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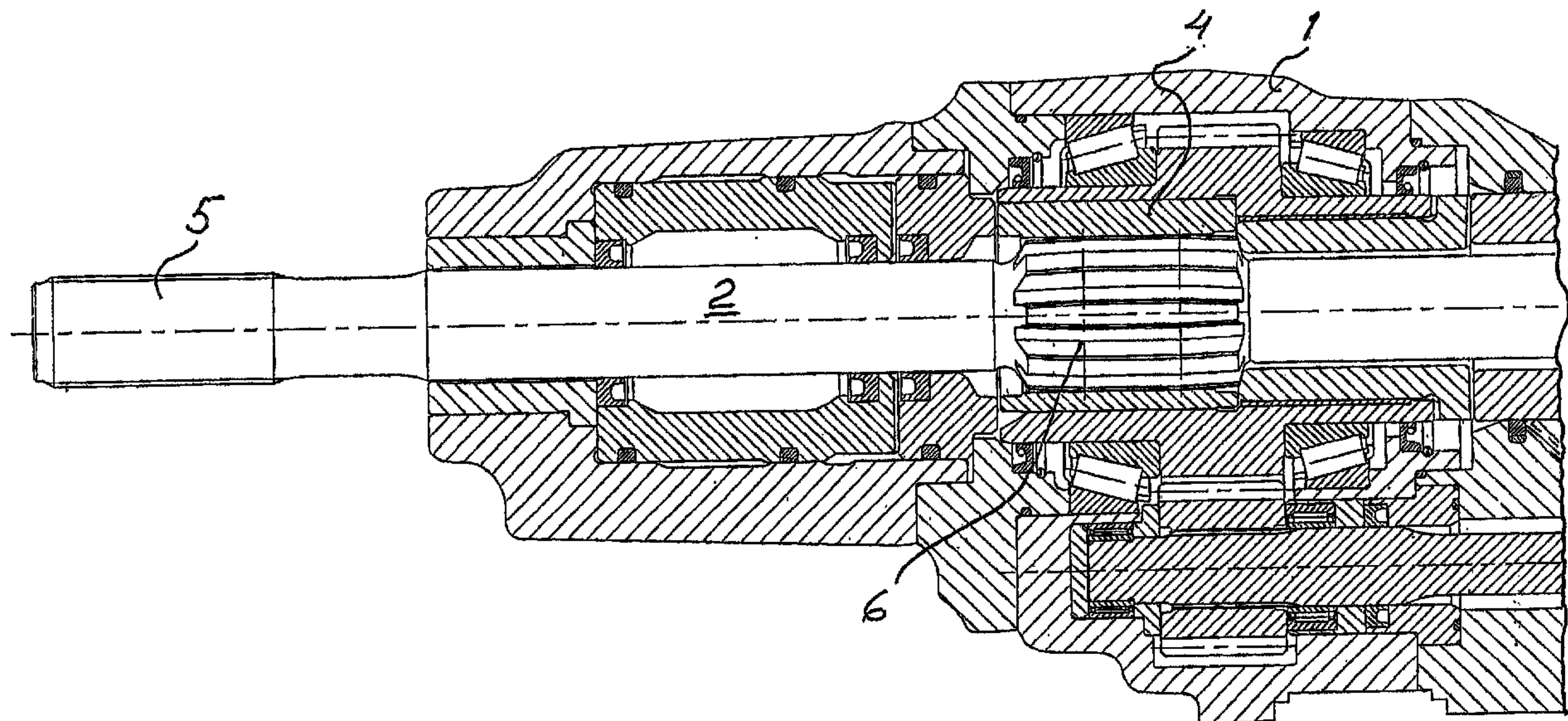
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(54) Title: IMPACT ADAPTER FOR TRANSFER OF IMPACTS AND ROTATION FROM AN IMPACT ROCK DRILLING MACHINE TO A DRILL STRING



(57) Abrégé/Abstract:

Impact adapter for transfer of impacts and rotation from an impact rock drilling machine to a drill string comprising a first end (5) for connection to a drill string and a second end provided with ridges (7) and interposed grooves (8) for transfer of rotation. The grooves (8) at the end (9) directed away from the first end (5) of the impact adapter (2) are widened in the direction away from the first end (5).

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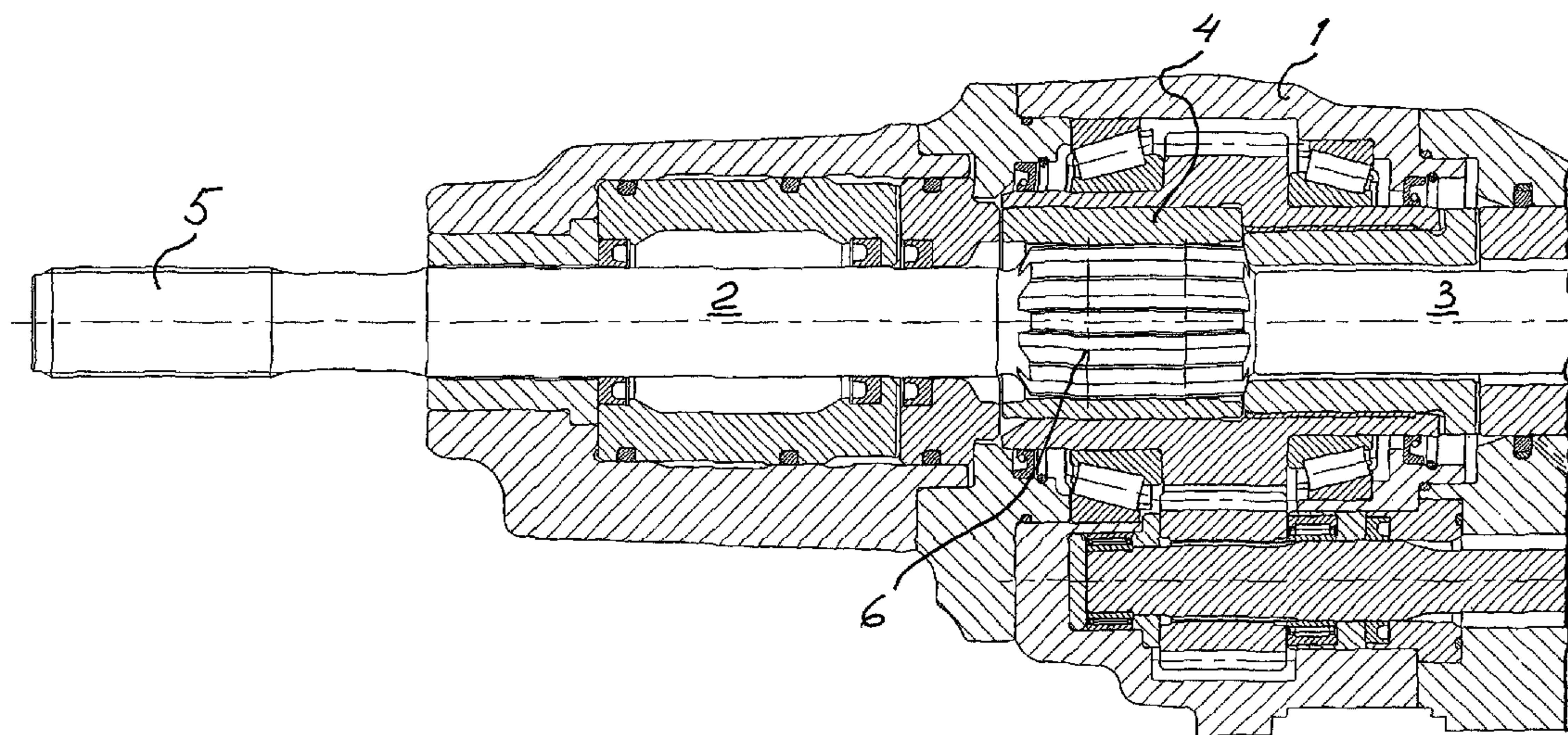
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(54) Title: IMPACT ADAPTER FOR TRANSFER OF IMPACTS AND ROTATION FROM AN IMPACT ROCK DRILLING MACHINE TO A DRILL STRING



(57) Abstract: Impact adapter for transfer of impacts and rotation from an impact rock drilling machine to a drill string comprising a first end (5) for connection to a drill string and a second end provided with ridges (7) and interposed grooves (8) for transfer of rotation. The grooves (8) at the end (9) directed away from the first end (5) of the impact adapter (2) are widened in the direction away from the first end (5).

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Impact adapter for transfer of impacts and rotation from an
impact rock drilling machine to a drill string

The present invention relates to an impact adapter
for transfer of impacts and rotation from an impact rock
5 drilling machine to a drill string.

In previously known impact adapters ridges and
grooves at the rear end of the impact adapter are used for
transferring torque to a drill string from a driver
journalled in the rock drilling machine. Because of
10 manufacturing tolerances one has a certain play between the
impact adapter and the driver in order to allow the axial
movement caused by the impacts of the rock drilling machine
against the impact adapter. This results in the impact
adapter coming more or less obliquely in the driver. This
15 oblique position in combination with the relative axial
movement between the driver and the impact adapter often
gives rise to breakage of one or more of the ridges adjacent
the rear end of the impact adapter.

The present invention aims in some embodiments at
20 decreasing the problem with ridge breakage by decreasing the
surface pressure between impact adapter and driver. This is
achieved by making the grooves between the ridges on the
impact adapter wider at the rear end of the impact adapter.

According to an aspect of the present invention,
25 there is provided an impact adapter for transfer of impacts
and rotation from an impact rock drilling machine to a drill
string including a first end for connection to a drill
string and a second end provided with ridges and interposed
grooves for transfer of rotation, wherein each groove at the
30 second end directed away from the first end of the impact
adapter has a width which is increasing in the longitudinal

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direction away from the first end thereby correspondingly decreasing, in the same direction, the width of the ridges adjacent to the groove.

An embodiment of the invention is described below with reference to the appended drawing in which fig. 1 shows a section through a part of an impact rock drilling machine. Fig. 2 shows a part of the impact adapter according to an embodiment of the invention. Fig 3 shows a view from the right in fig. 2.

10 The rock drilling machine shown in the drawing comprises a machine housing 1, consisting of several connected parts, in which an impact adapter 2 is displaceably arranged in a driver 4. The driver 4 is rotatable by means of a not shown motor. The driver
15 transfers torque to the impact adapter 2 via splines 6 comprising ridges 7 and interposed grooves 8 at a second end of the impact adapter 2. The impact adapter 2 is at the front end, a first end, provided with a thread 5 for connection to a drill string in the usual way. The
20 grooves 8 are at the end 9 directed away from the first end of the impact adapter widened away from the first end, which is shown by means of the angle v . Furthermore the ridges 7 have at the rear end 9 a somewhat smaller radial extension, which is shown by means of the angle u . Through this it is
25 achieved that obliqueness between impact adapter and driver gives a lower surface pressure than what is obtained without these widened grooves. In the drawing the ridges 7 are formed in the same way at the end directed away from the end 9. The grooves widened towards the ends are suitably
30 produced by feeding the milling tool milling the grooves 8 somewhat towards the centre of the impact adapter at the groove ends.

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CLAIMS:

1. Impact adapter for transfer of impacts and rotation from an impact rock drilling machine to a drill string including a first end for connection to a drill
5 string and a second end provided with ridges and interposed grooves for transfer of rotation, wherein each groove at the second end directed away from the first end of the impact adapter has a width which is increasing in the longitudinal direction away from the first end thereby correspondingly
10 decreasing, in the same direction, the width of the ridges adjacent to the groove.
2. Impact adapter according to claim 1, wherein the ridges at the end directed away from the first end of the impact adapter have a smaller radial extension than at the
15 longitudinal center of the ridges.
3. Impact adapter according to claim 1 or 2 wherein the ridges at the end directed away from the first end of the impact adapter have a first portion where an extension of the ridges in a radial direction of the impact adapter is
20 decreasing in the longitudinal direction away from the first end, where said radial decrease has a lower rate compared to a decreasing rate of an extension of the ridges in the radial direction of the impact adapter in a second portion of the ridges, where said second portion terminates the
25 ridges.

