COMMONWEALTH OF AUSTRALIA

The Patents Act 1952

CONVENTION APPLICATION FOR A PATENT

We, HOHNER AUTOMATION, S.A. and A.T.R. - Advanced Technology Research, S.A.,
of Z.A., Rue des Frères Lumière, Eckbolsheim 67200 Strasbourg, France and Rue des
Frères Lumière Eckbolsheim 67200 Strasbourg, France, Respectively., hereby apply for the
grant of a Patent for an invention entitled “MOUNTING ROLLER BEARINGS FOR
AXLES” which is described in the accompanying complete specification.

This application is a Convention application and is based on the Application Numbered
89 15079 for a patent or similar protection made in France on 14th November 1989.

Our address for service is care of CALLINAN LAWRIE, Patent Attorneys, of 278 High
Street, Kew, 3101, Victoria, Australia.

DATED this 14th day of November, 1990.

HOHNER AUTOMATION, S.A. and A.T.R. -
Advanced Technology Research, S.A.

By their Patent Attorneys:

CALLINAN LAWRIE

To: The Commissioner of Patents.
COMMONWEALTH OF AUSTRALIA
Patents Act 1952-66

Declaration in Support of
(a) A Convention Application
(b) An Application
for a Patent or Patent of Addition—

In support of the Application/Convention Application made by
(a) HOHNER AUTOMATION, S.A. and
A.T.R. - ADVANCED TECHNOLOGY RESEARCH, S.A.
for a patent/patent of addition for an invention entitled:

MOUNTING OF FLOATING AXLES

We (a) Michel Ehrhart and Charles Ernst

of (a) HOHNER AUTOMATION, S.A. and A.T.R. - ADVANCED TECHNOLOGY RESEARCH, S.A. respectively
do solemnly and sincerely declare as follows:

1. (a) I am/we are the applicant(s) for the patent/patent of addition

(b) I am/we are authorised by

the applicants for the patent/patent of addition to make this declaration on their behalf.

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

in France on the 14th day of November 1989

by HOHNER AUTOMATION, S.A. and A.T.R. - ADVANCED TECHNOLOGY RESEARCH, S.A.

3. (i) I am/we are the actual inventor(s) of the invention

of:

Benoit Urban
Jean-Marc Hubsh
Pierre Stephan

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

Declared at Strasbourg this 22nd day of November 1990

SIGN

Perk
1. Device for mounting a floating axle, wherein it is essentially constituted of a rigid casing for lodgement of the axle and by an elastically deformable mounting element for the rigid casing in the cover of the encoder, properly so-called.

2. The device according to Claim 1, wherein the elastically deformable element is configured in the form of bellows from synthetic material, preferably PTFE.

3. The device according to Claim 2, wherein said element is mounted, on the one side, on one of its ends by an annular portion of smaller diameter than the internal folds of the bellows, on a bearing external to the rigid casing and, on the other side, at its other end by an annular portion of larger diameter than the external folds of the bellows, in an internal bearing in the cover of the encoder, properly so-called.
TO BE COMPLETED BY APPLICANT

Name of Applicant: HOHNER AUTOMATION, S.A. and A.T.R. - Advanced Technology Research, S.A.


Actual Inventors: Benoit Urban, Jean-Marc Hubsch and Pierre Stephan.

Address for Service: CALLINAN LAWRIE, 278 High Street, Kew, 3101, Victoria, Australia

Complete Specification for the invention entitled: "MOUNTING OF FLOATING AXLES"

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

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Short Title:

Int. Cl:

Application Number:

Lodged:

Complete Specification - Lodged:

Accepted:

Lapsed:

Published:

Priority:

Related Art:

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AUSTRALIA

PATENTS ACT 1952

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

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Add to your list of completed tasks.
The present invention relates to the mounting of axles having axial, radial or angular defects of alignment, in particular axles of sensors, and has for its object a mounting device for a floating axle adapted for this purpose.

Actually, the axial, radial or angular defaults of alignment are compensated for by the provision of couplings external to the sensors, of the type of springs, bellows, Cardan joints, Oldham joints or even of machined types furnished, for example, with ribbings on part of their rim.

These known compensation devices possess, therefore, the disadvantage of always being external to the apparatus of which they are used to equip the axle, especially sensors, and of being uniquely adapted to only one form of utilisation on solid axles, there being no possibility of envisaging their application to hollow axles.

The present invention has the object of overcoming these disadvantages.

The present invention provides a mounting device for a floating axle, in particular for sensors, wherein it is essentially constituted of a rigid casing for lodgement of the axle and by an elastically deformable mounting element for the rigid casing in the cover of the encoder, properly so-called.

The invention will be better understood from the following description which relates to a preferred mode of implementation, given by way of a non-limitative example, explained with reference to the accompanying diagrammatic drawing, of which the single Figure is a side elevation and part vertical section through a sensor furnished with a device in accordance with the present invention.

The accompanying drawing represents, by way of example, a sensor of the absolute or incremental encoder type having an axle 1, hollow or solid, mounted in a floating manner in the cover 2, by means of a device 3.

In conformity with the invention, this device 3 for mounting the floating axle 1 is essentially constituted of a rigid casing 4 for lodgement of the axle 1 and by an elastically deformable mounting element 5 for the rigid casing 4 in the cover of the encoder, properly so-called.
The elastically deformable element 5 is advantageously configured in the form of bellows from synthetic material, preferably PTFE (polytetrafluoroethene). This element 5 is mounted, on the one side, on one of its ends by an annular portion 5' of smaller diameter than the internal folds of the bellows, on a bearing 6 external to the rigid casing 4 and, on the other side, at its other end by an annular portion 5" of larger diameter than the external folds of the bellows, in an internal bearing 7 in the cover 2 of the encoder, properly so-called.

The utilisation of a synthetic plastics material such as PTFE as a component of the element 5 makes it possible to avoid, in certain industries, the effect of electric cells which are able to produce, during their utilisation, alloys such as nickel-chromium, the PTFE having a perfectly neutral behaviour. Furthermore, the PTFE allows for adaptation to the considerable relative misalignments between the cover 2 of the encoder and the axle 1.

As shown in the accompanying drawing, the rigid casing 4 could equally well serve as a support for the other component parts of the sensor, in particular for the mobile elements, as well as the electrical and electronic circuits. This mode of implementation thus allows for mounting the ensemble of elements of a sensor on the outside of the cover and then effecting the assembly of these elements with the cover 2 by simple insertion in this latter and mounting by means of the elastic element 5. The result is that it is not necessary to have available a specific means of installation and regulation of these different elements with simultaneous maintenance of cover 2.

By virtue of the invention, it is possible to realise a mounting of a floating axle, in particular for a sensor, which allows for considerable defaults in the axial, radial and/or angular alignments.

Furthermore, the device in accordance with the present invention is applicable equally well to axles which are either hollow or solid without the need for having supplementary accessory devices.

It will be understood that the present invention is not limited to the
embodiment described and illustrated in the accompanying drawing. Modifications are possible, especially from the point of view of the constitution of the various component parts or by substitution of equivalent techniques, without going outside the scope of protection afforded by the present invention.
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Device for mounting a floating axle, wherein it is essentially constituted of a rigid casing for lodgement of the axle and by an elastically deformable mounting element for the rigid casing in the cover of the encoder, properly so-called.

2. The device according to Claim 1, wherein the elastically deformable element is configured in the form of bellows from synthetic material, preferably PTFE.

3. The device according to Claim 2, wherein said element is mounted, on the one side, on one of its ends by an annular portion of smaller diameter than the internal folds of the bellows, on a bearing external to the rigid casing and, on the other side, at its other end by an annular portion of larger diameter than the external folds of the bellows, in an internal bearing in the cover of the encoder, properly so-called.

4. The device according to any one of Claims 1 to 3, wherein the rigid casing serves as a support for the other component parts of the sensor, in particular for the mobile elements, as well as the electrical and electronic circuits.

5. The device substantially as hereinbefore described with reference to the accompanying drawing.

DATED this 14th Day of November, 1990.

HOFNER AUTOMATION, S.A. and
A.T.R. - ADVANCED TECHNOLOGY RESEARCH, S.A.

By their Patent Attorneys,

CALLINAN LAWRIE