

**CAM AND NON-CIRCULAR GEAR PAIR FOR UNPOWERED MULTI-JOINT
SYNCHRONOUS TRAINING DEVICE, MANUFACTURING METHOD THEREOF,
TRANSMISSION MECHANISM USING THE SAME, AND UNPOWERED MULTI-
JOINT SYNCHRONOUS TRAINING DEVICE**

ABSTRACT

The invention provides a cam for an unpowered multi-joint synchronous training device, wherein the cam has a circular main body, a cam slot is disposed on a first side surface of the circular main body, and a contour of the cam slot is configured such that rotational movement of the cam drives a follower provided in the cam slot to perform variable-speed reciprocation motion along a predetermined horizontal axis, wherein for each rotation of the cam, the follower performs reciprocating motion once between a first position and a second position; the first position and the second position are respectively positions of the follower along the horizontal axis when the follower is at positions of the contour closest to, and farthest from, a center of the circular main body; and the reciprocating motion drives a driven object connected to the follower to perform variable-speed oscillation within a range of an angle. The invention further provides a non-circular gear pair for an unpowered multi-joint synchronous training device, a method of manufacturing the cam and the non-circular gear pair, a transmission mechanism using the cam and the non-circular gear pair, and an unpowered multi-joint synchronous training device using the transmission mechanism.

(FIG. 1)