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(54) **Rope slide for vertical work**

(57) The invention comprises a device meant to simplify the sliding of a climbing rope (1) during vertical work or work at a great height, generally on building façades (2), while also reducing the friction between the rope and the structure of the façade. For this purpose the slider comprises an elongated body (5) meant to distribute the

load exerted by the rope on the support surface (6) of the building, which body is further provided with an anti-friction element to reduce the friction of the rope on the device and with guides (8) which limit the sideways motion of the rope, as well with support tabs (7) which increase the stability of the slider on the edge of the building where it is installed.

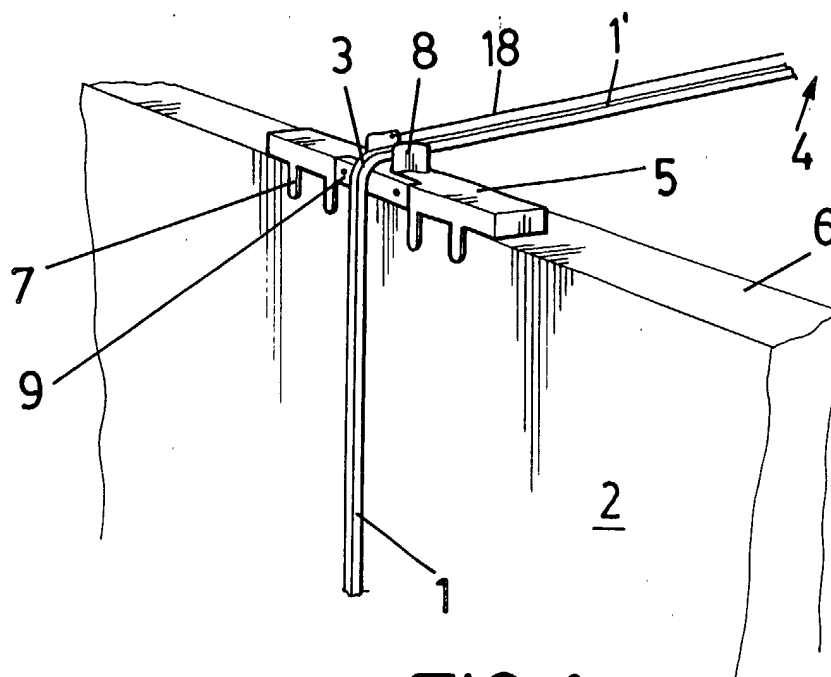


FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a device specifically designed to facilitate sliding of a climbing rope, as those commonly used in vertical work performed by workers while hanging from these on building façades for cleaning or construction work.

[0002] The object of the invention is to obtain a minimal friction of said rope on its point of support on the upper edge of the wall, where its trajectory curves.

BACKGROUND OF THE INVENTION

[0003] In construction work, and particularly in façade maintenance work, instead of the traditional nacelle suspended from suitable supports with an adjustable height it is increasingly common to employ simple ropes, suitably secured to a point on the roof, terrace or the like and directed towards the edge of the façade from where they hang down along said façade, so that specialised workers use said ropes in the manner used by rock climbers in order to carry out the maintenance work on said façade.

[0004] Although very resistant ropes are employed these suffer considerable friction on the edge of the roof, terrace or the like, particularly as during this work the worker will swing sideways, which all requires the ropes to be frequently checked and replaced; additionally, the risk of a possible accidental breaking of said ropes still exists, with the corresponding labour hazard.

[0005] Furthermore, the rope may damage the building as it slides on it, breaking roof tiles, concrete slabs, etc.

[0006] Nowadays there is no effective solution for this problem in the market, with the only solution known is the use by certain sector workers of a corrugated plastic tube used to cover the rope at the rubbing area, which is obviously an unsatisfactory solution.

DESCRIPTION OF THE INVENTION

[0007] The slider disclosed by the invention solves the above described drawbacks to full satisfaction by means of a practical, simple, safe and effective solution.

[0008] For this purpose and more specifically, the slider is embodied in an elongated body, with a length suitable for distributing the loads when resting on curved tiles, asbestos fibre corrugated sheet or any other type of roofing on which support points for this body are established, in order to prevent breaking these elements with the loads exerted by a worker hanging from the rope. This body may be soft for this same reason, such as plastic, wood or the like, adopting a bar with a dihedral configuration or tabs which emerge from its front meant to rest on the front face of the wall, preventing the rope from touching the top edge of said wall. On the

top face of this body is provided a lateral containment guide for the rope which keeps it centred sideways on the device and which allows the rope to run vertically as intended along a line defined by the point of installation of the slider, regardless of the point where the rope is secured.

[0009] In addition to the structure described above the body includes in its upper front edge an anti-friction coating, preferably mounted so that it can be replaced, which defines a preferably rounded edge which minimises the friction on the rope and therefore its wear.

[0010] This anti-friction coating can be optionally replaced by a roller which reduces this friction even more and which can also be replaced, located opposite the aforementioned top guide, as will be the anti-friction coating.

[0011] The slider is kept in a stable working position by the weight of the worker hanging from the rope, although additionally a drilled tab is provided for attachment by a string or the like to any fixed point, thereby preventing the slider from falling if it is uncoupled from its working position, with the ensuing danger involved.

[0012] The slider also simplifies later rope recovery operations after the work is finished, for which purpose the elongated body can be considerably wide, so that it does not rock during this recovery operation, or its rear edge can also have tabs which extend the body, thus also providing a wide support surface to prevent said rocking.

DESCRIPTION OF THE DRAWINGS

[0013] The characteristics of the invention will be more clearly understood in view of the accompanying drawings of a preferred embodiment of the invention, where for purposes of illustration only the following is shown:

Figure 1 shows a perspective view of a rope slider for vertical work in accordance with the object of the invention, suitably coupled in its working position on the top edge of a wall.

Figure 2 shows another perspective view of the assembly of the previous figure from the opposite side.

Figure 3 shows an enlarged view of the slider at the friction area of the rope, in accordance with an example of an embodiment in which the slider incorporates an anti-friction coating.

Figure 4 shows finally an enlargement similar to that of the previous figure where the anti-friction coating is replaced by a freely revolving roller.

PREFERRED EMBODIMENT OF THE INVENTION

[0014] The above figures, particularly figure 1, clearly shows that the slider disclosed is meant to provide a support point for a rope (1) which is suspended from a wall, facade or the like (2), specifically at the inflection point (3) where said rope (1) changes its trajectory to run from the top edge of said wall or façade (2) to the anchor point (4) for said rope, indicated in figure 1 by an arrow as it is not shown in it.

[0015] The slider is embodied in clearly flattened and elongated body (5) which is meant to rest on the top surface (6) of the wall (2) in the in the embodiment shown in the figures, on a roofing element or any other element which tops said wall or facade (2), so that it must be quite long and of a soft material such as plastic or wood to prevent damaging the support structure as explained before.

[0016] The body (5) is kept in a stable working position by the force exerted by the weight suspended from the rope (1) and by the presence of an projection of its front edge in the form of tabs (7) suitably sized and located, which may be an integral part of the body (5) when it is injected in plastic or may be attached to it by any conventional means, such as when the body (5) is made of wood.

[0017] In any case, in the middle area and on the top surface of the body (5) is established a guide (8) for lateral containment of the rope with a height which ensures that the rope does not escape accidentally, and preferably diverging backwards to minimise the sideways friction of the rope, particularly when the anchoring point (4) for the rope is not fully aligned with the point where the slider is installed, that is when the top segment (1') of the rope is not perpendicular to the top edge of the wall or facade (2). In this case, as with the tabs (7) the elements which conform the guide (8) may be integrally part of the body (1) or attached to it by any suitable means.

[0018] At the upper front edge of the body (5), specifically in the sector opposite the guide (8) is established a coating (9) means to be in contact with the rope (1) which may consist of an angular piece of a hard material with a perfectly smooth surface, meant to minimise the damage suffered by the rope due to friction, such as a plastic part mounted on the body (5) so that it maybe replaced, for example with a pair of sleeper screws (10), with this angular part (9) having its edge (11) preferably rounded also in order to reduce the damage on the rope (1) as it moves relative to the slider, particularly while it is loaded.

[0019] This angular piece (9) may be optionally replaced by a roller (12), mounted free to rotate about the corresponding shaft (13), and also preferably replaceable such as by coupling the ends of the shaft (13) in grooves (14) of the sides of a recess (15) in which the roller (12) is coupled, operationally provided on the body (5) with said grooves (14) closed after the ends of the

shaft (13) are introduced by lids (16), although this solution is only one example as the lids (16) can be eliminated and the grooves (14) provided with a strangled opening which allows to engage/disengage the ends of the shaft (13) by pressure.

[0020] Lastly, one of the tabs which comprise the guides (8) can for example be provide with a small orifice (17) meant to couple a string or the like (18), particularly visible in Figure 2, such that if the slider were dislodged from its position it would not fall to the ground, remaining suspended by string (18), which in turn shall be suitably secured to any fixed point of the building on its other end. In addition, in order to prevent an accidental rocking of the slider on its support surface during the rope recovery operation either the width of body (5) is made large or the rear end of said body is provided with tabs (19) with a length sufficient to prevent said rocking.

Claims

1. Rope slider for vertical work, specifically designed to rest on the top edge of a wall, on the front of a roofing element or the like, with the object of providing a point of support for a rope at the point where said rope changes its trajectory, between the vertical segment which runs downwards to a worker suspended from it to perform work on the wall or facade and the anchoring point for said rope, **characterised in that** it comprises an elongated, relatively flat body meant to rest on the wall, with a length such that it can distribute the load of a worker's weight to prevent damage on the wall, made from a relatively soft material for this same reason, such as plastic or wood, and such that this elongated body is provided on the mid area of its top face with a guide for the rope; while operationally opposite the latter and on the front edge of the body is also provided an anti-friction element on which the rope will rest at its point of inflection.
2. Rope slider for vertical work, as claimed in claim 1, **characterised in that** the aforementioned body includes either a dihedral bar or lower tabs which are a continuation of its front edge, in order to define a positioning stop which keeps the slider in its working position against its tendency to move backwards due to the weight supported by the rope.
3. Rope slider for vertical work, as claimed in previous claims, **characterised in that** said top guide is in turn embodied as suitably spaced rising tabs which are integrally joined to the base or suitably attached to it, with the component elements of the guide spaced so that the rope may pass and with a backwards diverging line meant to deal with possible misalignments between the vertical trajectory of the rope and the anchor point for its top end.

4. Rope slider for vertical work, as claimed in previous claims, **characterised in that** the anti-friction element is embodied as an angular piece made of a hard, smooth and resistant material such as plastic, which is coupled to the base so that it may be replaced and which preferably has a rounded edge for supporting the rope. 5
5. Rope slider for vertical work, as claimed in claims 1 to 3, **characterised in that** the anti-friction element is embodied as a roller, which is free to rotate in an operationally provided recess of the front edge of the base, such that it may be replaced. 10
6. Rope slider for vertical work, as claimed in previous claims, **characterised in that** a suitable tab of those mentioned above incorporates a small orifice for attaching a string, which when secured to any adequate point of the building will prevent the slider from falling to the ground if it is dislodged from its working point. 15 20
7. Rope slider for vertical work, as claimed in previous claims, **characterised in that** the base body is sufficiently wide to prevent an accidental rocking during the rope elevation or recovery process, or **in that** it incorporates an extension of its rear edge in the form of tabs which increase its support surface for the same purpose. 25 30

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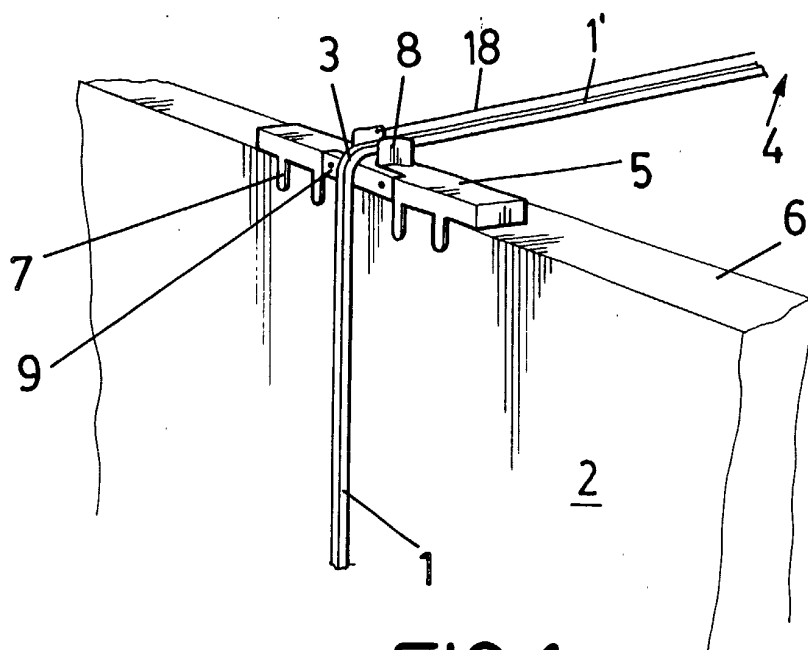


FIG. 1

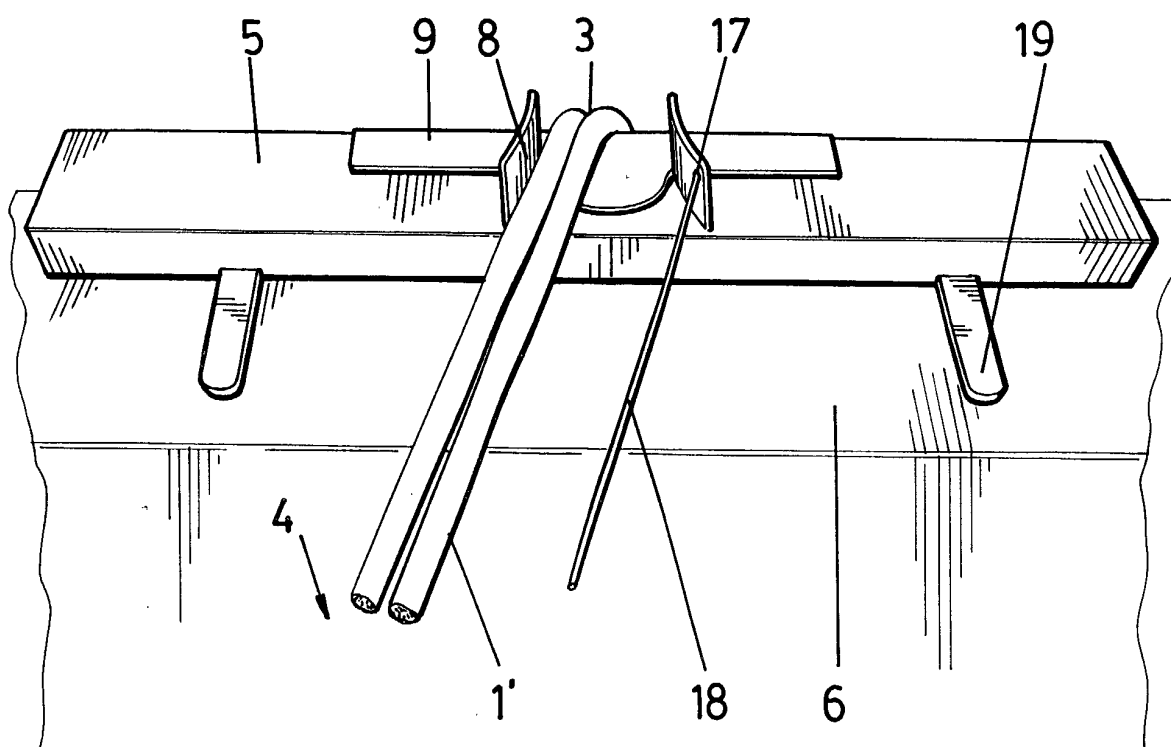


FIG. 2

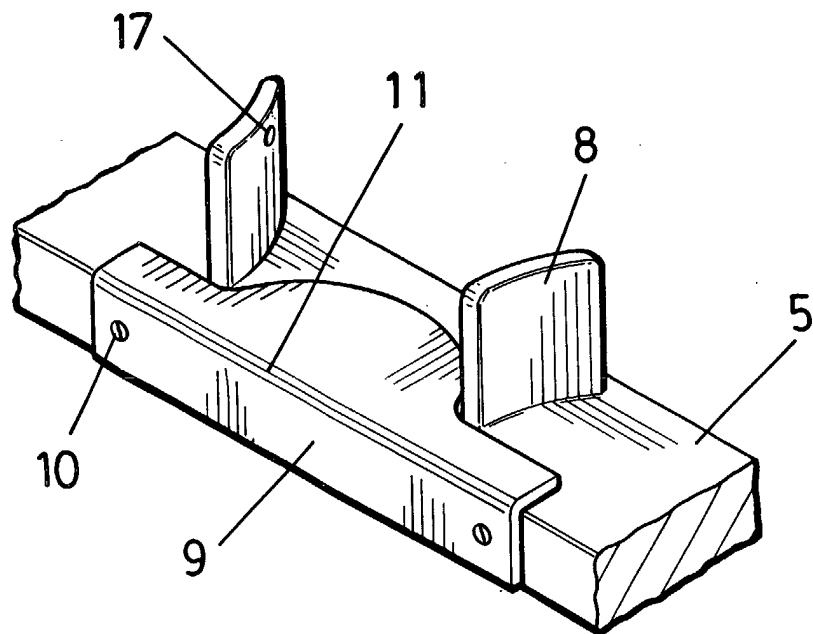


FIG. 3

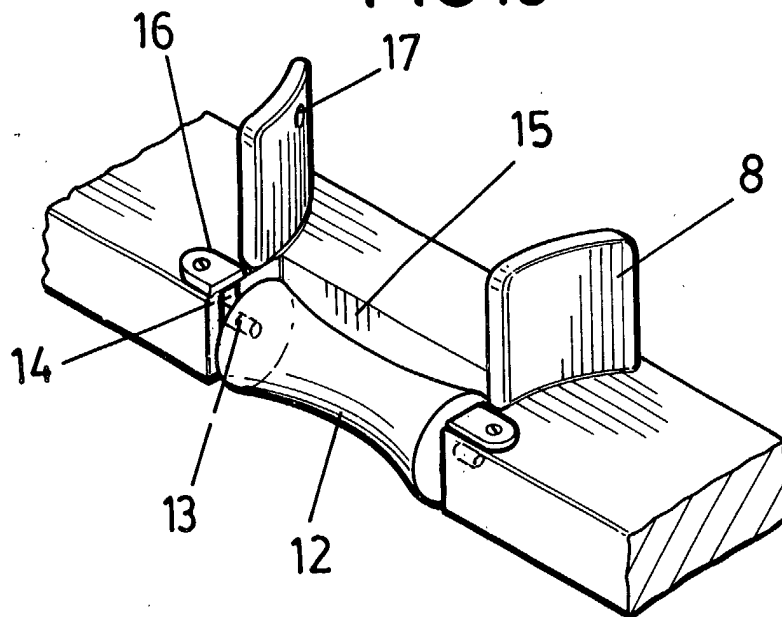


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 01 50 0235

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
X	DE 37 26 158 A (MITTELMANN ARMATUREN) 16 February 1989 (1989-02-16)	1,2,6,7	E04G3/00
A	* column 8, line 48 - column 9, line 8; claims; figures *	3,4	
X	US 1 933 751 A (NELSON) 7 November 1933 (1933-11-07)	1,7	
A	* page 1, line 87 - page 2, line 73; figures *	2-4	
A	US 5 682 961 A (SOTOMAYOR) 4 November 1997 (1997-11-04)		
A	US 4 402 489 A (MURRAY) 6 September 1983 (1983-09-06)		
A	US 4 011 632 A (MACDONALD) 15 March 1977 (1977-03-15)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.CI.7) E04G A62B
Place of search THE HAGUE		Date of completion of the search 11 January 2002	Examiner Vijverman, W
CATEGORY OF CITED DOCUMENTS 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 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			

EPQ FORM 1503 03/92 (P/4001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 50 0235

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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11-01-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 3726158	A	16-02-1989	DE 3726158 A1	16-02-1989
US 1933751	A	07-11-1933	NONE	
US 5682961	A	04-11-1997	NONE	
US 4402489	A	06-09-1983	NONE	
US 4011632	A	15-03-1977	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82