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(54) **CONTROLLED UNWINDING FRAME OF FIRE HOSE**

(57) Of modular construction for either one or two reels, whereas the three-reel construction results from the junction of the two previous types of modules, provided with a brake (1) per reel (2), vertically movable along its rod (3) provided with just as many end bushings (4) that slide at least along the two nearby struts, with its interlocking control (8) in the holes (9) for purposes of securing the reel (2), while the lateral guides (10) facilitate the unwinding and winding of the reel (2) and some springs incorporated into the shaft (12) of each reel, when pressure is exerted on the bushing (13), serve to detain the reel (2) in any unwinding position during this fast rotation, and a shaft with retractable sphere (14) keeps the rewinding crank (11) secure.

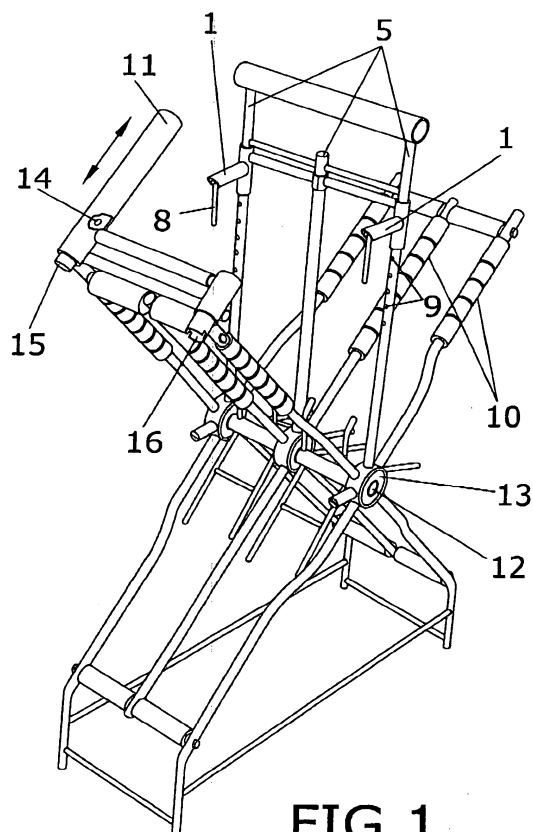


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] This invention refers to a controlled fire hose unwinding rack, from among the means used to facilitate transport, storage and rapid use of this type of hose.

[0002] This invention is fundamentally characterized by a special construction of the unwinding device, a modular construction designed to incorporate reels in parallel alignment with one, two or three sections of interconnectable hoses at their respective ends, as well as the provision of a vertically movable brake for each reel, lateral unwinding guides, an independent axial spring for each reel, and a fastening stud for the rewinding control.

BACKGROUND OF THE INVENTION

[0003] Portable hose winders are patented by US 4777976 and US 4979693, which have handles and internal winding reels.

[0004] Likewise, the applicant also has patent ES 2 146 156, for a rapid automatic hose winding rack, provided with a handle, brakes with embedded stops that prevent the hose from unwinding from a predefined position, and hose engaging and take-up mechanisms, with hooked couplings, winding shaft and guide rollers.

[0005] Since the weight of the rack and hose assembly affects transport, always done manually by the fireman while climbing steps on foot, it is important to adapt the means to the height of the workplace, and the best way to do this is to provide different modules for this transport.

[0006] Another problem of the current rack is to correctly guide the hose during rewinding, as well as the need to better secure the hose with the brake stop. It is also important to improve the rack rotation speed.

[0007] The applicant is not aware of the existence of mechanisms that resolve the problems described above with the simplicity and effectiveness of the rack in this invention, which is now described hereinafter.

DESCRIPTION OF THE INVENTION

[0008] This invention refers to a controlled fire hose unwinding rack, from among all the different fast unwinding mechanisms, and preferably from among those not provided with a winding reel, which facilitate the transport, storage and rapid use of this type of fire hose.

[0009] This invention is characterized by a special construction of the unwinding device, i.e. its modular construction for either one, two or three sections of interconnectable hoses, the latter being the upper limit for portability by a fireman in action.

[0010] It is also characterized by the provision of vertically movable brakes for each reel, on this occasion in the form of a rod provided with just as many end bushings that slide along the struts of the carrier handle or else along one of these and the central strut. The interlocking

control is located orthogonally on this rod, so that the hose is firmly secured by the rod once it is interlocked.

[0011] It is also characterized by lateral guides for unwinding and winding, which facilitate the regular conformation of the reel and faster operating, speed in these operations.

[0012] Finally, it is also characterized by the provision of an independent axial spring for each reel module which detains the hose at any point of the above mentioned rapid deployment operating mechanism. It also incorporates a shaft with insertion stud for securing the rewinding crank in its dismounted position, which prevents this from being lost during transport or during use of the equipment.

DESCRIPTION OF THE DRAWINGS

[0013] This description is complemented by a set of drawings illustrating the preferential execution and never limitative of the invention.

[0014] Figure 1 is a perspective of the double module, corresponding to the preferential execution of the invention and showing the rack with its enhancements.

[0015] Figure 2 is the same module in a similar perspective and including the hoses at different stages of unwinding, as well as with both braked and with the crank blown up with respect to its fastening mechanisms.

PRERENTIAL EXECUTION OF THE INVENTION

[0016] According to the above description, this invention refers to a controlled fire hose unwinding rack, from among the different means of rapid unwinding of fire hoses, characterized by its modular construction either for one section of hose or else for two hose reels; the larger construction is reserved for three sections of interconnectable hoses, based on an axial threaded junction of the two previous types of modules, as well as the coupling of the tubes of their respective handles by any conventional means, and the double modules of this example each have brakes (1) for the reel (2) that move vertically along its rod (3), provided with just as many bushings (4) that slide along the struts (5) of the carrier handle (6) - in the case of a single reel module along one of these and the central strut (7) - with the interlocking control (8) positioned orthogonally to this rod in the holes (9) for purposes of securing the reel (2), while the lateral guides (10) facilitate the unwinding and winding of the reel (2) and the springs incorporated into the shaft (12) of each reel, when pressure is exerted on the bushing (13), serve to detain the reel (2) in any unwinding position during this fast rotation, and a shaft with retractable sphere (14) acts as a hold-down stud in its dismounted position until the release control (15) is pressed, keeping secure the rewinding crank (11), provided with a shaft (12) insertion end (16).

[0017] Variations in material, shape, size and arrangement of the component elements, which are described on a non-limitative basis, do not alter the essence of this

invention, and this description suffices to proceed with its reproduction by an expert.

Claims

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1. Controlled fire hose unwinding rack, from among the different means of rapid unwinding of these hoses, **characterized by** its modular construction either for one section of hose or else for two hose reels, while that of three sections of hose results from the axial threaded junction of the two previous types of modules, as well as coupling of their respective handles, providing a brake (1) per reel (2) that moves vertically along its rod (3), provided with just as many end bushings (4) that slide along the struts (5) of the carrier handle (6) or, as applicable, along one of the struts (5) and the central strut (7), with its interlocking control (8) in the holes (9) for purposes of securing the reel (2), while the lateral guides (10) facilitate the unwinding and winding of the reel (2) and some springs incorporated into the shaft (12) of each reel, when pressure is exerted on the bushing (13), serve to detain the reel (2) in any unwinding position during this fast rotation, and a shaft with retractable sphere (14) acts as a hold-down stud in its dismounted position until the release control (15) is pressed, keeping secure the rewinding crank (11), provided with a shaft (12) insertion end (16).

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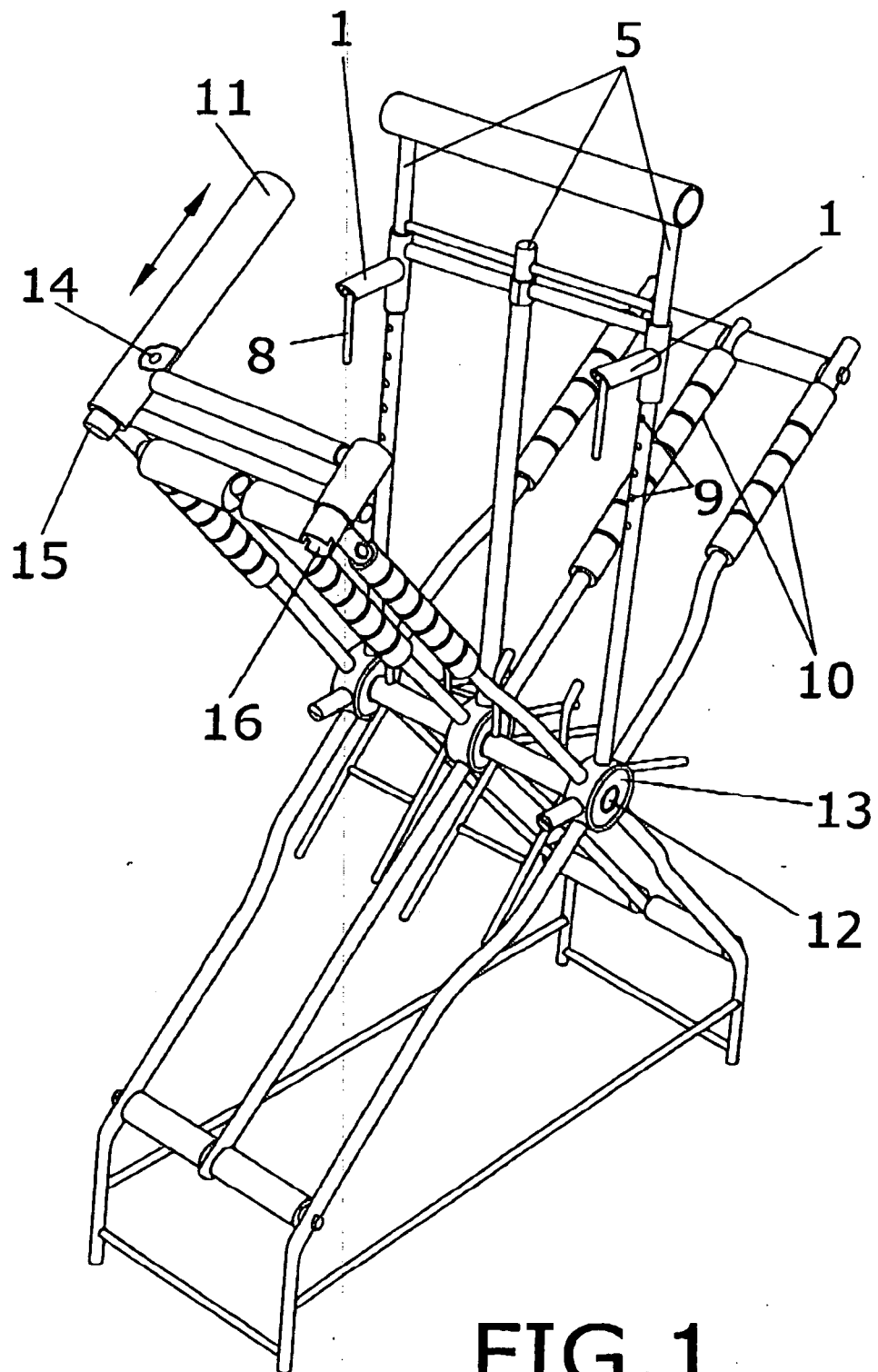


FIG.1

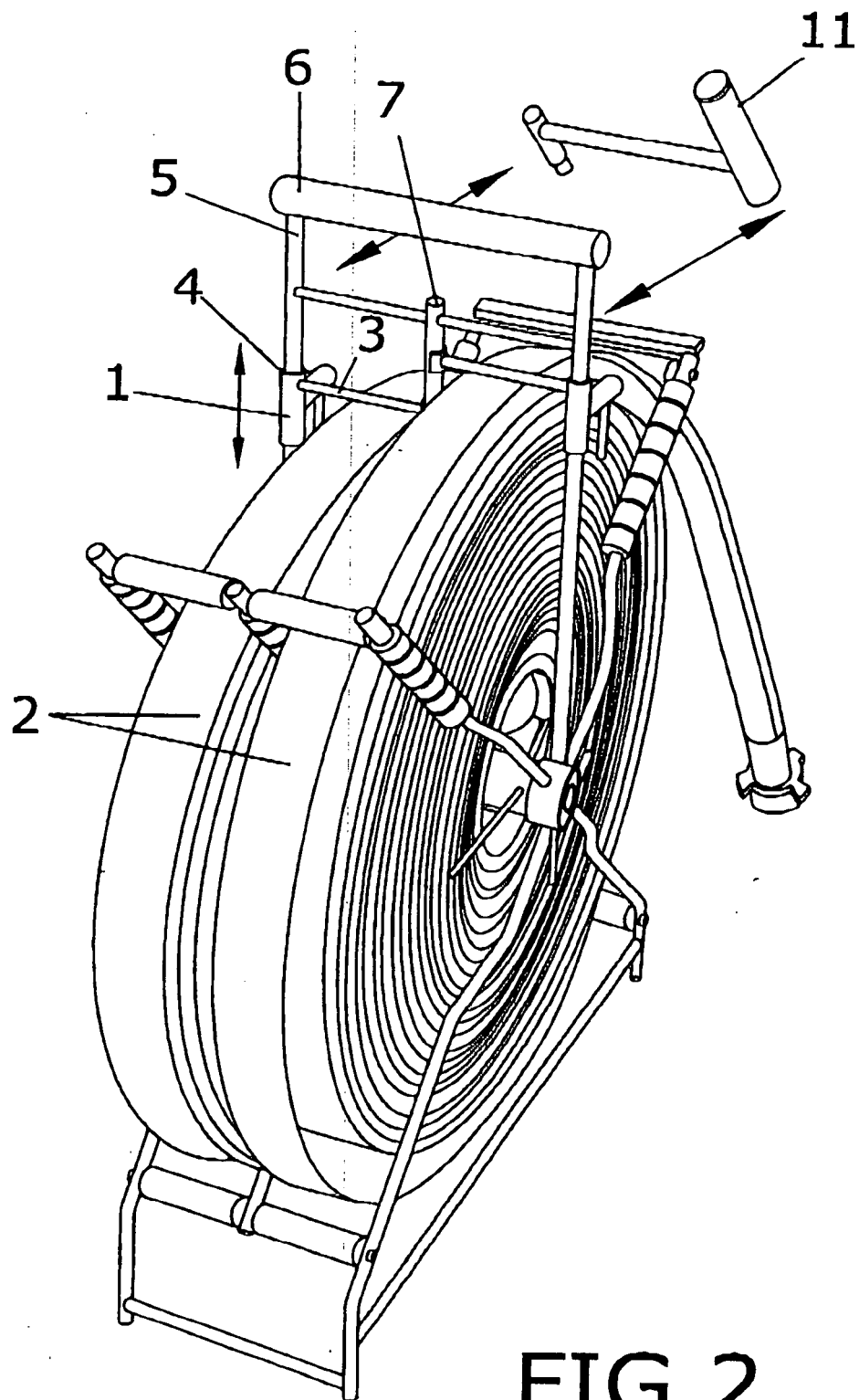


FIG.2

INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2005/070090

A. CLASSIFICATION OF SUBJECT MATTER B65H75/40 B65H75/44 A62C33/04		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) B65H A62C F16B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EP0-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ES 2 146 156 A1 (PEREZ RODRIGUEZ ALBERTO) 16 July 2000 (2000-07-16) cited in the application figures	1
Y	US 4 979 693 A (EBERHARDT ET AL) 25 December 1990 (1990-12-25) cited in the application column 4, line 50 - column 5, line 68; figures 6-8	1
Y	DE 201 00 016 U1 (SAMSON BRIGHT INDUSTRIAL CO. LTD., HUNGHOM) 29 March 2001 (2001-03-29) the whole document	1
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *& document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
21 February 2006		28/02/2006
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Lemmen, R

INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2005/070090

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	US 1 600 482 A (NUHRING CHARLES) 21 September 1926 (1926-09-21) column 2, line 86 - line 96; figures -----	1
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A	DE 37 12 500 A1 (ROST, EUGEN) 27 October 1988 (1988-10-27) the whole document -----	1

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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REFERENCES CITED IN THE DESCRIPTION

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- US 4979693 A [0003]
- ES 2146156 [0004]