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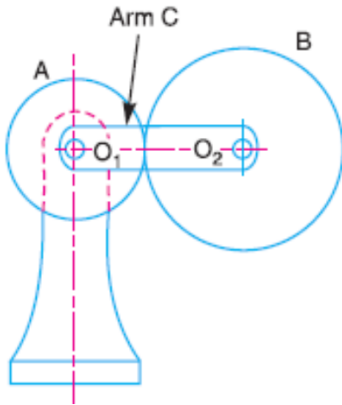
Question:

Draw the neat sketch of epicyclic gear train and explain how it works.

Answer:

In an epicyclic gear train, the axes of the shafts, over which the gears are mounted, may move relative to a fixed axis. A simple epicyclic gear train is shown in Fig. where a gear A and the arm C have a common axis at 1 about which they can rotate. The gear B meshes with gear A and has its axis on the arm at O₂, about which the gear B can rotate. If the arm is fixed, the gear train is simple and gear A can drive gear B or viceversa, but if gear A is fixed and the arm is rotated about the axis of gear A (i.e. O₁), then the gear B is forced to rotate **upon** and **around** gear A. Such a motion is called epicyclic and the gear trains arranged in such a manner that one or more of their members moves upon and around another member are known as **epicyclic gear trains** (**epi** - means upon and **cyclic** means around). The epicyclic gear trains may be **simple or compound**.

Epicyclic gear train.



The epicyclic gear trains are useful for transmitting high velocity ratios with gears of moderate size in a comparatively lesser space. The epicyclic gear trains are used in the back gear of lathe, differential gears of the automobiles, hoists, pulley blocks, wrist watches etc.
