of the load pallet, and the pallet may in this way be provided with a separate and disengagable corner post at any corner. The corner posts may be easily disengaged from the load pallet by a simple movement of the hand which involves turning the resilient longitudinal attachment wing 5a outwards and pulling the hook 11 of the transverse attachment wing 5b outwards from the load pallet, and the corner posts may at the return transportation thereof be transported lying upon the pallet, whereby they require very little room.

It is also within the scope of the invention to form the corner post supports so as to be two and two interconnected by means of solid pallet ends, side ends or the like as shown in FIG. 2. The corner posts may also be so formed that a pallet end 14 of the kind showed in FIG. 2 may with the outer tubes 15 and 16 from above be slipped onto the corner posts and being vertically fixed thereto by simple means as for instance split pins.

It is obvious to the man skilled in the art that all kinds of various modifications may occur within the scope of the invention.

I claim:

1. A detachable corner post support for a load pallet of the type having a load supporting surface and at least one corner foot at a corner of the pallet supporting the load supporting surface above the ground, comprising, an angle bracket bent at an angle to fit against the two vertical sides of the pallet which form the said corner and extending above said load supporting surface, a corner plate attached to the inside of the angle bracket to lie against the top of the load supporting surface, the two sides of the inside of the angle bracket and the corner plate forming a three-sided mounting for a corner post, two attachment wings attached to the angle bracket, said wings extending one along each of said vertical sides which form the corner, in a direction away from said corner, a hook-formed element extending from each side said wing inwardly beneath the load supporting surface and generally perpendicular to its respective vertical side of the pallet, each said hook-formed element positioned to engage a side of the said corner foot which lies at an angle to its respective vertical side of the pallet, and wherein a least one of the attachment wings includes a means for moving its said hook-formed element out from its position generally perpendicular to its respective vertical side to facilitate assembling the corner post support onto the pallet.

2. A detachable corner post support according to claim 1, wherein the said means for moving the hook-formed element comprises the construction wherein the attachment wing to which that hook-formed element is attached is formed of a resilient material such that the wing can be swung out from its rest position to facilitate assembling the corner post support

onto the pallet.

3. A detachable corner post support according to claim 1 wherein said hook-formed, elements are positioned to further engage the underside of said load supporting surface when the corner post support is assembled onto the pallet.

4. A corner post support according to claim 1 wherein at least one of the attachment wings is further provided with a support tongue extending toward said bracket to rest against the upper side of the said load supporting surface of the load pallet.

5. A corner post support according to claim 1 wherein the hook-formed, element of at least one of the attachment wings lies in a plane which is oblique with respect to an imaginary vertical plane at right angle to the longitudinal direction of that attachment wing.

6. A corner post support according to claim 1 including a corner post rigidly attached to the corner plate and the two sides of the inside of said angle bracket.

7. A corner post support according to claim 5 wherein the attachment wing having the inclined hook-formed element further includes a support tongue positioned to engage the top of the load supporting surface at a point closer to said corner of the pallet than the said inclined hook-formed element.

8. A corner post support according to claim 2 wherein the resilient attachment wing is partially weakened by a central through slot running in the longitudinal direction of that attachment wing.

9. A corner post support according to claim 2 wherein the resilient attachment wing includes a stiffening means.

10. A corner post support according to claim 2 wherein both of said wings are formed of said resilient material.

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