

AUSTRALIA
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661981

NOTICE OF ENTITLEMENT

I **WILLIAM TAYLOR**
of 55 Letterloan Road, Macosquin, Coleraine, Co. Londonderry BT51 4PP, United
Kingdom

being the Applicant and Nominated Person in respect of Australian Patent Application
No. 89127/91

I state the following:

I am the actual inventor of the invention the subject of the Application.

I am the applicant of the application listed in the declaration under Article 8 of the PCT.

Convention priority is claimed from the following basic application referred to in the
declaration under Article 8 of the PCT:

Application Number	Application Date	Country	Country Code
9025479.8	22 November 1990	Great Britain	GB

The basic application referred to in the declaration under Article 8 of the PCT was the
first application made in a Convention country in respect of the invention the subject of
the Application.

DATED this 10th day of May 1993

WILLIAM TAYLOR
By his Patent Attorney


GRIFFITH HACK & CO



AU9189127

(12) PATENT ABRIDGMENT (11) Document No. AU-B-89127/91
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 661981

- (54) Title
A CONNECTOR MEANS FOR A P.T.O. SHAFT GUARD ATTACHMENT
- International Patent Classification(s)
(51)⁵ A01B 071/08 F16D 003/84 F16P 001/02
- (21) Application No. : 89127/91 (22) Application Date : 20.11.91
- (87) PCT Publication Number : WO92/09189
- (30) Priority Data
- (31) Number (32) Date (33) Country
9025479 22.11.90 GB UNITED KINGDOM
- (43) Publication Date : 25.06.92
- (44) Publication Date of Accepted Application : 17.08.95
- (71) Applicant(s)
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- (56) Prior Art Documents
AU 552749 11118/83 F16L 1/02 F16D 3/84
US 4071105
US 3866440
- (57) Claim
1. A connector means for a PTO shaft guard attachment, characterised in that the connector means comprises a base plate portion with a bearing located therein having a central aperture sized to be closely locatable about a PTO output/input stub of a tractor or implement, the base plate portion also carrying a tubular portion which extends from one face of the base plate portion and which is formed to contactingly engage with, and thereby directly support, a connector portion carried on an attachment, in use.

**CORRECTED
VERSION ***

PCT

pages 1-6, description, replaced by correct pages 1-9, pages
7-9, claims, replaced by correct pages 10-12

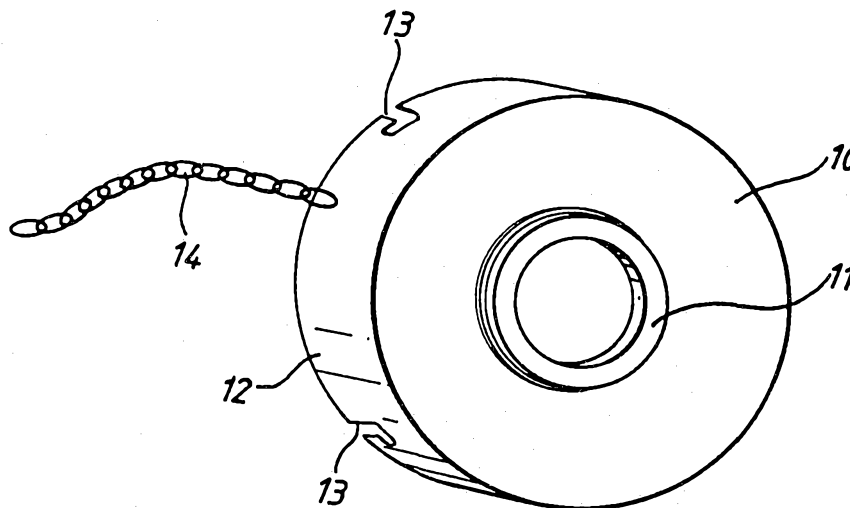


89127/91

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : A01B 71/08	A1	(11) International Publication Number: WO 92/09189 (43) International Publication Date: 11 June 1992 (11.06.92)
(21) International Application Number: PCT/GB91/02055 (22) International Filing Date: 20 November 1991 (20.11.91) (30) Priority data: 9025479.8 22 November 1990 (22.11.90) GB (71)(72) Applicant and Inventor: TAYLOR, William [GB/GB]; 55 Letterloan Road, Macosquin, Coleraine, Co. Londonderry BT51 4PP (GB). (74) Agent: HALL, Robert, Leonard; Dibb Lupton Broomhead and Prior, Fountain Precinct, Balm Green, Sheffield S1 1RZ (GB).	(81) Designated States: AT (European patent), AU, BE (European patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), NL (European patent), NO, SE (European patent), US. Published <i>With international search report.</i> 66 1981	

(54) Title: IMPROVEMENTS IN AGRICULTURAL AND OTHER POWERED EQUIPMENT



(57) Abstract

An attachment connector means for powered equipment such as a tractor or implement comprises bearing means (11) adapted to be locatable about a PTO output/input stub. The attachment connector means may have a base plate portion (10) with a bearing (11) located therein which has a central aperture sized to be closely locatable about a PTO output/input stub of a tractor or implement, the base plate (10) also carrying a tubular portion (12) extending from one face thereof and formed to provide one part of a connector mateable (13) with a further part carried on an attachment, means (14) being provided to prevent rotation of the base plate (10) and tubular portion (12) with rotation of the PTO output/input stub.

* (Referred to in PCT Gazette No. 25/1992, Section II)

Improvements in Agricultural and Other Powered Equipment

Technical Field

The invention relates to agricultural and other powered equipment, and more particularly to the attachment of a guard located around a power take-off shaft extending for example between a tractor and a towed or mounted accessory or
5 implement.

Background Art

The specification of my European Patent No. 0086606 discloses a flexible guard suitable for location around a power take-off (PTO) shaft extending between a tractor and a towed
10 accessory or implement. Each of the ends of the flexible guard may comprise an end coupling with hook-shaped clamps which cooperate with a raised lip on the tractor or implement housing. Different tractors and different implements housings tend to have different fixing points for the attachment of
15 connectors and therefore a range of such attachment connectors is required to provide cooperating connector portions, to enable attachments such as guards to be connected thereto.

Disclosure of Invention

It is an aim of the present invention to ameliorate
20 at least one of the problems of the prior art.

In an aspect of the invention there is provided a connector means for a PTO shaft guard attachment, characterised in that the connector means comprises a base plate portion with a bearing located therein having a central aperture sized to be closely locatable about a PTO output/input stub of a tractor or implement, the base plate portion also carrying a tubular portion which extends from one face of the base plate portion and which is formed to contactingly engage with, and thereby directly support, a connector portion carried on an attachment, in use. The connector means may be provided with means for preventing rotation of the base plate and tubular portion with rotation of said output/input stub, in use.

The means for preventing rotation may comprise one or more chains suitably attached to the attachment connector means, preferably to the outer surface of the tubular portion and for attachment to the tractor, vehicle or implement, in use. Preferably two chains are provided, one of adjustable length and one of fixed length. The chain or chains may in some circumstances be replaced by wire ropes.

Alternatively, the means for preventing rotation may comprise a prop member carried on the outer surface of the tubular portion and to extend outwardly therefrom with its longitudinal axis transverse to the rotational axis of the bearing. The tubular portion may be cylindrical with the prop member pivotally mounted to lie generally tangentially to the outer surface thereof. Preferably the prop member is pivotally

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mounted to said outer surface and such mounting may be generally midway along the length of such prop member.

In a further embodiment, the means for preventing rotation may comprise one or more adjustable brackets which are
5 connected to suitable mounting points on the tractor, vehicle or implement.

With an arrangement in which the tubular portion is cylindrical, such cylindrical member may be slotted in a manner
10 to act as the female portion of a bayonet fitting connector.

A boss member may be locatable within the bearing, such boss member carrying a disc-form member for locating over and protecting the rear surface of the base plate. The disc-form member may be surrounded by a protective collar to prevent
15 objects such as an operator's clothing from contacting the rotating edge of the disc-form member.

An expandable, resilient cylindrical member may be located around the tubular portion so as to extend rearwardly of the base plate.

20 The bearing may be anchored within an aperture in the base plate, for example by a circlip, and a disc-form protective insert may be located over the surface of the base plate within the tubular portion.

In a further embodiment of the invention, the attachment
25 connector means may be provided with an extension shaft to extend the PTO output/input stub, and the bearing may have an aperture sized so as to be closely locatable about the extension shaft. The extension shaft preferably has a splined

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sleeve adapted to fit over the PTO output/input stub and to be secured thereto. The extension shaft preferably has means whereby the bearing can be located and retained thereon, for example the sleeve may have external peripheral grooves adapted
5 to receive circlips for locating the bearing. With certain tractors, vehicles and implements it may be desirable to provide a rearwardly extending tubular guard cover which is secured to the base plate. Such a cover may be rigid, or resiliently expandable.

10 Brief Description of Drawings

The foregoing and further features of the invention may be more readily understood from the following description of some preferred embodiments thereof, by way of example, with reference to the accompanying drawings, in which :-

15 Fig. 1 is a perspective view of a female part of a bayonet connector for attachment to a tractor or implement therefor;

Fig.2 is a perspective view similar to Fig. 1 of an alternative embodiment;

Fig.3 is an exploded side elevational view of a connector
20 illustrating additional protective features;

Fig.4 is an exploded side elevational view of a connector provided with an extension shaft;

Fig.5 is an exploded side elevational view of a connector provided with an extension shaft and a rear cover; and

25 Fig.6 is a side elevational view partly in section of a connector with a side protector for the disc-form member.

Detailed Description of Drawings

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Referring now to Fig.1 of the drawings there is shown an attachment connector part for fitting to a tractor or an implement which is to be powered from the power take-off of the tractor. The connector part comprises a base plate portion 10 which is centrally apertured to accommodate a bearing 11. A cylindrical portion 12 extends from the base plate 10 and is formed with female bayonet-connector slots 13 therearound. A chain 14 is attached to the outer surface of portion 12.

In use, the bearing 11 is located around the output PTO stub of a tractor, or the input PTO stub of an implement, with the cylindrical portion 12 extending outwardly. The chain 14 is then attached to any suitable fixing point on the tractor or implement. The male portion of a bayonet connector located at the end of a guard for the PTO shaft can then be attached to engage within portion 12 with pins thereon engaging within slots 13. The chain 14 prevents rotation of base plate 10 and portion 12, and hence the guard, with bearing 11 allowing normal rotation of the PTO input/output stub.

Fig.2 shows a similar arrangement to that of Fig. 1 except that the chain 14 is replaced by a prop member 15 which is pivotally mounted at 16 to the portion 12. Although the prop member 15 is shown to be mounted to extend tangentially with portion 12 such prop member may alternatively be mounted to extend generally radially therefrom.

In use, the prop member 15 will engage with any adjacent protrusion on the tractor or implement to prevent rotation of plate 10 and portion 12.

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Referring now to Fig.3 there is shown an exploded side elevational view of a connector which may have rotation prevention means such as chain 14 or prop member 15 as shown in Fig. 1 or 2 embodiments. In this arrangement the bearing 5 11 is retained within a central aperture in base plate 10 by a circlip 17. A disc-form protective insert (not shown) may be located within portion 12 abutting the inner face of plate 10 by the location and fixing of bearing 11. A boss member 18, formed integrally with a disc-form member 19, is located within 10 bearing 11 such that member 19 abuts and protects the rear face of plate 10. the members 18, 19 may be formed of synthetic plastics material, or alternatively formed of metal with the addition of a cylindrical insert 21 of synthetic plastics material. The disc-form member 19 prevents chafing between the 15 rear face of base plate 10 and any bolt heads which may be arranged on the housing of the tractor or implement adjacent the PTO shaft. An expandable, resilient cylindrical member 20 is located around portion 12 so as to extend rearwardly from plate 10. Such an arrangement is for use with external bolt-on 20 conversion stub shafts. The member 20 may be formed of any suitable resilient synthetic plastics or rubber material.

Hence each of the arrangements shown may be attached quickly and easily to any PTO stub without the requirement of any bolt or screw attachments, with their inherent attachment 25 aperture alignment problems which vary from tractor to tractor and with various implements. The use of bolts and screws in appropriate circumstances is not, however, excluded. Although each of the arrangements show a bayonet type fixing any other

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quick-release fixing may be carried by portion 12 which may then have square or hexagonal cross-section. When it is required to leave the attachment connector located on a tractor or implement when the PTO shaft is not in place, this may be achieved by providing grub screws for firmly locating the bearing 11 on the stub or may be achieved by a dummy yoke end.

Referring now to Fig.4, this embodiment is of particular use when working with a tractor or implement having a short PTO output/input stub, and mainly applies to older models. In this embodiment the base plate 10 is provided with a bearing 11, which has a central aperture sized to be closely locatable about an extension shaft 22. The extension shaft has a splined sleeve 23 adapted to fit over the PTO output/input stub, and peripherally arranged threaded holes adapted to receive allen screws 24 or an appropriate snap connector will engage with the recess in the splined PTO stub. The extension shaft is thus securely fixed to the PTO stub. The splined sleeve 23 also has external peripheral grooves 25 adapted to receive circlips whereby the bearing 11 can be located and retained on the sleeve. Co-axial and integral with the splined sleeve is a stub extension 26 which is dimensioned so as to engage with the PTO shaft in the normal way. By appropriate placement of the circlips, the bearing 11 can be located on the extension shaft close to the tractor or implement housing, which can obviate the need to provide a disc-form protective member to protect the rear surface of the base plate 10.

Fig. 4 also shows chain means 27 for preventing rotation of the connector in which the chain passes through a hole in

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an anchor plate 28 and is retained by a bolt 29. The anchor plate has a triangular hole 30 which can fit a variety of bolts of different diameter whereby the anchor plate can be mounted on the tractor or implement housing.

5 Turning now to Fig. 5, this embodiment finds particular application with implements fitted with large slip clutches around the PTO stub. This embodiment has an extension shaft 22, similar to that of Fig. 4, but is also provided with a rear guard cover 31, of cylindrical shape, which is bolted to the
10 base plate 10. The guard cover 31 is sized so as to extend from the connector base plate 10 over the slip clutch 34, so that it surrounds the slip clutch with its edge adjacent to the implement housing.

Finally Fig. 6 shows a further embodiment in which the
15 connector is provided with a disc-form protective member 19 and a protective collar 32, mounted on the base plate 10, which serves to prevent objects such as the operator's clothing from contacting the rotating edge of the disc-form protective member. The face of the disc-form protective member is
20 slightly proud of the protective collar 32 so as to perform its function of protecting the rear surface of the base plate 10. If desired, the connector may also be provided with a small flexible guard 33.

Although the invention has been described in connection
25 with the attachment of a guard located around a PTO shaft extending between a tractor and an implement it is not to be construed as limited thereto, and for example it may find

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application in the attachment of guards for lorry or other heavy vehicle prop shafts and PTO shafts.

The reader's attention is directed to all papers and documents which are filed concurrently with this specification and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A connector means for a PTO shaft guard attachment, characterised in that the connector means comprises a base plate portion with a bearing located
5 therein having a central aperture sized to be closely locatable about a PTO output/input stub of a tractor or implement, the base plate portion also carrying a tubular portion which extends from one face of the base plate portion and which is formed to contactingly engage with,
10 and thereby directly support, a connector portion carried on an attachment, in use.

2. A connector means according to claim 1, characterised in that the connector means further comprises means for preventing rotation of the base plate
15 portion and tubular portion with rotation of said output/input stub, in use.

3. A connector means according to claim 1 or 2, characterised in that said means for preventing rotation comprises a chain attached to the connector means and for
20 attachment to the tractor or implement, in use, or comprises a prop member carried on the outer surface of the tubular portion and extending outwardly therefrom with its longitudinal axis transverse to the rotational axis of the bearing.

25 4. A connector means according to any one of claims 1 to 3, characterised in that the tubular portion is cylindrical, and slotted in a manner to act as the female portion of a bayonet fitting connector.

30 5. A connector means according to any one of claims 1 to 4, characterised in that it has a boss member locatable within the bearing, such boss member carrying a disc-form member for locating over and protecting the rear surface of the base plate portion.

35 6. A connector means according to claim 5, characterised in that it is provided with a protective collar, mounted on the base plate portion, which serves, in use, to prevent objects from contacting the rotating edge of the disc-form member.

7. A connector means according to any one of the preceding claims, characterised in that it is provided with an expandable, resilient cylindrical member located around the tubular portion so as to extend rearwardly of the base plate.

8. A connector means according to any one of the preceding claims, characterised in that the bearing is anchored within an aperture in the base plate, and a disc-form protective insert is located over the surface of the base plate within the tubular portion.

9. A connector means according to any one of the preceding claims, characterised in that it is provided with an extension shaft adapted to extend the PTO output/input stub and to be secured thereto, and in that the bearing has an aperture sized so as to be closely locatable about the extension shaft.

10. A connector means according to claim 9, characterised in that the extension shaft comprises a splined sleeve adapted to fit over the PTO output/input stub and to be secured thereto.

11. A connector means according to claim 9 or 10, characterised in that the extension shaft is provided with means whereby the bearing can be located and retained thereon.

12. A connector means according to any one of the preceding claims, characterised in that it is provided with a rearwardly extending guard cover.

13. A connector means according to claim 12, characterised in that the guard cover is rigid, or resiliently expandable, and is secured to the base plate.

14. A connector means for a PTO shaft guard attachment substantially as hereinbefore described with reference to any one of Figures 1 to 6 of the accompanying drawings.

Dated this 16th day of June 1995

WILLIAM TAYLOR
By his Patent Attorney
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89127/91

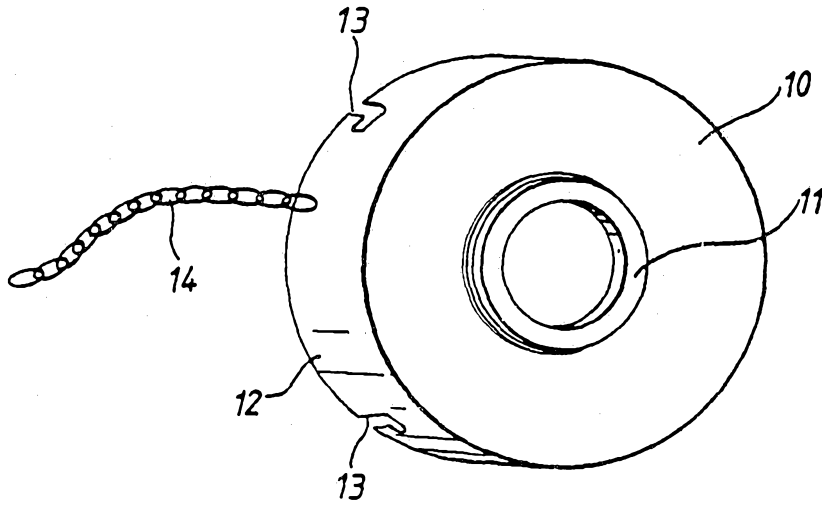


Fig. 1.

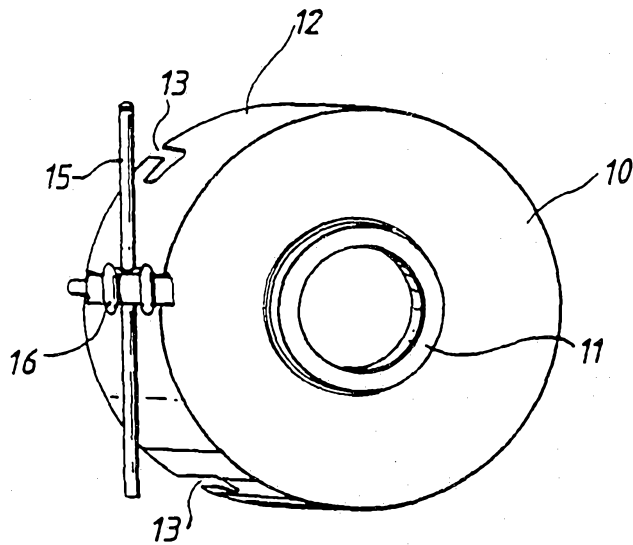


Fig. 2.

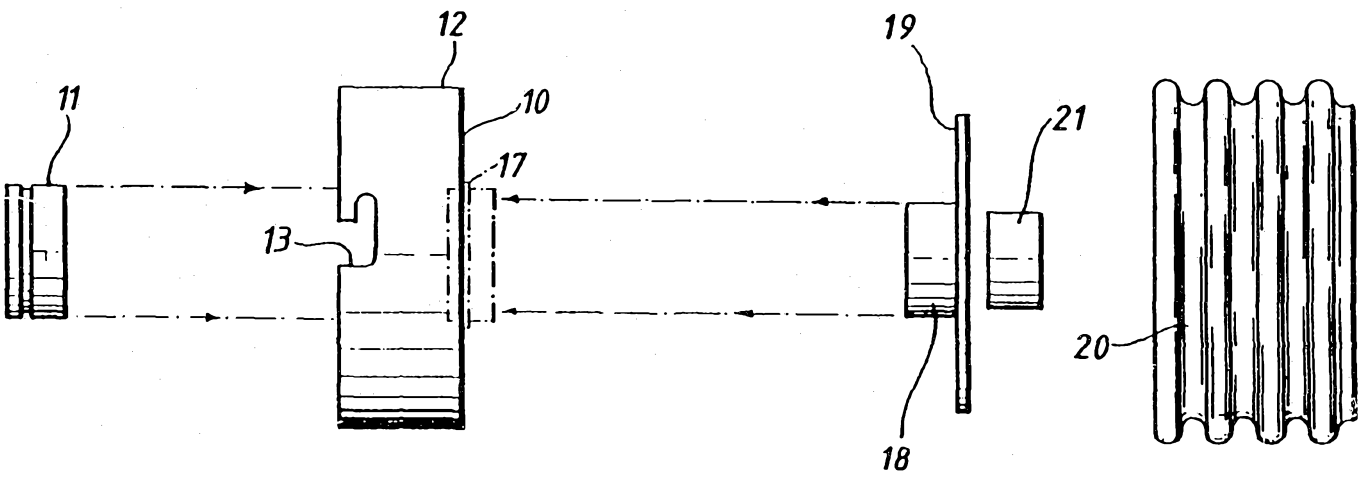


Fig.3.

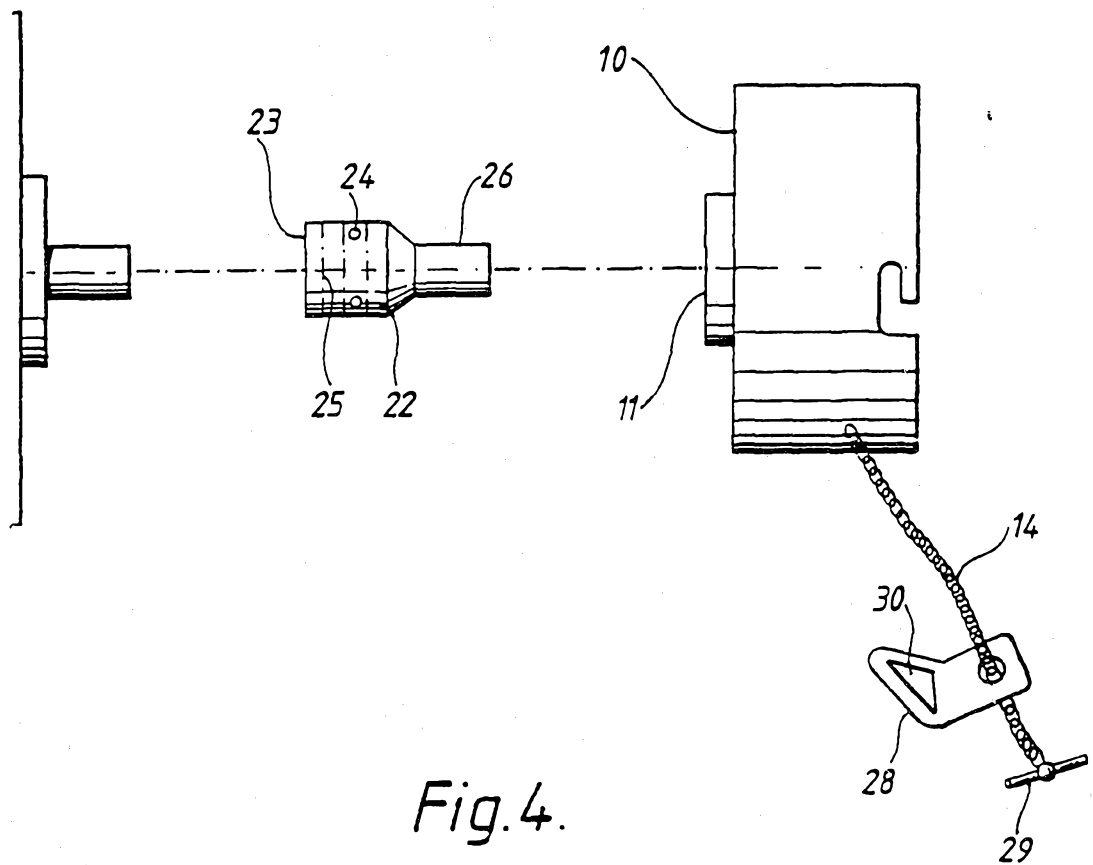


Fig. 4.

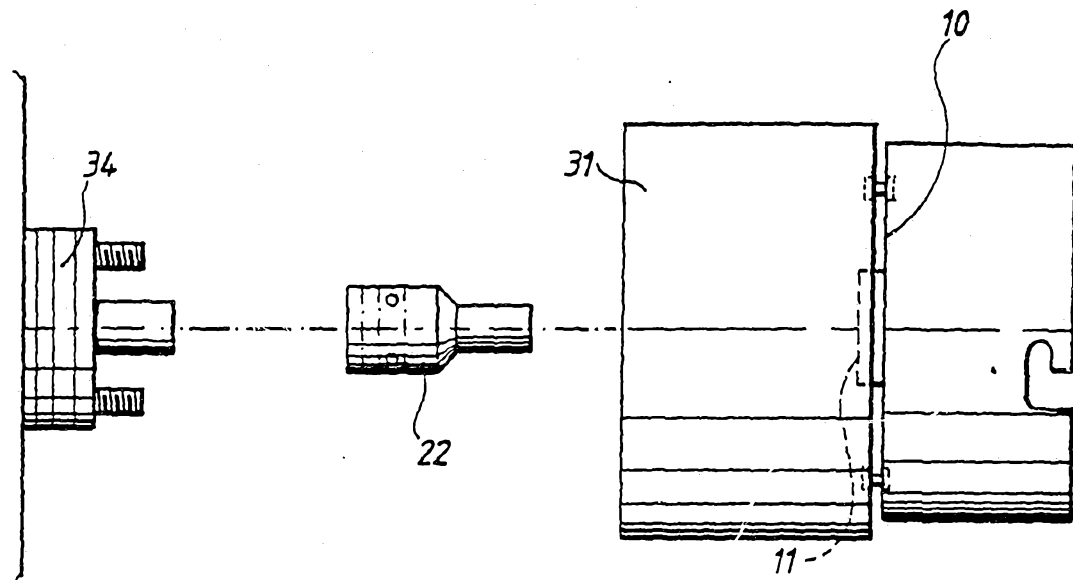


Fig. 5.

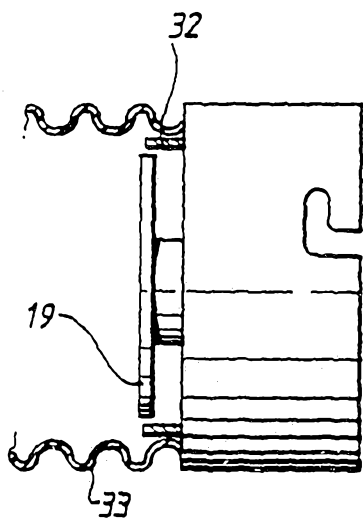



Fig. 6.

INTERNATIONAL SEARCH REPORT

PCT/GB 91/02055

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.Cl. 5 A01B71/08		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	A01B ; F16D	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with Indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE,B,2 537 601 (WALTERSCHEID) 26 May 1976 see column 5, line 52 - line 67 see column 8, line 5 - line 10; figures 1,2,4	1-3,14
A	---	6
X	CH,A,475 504 (WALTERSCHEID) 15 July 1969 see column 3, line 9 - line 18; figure 1 see column 3, line 39 - line 42	1-3,7, 12,14
A	US,A,3 866 440 (STANANOUGHT) 18 February 1975 see column 2, line 15 - line 29; figure 1	1,2,4,14
A	EP,A,0 086 606 (TAYLOR) 24 August 1983 cited in the application see page 3, line 2 - line 9; figure 2	1,2,14

<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the International filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the International filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
21 FEBRUARY 1992	12. 03. 92	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	ECCETTO M. 	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9102055
SA 53477**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 21/02/92

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		GB-A- 1213466	25-11-70
		NL-A- 6709085	03-07-68

US-A-3866440	18-02-75	None	

EP-A-0086606	24-08-83	AU-B- 552749	19-06-86
		AU-A- 1111883	11-08-83
		CA-A- 1203095	15-04-86
		US-A- 4663984	12-05-87
