

A Device for Connecting Accessory Parts to Formwork Panels

The invention relates to a device for connecting accessory parts to forming panels, compensating members and suchlike formwork members having stiffening webs or stiffening profiles on their side averted from the forming surface, the device having a substantially U-shaped cross section, the U-arms having fastening locations for the accessory parts such as booms or the like, and in the position of use the U-crosspiece butting against a stiffening profile of the formwork.

Formwork for circular constructions is known from German Patent Specification No. 33 33 619, in which a chain of ties adjustable in their length is provided on the girders shoring the forming surface, these ties of the chain thereof in each case engaging the girders of the forming panels by way of connecting pieces and having an approximately U-shaped cross section. These connecting pieces have the fastening locations for the individual ties in their U-arms averted from the formwork.

However these connecting pieces require further coupling members for engaging the stiffening girders or stiffening profiles, these coupling members for their part being approximately U-shaped and embracing the stiffening girders. Above

all, it is not possible for any accessory parts such as stays directed towards the base, brackets or the like, to be fastened with these connecting pieces because they remain firmly connected to the individual ties.

A supporting structure for aluminium profiles is known from EP-A-0 049 096, wherein a connecting device for joining horizontal and/or inclined struts to uprights has a substantially U-shaped cross section and the U-arms thereof have fastening locations for embracing and joining to the uprights, these also having perforated extensions for embracing the ends of the struts in a fork-like manner, which may in turn be traversed by crossbolts. It is not possible for adaptation to be made to different accessory parts to be connected to formwork and for regard to be paid to the selectively vertically or horizontally oriented stiffening webs of forming panels.

The object underlying the invention is to create a device of the kind mentioned at the outset, with which any accessory parts such as booms, brackets, stays and the like can be fastened to forming panels quickly, simply and without any difficulty, whilst it is to be possible for the stiffening webs or stiffening profiles to be oriented vertically or horizontally, selectively.

This seemingly contradictory object is accomplished in a device of the kind mentioned at the outset in that the two U-arms have extensions over part of their length extending beyond the U-crosspiece on that side of said U-arms which faces the forming surface in the position of use, said extensions being provided as protection against torsion and being adapted to be placed against the longitudinal side face of the stiffening profile and against the edge or bend at the transition

from a rearward web to the longitudinal side face of said stiffening profile, and that the U-crosspiece of the device has at least one point of engagement, recess or hole for a shank of a fastening member to engage or pass through, said fastening member having a head or the like projecting radially beyond said shank at least to one side and being adapted to be inserted into the stiffening profile from the side-averted from the forming surface, through an opening in said stiffening profile, and to be anchored or clamped to the latter with its head and has at the end averted from its head or suchlike anchorage a counter-stop for anchorage to the U-shaped device, and that the two extensions shortened relative to the total length of the U-arms form together with the U-crosspiece a shoulder and are located beyond the region neighbouring the holes.

In a seemingly inconsistent manner parts of the U-arms of the device U-shaped in cross section hence project beyond the U-crosspiece, but thereby permit torsion-proof coupling onto the stiffening profile with the aid of the fastening member. Therefore any parts can in turn be fastened to this device without any difficulty and without any additional measures for such protection against torsion. At the same time, by virtue of the two extensions of the U-arms, this protection against torsion is particularly effective and permits high forces and moments to be introduced into the stiffening girders.

Since the extensions run over only part of the length of the U-arms and form a shoulder, the device can be fixed to the stiffening profiles also when it is turned through 90° , i.e. with U-arms running approximately at right angles to the longitudinal expanse of the stiffening profiles. Therefore these stiffening profiles can run both horizontally and vertically

and the device according to the invention can hence be put to use for such forming panels as are to be usable in a position twisted through 90° or have intersecting stiffening profiles, but for its part can always retain its appropriate constant orientation. In the one fitting position, the two extensions of the U-arms may engage over the longitudinal sides of the stiffening profile and thus provide good and secure protection against torsion in both conceivable directions of rotation, which permits the transfer of high forces and moments. In a position rotationally staggered through 90° , the shoulders of the shortened U-arms can both be placed against a common longitudinal side of a stiffening profile, which again provides protection against torsion and the possibility of transferring moments, the distance of the two extensions from one another and from the fastening member producing effective and torsion proof anchorage of the device onto the stiffening profile, the device thereby being secured in position or supported relative to the stiffening profile at at least three points.

A device for connecting accessory parts to profiles is known from US-A- 3 330 583, the point at issue though being the coupling of approximately horizontal tubular supports to uprights for erecting platforms, shelves or supporting structures. The approximately U-shaped device is oriented with its two U-arms one above the other and is applied to the upright with the U-crosspiece. The device also has an automatic lock and an anti-rotation element which for its part is approximately U-shaped and is arranged at the level of the lower U-arm. However, fixation to a support turned through 90° , hence a horizontal one, is not possible without turning the device accordingly. This would be unsuited for supports or the like departing from the device at an angle.

It is suitable in the device according to the invention if the fastening member has a hammerhead which in the one position of orientation is adapted to be inserted through an elongate hole in the cross web of the stiffening profile and in the twisted condition - e.g. through 90° - engages behind the edges of the elongate hole. This leads to the device and a stiffening profile provided with corresponding elongate openings being coupled particularly quickly and effectively.

For protection against torsion with the aid of the shoulder at the shortened U-arms it is advantageous if the shoulder is approximately step-like.

The shoulder between U-crosspiece and extension of the U-arms may be adapted to be placed against the longitudinal side of the stiffening profile and so act as protection against torsion and may be situated at that distance from the hole for the fastening member which the elongate hole or suchlike opening in the stiffening profile has from the beginning of the longitudinal web of this profile. It automatically follows from this that the means protecting against torsion of the device can take effect in both fitting

positions rotationally staggered through 90° , because when fixed by the fastening member they in each case butt against the longitudinal side of the stiffening profile.

The better the device is urged against a stiffening profile, the more effective is the protection against torsion. It may be appropriate for this purpose if the counter-stop serving for the fastening member and acting upon the U-crosspiece of the device is adapted to be braced against the latter. This counter-stop may engage the shank of the fastening member in a releasable manner. In this way the counter-stop can also be affixed subsequently, when the fastening member and its head have been inserted through the opening in the stiffening profile and twisted.

A transverse slit through the shank of the fastening member at the end thereof averted from the head, and a wedge adapted to be inserted into the transverse slit, may be provided as the counter-stop, in the position of use the transverse slit preferably extending right into the hole in the crosspiece of the device. Thereby a concrete solution is simply provided for being able to brace the counter-stop against this U-crosspiece of the device. The wedge only has to be driven in deep enough to exert pull on the shank and thereby also on the head of the fastening member and to urge the U-crosspiece of the device against that of the stiffening profile.

In order to minimize the length of the fastening member and thereby the overall size of the device, it is of advantage if in the position of use the transverse slit in the shank of the fastening member is disposed between the U-arms of the device on that side of the U-crosspiece which is averted from the forming surface, and the U-arms of the device have openings at the level of the

transverse slit for the anchoring wedge. The wedge can therefore be inserted through these openings in order to reach its position of use in the transverse slit of the shank of the fastening member.

A further expedient development of the device may consist in that the cross section of the transverse slit for the wedge is arranged on the shank of the fastening member so as to be twisted - preferably through 45° - relative to the hammerhead of the latter, and the openings in the U-arms of the device are arranged so as to be staggered in such a way and/or extend laterally in such a way that the wedge passes at an angle from the one arm, through the anchoring slit of the fastening member, to the other opening. The wedge can therefore be driven in with a slanting fit in such a manner as also to be held in its position of use by gravity. This not only makes fitting easier, but also counteracts any unintentional loosening.

A further advantageous development may consist in that the openings for the wedge in the U-arms of the device extend laterally in such a way, or that so many openings are provided side by side, that the wedge can be inserted from both sides at an angle to the surface of the U-arms, in at least two positions preferably rotationally staggered through 90° . This allows for the possibility of being able to apply the device to stiffening profiles in two positions varying by 90° , depending on whether these stiffening profiles run approximately vertically or horizontally. In each of these cases it can therefore be achieved that the wedge passes from top to bottom at an angle and not approximately horizontally or even from bottom to top.

The fastening locations for the releasable attachment of accessory parts may take the form of recesses, preferably holes, and be

arranged on the U-arms of the device, in spaced relationship to the openings for the anchoring wedge. Mention is however made at this point that a nut may also be provided by way of a thread on the shank as a counter-stop, should the U-arms not offer sufficient room for the openings for the wedge on the one hand and for the fastening locations on the other hand.

A fastening location may be provided on each U-arm and both fastening locations may preferably be of the same shape and correspond in position, in particular taking the form of bores for a bolt or the like. The latter can then traverse a portion of an accessory part engaging between the two U-arms and be anchored to the U-arms on both sides of this engaged portion of the accessory part.

The fastening member of the device is secured particularly simply and well if the surfaces of the head of the connecting bolt which face the inside of the U-cross web of the stiffening profile slant outwardly from the shank in accordance with a bead-like or channel-like depression of the U-cross web of the stiffening profile. This at the same time increases the rigidity of the stiffening profile, so that it lends itself all the better to the attachment of accessory parts by way of the device according to the invention.

It is expedient if the extensions of the U-arms are integral therewith. The U-crosspiece of the device may be fitted, particularly welded, between the U-arms and extensions thereof and its surface resting against the outer web of the stiffening profile in the position of use may appropriately be approximately flush with the non-extended area of the U-arms. This produces a rigid design, particularly of the U-shaped part of the device according

to the invention.

Mention is made that the hole for the fastening member is appropriately a bore, because this can be made particularly simply and also allows a correspondingly simple round shank of the fastening member. However this bolt-like fastening member may have between its shank of preferably round cross section and the angular surfaces arranged in a roof-shaped manner on the underside of its head a square area as protection against torsion, the square area serving to engage the recess in the cross web of the stiffening profile. This makes it easier for the transverse slit for the anchoring wedge to retain its position after the head of the fastening member has been inserted and fixed, and thus makes it easier for the wedge to be inserted at an angle from this side.

In order to save weight, the U-arms of the device may be slanted between their end faces and their edges averted from the cross-piece, the slants being beyond the openings for the anchoring wedge and the holes for fastening accessory parts.

A device, with which any accessory parts can be attached to form-work members having corresponding stiffening webs and stiffening profiles, whilst these accessory parts may be adjustable props, platform brackets, climbing brackets, supporting jacks, base stays or booms, results above all from the features and steps described above being combined singly or severally. The device permits of being fitted in two positions preferably rotationally staggered through 90° , so that the device together with its U-arms and fastening locations can in each case be oriented in such a way as is required to attach the accessory parts, regardless of whether the stiffening profiles of the forming panels are for their part

oriented vertically or horizontally. This device can also be arranged on floor formwork with corresponding stiffening profiles. An efficient and firm connection between the accessory parts and the formwork member is produced in every position of attachment, it being possible for not only forces but also moments to be transferred owing to the good protection against torsion.

The invention with its leading features is described more closely below in one exemplified embodiment with the aid of the drawings showing, partly in schematic form, in

Fig. 1 an exploded view of the device according to the invention before being fitted to a horizontally oriented stiffening profile of a vertical forming panel and before having an accessory part, in this case an adjustable prop, attached to it,

Fig. 2 is a rear view of the device in the fitted condition, the horizontal stiffening profile and the accessory part being omitted in the interest of clarity, but an elongate hole in the stiffening profile being indicated,

Fig. 3 is a section through the U-crosspiece of the device and through that area of a stiffening profile which is proximate to this device, as well as a view of a U-arm and the extension thereof running over only part of the length as protection against torsion,

Fig. 4 is a view of the entire device in an orientation for engaging a vertical stiffening girder or stiffening profile and

Fig. 5 is a top view of the device in a position fitting a vertical stiffening profile, and in a position in which the two extensions running over only part of the length of the U-arms of the device engage over the longitudinal side faces of the stiffening profile as protection against torsion.

A device designated altogether as 1 serves for connecting accessory parts, for instance an adjustable prop 2, to forming panels, compensating members or suchlike formwork members which are not shown in any detail in the drawings and have stiffening webs or stiffening profiles 3 on their side averted from the forming surface. These stiffening profiles 3 are illustrated with regard to the total cross section by way of example in Fig. 1 and in Figs. 3 and 5 with regard to their area co-operating with the device.

It becomes clear by reference to Fig. 1 and above all Fig. 5 that the device 1 has an essentially U-shaped cross section and its U-arms 4 have fastening locations 5 for the accessory parts such as booms, adjustable props 2 or the like. In the position of use the U-crosspiece 6 butts against the stiffening profile 3 of the formwork, in accordance with Figs. 3 and 5.

In comparing Figs. 2 and 3 on the one hand with Figs. 4 and 5 on the other hand it is apparent that steps have been taken so that engagement can be made to a profile 3 by the device 1 in two different positions rotationally staggered through 90° , or that fixation to profiles 3 varying 90° in orientation is possible in positions conforming in either case. At the same time the device 1 is protected well against torsion relative to the profile 3, so that the forces and moments to be transferred can be conducted well.

This is achieved in that the U-arms 4 have an extension 7 over part of their length in each case passing beyond the U-crosspiece 6 on that side of the U-arms which faces the forming surface in the position of use, these extensions 7 being provided as protection against torsion in both fitting positions. In accordance with Figs. 3 and 5, these extensions 7 are adapted to be placed in two different ways against the longitudinal side face 3a of the stiffening profile 3 and against the edge or bend at the transition from a rearward web 3b to the longitudinal side face 3a of the stiffening profile 3.

Furthermore, the U-crosspiece 6 of the device 1 has a hole 8 for the passage of a shank 9a of a fastening member 9 also having a head 9b projecting radially beyond this shank 9a at least to one side, in the exemplified embodiment to two sides. This fastening member 9 is adapted to be inserted into the stiffening profile 3, head 9b foremost, from the side averted from the forming surface, through an opening 10 in the form of an elongate hole in the stiffening profile 3, and to be anchored to the latter with its head 9b in the manner to be seen in Figs. 3 and 5. The fastening member 9 has at the end averted from the head 9b a counter-stop yet to be described for anchorage to the U-shaped device 1.

The fastening member 9 hence has a hammerhead 9b for anchoring the device 1 to a stiffening profile 3, in the one position of orientation the hammerhead 9b being adapted to be inserted through the elongate hole 10 in the cross web 3b of the stiffening profile 3 and in the condition twisted through 90° in the exemplified embodiment, it engaging behind the edges of this elongate hole 10, as indicated by dashed lines in Fig. 2.

In comparing Figs. 3 and 5 it is apparent that both U-arms 4 of the device 1 have extensions 7 stretching beyond the U-crosspiece 6 and that these extensions are shortened relative to the total length of the U-arms 4 in an identical manner and so as to be of identical size. Together with the U-crosspiece 6 the extensions 7 form an approximately steplike shoulder 11 (cf. particularly Figs. 3 and 4) and are situated beyond the region neighbouring the hole 8 for the fastening member 9.

According to Fig. 5 the extensions 7 can with their own longitudinal expanse directly engage the longitudinal sides 3a of the stiffening profile 3 as protection against torsion, when the U-arms 4 and the stiffening profiles 3 have a conforming direction of orientation. In a fitting position turned through 90°, in accordance with Figs. 1 to 3, the shoulder 11 between U-crosspiece 6 and extension 7, or rather the shoulder 11 between the non-extended area of the U-arms 4 and extension 7 of the U-arms, can serve to prevent torsion against the longitudinal side 3a of the stiffening profile 3, as is most clearly apparent in Fig. 3. These shoulders 11 are situated at that distance from the hole 8 for the fastening member 9 which the elongate hole 10 in the stiffening profile 3 has from the longitudinal webs 3a of the latter or the beginning thereof adjacent to the cross web 3b. It is thereby achieved that the shoulders 11 produce the desired protection against torsion and come to rest against the profile 3 in the position in which the U-arms 4 of the device 1 are applied to the profile 3 when they are rotationally staggered through 90° relative to the longitudinal expanse of the latter.

The counter-stop already mentioned for the fastening member 9 is to be adapted to be braced against the U-crosspiece 6 of the device 1

and against the fastening member, in order to be able to urge the device 1 firmly against the profile 3 and to render the means protecting against torsion operative. It is of advantage if this counter-stop engages the shank 9a of the fastening member in a releasable manner. In the exemplified embodiment it is contemplated for this purpose that a transverse slit 9c through the shank 9a of the fastening member 9 at the end thereof averted from the head 9b is provided as a counter-stop, and that a wedge 12 fitting and being adapted to be inserted into this transverse slit 9c is provided as the counter-stop proper, in the position of use the transverse slit 9c extending approximately right into the hole 8 in the crosspiece 6 of the device 1. It is thereby ensured that as the wedge 12 is driven in, the narrow side thereof facing the U-crosspiece 6 comes to rest against the U-crosspiece 6 and with the opposite narrow side can exert the desired pull on the shank 9a.

In order that the device 1 does not become too large in size and that the lever arms applied to the profiles 3 by the device are not too great, the transverse slit 9c in the exemplified embodiment is disposed between the U-arms 4 and the U-arms 4 of the device 1 have openings 13 at the level of the transverse slit 9c for the anchoring wedge 12. These openings also extend so far towards the formwork that the U-crosspiece 6 has its surface averted from the forming surface lying inside the clearance of these openings 13, so that the wedge 12 comes to rest against this surface of the U-crosspiece 6.

It would however also be conceivable that the wedge comes to rest against the corresponding boundaries of the openings 13, particularly if and when the slit 9c were not to extend right into the hole 8 or even beyond it.

It is evident above all by reference to Fig. 2 that the cross section of the transverse slit 9c for the wedge 12 is arranged on the shank 9a of the fastening member 9 so as to be turned through approximately 45° relative to the hammerhead 9b of the latter. The openings 13 in the U-arms 4 extend laterally in such a way that the wedge 12 passes at an angle from one arm 4, through the anchoring slit 9c, to the other arm 4 and opening 13 thereof. The wedge can therefore be arranged so as to pass from top to bottom at an angle in both possible orientations of the device 1, this making above all fitting easier, because initial insertion of the wedge is aided by gravity. Furthermore in this way the position of use is also sustained and secured better by gravity and a wedge 12 is prevented from unintentionally dropping out. In addition, a retaining pin 14 may be provided at the narrow end of the wedge 12.

The openings 13 extend laterally in the longitudinal orientation of the U-arms 4 to such an extent that the wedge 12 can be inserted from both sides, at an angle to the surface of the U-arms 4, in two positions displaced 90° from each other, in order not to have to pay any attention to the position of the transverse slit 9c when the fastening member 9 is inserted beforehand. Instead of correspondingly enlarged recesses or openings 13, several openings 13 side by side could also be provided in order to enable these two angular positions of the wedge 12.

In the exemplified embodiment the fastening locations 5 take the form of recesses or holes and are arranged on the U-arms 4 of the device 1, in spaced relationship to the openings 13 for the anchoring wedge 12. Above all Fig. 1 makes it clear that a fastening location 5 is provided on each U-arm 4 and both

fastening locations 5 are of the same shape and correspond in position, both fastening locations taking the form of e.g. bores for a bolt also fitting through corresponding bores 15 in the adjustable prop which, in turn, can be fitted inbetween the two U-arms 4. Therefore the coupling area and corresponding fastening location 15 of this adjustable prop 2 or of any other accessory part can be pushed between the U-arms 4 and anchored there using a bolt through all the fastening locations 5 and 15. The adjustable prop can then absorb or transfer forces and moments which can be conducted by the device 1 into the profiles 3 in a favourable manner, without any danger of twisting or deflection. Conversely, forces coming from the profiles 3 and forming panels can thus be transferred by way of the device 1 to such an adjustable prop 2 or the like.

Although other solutions are also possible, the exemplified embodiment contemplates that the extensions 7 of the U-arms 4 are integral therewith. The U-crosspiece 6 of the device 1 is fitted and welded between between the U-arms 4 and extensions 7 thereof, its surface resting against the other web 3b of the stiffening profile 3 in the position of use preferably being approximately flush with - or according to Fig. 4 even jutting out slightly from - the non-extended area of the U-arms 4.

In the exemplified embodiment the hole 8 for the fastening member 9 is a bore, which can be made particularly simply.

Fig. 1 illustrates that the bolt-like fastening member 9 has between its shank 9a of round cross section and the angular surfaces arranged in a roof-shaped manner on the underside of its head 9b a square area 9d as protection against torsion, the square area 9d serving to engage the recess 10 in the cross

web 3b of the stiffening profile 3. The angular surfaces on the head 9b as well as this squared area 9d therefore stabilize the position of the fastening member 9- thereby that of the wedge and also of the entire device 1 - and thus improve the transfer of forces and moments.

It is furthermore apparent in Fig. 1 that the U-arms 4 of the device 1 may be slanted between their end faces 4a and their edges 4b averted from the crosspiece 6, the slants being beyond the openings 13 for the anchoring wedge 12 and the holes 5 for fastening accessory parts 2. Weight is thereby saved and inconvenient projection of the device 1 relative to the profiles 3 and accessory parts 2 is limited as far as possible.

A device 1 serves for connecting accessory parts 2 to forming panels, compensating members of suchlike formwork members having stiffening webs or stiffening profiles 3 on their side averted from the forming surface. The device 1 has an essentially U-shaped cross section, the U-arms 4 having fastening locations 5, preferably bores, for the accessory parts 2 such as booms, adjustable props, platform brackets or the like, and in the position of use the U-crosspiece 6 butting and being drawn fast against a stiffening profile 3 and above all against a cross web 3b provided on the latter. At least one of the U-arms 4, preferably both U-arms 4, has an extension 7 passing over part of its length and beyond the U-crosspiece 6 on that side of the U-arms which faces the forming surface in the position of use, said extension being provided as protection against torsion and being adapted to be placed against the longitudinal side face 3a of the stiffening profile 3 and against the transition from the rearward web 3b to the longitudinal side face 3a. The U-crosspiece 6 of the device 1

has at least one recess or hole 8 - possibly even one open at the edge - for a fastening member to engage, preferably for the shank 9a of a fastening member 9 to pass through. It is thereby possible for the device 1 to be anchored - in a torsion-proof position and in two orientations rotationally staggered through 90° - to a stiffening profile 3, so that the forces and moments encountered can be transferred well.

One configuration of significance to the invention is apparent primarily in Fig. 5 and also in Fig. 2. According to these, the extensions 7 are set somewhat at an angle to one another in comparison to the parallel U-arms 4, so as to be adapted well to the trapezoidal shape of the stiffening profile 3 and the corresponding slanting orientation of the cross section of the side webs 3a of the stiffening profile 3. The inside dimensions of these extensions 7 set somewhat at an angle to one another correspond to the outside dimensions of the two longitudinal webs 3a of the stiffening profile 3.

It is also apparent in the Figures that in the position of use the narrower area of the wedge 12 traverses a U-arm and recess 13 thereof, but the wider area of the wedge passes by the outside of the opposite U-arm and end face thereof or is even supported against the latter. It is therefore not necessary for the wedge to traverse both recesses 13 simultaneously, but always only one of them selectively.



Patent Claims

1. A device (1) for connecting accessory parts (2) to forming panels, compensating members or suchlike formwork members having stiffening webs or stiffening profiles (3) on their side averted from the forming surface, the device (1) having a substantially U-shaped cross section, the U-arms (4) having fastening locations (5) for the accessory parts (2) such as booms, platform brackets or the like, and in the position of use the U-crosspiece (6) butting against a stiffening profile (3) of the formwork, characterized in that the two U-arms (4) have extensions (7) over a part of their length extending beyond the U-crosspiece (6) on that side of said U-arms which faces the forming surface in the position of use, said extensions being provided as protection against torsion and being adapted to be placed against the longitudinal side face (3a) of the stiffening profile (3) and against the edge or bend at the transition from a rearward web (3b) to the longitudinal side face (3a) of said stiffening profile (3), and that the U-crosspiece (6) of the device (1) has at least one point of engagement, recess or hole (8) for a shank (9a) of a fastening member (9) to engage or pass through, said fastening member (9) having a head (9b) or the like projecting radially beyond said shank (9a) at least to one side and being adapted to be inserted into the stiffening profile (3) from the side averted from the forming surface, through an opening (10) in said stiffening profile, and to be anchored or clamped to the latter



with its head (9b) and has at the end averted from its head (9b) or suchlike anchorage a counter-stop for anchorage to the U-shaped device (1), and that the two extensions (7) shortened relative to the total length of the U-arms (4) form together with the U-crosspiece (6) a shoulder (11) and are located beyond the region neighbouring the holes (8).

2. A device as claimed in claim 1, characterized in that the fastening member (9) has a hammerhead (9b) which in one position of orientation is adapted to be inserted through an elongate hole (10) in the cross web (3b) of the stiffening profile (3) and in the twisted condition - e.g. through 90° - engages behind the edges of the elongate hole (10).
3. A device as claimed in claim 1 or claim 2, characterized in that the shoulder (11) is approximately steplike.
4. A device as claimed in any one of claims 1 to 3, characterized in that the shoulder (11) between U-crosspiece (6) and extension (7) of the U-arms (4) is adapted to be placed against the longitudinal side (3a) of the stiffening profile (3) and so act as protection against torsion and is situated at that distance from the hole (8) for the fastening member (9) which the elongate hole or suchlike opening (10) in the stiffening profile (3) has from the longitudinal webs (3a).
5. A device as claimed in any one of claims 1 to 4, characterized in that the counter-stop serving for the fastening member (9) and acting upon the U-crosspiece (6) of the device (1) is adapted to be braced against the latter.



6. A device as claimed in any one of claims 1 to 5, characterized in that the counter-stop engages the shank (9a) of the fastening member (9) in a releasable manner.
7. A device as claimed in any one of claims 1 to 6, characterized in that a transverse slit (9c) through the shank (9a) of the fastening member (9) at the end thereof averted from the head (9b), and a wedge (12) adapted to be inserted into the transverse slit, are provided as the counter-stop, in the position of use the transverse slit (9c) preferably extending right into the hole (8) in the U-crosspiece (6) of the device (1).
8. A device as claimed in any one of claims 1 to 7, characterized in that in the position of use the transverse slit (9c) in the shank of the fastening member is disposed between the U-arms (4) on that side of the U-crosspiece which is averted from the forming surface, and the U-arms (4) of the device (1) have openings (13) at the level of the transverse slit (9c) for the anchoring wedge (12).
9. A device as claimed in any one of claims 1 to 8, characterized in that the cross section of the transverse slit (9c) for the wedge (12) is arranged on the shank (9a) of the fastening member (9) so as to be twisted - preferably through 45° - relative to the hammerhead (9b) of the latter, and the openings (13) in the U-arms (4) of the device are arranged so as to be staggered in such a way and/or extend laterally in such a way that the wedge (12) passes at an angle from the one arm (4), through the anchoring slit (9c) of the fastening member, to the other opening (13).



10. A device as claimed in any one of claims 1 to 9, characterized in that the openings for the wedge in the U-arms of the device extend laterally in such a way, or that so many openings are provided side by side, that the wedge (12) can be inserted from both sides at an angle to the surface of the U-arms (4), in at least two positions preferably rotationally staggered through 90°.
11. A device as claimed in any one of claims 1 to 10, characterized in that the fastening locations for the releasable attachment of accessory parts take the form of recesses, preferably holes, and are arranged on the U-arms (4) of the device (1), in spaced relationship to the openings (13) for the anchoring wedge (12).
12. A device as claimed in any one of claims 1 to 11, characterized in that a fastening location (5) is provided on each U-arm (4) and both fastening locations (5) are preferably of the same shape and correspond in position, in particular taking the form of bores for a bolt or the like.
13. A device as claimed in any one of claims 1 to 12, characterized in that the surfaces of the head of the connecting bolt which face the inside of the U-cross web of the stiffening profile slant outwardly from the shank in accordance with a bead-like or channel-like depression of the U-cross web of the stiffening profile.
14. A device as claimed in any one of claims 1 to 13, characterized in that the extensions (7) of the U-arms (4) are integral therewith.



15. A device as claimed in any one of claims 1 to 14, characterized in that the U-crosspiece (6) of the device (1) is fitted, particularly welded, between the U-arms (4) and extensions (7) thereof and its surface resting against the outer web (3b) of the stiffening profile (3) in the position of use is preferably approximately flush with the non-extended area of the U-arms (4).
16. A device as claimed in any one of claims 1 to 15, characterized in that the hole (8) for the fastening member (9) is a bore.
17. A device as claimed in any one of claims 1 to 16, characterized in that the bolt-like fastening member (9) has between its shank (9a) of preferably round cross section and the angular surfaces arranged in a roof-shaped manner on the underside of its head (9b) a square area (9d) as protection against torsion, said square area serving to engage the recess (10) in the cross web (3b) of the stiffening profile (3).
18. A device as claimed in any one of the preceding claims, characterized in that the U-arms (4) of the device (1) are slanted between their end faces (4a) and their edges (4b) averted from the crosspiece (6), said slants being beyond the openings (13) for the anchoring wedge (12) and the holes (5) for fastening accessory parts (2).
19. A device as claimed in any one of the preceding claims, characterized in that the extensions (7) of the U-arms (4) of the device (1) arranged particularly parallel to one another diverge, and the inside spacing of said extensions corresponds approximately to the outside dimensions of the longitudinal webs (3a) of the stiffening profile (3).