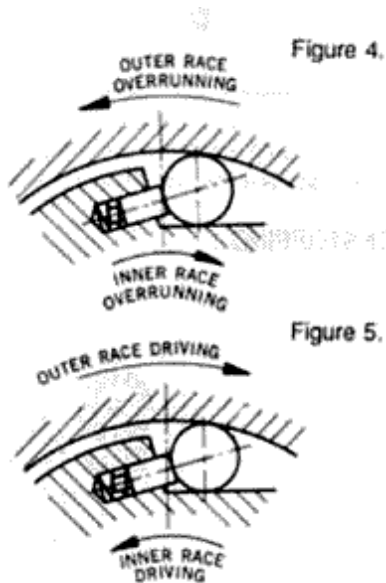




PRINCIPAL OF OPERATIONS

ROLLER CLUTCHES



These clutches operate on the principle of a roller on an inclined plane. Clutches utilizing this construction are equipped with individual spring-loaded rollers. The rollers are kept in engagement with the clutch inner and outer races through spring loaded plungers. Through this energization a constant contact of all rollers with the race members is assured.

Figures 4 and 5 show the basic construction of the roller ramp clutches, namely (1) cylindrical outer race (2) solid cylindrical rollers and (3) inner race with precision ground inclined ramps.

FIGURE 4 when the outer race is driven counter-clockwise or the inner race is driven clockwise, the roller is forced down the inclined ramp permitting freewheeling of the clutch. Although the races move the roller in an anti-wedge position, the spring loaded plunger keeps the roller in very light contact with the races to assure instantaneous engagement when race rotation is reversed to transmit load.

FIGURE 5 When the outer race is driven clockwise or the inner race is driven counter clockwise, the roller is forced up the inclined ramp looking the race and roller components to transmit load. The rollers move along the inclined plane to a point where the distance between the races is slightly smaller than the roller diameter and consequently wedging occurs.

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