

## Title (en)

Linear actuator for antenna pointing, particularly suitable for space applications.

## Title (de)

Linearantrieb zur Antennenausrichtung, insbesondere für Weltraumanwendungen.

## Title (fr)

Actuateur linéaire pour pointage d'antenne, notamment pour applications spatiales.

## Publication

**EP 0371213 A1 19900606 (EN)**

## Application

**EP 89116639 A 19890908**

## Priority

IT 4833088 A 19880908

## Abstract (en)

Linear actuator for antenna pointing, particularly indicated for space-borne satellite antennae. The invention belongs to the electromechanical field of application related to space borne antennae. The actuator is adopted by antenna systems on board satellites to achieve R.F. sensing (antenna fine pointing) so that by moving one of its points linearly, rotation of the antenna around a hinge takes place. The actuator consists essentially (figure 2) of a rotating motor 8, a screw gear 11 connected to the motor shaft, a screw jack 13 coupled to the screw gear to obtain a linear motion. Kinematic couplings are obtained by means of hard materials in contact with soft materials in absence of rolling elements. In particular, the coupling between screwgear and screwjack consists of a metal screw and teflon (or similar) jack, enclosed in a metal case which provides for guidance and geometric configuration stability even under critical temperature extremes so as to maintain a wide coupling surface with a uniform distribution of stresses. The displacement coupling, with an end of run stop, present between the element firmly connected to antenna reflector 16 and screw jack 13, lets free relative axial displacement during launch, while the pre-loading device ensures that contact with the end of run stop is maintained; all above resulting in movement transmission from actuator to reflector when the latter separates from the satellite body. The pre-loading device, consisting of parts 20, 21 and 22, finally recovers the backlash of the entire kinematic chain, thus simplifying the screw gear/jack coupling and also achieving a constant pre-load throughout the entire run and a reduction of the reaction torque of the motor.

## IPC 1-7

**H01Q 1/12**; **H01Q 1/28**

## IPC 8 full level

**H01Q 1/12** (2006.01); **H01Q 1/28** (2006.01)

## CPC (source: EP)

**H01Q 1/125** (2013.01); **H01Q 1/288** (2013.01)

## Citation (search report)

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- [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 197 (E-335)[1920], 14th August 1985; & JP-A-60 62 205 (NIPPON DENKI K.K.) 10-04-1985

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## Designated contracting state (EPC)

DE ES FR GB NL SE

## DOCDB simple family (publication)

**EP 0371213 A1 19900606**; **EP 0371213 B1 19950607**; DE 68922968 D1 19950713; DE 68922968 T2 19960321; ES 2076180 T3 19951101; IT 1224879 B 19901024; IT 8848330 A0 19880908

## DOCDB simple family (application)

**EP 89116639 A 19890908**; DE 68922968 T 19890908; ES 89116639 T 19890908; IT 4833088 A 19880908