

(12) UK Patent Application (19) GB (11) 2 051 279 A

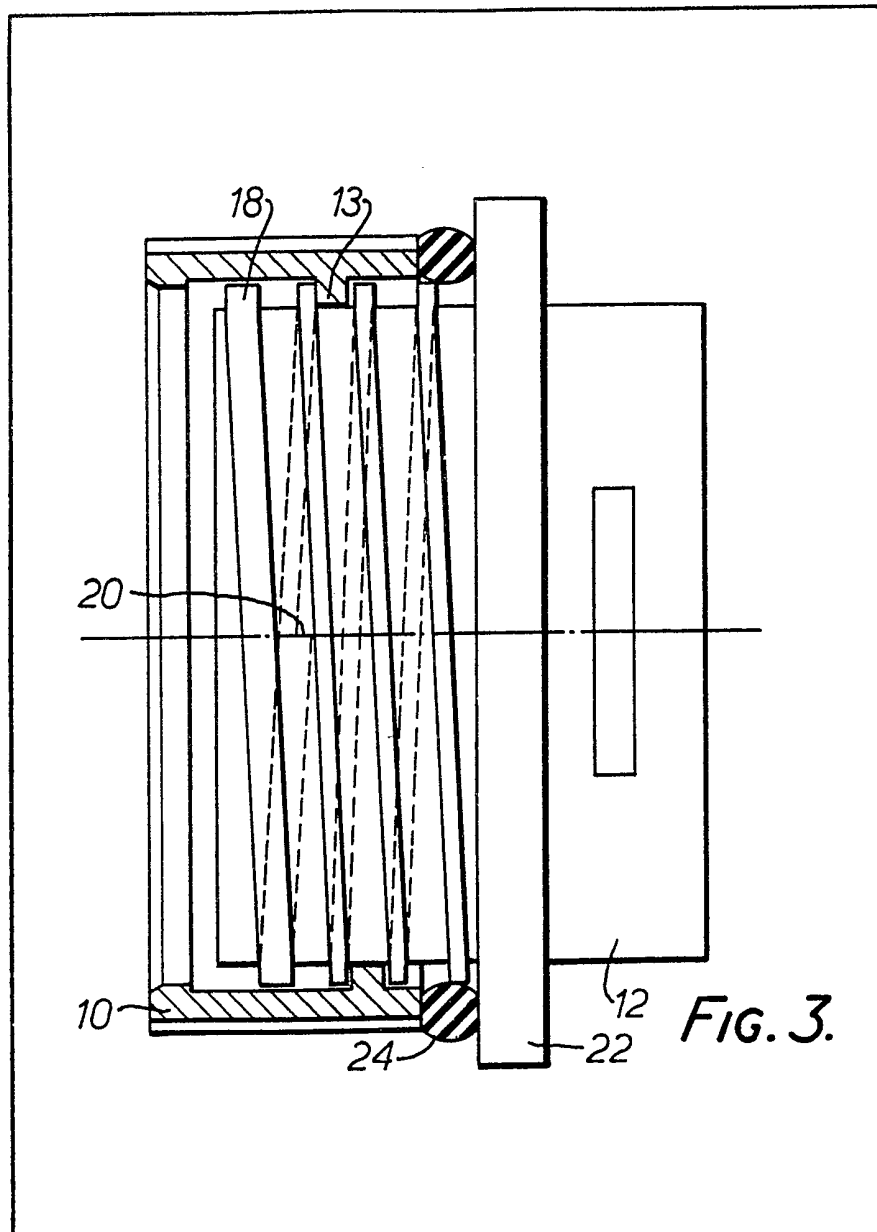
(21) Application No 7920941
(22) Date of filing 15 Jun 1979
(43) Application published
14 Jan 1981
(51) INT CL³
F16L 15/04
(52) Domestic classification
F2G 4G
(56) Documents cited
GB 1394317
(58) Field of search
F2G
(71) Applicant
The Plessey Company
Limited, Vicarage Lane,
Ilford, Essex
(72) Inventor
William Charles Wilson
Duncan
(74) Agent
C. Goodman

(54) Improvements in or Relating to
Couplings

(57) The invention relates to a quickly
detachable self locking coupling which
is simpler and cheaper to produce
than other self locking couplings such
as bayonet couplings and couplings
using separate spring loaded ratchet
devices or interference fits.

The coupling comprises male 12

and female 10 screw threaded bodies,
the thread on the male body having a
step 20 along its length, and the
thread inside the female body
consisting of only one turn of 360
degrees with flat ends. The parts are
screwed together until the end of the
thread in the female body rides over
the step 20 in the thread of the male
body. A rubber ring 24 then urges the
threads together so that inadvertent
unscrewing of the bodies is inhibited.



The drawings originally filed were
informal and the print here
reproduced is taken from a later
filed formal copy.

GB 2 051 279A

1/1

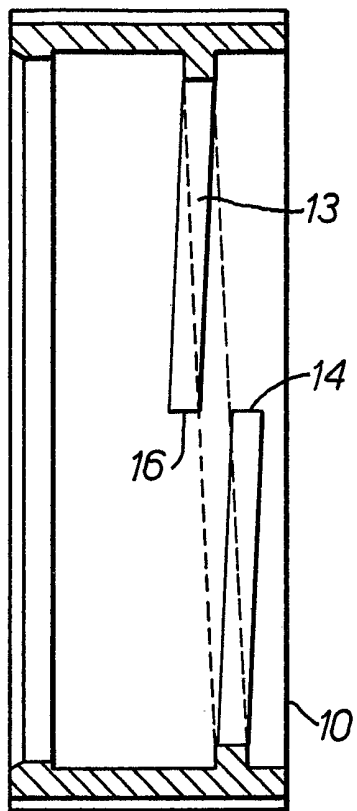


FIG. 1.

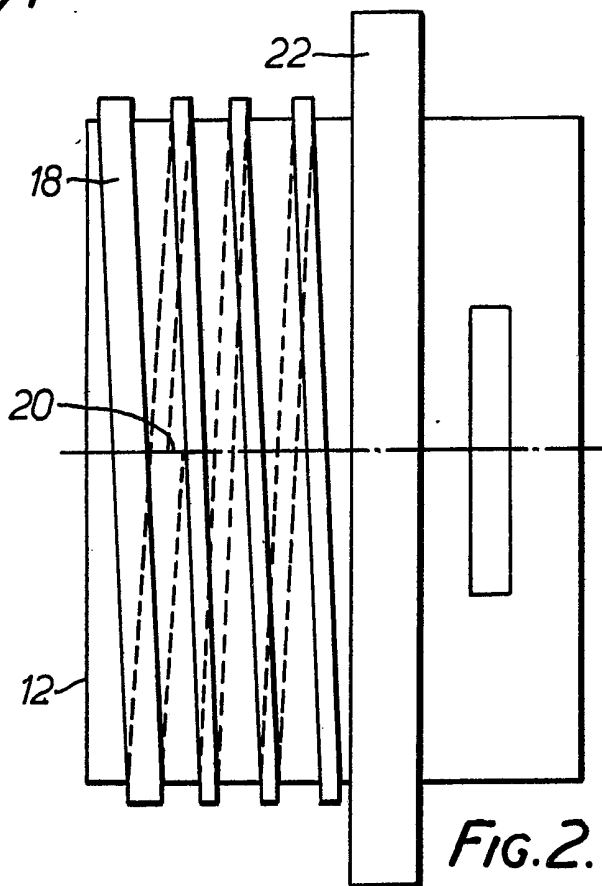


FIG. 2.

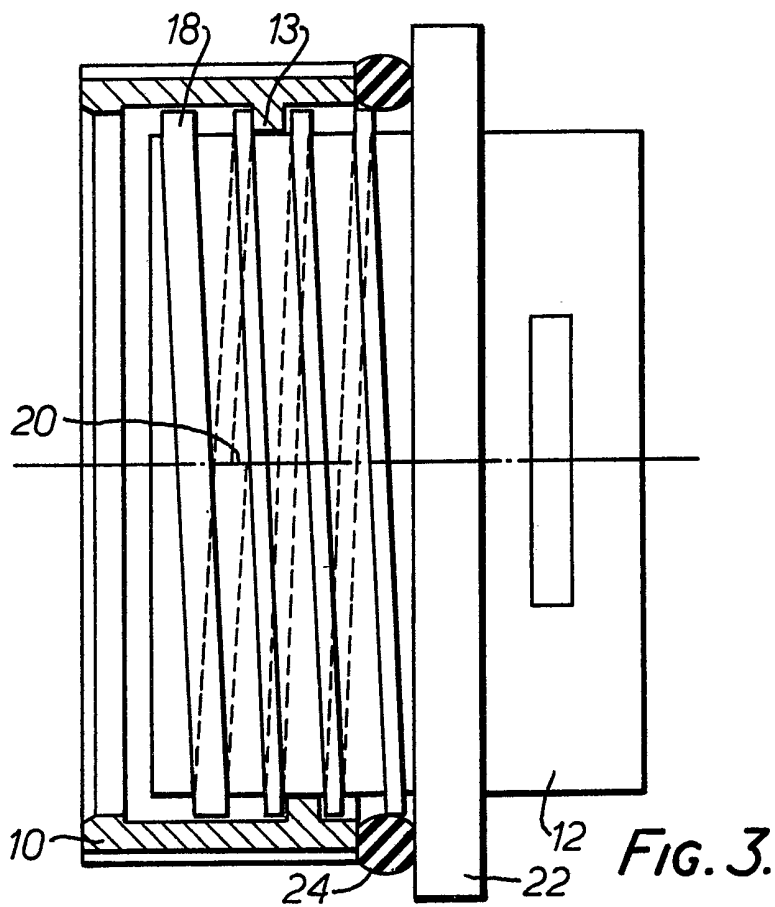


FIG. 3.

SPECIFICATION

Improvements in or Relating to Couplings

This invention relates to couplings and more particularly to couplings which can be readily connected and disconnected and include means for locking the coupling to prevent inadvertent disconnection thereof.

Examples of such couplings are bayonet type couplings and systems using spring loaded ratchet devices and interference fits.

It is an object of the present invention to provide a coupling which is simpler and cheaper to produce than previous known couplings.

According to the present invention a coupling comprises two cylindrical bodies, one having an external screw thread and the other having a mating internal screw thread, each screw thread being provided with a deformed portion, resilient means being located between the two bodies such that, when the screw threads are mated and are relatively rotated against the resilient means, the deformed portions engage and opposite relative rotation between the screw threads is inhibited.

The deformed portions may take the form of a recess in one of the screw threads and a shaped portion adapted to engage the recess in the other screw thread.

Preferably, the external screw thread is provided with a step intermediate of its ends.

The internal screw thread preferably comprises one complete pitch of thread only, the end of the thread being adapted to engage the step in the external screw thread after a predetermined amount of relative rotation between the screw threads.

Preferably, the resilient means comprises a resilient ring located between the two bodies.

An embodiment of the invention will now be described by way of example only with reference to the accompanying drawings in which:—

Figure 1 is a cross-sectional view of one body part of a coupling according to the present invention,

Figure 2 is a side view of another body part of the coupling, and,

Figure 3 is a cross-sectional view of the assembled coupling.

The coupling comprises basically two body parts 10 and 12. The body part 10 is a hollow cylinder with one complete pitch of internal screw thread 13 only, i.e. extending over only 360°. The thread is of square section and the ends 14 and 16 finish abruptly with flat ends. The exterior of the body part 10 is formed with a series of flats so that a suitable tool such as a spanner can be used to rotate the body part 10.

The body part 12 also consists of a hollow cylinder, this time with an external screw thread 18, also of square section and adapted to mate with the thread 13 in the body part 10. The axial width of the square section thread 18 however is not constant, but changes abruptly at a step 20 (shown in broken lines in Figure 2) to a narrower

section a portion of the way along the thread. A flange 22 is formed on the outer surface of the body part 12.

To secure the two body parts together a rubber ring 24 is fitted over the body part 12 until it abuts the flange 22 and the body part 10 is fitted over the thread 18 and rotated so that the threads 13 and 18 mate. As the part 10 is rotated the rubber ring 24 is compressed and after a predetermined number of rotations the end 16 of the screw thread 13 rides over the step 20 formed in the thread 13. It will be seen that the action of the rubber ring 24 urges the part 10 away from the flange 22 and the screw thread 13 is thus forced into contact with the right-hand side of the narrower part of the screw thread 18. The body part 10 cannot then be rotated in the opposite direction since the end 16 of the screw thread 13 contacts the step 20 and the body parts are effectively locked together.

Releasing the body part 10 involves compressing the rubber ring 24 by pressing the parts 10 and 12 together until the end 16 of the screw thread 13 can ride over the step 20. The body part 10 can then be unscrewed in a conventional manner.

The body parts 10 and 12 may be formed from plastics material complete with the screw threads and thus can be made simply and cheaply by injection moulding.

The rubber ring 24 also acts to seal the coupling but a metal spring or other resilient material could be used.

The length of the thread 13 and the position of the step 20 may be varied to give the required locking force. Furthermore, the step 20 and the end 16 of the thread 13 can be changed to suitable mating shapes.

Claims

1. A coupling consisting of two cylindrical bodies, one having an external screw thread and the other having a mating internal screw thread, each screw thread being provided with a deformed portion, resilient means being located between the two bodies such that when the screw threads are mated and are relatively rotated against the resilient means the deformed portions engage and opposite relative rotation between the screw threads is inhibited.

2. A coupling as claimed in claim 1 in which the deformed portions take the form of a recess in one of the screw threads, and a shape portion adapted to engage the recess in the other screw thread.

3. A coupling as claimed in claim 1 or claim 2 in which the external screw thread is provided with a step intermediate of its end.

4. A coupling as claimed in claim 3 in which the internal screw thread comprises one complete pitch of thread only, the end of the thread being adapted to engage the step in the external screw thread after a predetermined amount of relative rotation between the screw threads.

5. A coupling as claimed in any preceding

claim in which the resilient means comprises a resilient ring located between the two bodies.

6. A coupling as claimed in claim 5 in which the resilient ring is made of rubber.

5

7. A coupling constructed and adapted to operate substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1981. Published by the Patent Office,
25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.