

# Mechanical systems and control

## Bevel Gears

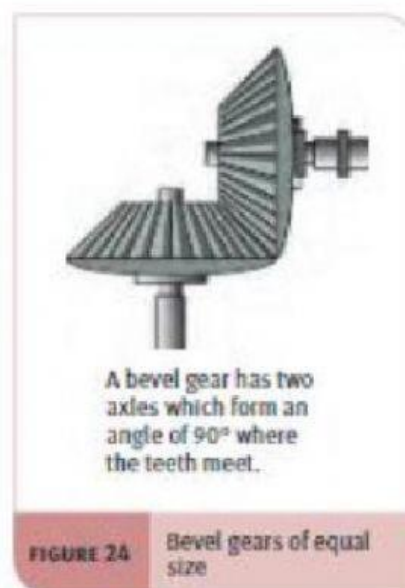
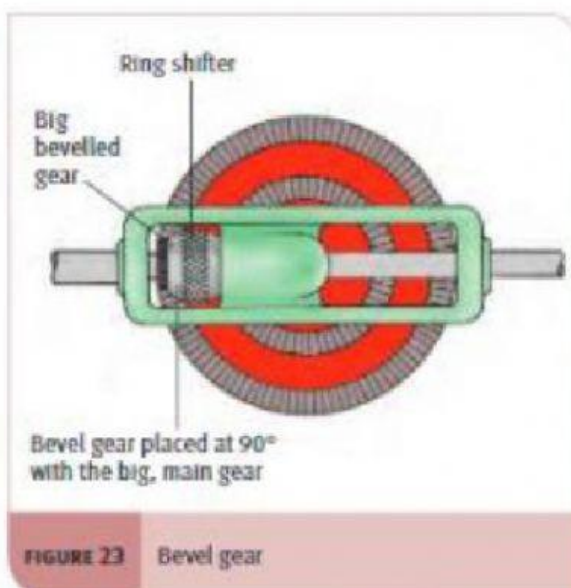
### 2.1 Bevel gears of equal size

Bevel gears can be used to change the direction of drive in a gear system by  $90^\circ$ . A good example is seen as the main mechanism for a hand drill. Some types of hand-held drills are also used to drive screws and other fasteners.

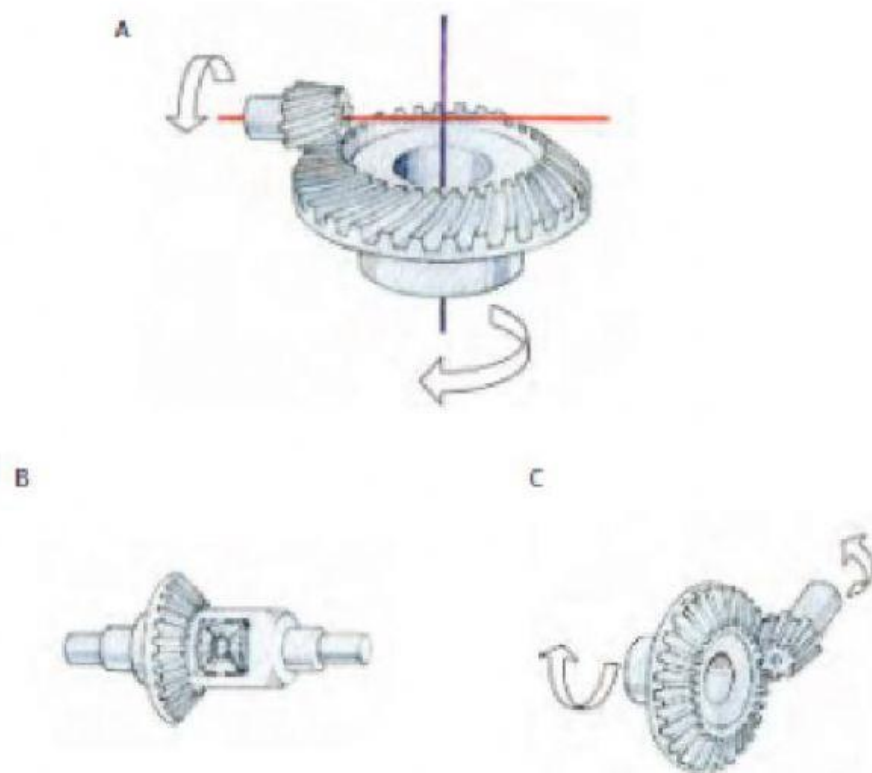
A typical example of bevel gears of equal size is shown in **FIGURE 24**.

### 2.2 Bevel gears of unequal size

Bevel gears of unequal size make a wheel system in which the axis or shaft of the driving wheel forms a  $90^\circ$  angle with the shaft of the wheel being driven.



A typical example of two bevel gears of unequal size in the differential of a vehicle can be seen in **FIGURE 25**.



**FIGURE 25** A shows the axes of a bevelled gear at a  $90^\circ$  angle and the direction in which the gears turn, B shows a big gear and C a small gear

### Activity 1 Gears

With the knowledge gained so far you should be able to answer the following questions in your workbook. If you experience problems in doing so, have a group discussion.

- 1 Which of the three gears in the above illustration will turn the fastest?
- 2 Why will one gear turn faster than the other one?
- 3 Is there a difference between the gear ratio and speed ratio of the two unequal gears?

## Answers

1.

2.

3.

