

613025

SPRUSON & FERGUSON

FORM 1

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952

APPLICATION FOR A STANDARD PATENT

William John Balemi, of 15 Sunderland Road, Bucklands Beach, Auckland, NEW ZEALAND, hereby apply for the grant of a standard patent for an invention entitled:

Improvements in or Relating to a Connector

which is described in the accompanying complete specification.

Details of basic application(s):-

Basic Applic. No: Country:

220557 NZ
222864 NZ

Application Date:

4 June 1987
10 December 1987

The address for service is:-

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LODGED AT SUB-OFFICE
20 APR 1988
Sydney

DATED this TWENTIETH day of APRIL 1988

William John Balemi

By: *[Signature]*

Registered Patent Attorney

TO: THE COMMISSIONER OF PATENTS
OUR REF: 55001
S&F CODE: 59769

5845/2

135 ATTACHED
MAIL OFFICE

PATENT OFFICE
5
SUB-OFFICE
1988
Sydney
FIVE DOLLARS

PATENT OFFICE
10
TEN DOLLARS

PATENT OFFICE
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20 APR 1988
Sydney
ONE HUNDRED DOLLARS
PATENT OFFICE
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SUB-OFFICE
20 APR 1988
Sydney
TWENTY DOLLARS

COMMONWEALTH OF AUSTRALIA

THE PATENTS ACT 1952

DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT

AUSTRALIA CONVENTION STANDARD & PETTY PATENT DECLARATION

In support of the Convention Application made for a patent for an invention entitled:

Title of Invention Improvements in or Relating to a Connector

Full name(s) and address(es) of Declarant(s) I/We William John Balemi of 15 Sunderlands Road, Bucklands Beach, Auckland, New Zealand

1/27 TAKUTAI AVE.

Signature of William John Balemi

do solemnly and sincerely declare as follows:-

Full name(s) of Applicant(s) 1. I am/We are the applicant(s) for the patent (or, in the case of an application by a body corporate)

~~1. I am/We are authorised by~~

~~the applicant(s) for the patent to make this declaration on its/their behalf.~~

2. The basic application(s) as defined by Section 141 of the Act was/were made

Basic Country(ies) in New Zealand

Priority Date(s) on 4 June 1987 & 10 December 1987

Basic Applicant(s) by William John Balemi

Full name(s) and address(es) of inventor(s) 3. I am/We are the actual inventor(s) of the invention referred to in the basic application(s) (or where a person other than the inventor is the applicant)

~~3.~~

of

~~is/are the actual inventor(s) of the invention and the facts upon which the applicant(s) is/are entitled to make the application are as follows:-~~ (respectively)

Set out how Applicant(s) derive title from actual inventor(s) e.g. The Applicant(s) is/are the assignee(s) of the invention from the inventor(s)

4. The basic application(s) referred to in paragraph 2 of this Declaration was/were the first application(s) made in a Convention country in respect of the invention (s) the subject of the application.

Declared at Auckland this 14th day of DECEMBER 1990

Signature of Declarant(s)

(12) PATENT ABRIDGMENT (11) Document No. AU-B-14782/88
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 613025

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IMPROVEMENTS IN OR RELATING TO A CONNECTOR
- International Patent Classification(s)
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- (21) Application No. : **14782/88** (22) Application Date : **20.04.88**
- (30) Priority Data
- | (31) Number | (32) Date | (33) Country |
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- (56) Prior Art Documents
AU 35627/84 B02F 3/96
AU 62019/86 B02F 3/96
GB 2087349

(57) Claim

1. A connector comprising a body, first connection means enabling said body to be mounted on a carrying device, second connection means to enable an implement to be engaged with said body, said second connection means comprising spaced apart first and second recesses on said body the respective connection means being mutually orientated for mounting the connector on the carrying device with said first recess opening in a first direction and said second recess opening in a second direction substantially at right angles to the direction of opening of said first recess, at least said first recess having an entrance and being substantially closeable by a closure member, a fluid pressure operated piston and cylinder assembly to move said closure member towards or away from a position wherein said closure member substantially covers the entrance to said first recess, and

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biasing means to move said closure member towards or away from a position wherein said first recess is not substantially closed by said closure member.

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FORM 10

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE:

Class Int Class

Complete Specification Lodged:
Accepted:
Published:

Priority:

Related Art:

Name and Address
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Complete Specification for the invention entitled:

Improvements in or Relating to a Connector

The following statement is a full description of this invention, including the best method of performing it known to me/us

This invention relates to a connector and has been devised particularly though not necessarily for use as a connector to enable implements or tools such as digging attachments to be connected to a boom or the like mounted on a vehicle.

It is an object of the present invention to provide a connector which will at least provide the public with a useful choice.

Accordingly the invention consists in a connector comprising a body, first connection means enabling said body to be mounted on a carrying device, second connection means to enable an implement to be engaged with said body, said second connection means comprising spaced apart first and second recesses on said body the respective connection means being mutually orientated for mounting the connector on the carrying device with said first recess opening in a first direction and said second recess opening in a second direction substantially at right angles to the direction of opening of said first recess, at least said first recess having an entrance and being substantially closeable by a closure member, a fluid pressure operated piston and cylinder assembly to move said closure member towards or away from a position wherein said closure member substantially covers the entrance to said first recess, and biasing means to move said closure member towards or away from a position wherein said first recess is not substantially closed by said closure member.



To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the descriptions herein are purely

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illustrative and are not intended to be in any sense limiting.

The invention consists in the foregoing and also envisages constructions of which the following gives
5 examples.

One preferred form of the invention will now be described with reference to the accompanying drawings in which;

Figure 1 is a cross sectional view of a connector
10 according to one preferred form of the invention, and

Figure 2 is a cross sectional view of a connector according to an alternative form of the invention.

In the form of the invention shown in Figure 1 a connector is provided which has a body 1 which may be
15 formed by a pair of side plates interconnected by end plates.

In the construction shown each side plate is formed by an upper plate 2 and a lower plate 3 which plates 2 and 3 may be engaged one with the other for example by welding.
20 The plates 2 and 3 are shown in Figure 1 with part 4 of plate 3 overlapping part 5 of plate 3.

The pairs of plates 2 and 3 may be interconnected at one end by a transverse plate 6 and at the other end by a further transverse plate 7 which in the embodiment shown in
25 the figure is substantially "C" shaped in cross section for reasons that will be described further hereinafter.

The body 1 carries first connection means enabling the connector to be engaged, for example, with a boom (not shown) mounted on a vehicle. The first connection means may take the form of a pair of spaced apart apertures 8 and 9, the apertures 8 and 9 being provided in each plate 2 for example. Thus the connector 1 may be mounted on the boom or the like by pins (not shown) passing through the apertures 8 and 9 and aligned apertures on the boom or otherwise as desired. A reinforcing and/or spacing annular member 10 may be provided about each aperture 8 and 9 if desired or required.

The construction also includes second connection means and these may be formed by a pair of recesses for example in the plate 3. Thus for example an outwardly facing recess 11 may be provided which is continued between the plates by the "C" shaped end plate 7. A downwardly directed recess 12 is also provided. The orientation of these recesses may of course differ if desired.

At least one of the recesses and preferably the recess 12 is associated with a closure member which is able to at least partly close the entrance to the recess 12. Thus in the embodiment of Figure 1 the closure member may comprise for example a hook member 13 which is pivotally mounted between the side plates for example on a pivot pin 14.

Alignable apertures 15 in the hook member 13 and the side plates allow a lock pin (not shown) to be placed through the apertures to hold the hook member 13 or closure

member in its substantially closed position.

The hook member 13 is urged towards its substantially closed position for example by a biasing device such as a compression spring 16 one end of which bears against the hook member 10 and the other end of which bears against the body 1 for example a plate 17 positioned between the side plates. The plate 17 may have upper and lower or a rim members 18 so as to provide a socket for the compression spring 16.

The outward leading edge 19 of the hook member 10 may be chamfered or tapered as can be seen in Figure 1 to allow a member (not shown) which is to be held therein to be snapped thereinto by overcoming the pressure of the spring 16. The inner surface 20 of the hook member is shaped such that the bar or the like positioned therein when the hook member 13 is closed cannot easily push the hook member 13 aside even when there is no pin in the apertures 15. A suitable shape is shown in Figure 1.

In order to allow the hook member 13 to be forced aside when required a piston 21 and cylinder 22 assembly is provided, for example, a hydraulic piston and cylinder assembly fed through hose 23 the controls for which may, for example, be positioned in the cab or otherwise of the vehicle from which the boom extends. Of course a suitable pump (not shown) is provided. The distal end of the piston 21 may bear against the plate 6 for example into a recess or socket formed by walls 24. Suitable seals such

as seals 25 are provided in the cylinder 22 or piston 21 wall. The cylinder 22 may be pivotally mounted to the hook member 13 for example at a point 26.

Thus as the piston 21 is extended it will bear against the plate 6 forcing the hook member 13 to move, in Figure 1 anti clockwise, so that the recess 12 is in effect opened. When pressure on the piston 21 is removed the spring 16 will return the hook member 13 to a position wherein the hook member 13 at least partially closes the recess 12.

The use of the invention in the embodiment of Figure 1 is as follows.

In use where it is desired to attach an implement to a boom the connector 1 is mounted on the boom and the boom moved so that a bar (not shown) on the implement enters the recess 11. The recess 12 may then be forced over another bar (not shown) by pressure of the bar on face 19 or the piston 20 can be extended to open the recess 12 to allow the bar (not shown) to enter. When pressure is released from the piston 21 the compression spring 16 will urge the hook member 13 back to the position shown in Figure 1. A pin may be placed in the aligned apertures 15 at that time if desired or necessary.

The implement is then used as desired.

When it is desired to remove the implement the pin through aperture 15 if in place is removed and the piston 21 again extended thereby opening the recess 12 so that the connector can be removed from the implement by removing the bars from recesses 12 and 11.

In the embodiment of the invention shown in Figure 2 the construction is similar save that a piston and cylinder assembly 30 bears on hook member 13 to move the hook member 13 at least partly across the recess 12. When fluid
5 pressure is removed tension spring 31 operates to withdraw the hook member 13 to open recess 12. Piston and cylinder assembly 30 is pivotally mounted on the hook member 13 at 32 and to the body 1 at 33. In use, with hook member 13 initially withdrawn, bars (not shown) are positioned in
10 recesses 11 and 12, then the piston 34 of piston and cylinder assembly 30 is extended so that the foot 35 of the hook member 13 closes recess 12 sufficiently to prevent removal of the bar then positioned in recess 12.

To remove the bar from recess 12 pressure is released
15 from the piston 34 and spring 31 withdraws the hook member 13 allowing the bar to fall or be removed from recess 12.

Thus it can be seen that at least in the preferred
20 forms of the invention a connector is provided which will enable an implement to be connected to the connector in a simple yet effective manner and in which control of the operation can be achieved from for example the cab of a vehicle or another selected position. This is of course advantageous.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A connector comprising a body, first connection means enabling said body to be mounted on a carrying device, second connection means to enable an implement to be engaged with said body, said second connection means comprising spaced apart first and second recesses on said body the respective connection means being mutually orientated for mounting the connector on the carrying device with said first recess opening in a first direction and said second recess opening in a second direction substantially at right angles to the direction of opening of said first recess, at least said first recess having an entrance and being substantially closeable by a closure member, a fluid pressure operated piston and cylinder assembly to move said closure member towards or away from a position wherein said closure member substantially covers the entrance to said first recess, and biasing means to move said closure member towards or away from a position wherein said first recess is not substantially closed by said closure member.

2. A connector as claimed in claim 1 wherein said biasing means comprises a compression spring between said closure member and said body and said piston and cylinder assembly



moves closure member to a position wherein said closure member substantially closes said first recess.

3. A connector as claimed in claim 1 wherein said biasing means comprises a tension spring between said closure member and said body.

4. A connector as claimed in any of the preceding claims wherein said closure member is substantially hook-shaped and pivotally mounted to said body.

5. A connector as claimed in claim 4 wherein alignable apertures are provided in said hook and said body to receive a lock pin when said closure member is in the substantially closed position with respect to said first recess.

6. A connector as claimed in claim 5 wherein said first connection means comprises apertures in said body.

7. A connector as claimed in any one of the preceding claims wherein said body has a pair of spaced apart side plates and said closure member, piston and cylinder assembly and means to move said closure member are positioned between said plates.

8. A connector as claimed in claim 7 wherein said plates are interconnected by end plates.

9. A connector substantially as herein described with reference to the accompanying drawings.

DATED this EIGHTEENTH day of APRIL 1991

William John Balemi

Patent Attorneys for the Applicant
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FIG. 2

