Introduction

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Normal toothed gear units (gearings) and mechanisms are systems for converting or transmitting movements and forces (torque). Gearings consist of at least three links (Fig. 1.1), mechanisms of at least four links (Fig 1.2), one of which must be defined as the fixed or support link.

Examples of application

The following pictures will show you some types of planar mechanisms. They will give you an impression of what comes later. A complete understanding is not required at the moment.

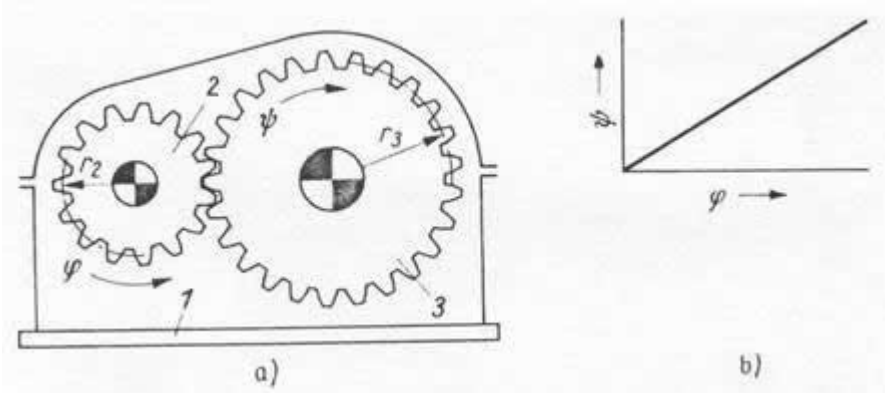

Fig. 1.1 Gear unit (three-links): a) Spur gear; 1 fixed box, 2 and 3 gear wheels b) Zero-order transfer function (ÜF0)

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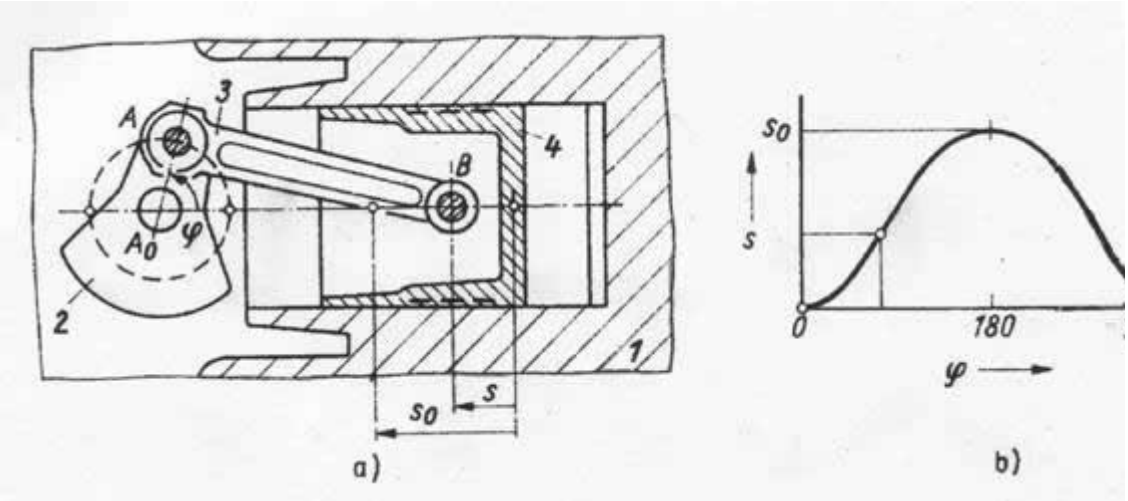

Fig. 1.2 Crank mechanism used for a reciprocating piston: a) Slider crank; 1 fixed block (cylinder and crankshaft bearing), 2 crank, 3 connecting rod, 4 piston. b) Zero-order transfer function (ÜF0)

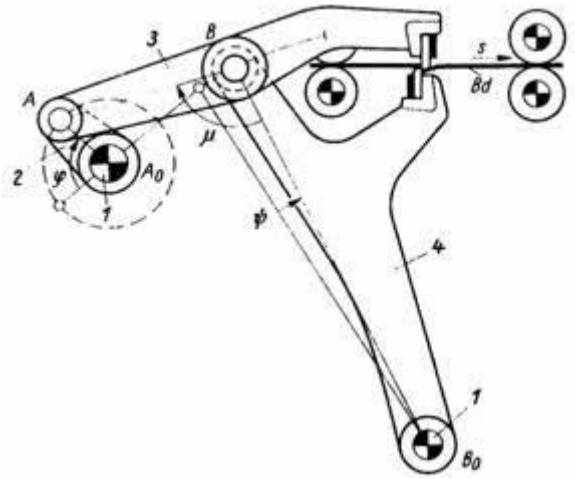

Fig. 1.3 Planar four-bar linkage (crank-and-rocker) used for steel cutting: 1 fixed block (housing), 2 crank, 3 coupler (connecting rod), 4 rocker

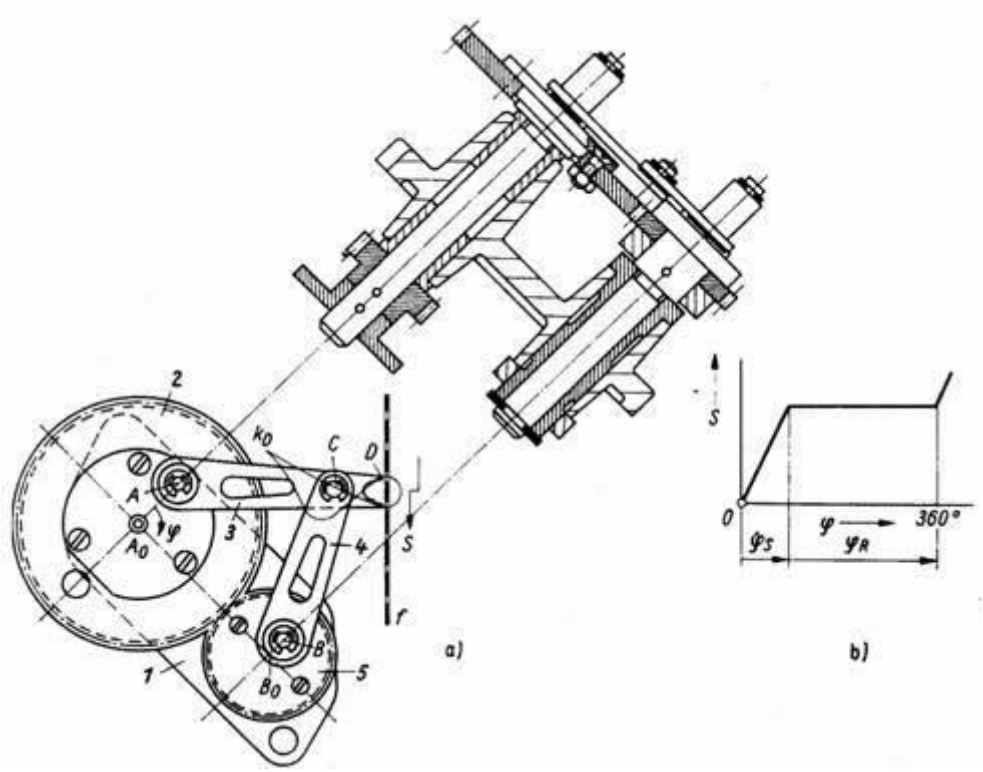

Fig. 1.4 Mechanism used in a filmprojector: a) Mechanism and coupler curve of the point D; f film, φ cam angle, s motion of the film. b) Zero-order transfer function s = f(φ): φ_R dwell-cam angle, φ_s motion-cam angle

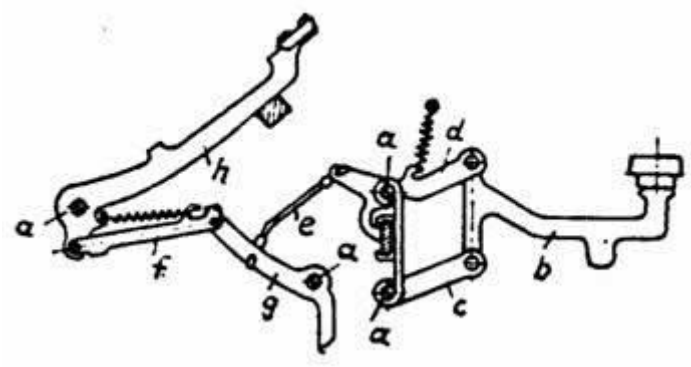

Fig. 1.5 Mechanism of a typewriter: a fixed link, b key lever, c, d, g transmitter levers, e, f drawbars, h type lever