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71 Applicant: **AB WELIN, Fiskhamngatan 4,
S-41458 Göteborg (SE)**

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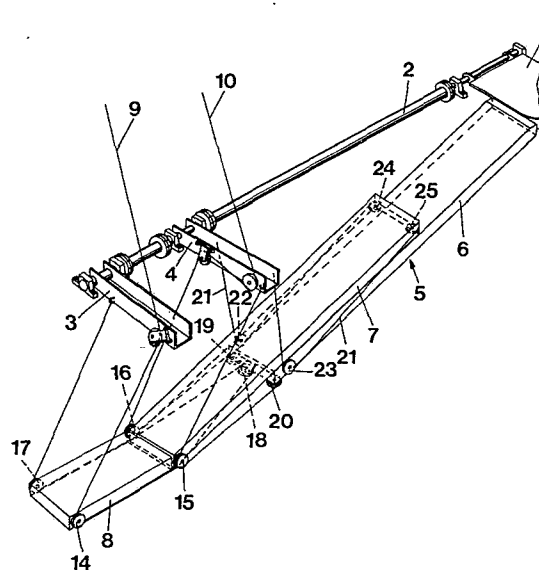
72 Inventor: **Nilsson, Per, Bollmörtsgratan 8, S-421 68 Västra
Frölunda (SE)**

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74 Representative: **Roth, Michel et al, GÖTEBORGS
PATENTBYRA AB Box 5005, S-402 21 Göteborg (SE)**

54 **Accommodation ladder for ships.**

57 A ship's accommodation ladder pivotally connected to the deck of the ship and has a platform (8) pivotally connected to the free end thereof and being supported by a wire arrangement (9, 10) by means of which the platform may be raised and lowered together with the ladder. The ladder is of telescopic type and consists of an upper portion (6) and a portion (7) which is telescopically displaceable relative to said upper portion and to which the platform is connected. A support wire (21) of a fixed length supports the ladder and controls the displacement of the moveable portion (7) relative to the upper portion (6). At least one of the wires (9, 10) supporting the platform (8) extends via the upper portion (7) of the ladder in order that the expansion and contraction of the ladder shall be well coordinated with the raising and lowering of the platform.



Accommodation ladder for ships

The present invention relates to accommodation ladders for ships and of the kind comprising a telescopic ladder having a first portion pivotally connected to a first platform or the like connected to the deck of the ship and a second portion telescopically displaceable relative to said first portion and pivotally carrying at its free end a second platform which by means of a wire arrangement is supported by at least one davit or the like, said wire arrangement being adapted to maintain said second platform in a position substantially parallel to the deck of the ship independently of the angle of inclination of the ladder portions, at least one supporting wire being arranged for supporting the ladder and controlling the displacement of the moveable ladder portion relative to said first ladder portion.

Background of the invention

A previously known embarkation device described in the British patent specification 1429395 comprises a ladder which is pivotally connected to an upper platform at the deck of the ship and a lower platform which is pivotally attached to the lower end of the ladder and which is maintained in a horizontal position by a wire arrangement independently of the angle of inclination of the ladder. The length of the ladder, i. e. the span between the attachment to the deck and the lower platform, is limited by the loads for which the ladder is constructed. In modern ships with a very high free board, such as 20 meters or more, it is of course desirable to have a long ladder, but this also means that the ladder must be of very sturdy construction in order to withstand the high loads which may be encountered.

In accommodation ladders intended to be used only at a quay and not for such purposes as pilot's embarkation out at sea, it is previously known to use ladder portions which are telescopically displaceable relative to each other, such as shown for instance in the British patent specification

1236166.

It is not possible to combine the two above-mentioned designs for the reason that the telescoping movement of the ladder can not be synchronized with the raising and lowering of the lower platform and the maintenance thereof in a horizontal position. Furthermore it is not possible to have two independent winch-and-wire systems for operating the platform and for operating the telescoping ladder, respectively, since it would not be possible to operate two such systems together with such accuracy as to avoid that one of the systems is working at a faster rate than the other one.

In view of these difficulties it has not been possible to provide telescopic ladders with so called pilot platforms. Instead, separate structures have been used (one on each side of the ship) of a rather expensive and special design, necessitating maintenance and stow away space and also occupying extra deck space.

The object and essential characteristics of the invention

The object of the invention is to provide a telescopic accomodation ladder which may be used as an embarkation device in port and also for taking aboard pilots or other persons at sea, for which purpose the platform is supplemented with a pilot ladder in a manner known per se. The previously known telescopic ladder which is relatively easily damaged due to its length has to be capable of positively maintaining the outer platform in a "horizontal" position to secure that the pilot ladder is hanging perpendicularly, since any skewing of the pilot ladder is detrimental and causes peril to anyone climbing the ladder. This necessates a good control of the mutual displacement of the ladder portions, this telescoping movement having to be very well coordinated with the lowering and raising of the outer platform. Furthermore the arrangement should be of simple and reliable design and should not complicate the operations of swinging the ladder in over the deck and stowing the same on deck.

This has been attained in that at least one of the wires supporting said second platform is arranged to extend via said first portion of the ladder, i.e. that portion which is not longitudinally displaceable.

Description of the drawings

The invention will be more closely described herebelow with reference to embodiments shown in the accompanying drawings.

Fig. 1 is a perspective view of a portion of an embarkation device,

Fig. 2 is a diagrammatic view in perspective showing one embodiment of the device according the invention, and

Fig. 3 shows a second embodiment.

Description of embodiments

On the deck of the ship there is mounted a first platform 1 which is pivoted on a shaft 2 extending alongships. The shaft 2 is interconnected with swingable davit arms 3 and 4.

To the first platform 1 there is pivotally connected a ladder 5 which comprises an upper, first portion 6 which is pivoted to the upper platform 1 and a lower, second portion 7 which is telescopically displaceable relative to the first portion 6. Only the side rails of the two ladder portions are shown, the ladder steps being omitted for the sake of clarity. To the lower end of the moveable portion 7 there is pivotally connected a second platform 8 which is supported by two wires 9,10.

As will appear from fig. 1, the second platform 8 has an entry and exit opening 11 surrounded by a rail 12 which facilitates comfortable passage through the opening 11. A pilot ladder 13 is connected to the platform 8 adjacent the opening 11 and on that side which faces the ship's side.

In the embodiment illustrated in fig. 2 the wires 9 and 10 extend from a winch (not shown) via pulleys on the davit arms 3 and 4, respectively, to pulleys at the corners of the

platform 8 and further around pulleys at the lower end of the upper ladder portion 6 back to the platform 8, and are attached to the davit arms 3 and 4, respectively. More specifically, the wire 9 extends via the davit arm 3 to a pulley 14 at the end of the platform 8 facing away from the ladder 5, and further along the outer side of the platform around a further pulley 15 at the end of the platform facing the ladder, and from there below or along the side of the moveable ladder portion 7, around a pulley 18 at the lower end of the upper ladder portion, and via further pulleys 16 and 17 on the platform 8 along the inner side thereof and back to the davit arm 3 to which the wire is attached. The second wire 10 extends via pulleys on the davit arm 4 to the pulley 16 at the end of the platform 8 facing the ladder 5 and further below or along the side of the moveable ladder portion 7, around pulleys 19 and 20 at the lower end of the upper ladder portion 6, and back to the platform 8 and via the pulley 15 up to the davit arm 4 to which the wire is attached.

The ladder 5 is connected to the davit arm 4 by means of a support wire 21 of a fixed length. The support wire extends from an attachment point on the davit arm 4 around a pulley 22 at the lower end of the upper ladder portion 6, and to the upper end of the moveable ladder portion 7 around pulleys or wire guides 24 and 25 at the respective corners thereof, and back to the lower end of the upper ladder portion 6 at the opposite side thereof and via a pulley 23 up to an attachment point on the davit arm 4. Of course, it is also possible to have two support wires 21 which are attached to the upper end of the moveable ladder portion 7 instead of extending around the pulleys 24, 25. When the wires 9 and 10 are paid out, the ladder 5 will be swung downwardly, pivoting around the pivot shafts at the platforms 7 and 8, respectively. Independently of the inclination of the ladder 5, the platform 8 will always be maintained in a horizontal position by the wires 9 and 10. The moveable ladder portion 7 will be displaced outwardly relative to the upper ladder portion 6 by gravity under control by the wire 21. Any uncontrolled extension of

the moveable ladder portion 6 will be prevented by the wires 9 and 10 which extend via the lower end of the upper ladder portion 6 and thereby prevents an increase of the distance between the platform 8 and the lower end of the upper ladder portion 6. Instead, the displacement of the moveable ladder portion 7 will be well coordinated with the lowering movement of the platform 8. At the same time, the two ladder portions 6 and 7 are prevented from gliding apart.

When the platform 8 is raised, the wires 9 and 10 extending via the moveable ladder portion 6 will contribute to the telescopic contraction of the ladder.

When the ladder 5 and the platform 8 have been raised to the level of the deck, they are swung around the shaft 2 into the stowaway position, so that they will be situated onboard inside of the railing.

As previously mentioned, the length of the support wire 21 is fixed, and as the distance between the davit 4 and the pulleys 22 and 23 at the lower end of the upper ladder portion 6 is increased, the distance will decrease between the pulleys (alternatively the attachment points) 24, 25 at the upper end of the moveable ladder portion 7 and the pulleys 22, 23 at the lower end of the upper ladder portion 6. In this manner, the ladder 5 will be constantly supported at its middle portion. Furthermore, any uncontrolled extension of the moveable ladder portion 7 will be counteracted.

The embodiment shown in Fig. 2 differs from the embodiment described hereinbefore in that there is provided an extra davit arm 26 to which the support wire 18 is attached. In the same manner as the two other davit arms 3 and 4, the davit arm 21 is arranged on the shaft 2. Also, the extension of the wires differs somewhat from the embodiment illustrated in Fig. 1.

The wire 9 extends from the winch via the davit arm 4 to the pulley 14 at the end of the platform 8 facing away from ladder 5, and via a further pulley 27 to the opposite corner of the portion of the platform 8 facing the ladder 5 and via pulleys 28 and 17 back up to the davit arm 3, around a pulley provided below said davit arm and further below the davit arm 4 and to a pulley provided below the davit arm 26, from where the wire extends to the lower end of the upper ladder portion 6 and via pulleys provided side by side with the pulleys 22, 19 and 20, 23 back up to the davit arm 26 to which it is secured.

The wire 10 extends from the winch via the davit arm 4 to the pulley 16 at the end of the platform 8 facing the ladder 5 and further below the moveable ladder portion 7 around the pulley 18 at the lower end of the upper ladder portion 6, back to the platform and via the pulley 15 up to the davit arm 4 to which it is secured.

The support wire 18 extends below the moveable ladder portion 7 via a further pulley 29 arranged at the lower end of the upper ladder portion 6.

Other wire arrangements than those described above are conceivable within the scope of the claims. It would for instance be possible to have only one of the wires 9 and 10 extending via the upper ladder portion 6, whereas the second wire would extend from the davit arm to the platform 8 and back to the davit arm.

The device is not limited to the use of taking aboard people at sea, but can be used with the same advantages as a conventional accommodation ladder, in which case the second platform 8 is placed upon the quay.

Claims

1. An accomodation ladder for ships and of the kind comprising a telescopic ladder (5) having a first portion (6) which is pivotally connected to a first platform (1) or the like connected to the deck of the ship and a second portion (7) which is telescopically displaceable relative to said first portion and at the free end of which there is pivotally carried a second platform (8) which is supported by at least one davit (3,4) or the like via a wire arrangement (9,10) which is adapted to maintain said second platform (8) in a position substantially parallel to the deck of the ship regardless of the inclination of said ladder portions (6,7), and wherein at least one support wire (21) is adapted to support the ladder and control the displacement of said second portion (7) relative to said first portion (6),

c h a r a c t e r i z e d i n

that at least one of the wires (9,10) supporting said second platform (8) extends via said first portion (6) of the ladder (5).

2. An accomodation ladder as claimed in claim 1,

c h a r a c t e r i z e d i n

that at least one of said wires (9,10) extends from a davit (3) around a pulley (14) at one corner of said second platform (8), around at least one pulley (18) on said first portion (6) of the ladder, back to said platform and around a pulley (17) to a davit.

3. An accomodation ladder as claimed in claim 1 or 2,

c h a r a c t e r i z e d i n

that at least one of said wires (9,10) extends from a davit (3,4) to one corner of said second platform (8) and via pulleys below said platform and up to said davit, via further pulleys to another davit and down to said first portion (6) of the ladder and via pulleys on said first portion up to a davit.

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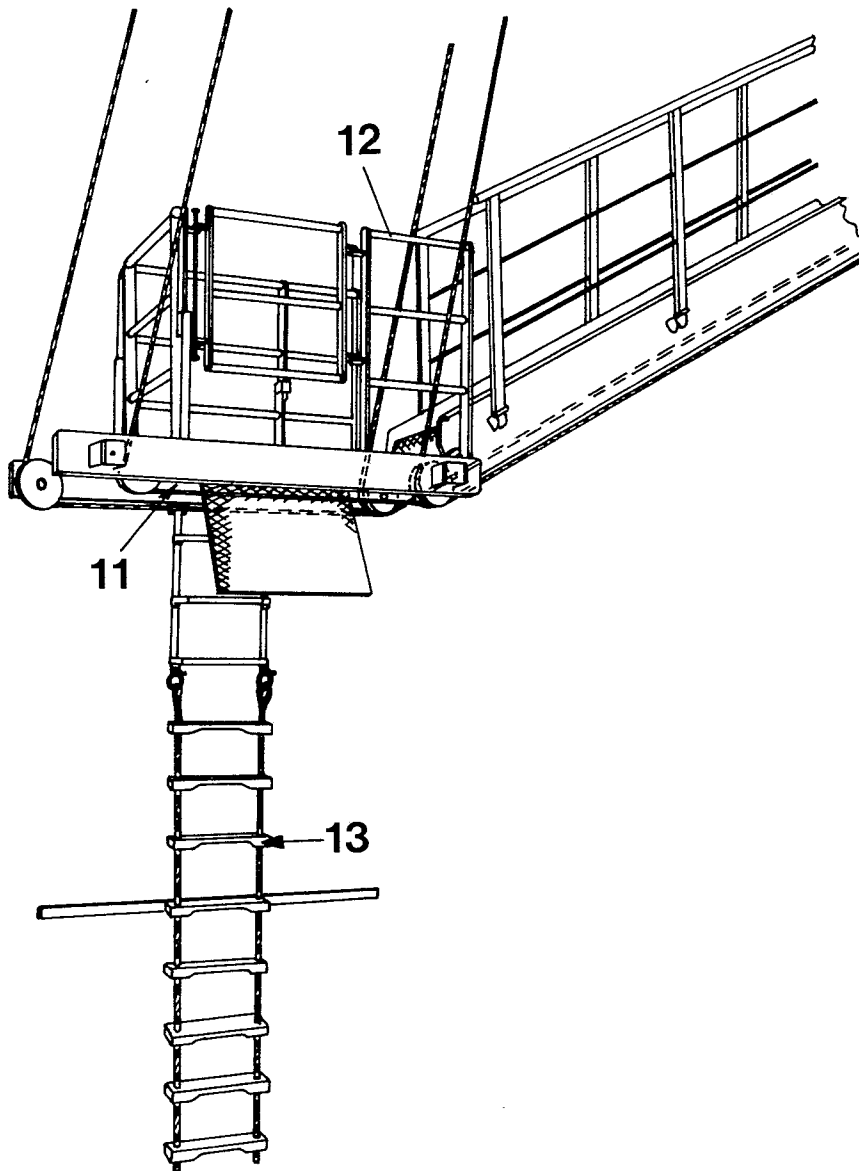
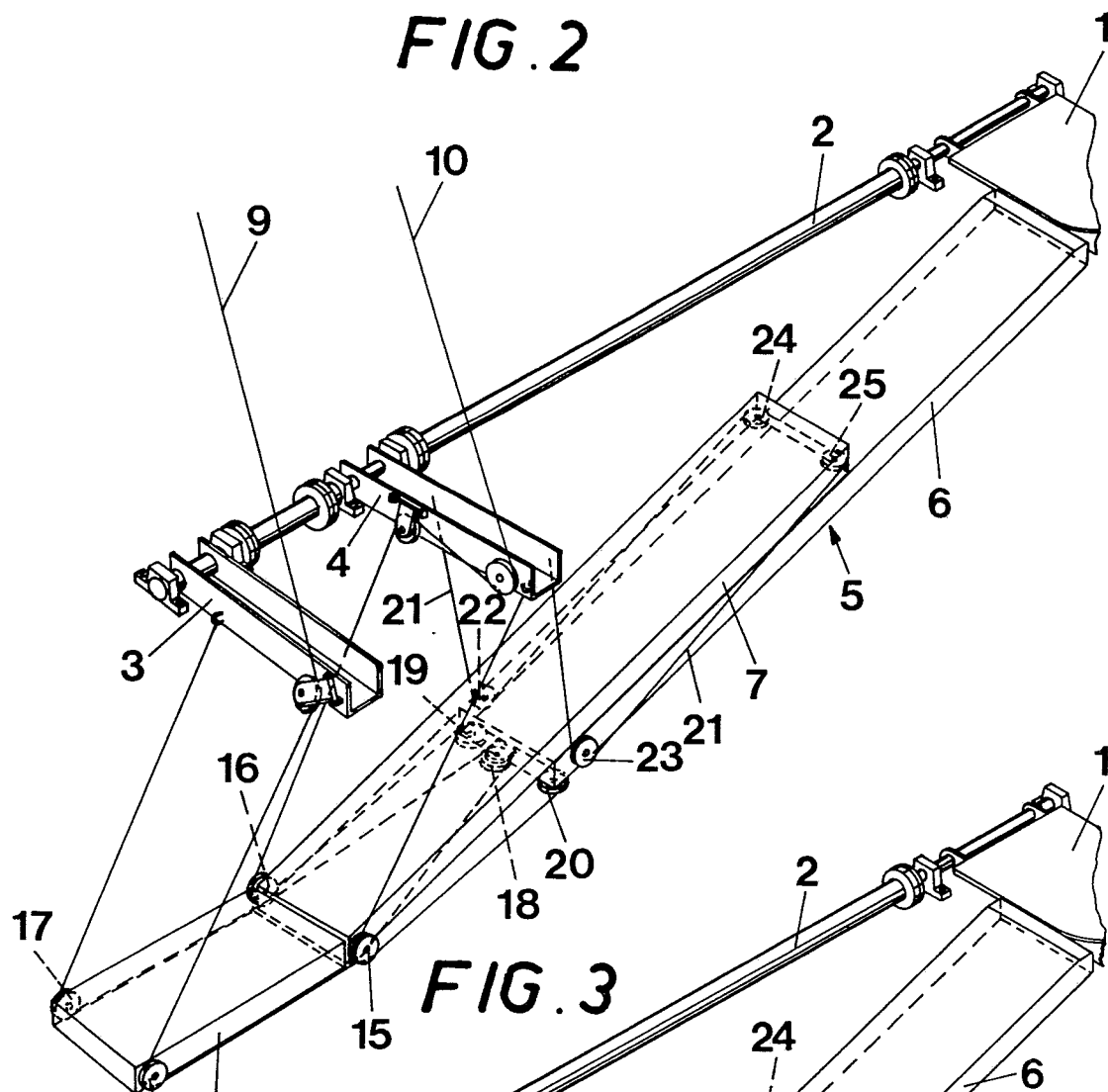
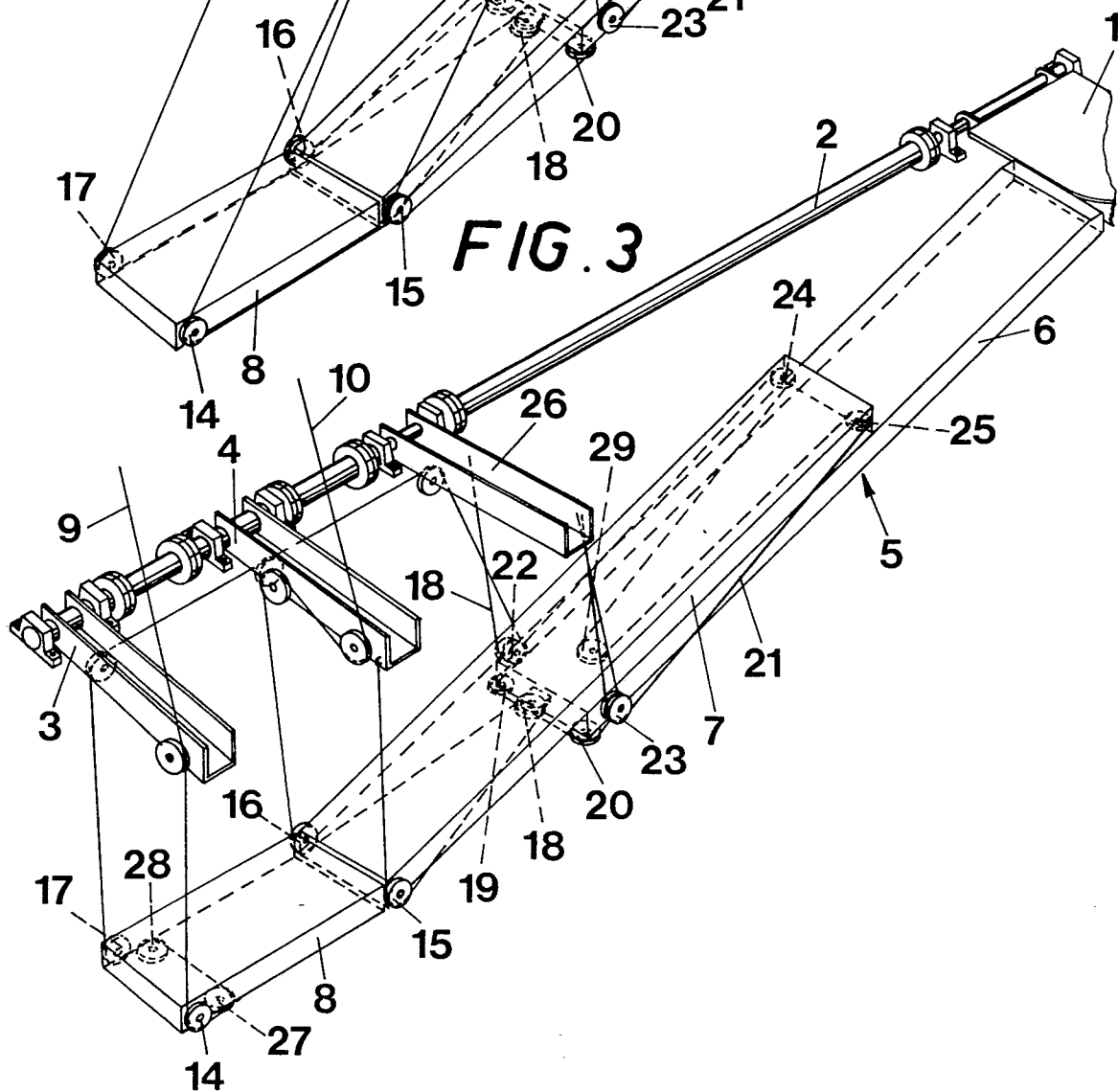
FIG. 1

FIG. 2**FIG. 3**



European Patent
Office

EUROPEAN SEARCH REPORT

0047563

Application number

EP 81 20 0989

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>US - A - 2 448 335</u> (J.J. WALLACE) * column 3 to column 5; column 6, lines 1-17; figures 1-26 * --	1	B 63 B 27/14
A/D	<u>FR - A - 2 024 184</u> (AB WELIN) & GB - A - 1 236 166		
A/D	<u>GB - A - 1 429 395</u> (AB WELIN)		
A	<u>US - A - 2 757 847</u> (H.G. TAYLOR) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			B 63 B
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
The present search report has been drawn up for all claims			
Place of search The Hague	Date of completion of the search 14-12-1981	Examiner PRUSSEN	