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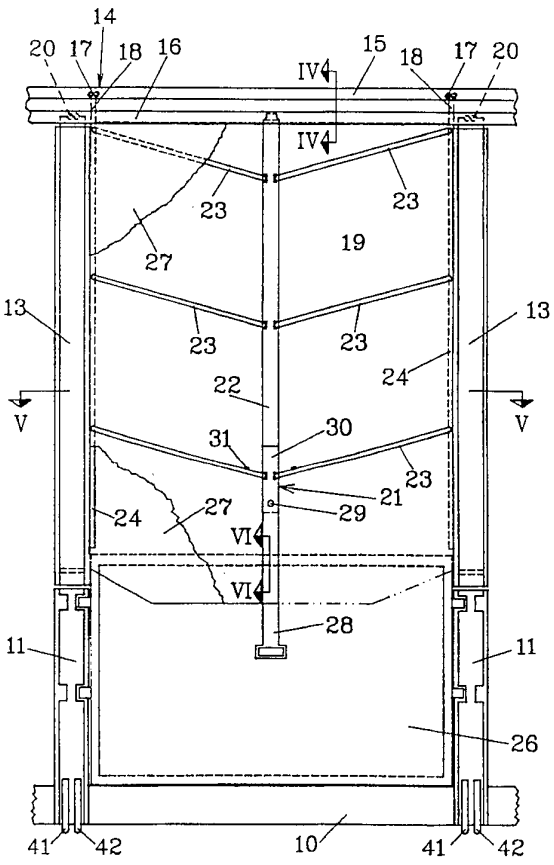
(54) Title: GOODS AND WEATHER PROTECTION DEVICE AND FOLDABLE SCREEN FOR SCREENING OFF OF A SQUARE SURFACE

(57) Abstract

Goods and weather protection device for load platforms (10) provided with a stand for supporting a roof cloth or the like and which stand is divided into a number of separate uncoverable and coverable cover side sections (19), which are limited by vertical stays (11, 13), a handrail (14) contained in the roof structure of the stand as well as the load platform or load flap (19) provided at this. Each cover side section (19) comprises a stretching device (21) for unfolding respectively folding a section cloth (27) through parallel movement of at least one preferably two cover bars (24) relatively a stationary post (22) via spread arms (23). One, preferably both, opposite side-edges of the section cloth (27) are connected with said cover bar/bars (24), and the cover bar/bars (24) and/or the post (22) are suspended in the handrail (14) and displaceable along this. The invention also refers to a foldable screen for screening off of a square surface.



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Goods and weather protection device and foldable screen for screening off of a square surface.

The present invention refers to a goods and weather protection device for vehicle load platforms, including a stand and a cover supported by this, comprising a roof cloth and a number separate uncoverable and coverable cover side sections, which are limited by partly vertical stays, partly a handrail forming an integral part of the stand roof structure and partly the load platform or load flaps provided at this.

Background of the invention

At loading and unloading of open load platforms, which are surrounded by a stand for a cover, it is a heavy manual work to completely or partly remove the cover to be able to perform the loading and unloading procedure.

One has tried to solve this problem by various methods, i.a. by means of providing blind like devices at the handrail of the cover stand, but since the cover also must be able to take up strain from inside the load platform and the cover during run is exposed to strong speed winds, this type of weather protection device has not found any wider use.

Object and most essential features of the invention

The object of the invention is to achieve a weather protection device for a load platform or the like, which by a few operations can be shifted from an active position, in which it covers for example a cover section, to a folded, passive position, so that the load platform becomes accessible. Another object of the invention is that each cover section shall comply with high demands on strength, to be able to absorb the stresses caused by the cargo, but even strong wind load. These tasks has been solved by a weather protec-

tion device for load platforms provided with a stand and for supporting a roof cloth or the like and which stand is divided into a number separate uncoverable and coverable cover side sections, which are limited by vertical stays, and a handrail contained in the roof structure of the stand as well as the load platform or a load flap provided at this.

Specification of the drawings

The invention will be described below in greater detail with reference to the enclosed drawings, which show some embodiments.

Fig. 1 shows in perspective view a part of a load platform provided with a cover stand and a cover according to the invention.

Fig. 2 shows at an enlarged scale a cover section in a view from the front and with the cover in active folded up position.

Fig. 3 shows a view analogous with that of fig. 2, but with the cover section in passive, folded condition.

Fig. 4 shows at an enlarged scale a section along the line IV - IV in fig. 2.

Fig. 5 shows at still enlarged scale a section along the line V-V in fig. 2.

Fig. 6 shows a section along the line VI-VI in fig 2.

Fig. 7 shows at an enlarged scale the detail encircled in fig. 3.

Fig. 8 shows in a partly broken view from the front the upper part of the support and the cover section according to an alternative embodiment.

Fig. 9 illustrates in a view from the front a part of a modified cover section with the spread arms in folded out position.

Fig. 10 shows a lateral view of the cover section illustrated in fig. 9.

Fig. 11 shows a section along the line XI-XI in fig. 9.

Specification of embodiments

In fig. 1 is shown a load platform 10 of a truck, trailer or the like, at the edge of which platform a number of vertical stanchions 11 are detachedly provided. These in a previously known manner at their lower end detachedly mounted to a platform attachment (not shown) and at the upper end provided with a joint head, for supporting a vertical stay 13. This is at its upper end connected to a horizontal handrail 14, in the form of a profile beam, that comprises two at some the distance from and above each other arranged, parallel guides 15 and 16 - fig. 4. The guide 15 is equipped with a race track 15a for a number of cars 17, which via carrier means 18 support a cover section 19, while the race track 16a of the lower guide 16 is intended for a number of cars 20, which each supports its stay 13.

The carrier means 18 are designed such or the guides 15, 16 are located such, that these may be displaced past a stay 13 situated in the second lower guide 16, in fig. 4 indicated by dash-dot-dot-lines. As can be seen in fig. 2 a cover section 19 consists of a stretching device 21, which comprises a central rod 22, at which is articulately pivoted a number of spread arms 23. These are provided in pairs and directed in opposite directions. At opposite end of the arms vertical cover bars 24 are articulately pivoted, of which each bar with its upper end is firmly connected with the carrier means 18 of the car 17. The bars 24 extend from the handrail 14 to the proximity of the load platform 10 or a load flap 26 pivotally hinged to this.

A rectangular cover cloth 27 is attached to the cover bars 24, which is dimensioned such that the cloth covers the open space between two stays 13 laterally and which extends from the handrail 14 to the load flap 26, which it overlaps

somewhat. At the central rod 22 a control rod 28 is pivotally supported round a shaft dowel 29. The control rod can be formed as a lever, the shorter lever arm 30 of which can be brought to co-operate with heels 31 applied to the downmost arms 23, when a spreading movement of the folded arms 23 shall occur from the position shown in fig. 3, in which the cover cloth 27 is joined together about the central rod 22. In this passive position the whole cover section 19 can be displaced along the upper guide 15 to a parking position, that can lie somewhere along the handrail 14. Since the cover section 19 and the stays 13 have separate guides 15 and 16 the cover sections can be displaced past one or more stays and is placed where the cover section is less in the way.

The sealing of an opening between two stays 13 is carried out by the cover section 19 being placed mid in the opening, whereupon the control rod 28 is rotated about the shaft dowel 29 - fig. 7 - ahead and back, whereby the short lever arm 30 presses against the heels 31 at the downmost arms 23, so that a spreading of the cover bars 24 occurs in direction against the stays 13. After this initial spreading movement the control rod 28 is displaced upwards, whereby each cover bar 24 is entered into in an open groove along the stay 13.

On the control rod 28 a stop lug 32 is arranged - see fig. 6 - provided with a recess 33 fitting over the upper edge 34 of the load flap 26. In the spread out position of the cover section 19 according to fig. 2 the stop lug 32 thus is placed on the upper edge of the load flap, whereby the stretching device is secured in its spread out position. In this position the whole cover section is also elevated some centimetres, so that the cars 17 have left their race track 15a and the upper edge 35 of the cover section 19 is located behind a drip strip 36 - fig. 4 -, which is a part of the handrail 14 formed as a profiled beam.

Load platforms that are exposed for powerful speed winds preferably can be provided with a locking device 39 - fig. 8 -at the upper part of the stay 13 for clamping of this relatively the handrail 14.

The locking device 39 is preferably operated by handles 41 and 42 provided at the lower part of the stanchions 11, whereby these also can have other functions, namely to lock the load flaps 26 to the stanchion 11 respectively lock the stanchion 11 relatively the stay 13. By actuating the lever 41 a lock rod 43 with lock plate 44 and faucets 45 is displaced to engagement with recesses in the race track 16a of the lower guide 16 .

For example in connection with the opening of the locking device of the load flaps with the control handles 41, 42, the lock rod 43 can be moved out of engagement with the handrail 14, so that the load flap can be folded downwards and the stay 13 can be displaced to an appropriate parking location along the handrail. If a larger opening corresponding more cover sections 19 is required to get access to the cargo on the load platform several stays 13 can be displaced along the lower guide 16 to an appropriate parking location, at the side if the exposed opening.

In the embodiment shown in fig. 9 and 10 the lower end of the central rod 22 is introduced in a recess 54 in the upper edge of the load flap 26, which guides the central rod laterally. At the bottom of the recess is provided a cavity 55 for a lock plate 56 provided in the central rod 22, which by means of an operating handle 57 is displaceable in the central the rod 22. The lever 57 is pivotally supported round a shaft 58, and at some the distance from this at the lever 57 a first link arm 60 is pivotally supported, the opposite end of which is pivotally supported in the lock plate 56 about a shaft pivot 61. By rotating the lever 57 about the axis 58 clockwise the lock plate will be disloca-

ted upwards and out of the cavity 55. At the lever 57 is moreover pivoted a second link arm 59, which with its upper end is articulately connected with an articulated rod 62 via a shaft pivot 63, which extends through an oblong recess 64 in the articulated rod 62. At the opposite end of the articulated rod is provided at least a double-faced gear rack 65, that co-operates with each a pinion 66, to which one end of one of the spread arms 23 is eccentric fixed. The oblong recess 64 in the articulated rod 62 allows that the lever 57 can be swung somewhat without the gear rack 65 being influenced. At this pivot motion however the lock plate 56 is actuated, which plate is displaced in the longitudinal direction of the central rod 22 so much, that it leaves the cavity 55 in the recess 54, and the central rod 22 can be lifted from the recess. Since the central rod 22 has lost its bearing, it will be suspended in the cover bars 24 via the spread arms 23 and because of the weight of the cover section 19 the cars 17 of the cover bars are displaced against the central rod 22, so that the cover cloth 27 is brought together to a narrow parcel. From there it can then be moved, still suspended in the cars 17 along the upper guide to an appropriate parking location.

The application of a cover section between two stays 13 occurs in reversed order, i.e. the cover section package 19 is moved so that it will be located approximately half way between two stays 13. Subsequently the lever 57 is rotated upwards so much, that the gear rack is actuated which in turn imparts the pinions 66 of the spread arms 23 a pivot motion, which entails that the spread arms are swung out in direction against the stays 13, until the cover bars 24 have been moved into in the U-formed profile along the side-edges of the stays 13. In this position the lower edge of the central rod 22 has come to such a level, that it can be moved into the recess 54 of the load flap 26. By rotating the lever 57 downwards the lower end of the lock plate 56 will be pushed into in the recess 55 and at a continued

revolution of the lever 57 the whole central rod 22 will be lifted up so much that its upper end can be brought into the slot between the race track parts 16a of the lower guide 16. In this position the cars 17 of the cover section 19 will be lifted up from the race track 15a of the upper guide 15.

The invention is not limited to the embodiments shown and described but several variants are conceivable within the scope of the claims.

CLAIMS

1. Goods and weather protection device for load platforms (10) provided with a stand for supporting a roof cloth or the like and which stand is divided into a number of separate uncoverable and coverable cover side sections (19), which are limited by vertical stays (11,13), a handrail (14) contained in the roof structure of the stand as well as the load platform or load flap (19) provided at this,
c h a r a c t e r i z e d t h e r e i n ,
that each cover side section (19) comprises a stretching device (21) for unfolding respectively folding of a section cloth (27) through parallel movement of at least one preferably two cover bars (24) relatively a stationary post (22) via spread arms (23), whereby one preferably both opposite side-edges of the section cloth (27) are connected with said cover bar/ bars (24), and
that the cover bar/bars (24) and/or the post (22) are suspended in the handrail (14) and displaceable along this.

2. Goods and weather protection device according to claim 1,
c h a r a c t e r i z e d t h e r e i n ,
that the post (22) during unfolding of the section cloth (27) or folding together and in fully unfolded position, with its one, lower end is provided to support against a bearing (34) in the load platform (10) or the load flap (26), and that the bearing (34) is formed to guide the post (22) laterally.

3. Goods and weather protection device according to claim 2,
c h a r a c t e r i z e d t h e r e i n ,
that the post (22) is provided with a locking means (56), which by operation of a handle (57) provided at the post in a first position is locked to the bearing (34), and
that the second, free, upper end of the post (22) in a

second swing-position of the handle (57) is lockable to the handrail (14) of the stand.

4. Goods and weather protection device according to claim 1,
c h a r a c t e r i z e d t h e r e i n,
that the spread arms (23) are fixedly, but pivotally connected with the cover bar/bars (24) as well as the post (22), which is provided to perform a position change at parallel displacement of the cover bar/bars (24).

5. Goods and weather protection device according to claim 1,
c h a r a c t e r i z e d t h e r e i n,
that the handrail (14) is formed as a profile bar for displaceable cars (17) along this, to which is connectable one upper side edge of the cover section and/or means (18) supporting the cover section.

6. Goods and weather protection device according to claim 1,
c h a r a c t e r i z e d t h e r e i n,
that fastening devices (40) provided at the stays (13) are constituted by a locking device, equipped with lock bolts (47) or the like for clamping the cover bars (24) of the cover section (19), against respective stay (13).

7. Goods and weather protection device according to claim 1,
c h a r a c t e r i z e d t h e r e i n,
that the stays (13) at their upper ends are provided with devices (44, 45;20) connectable to and/or displaceable along the handrail (14).

8. Foldable screen for screening off of a square surface, for example an opening against wind, rain, dirt and/or view, which opening is delimited by preferably perpendicularly

provided carrier means (13, 14, 26), which screen includes a cloth (27) of a flexible material and means for unfolding respectively folding the cloth (27),
c h a r a c t e r i z e d t h e r e i n,
that the means for unfolding respectively folding of the cloth (27) includes a post (22) and at least one rail (24), which post and rail are mutually connected by means of pivotally supported spread arms (23), and that the end of the spread arms (23) connected to the post (22) is connected to control handle (28; 57) for rotation of the spread arms (23).

9. Screen according to claim 8,
c h a r a c t e r i z e d t h e r e i n,
that the operating handle (57) is pivotally supported round a shaft pivot (58) at the rod (22) and articulatedly connected via a link arm (59) and a shaft pivot (63) with an articulated rod (62), the articulated rod exhibits at least one segment of a gear rack (65), that co-operates with a corresponding pinion (66), to which one end of one of the spread arms (23) is mounted.

10. Screen according to claim 9,
c h a r a c t e r i z e d t h e r e i n,
that the shaft pivot (63) extends through an oblong recess (64) in the articulated rod (62).

11. Screen according to claim 9 or 10,
c h a r a c t e r i z e d t h e r e i n,
that the end of the spread arm (23) is eccentrically located in relation to the rotation axis of the gear wheel (66).

12. Screen according to any of claims 9-11,
c h a r a c t e r i z e d t h e r e i n,
that the segment of the gear rack (65) is two-sided for interaction via pinions (66) with a spread arm (23) provided on each side of the rod (22).

FIG. 1

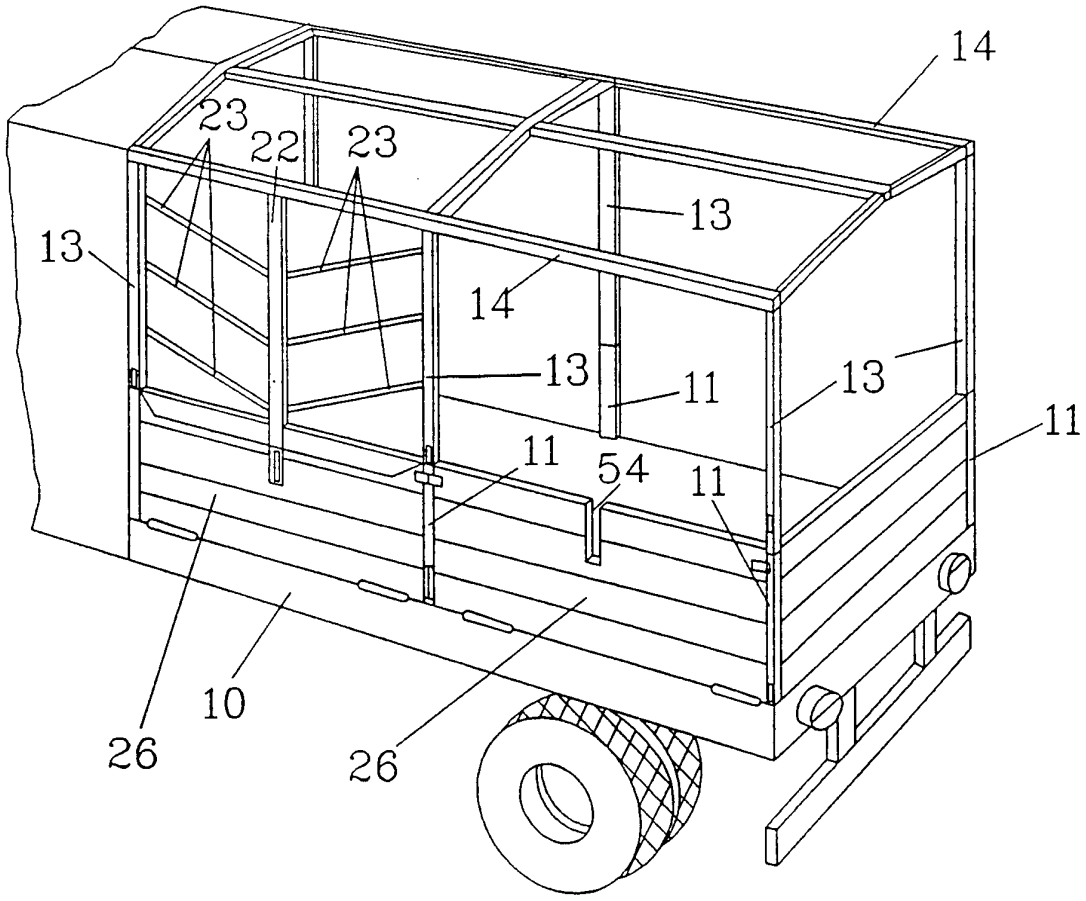

FIG. 2

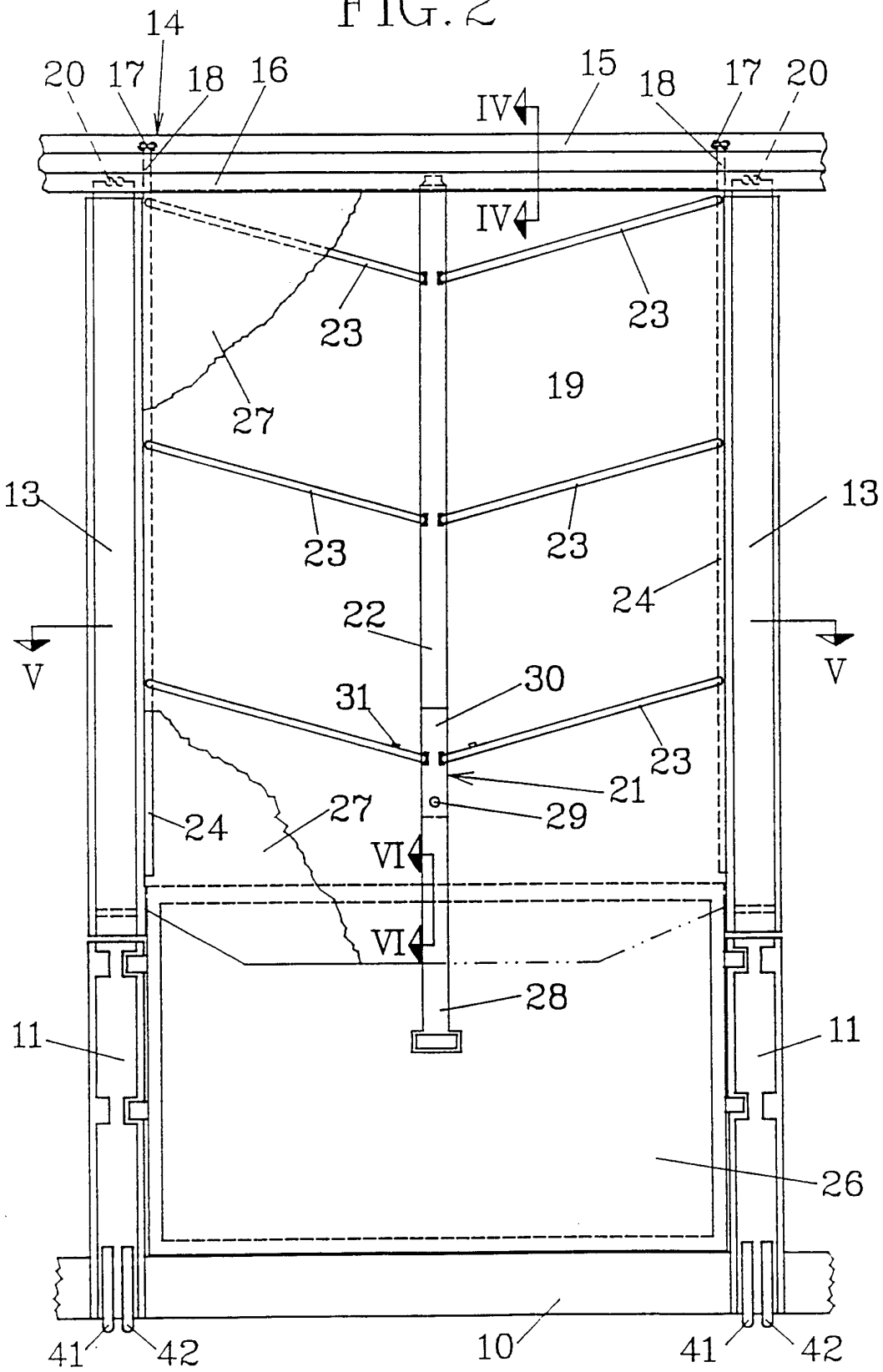
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FIG. 3

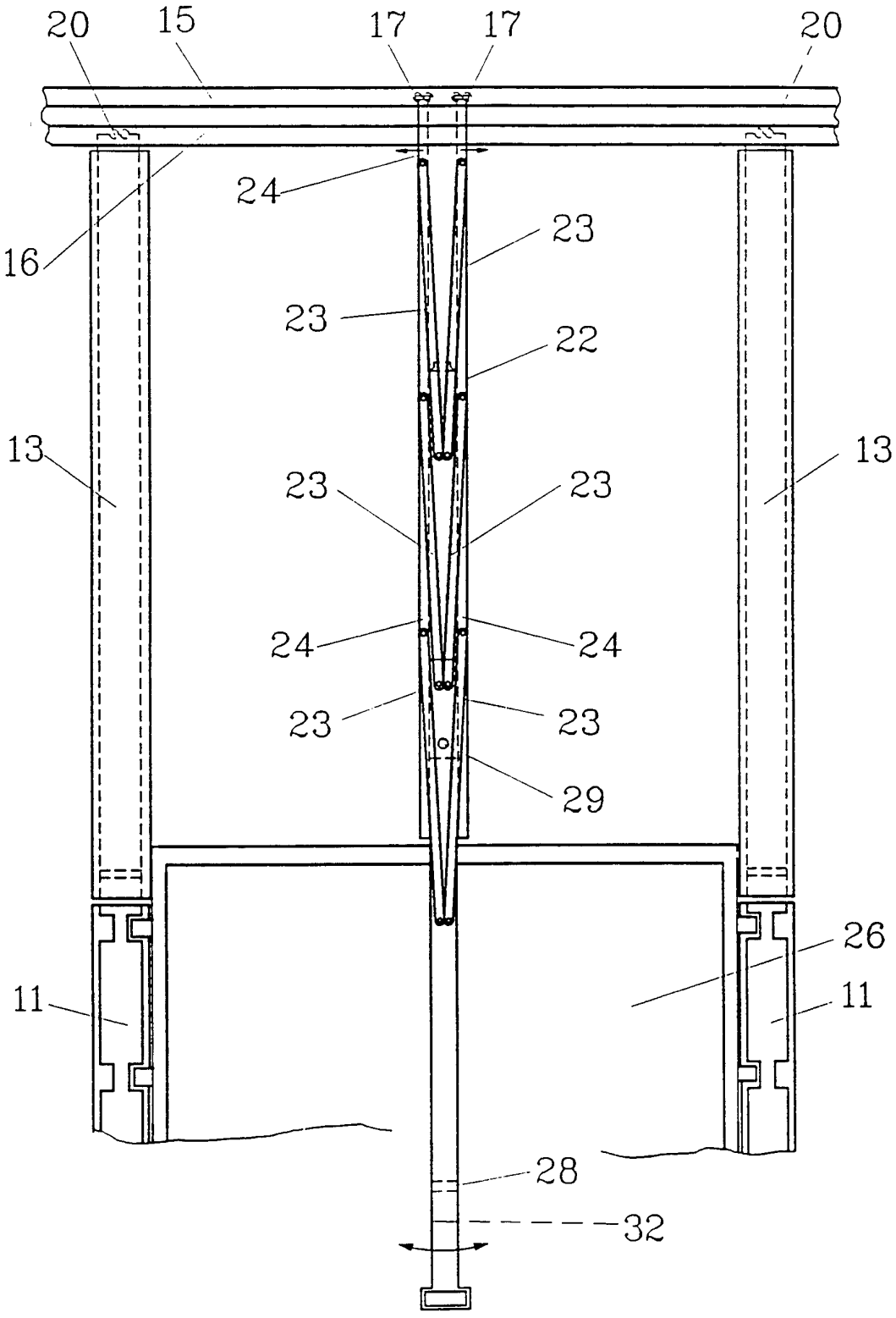


FIG. 4

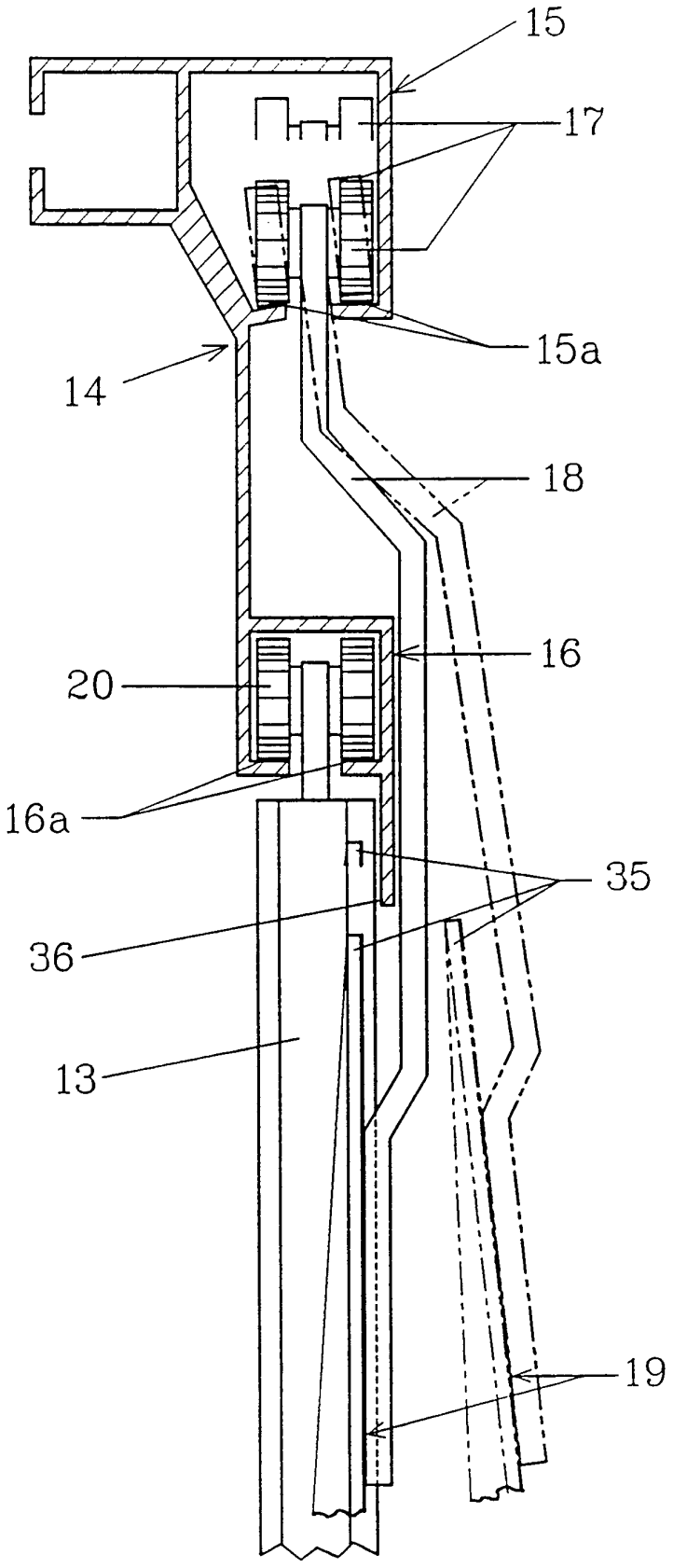


FIG. 5

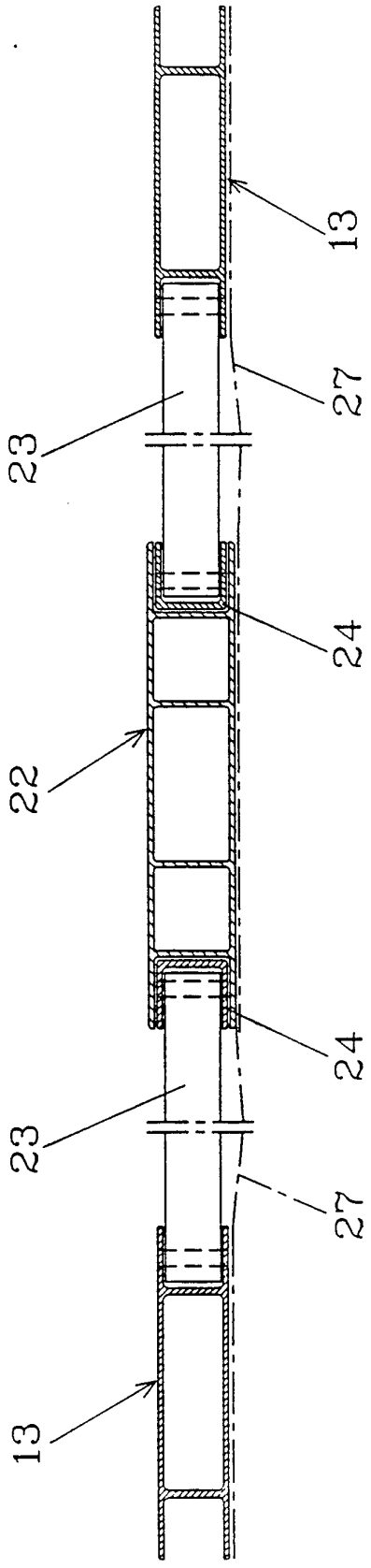


FIG. 11

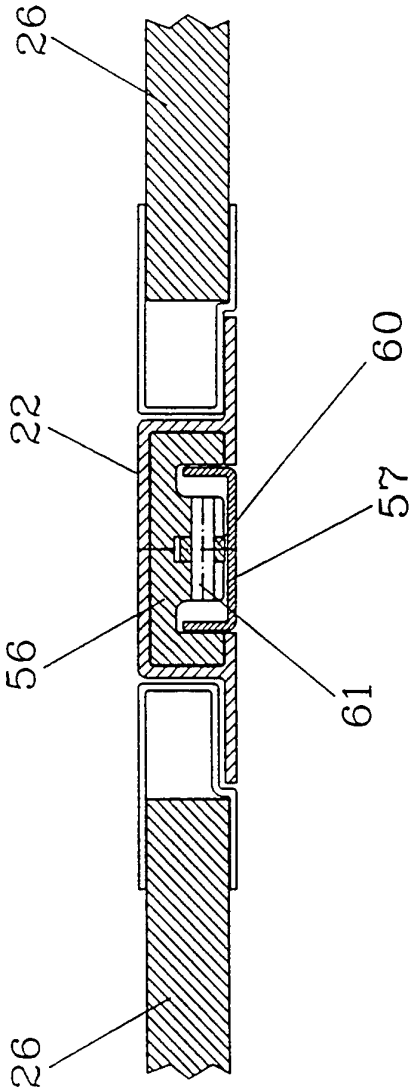


FIG. 6

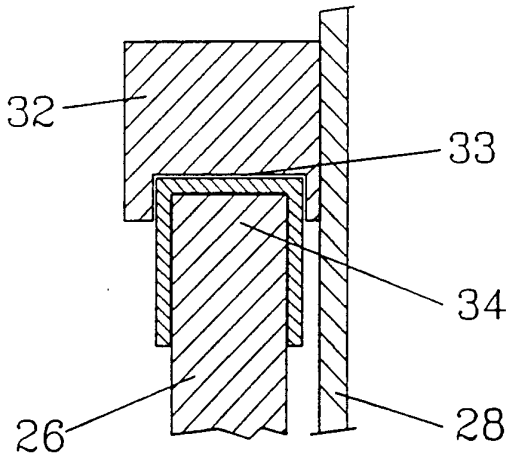


FIG. 7

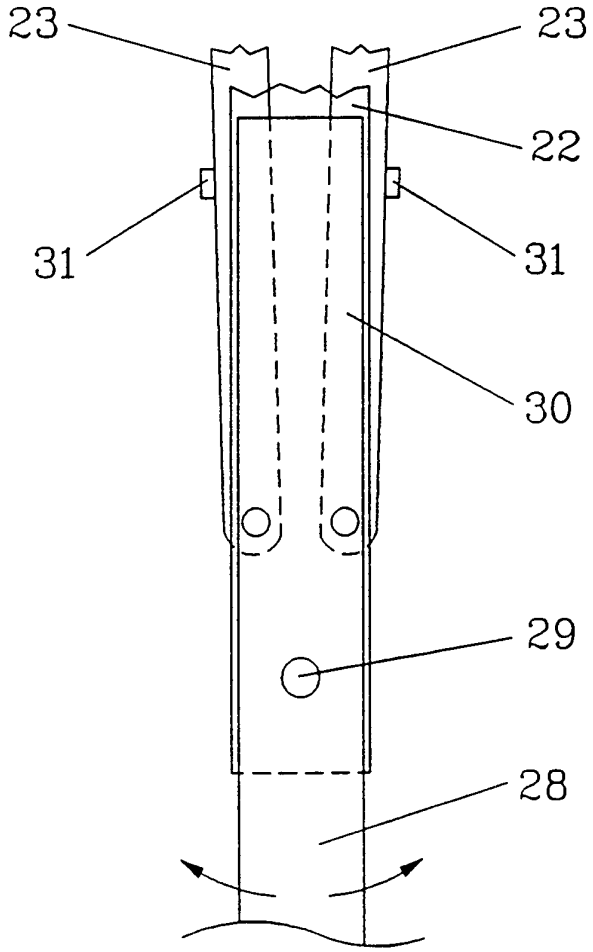


FIG. 8

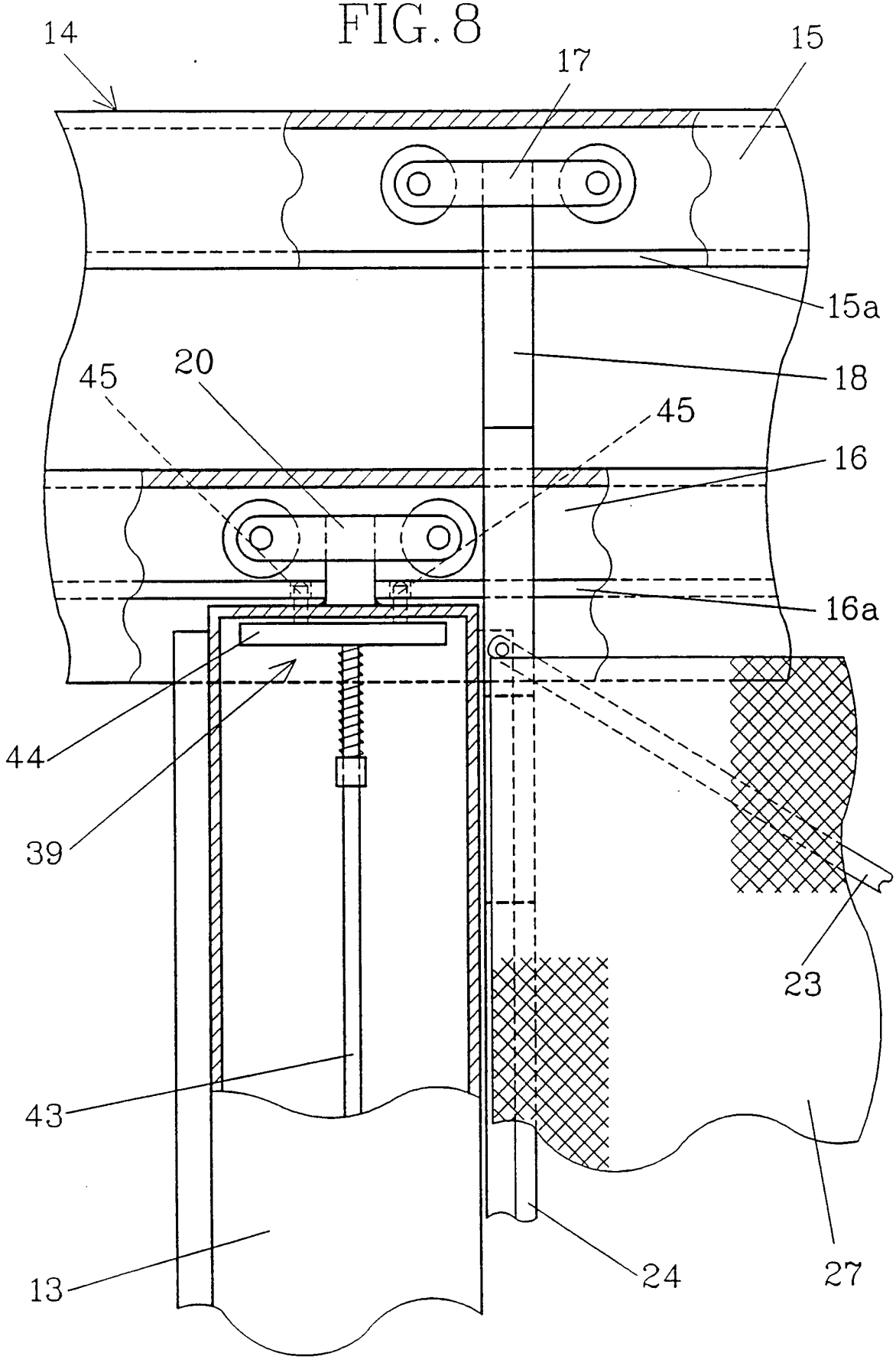


FIG. 9

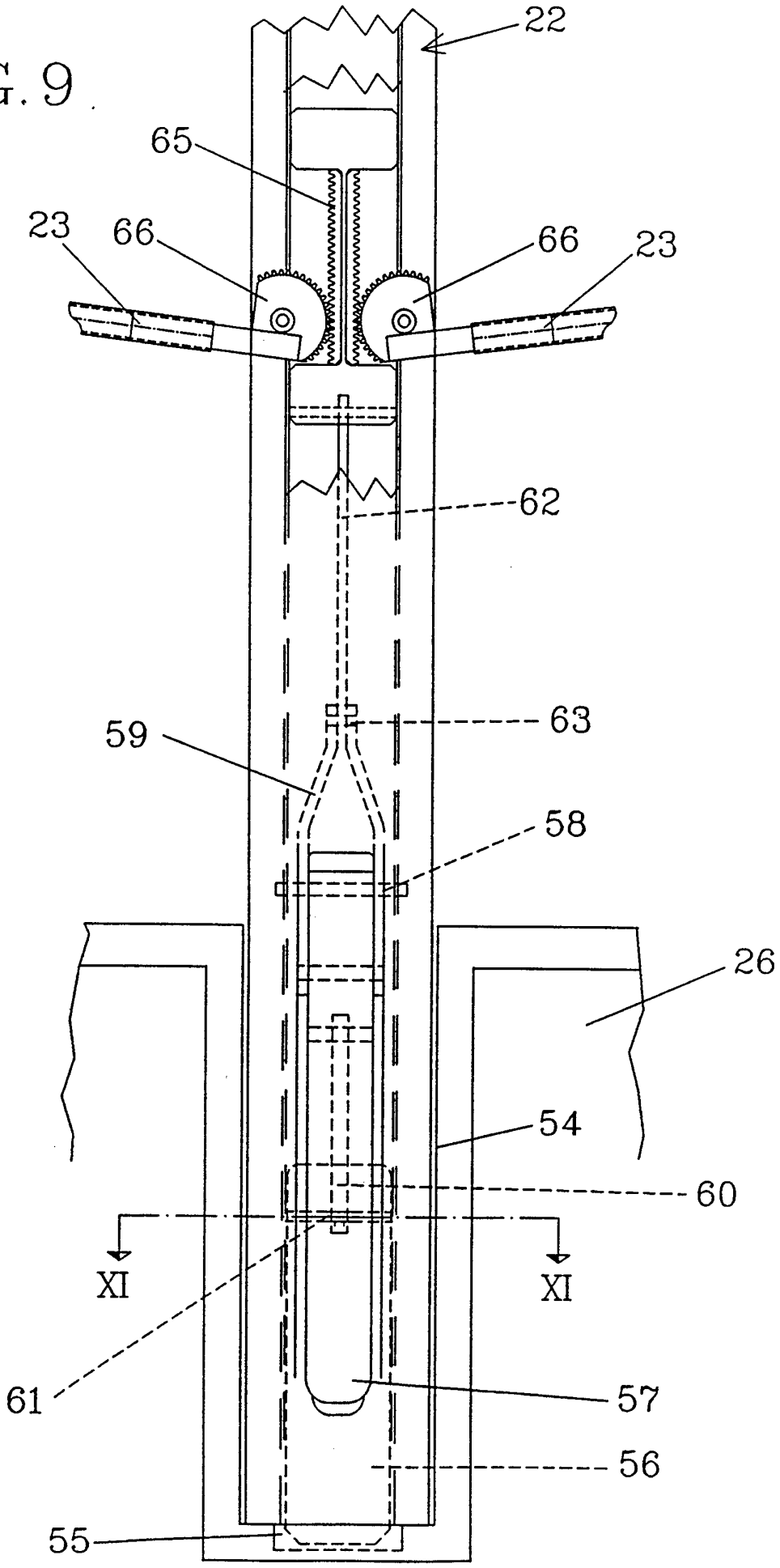
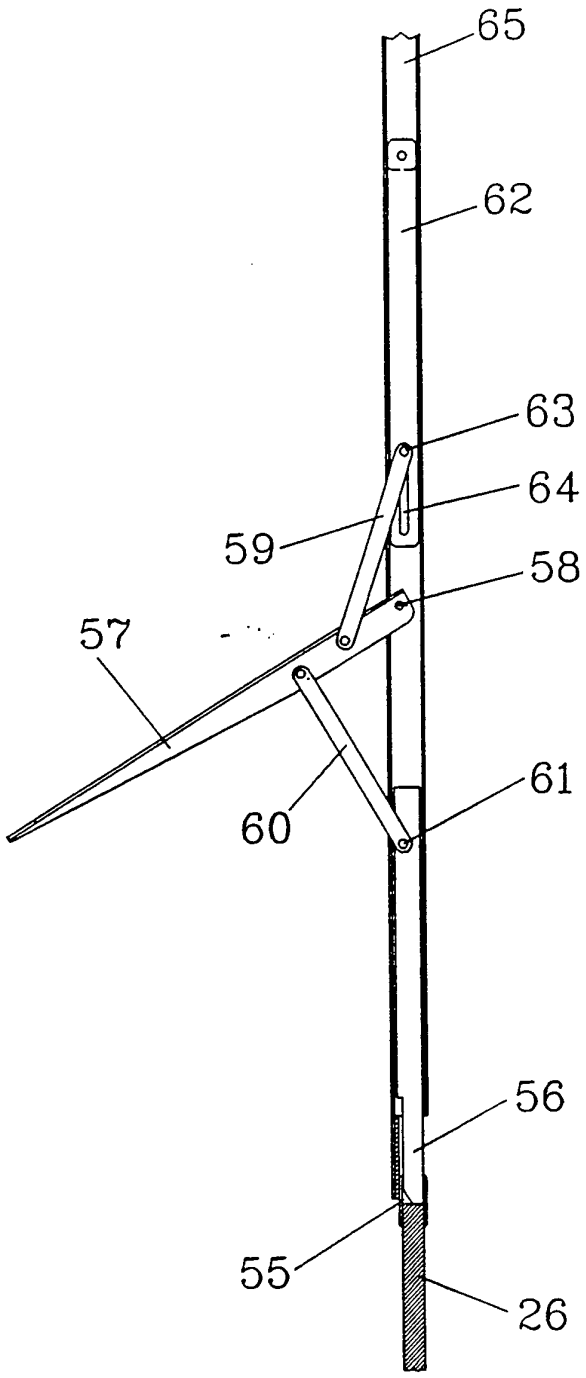


FIG. 10



INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 93/00088

A. CLASSIFICATION OF SUBJECT MATTER

IPC5: B60P 7/04, B60J 7/10, E06B 9/00
According to International Patent Classification (IPC) or to both national classification and IPC

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE, B, 457522 (JENS ERIKSSON), 9 January 1989 (09.01.89) --	1
A	WO, A1, 9119625 (OHLSON, KJELL), 26 December 1991 (26.12.91) --	1,8
A	US, A, 3874721 (TUGGLE), 1 April 1975 (01.04.75) --	1,8

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Date of the actual completion of the international search	Date of mailing of the international search report
6 Sept 1993	08 -09- 1993
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Hans Nordström Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

30/07/93

International application No.
PCT/SE 93/00088

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SE-B- 457522	09/01/89	SE-A- 8701981	15/11/88
WO-A1- 9119625	26/12/91	NONE	
US-A- 3874721	01/04/75	NONE	