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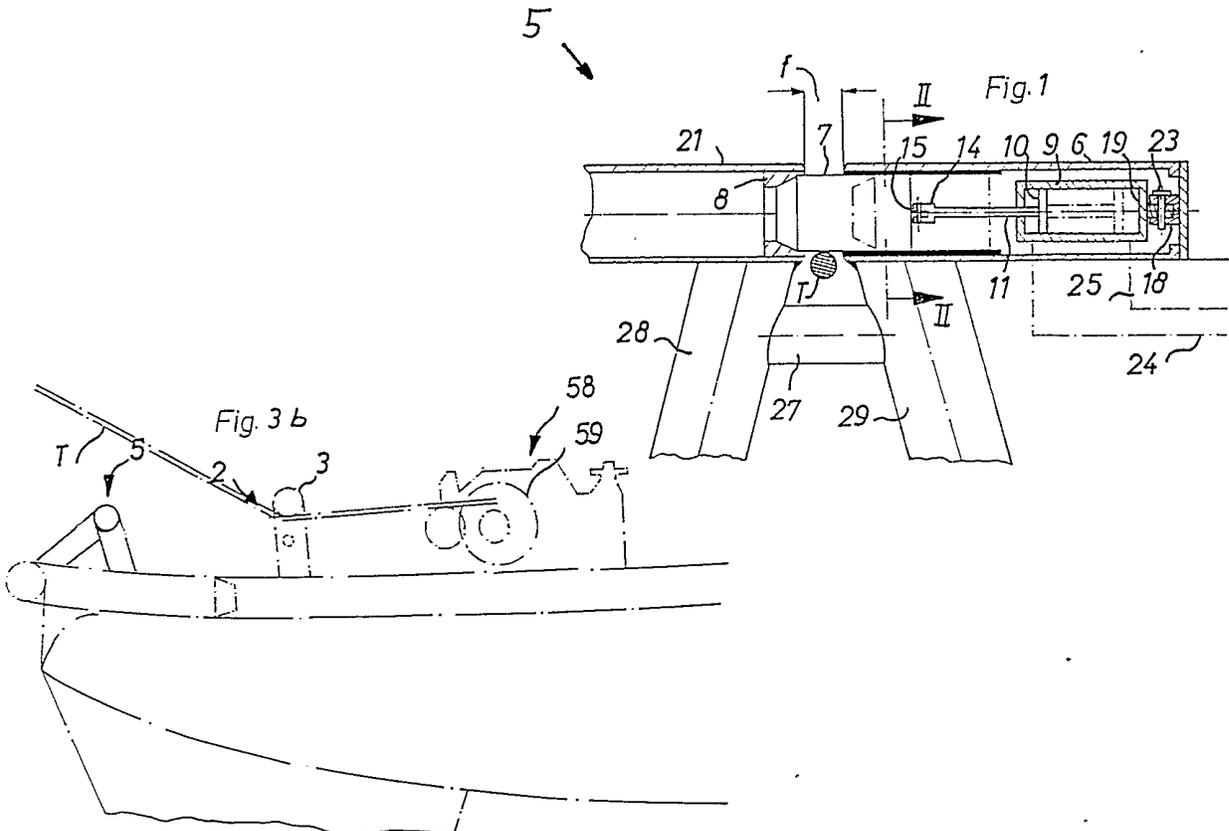
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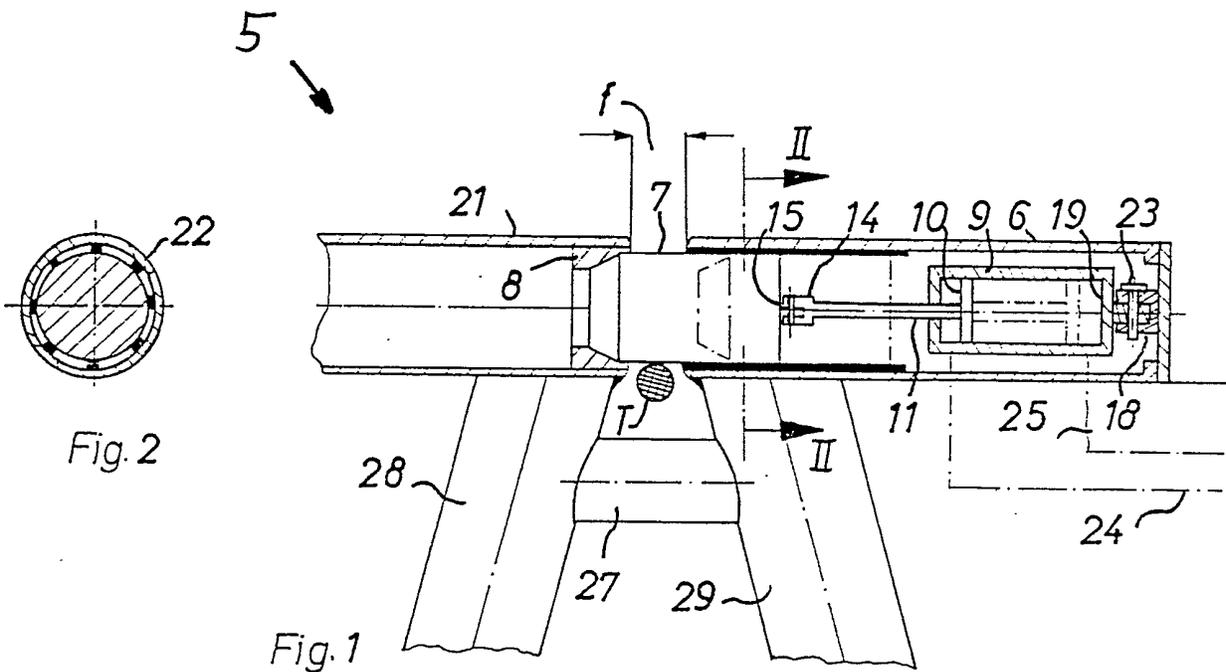
(56) Documents cited
US 3899093 A US 3892386 A

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(54) Hawser mounting arrangement

(57) A hawser mounting arrangement provides two alternative towing points between a winch 58 and the stern of a tug or towing vessel by having fixed and selectable locating fixtures 2, 5, (30, 30') (Figs 4, 5 not shown) arranged along the longitudinal axis of the tug. The forward fixture 2 has a fixed, upper cross beam (3) to guide a hawser (T) below and through the fixture and the rearward fixture (5) has at least one movable retaining element 7 (32, 32') to guide and support the hawser T below and through the fixture and to deflect the hawser T. By displacing the retaining element 7, (32, 32') the hawser T can be freed to run above the fixture 5.





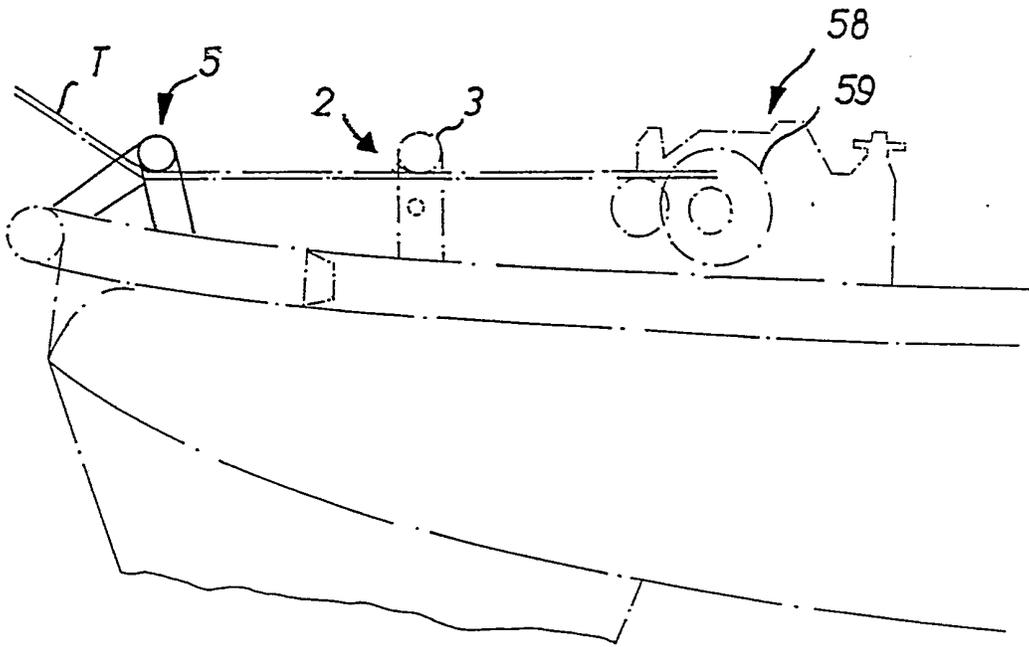


Fig. 3 a

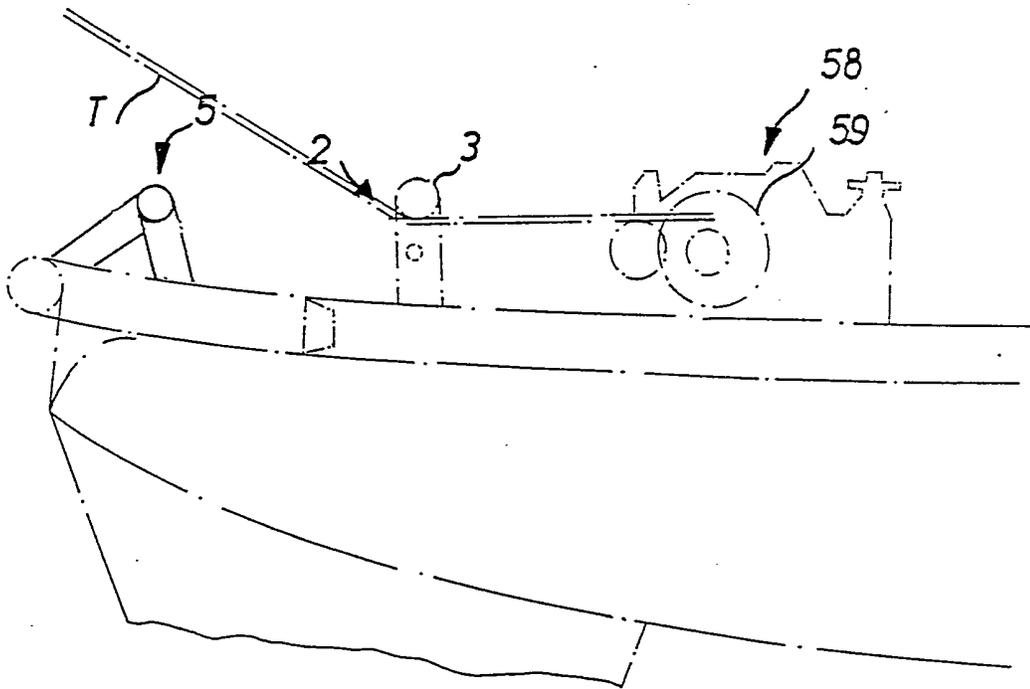


Fig. 3 b

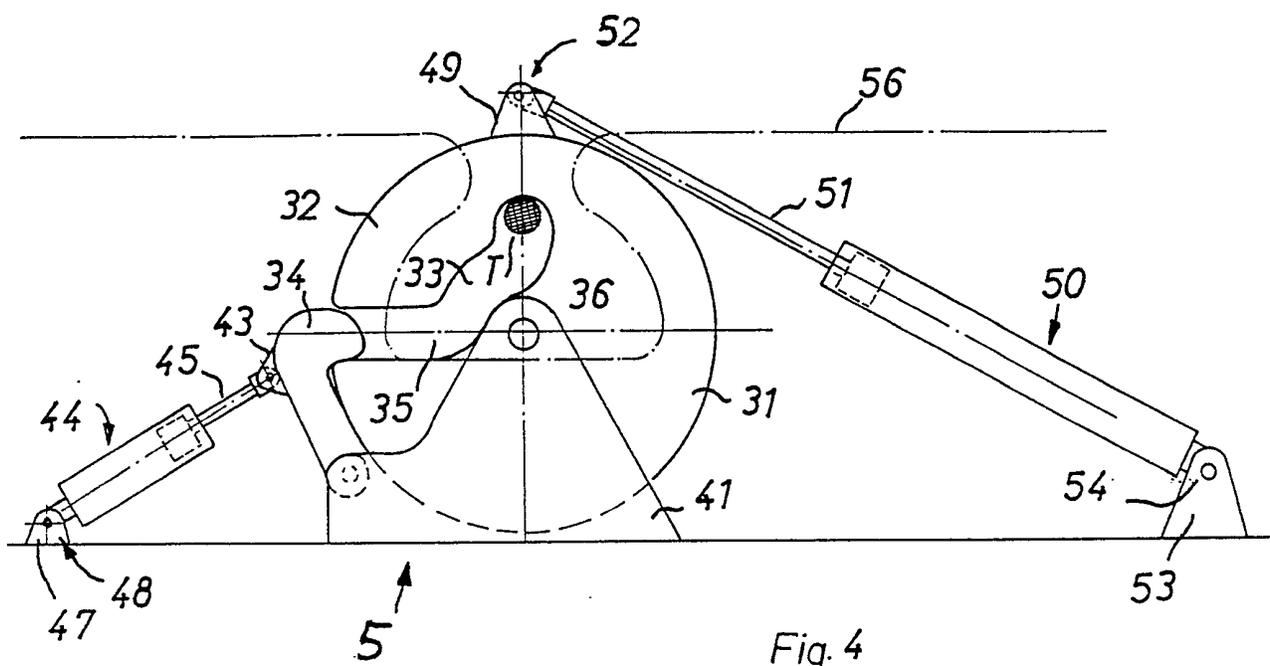


Fig. 4

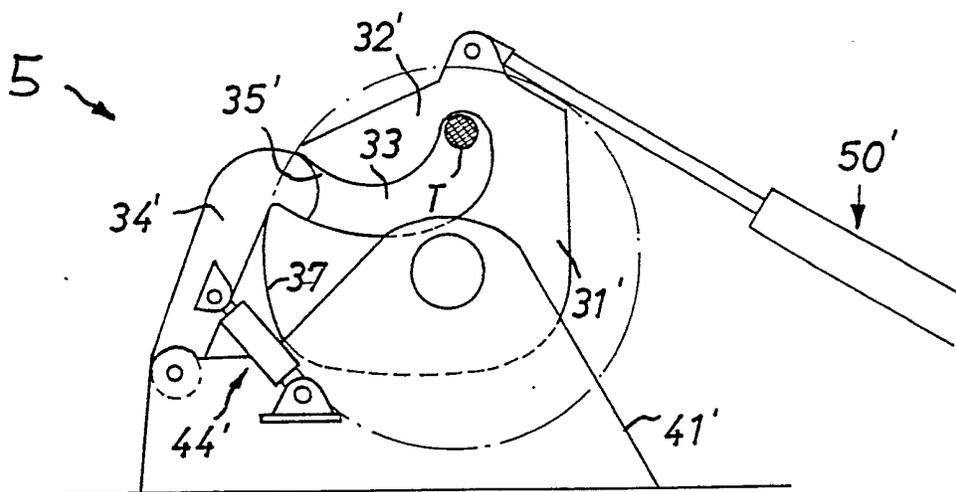


Fig. 5

HAWSER MOUNTING ARRANGEMENT

This invention relates to a hawser mounting.

In order to perform certain specific tasks, towing vessels, e.g. tugs are required to vary the position of a hawser. Owing to the fact that the hawser is usually secured at one position - either to a capstan winch or a tow hook - it would be necessary to vary the location of this securing position to vary the contact point for the hawser towing force. Hitherto this has not been a practicable solution.

An object of this invention is to provide a hawser mounting arrangement capable of varying the contact point of the hawser between a towed ship and the tug without having to disconnect the hawser link between them and with as little manual intervention as possible.

According to the invention there is provided a hawser mounting arrangement disposed between a winch and a stern of a ship and comprising at least two locating fixtures arranged along the longitudinal axis of the ship, of which the locating fixture closest to the centre of the ship has a fixed, upper cross beam to guide a hawser through the fixture and the locating fixture closest to the stern is equipped with at least one

movable retaining element usable optionally to guide and support the hawser through this fixture.

The movable retaining element can be a cylinder one end of which is located in a retaining ring and the other end of which is free to slide in a guide sleeve wherein the guide sleeve may be moved to close the gap between the retaining ring and the guide sleeve to support the hawser.

Alternatively, the movable retaining element may be a rotatable member having a guide slot for the hawser which is at least partly radially offset relative to the axis of rotation. The slot has a blind end which can be used to support the hawser. The movable retaining element is preferably a disc.

The movable retaining element is preferably operated by an hydraulic cylinder but can be operated, for instance, by a rack and pinion mechanism or other forms of mechanism.

Embodiments of the invention will now be described with reference to the accompanying drawings, wherein:

Figure 1 is a partial sectional view of a releasable hawser retaining element made in accordance with the invention and at right angles to the longitudinal axis of the ship;

Figure 2 is a cross sectional view taken along the line II - II of Figure 1;

Figures 3A and 3B are views of the stern of a ship equipped with a mounting in accordance with the invention;

Figure 4 is a view of another form of the hawser retaining element, and

Figure 5 depicts another form of retaining element.

Throughout the drawings the same reference numerals are used for all parts of the same kind, with extra apostrophe marks where appropriate.

Figure 1 depicts part of a hawser mounting which employs a movable retaining element or fixture 5 in the form of a cylinder 7, adjustable at right angles to the longitudinal axis of the ship by means of an hydraulic actuator in the form of a piston and cylinder unit or motor 9, 10. The unit 9, 10 is in turn mounted in a guide sleeve 6 in which the cylinder 7 is also guided. To guide the cylinder 7, the guide sleeve 6 is equipped with sliding rails 22, typically made of bronze for example. The motor 9,10 has its housing 9 secured to a fork section 18 on an end wall of the sleeve 6 by means

of a web 19 and a pin 23. The piston rod 11 of the piston 10 on the unit or motor 9,10 is also equipped with a fork section 14 which secures it to a tab 15 on the cylinder 7 in a similar manner. The counter support for the cylinder 7 is a retaining ring 8 which is welded to a strong support 28, in this case a sleeve 21. The guide cylinder 6 is welded securely to a corresponding support 29. Both supports 28, 29 are interconnected by a cross-piece 27. Hydraulic conduits 24 and 25 for the unit 9, 10 are indicated with a chain dotted line.

Hawser T is shown restrained by the cylinder 7 of the fixture 5 in Figures 1 and 3A. The hawser T is guided between the fixture 5 at the stern of the tug or towing vessel and a winch 58 with a capstan drum 59.

To alter the contact point of the hawser T, the cylinder 7 is withdrawn from the cavity F defined between the ring 8 and the guide sleeve 6, enabling the hawser T to be released. The tensioned hawser can swing upwardly until it comes to rest on an upper cross-beam of the first locating fixture 2 as shown in Figure 3B. The first locating fixture is arranged at right angles to the longitudinal axis of the ship. It is then held taut between the winch 58 with the capstan drum 59 and the ship under tow by means of the cross beam 3. The

distance between the variable locating fixture 2 and the locating fixture 5 positioned on the stern of the ship can be typically between 2 and 3 metres.

Another releasable retaining element or fixture 5 is shown in Figure 4. This arrangement is equipped with a movable member in the form of a disk 31 which can rotate around a shaft 36 the axis of which is arranged parallel to the longitudinal axis of the ship. This shaft 36 - viewed along longitudinal axis of ship - is secured fore and aft to a mounting plate 41. The plates 41 also provide a pivot joint 39 for a hook 34 which is capable of swivelling at right angles to the longitudinal axis of the ship. The disk 31 is equipped with a guide slot 33 which ends beside the hook 34, radially offset to the edge of the disk 31. At this point, the hook 34 locates to form a stop thereby securing the disk 31 in its angular position, preventing movement in either direction. The guide slot 33 thus effectively creates a hook section 32 on the disk 31 which secures the hawser T. A tab 49 is arranged at the highest point of the disk, to which a piston rod 51 of an hydraulic actuator motor 50 is secured by means of pin 52. This motor 50 is in turn secured by pin 54 to a tab which is swivel-mounted on the deck 53 of the towing vessel or tug.

The hook 34 can be actuated by an hydraulic motor 44 with a piston rod 45, locating in a tab 43 on the hook 34. In a similar manner to the actuator motor 50, this actuator motor 44 is swivel-mounted on the deck of the ship by means of a pin 48 and retaining tab 47. The hydraulic conduits supplying the actuator motors 44,50 are not illustrated. When it is desired to alter the position of the hawser T the hook 34 is moved out of its interlock position and the disk 31 is rotated through about 90° by the actuator motor 50, ensuring that most of the radially offset end section 35 of the guide slot 33 faces upwards. This causes the hook section 32 to release the hawser T, thereby ensuring that it is withdrawn from the retaining fixture 5 by the winch, eventually locating against the first retaining fixture 2 (Figure. 3B).

The hawser guide slot 33 is shaped to allow the hawser T to move upwards when tension is applied and the hawser can locate in this position. The configuration also prevents any torque being applied to the disk 31 when the hawser T is lifted upwards. When the disk 31 has rotated through 90° (aperture on top), the hawser T slides out of the slot 33 when tension is

applied in an upwards direction.

As shown in Figure 5, the disk 31 does not have to be round and is instead shaped like a hook. The guide slot 33 can also be arranged slightly differently, in this case a single arc is illustrated which narrows opposite the widest parts of the edge of the disk. In this example, the disk 31 only has to rotate through about 70° to release the hawser.

The round/circular form part of the disc 31 is indicated as a chain dotted line. It is important to note that the large (full) radius of the disk 31 is in area 37 in order to enclose the aperture between both halves of a bracket 56 once the hawser T is released, and to prevent the hawser T from snagging on this aperture. To this end, the disk 31 is rotated slightly more once the hawser has been released, then held in this second "lock position". In place of the bracket 56, it is also possible to arrange the rear locating fixture for the hawser on the bulwark, or even to make it an integral part of the bulwark.

It is to be understood that the invention is not to be limited to the specific embodiment described, for example, the hydraulic cylinder could be replaced by a motor controlling a rack and pinion arrangement.

CLAIMS

1. A hawser mounting arrangement disposed between a winch and a stern of ship comprising at least two locating fixtures arranged along the longitudinal axis of the ship, of which the locating fixture closest to the centre of the ship has a fixed, upper cross beam to guide a hawser through the fixture and the locating fixture closest to the stern is equipped with at least one movable retaining element usable optionally to guide and support the hawser through this fixture.

2. A mounting arrangement as claimed in claim 1, wherein the movable retaining element is a cylinder one end of which is located in a retaining ring and the other end of which is free to slide in a guide sleeve and a free section of the cylinder is located in the gap between the retaining ring and the guide sleeve to support the hawser.

3. A mounting arrangement as claimed in claim 1, wherein the movable retaining element is a rotatable member with an axis of rotation which extends parallel to the longitudinal axis of the ship, the member having a guide slot for the hawser which is at least partly radially offset relative to the axis of rotation whose shape describes a virtual arc, with a blind end forming a

support for the hawser.

4. A mounting arrangement as claimed in claim 3 and further comprising a hook which is so arranged as to connect with the guide slot from the edge of the member and which can be actuated by an actuating element in the form of a pivot shaft extending parallel to the axis of the disk.

5. A mounting arrangement according to Claims 3 or 4 wherein the movable retaining element is a member having a hook-shaped part which secures the hawser.

6. A mounting arrangement according to any one of Claims 3 to 5 wherein the movable retaining element is in the form of a disc.

7. A mounting arrangement according to any one or more of Claims 1 to 6 wherein the movable retaining element is operated by a rack and pinion arrangement.

8. A mounting arrangement as claimed in one or more of claims 1 to 6 wherein the movable retaining element is operated by an hydraulic actuator.

9. A mounting arrangement as claimed in Claim 8, wherein the hydraulic actuator for actuating the movable retaining element is arranged inside a guide sleeve and secured to the same.

10. A mounting arrangement according to Claim 9 when appended to claim 2 wherein the cylinder is slidably

guided by the guide sleeve.

11. A hawser mounting arrangement or parts thereof substantially as described with reference to, and as illustrated in, any one or more of the Figures of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

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Relevant Technical fields

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(ii) Int CI (Edition 5) B66D

Search Examiner

M J DAVEY

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

Documents considered relevant following a search in respect of claims 1 TO 11

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	US 3899093 (ALLEN)	1
A	US 3892386 (HOGAN)	1



Category	Identity of document and relevant passages	Relevance to claim(s)

Categories of documents

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