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AEC-NASA TECH BRIEF

Space Nuclear Systems Office

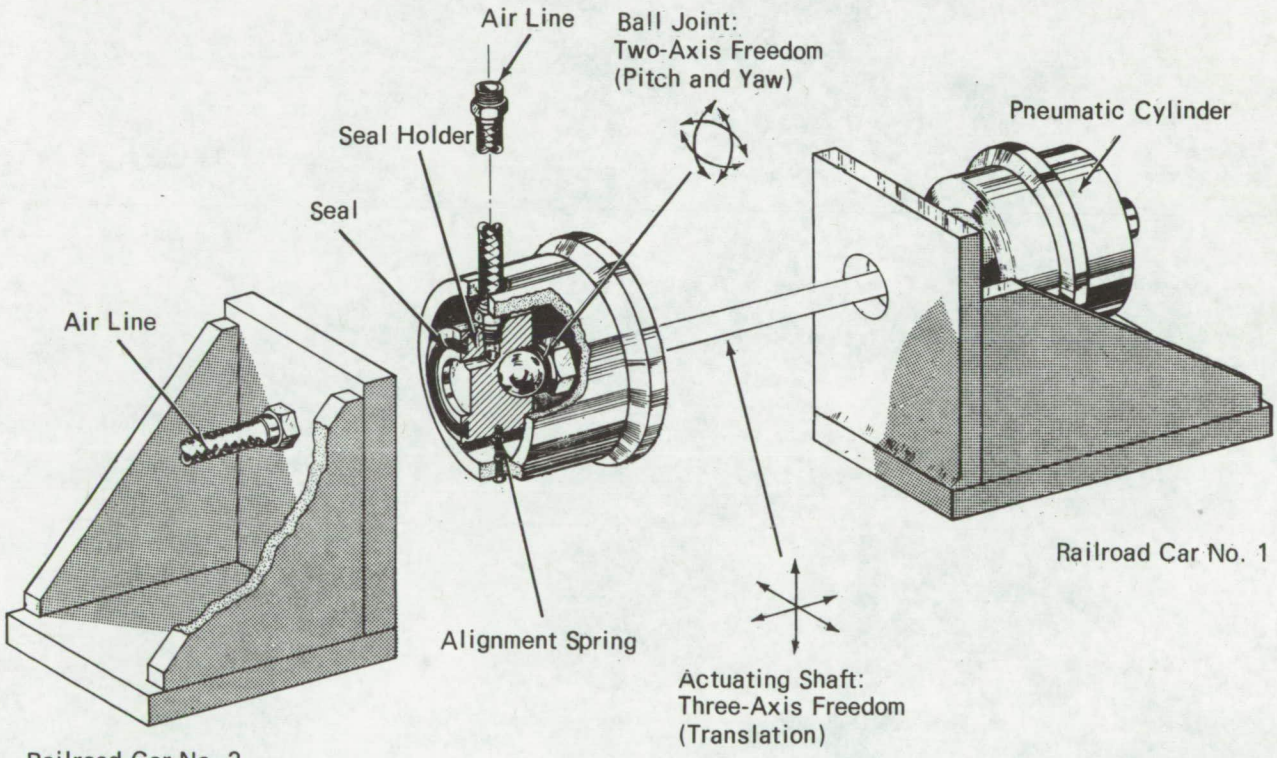
Remote Coupling of Air Lines

The problem:

Design a remotely operated coupling to connect the brake compressed-air lines between railroad cars remotely coupled mechanically.

How it's done:

After mechanical coupling of the cars, the pneumatic coupler is activated by supplying air to the pneumatic cylinder mounted on car 1 (see fig.).



The solution:

A flexible "bullseye" pneumatic coupler that is projected pneumatically from one car at the second car's point of connection. The system depends on the assumption that inaccuracies in the relative positions of the cars do not exceed certain limits.

The actuating shaft then drives the coupler against a vertical flat plate mounted on car 2, and holds it there regardless of relative changes in the cars' positions. With the coupler forced against the plate, compressed air flows between the cars; its escape is prevented by the circular seal surrounding the point of connection.

(continued overleaf)

The pneumatic coupler's flexibility is primarily assured by "suspension" of the coupling assembly from the actuating shaft which is mounted on a diaphragm within the cylinder. The shaft is free, within limits, to move backward, forward, sideways, and up and down. Flexibility is further assured by the fact that the ball joint for the seal holder allows for twisting in two planes.

Notes:

1. This type of remote connection may find uses in oil drilling, deep-sea rescue, marine salvage and repair, nuclear work, hazardous chemical processing, and gas-plant operations.
2. Requests for further information may be directed to:

   Technology Utilization Officer
   AEC-NASA Space Nuclear Systems Office
   U.S. Atomic Energy Commission
   Washington, D.C. 20545
   Reference: TSP71-10101

Patent status:

No patent action is contemplated by AEC or NASA.

Source: C. E. Fuchs of
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