Pinion

The king pin, normally constructed from metal, is the main axis in the steering mechanism of a motor vehicle. The original design was in fact a steel pin on which the movable steerable wheel was connected to the suspension. Able to freely revolve on a single axis, it restricted the levels of freedom of motion of the remainder of the front suspension. In the nineteen fifties, when its bearings were replaced by ball joints, more comprehensive suspension designs became obtainable to designers. King pin suspensions are nonetheless featured on several heavy trucks because they could carry a lot heavier cargo.

The new designs of the king pin no longer limit to moving like a pin. These days, the term may not even refer to an actual pin but the axis in which the steered wheels turn.

The kingpin inclination or likewise called KPI is likewise known as the steering axis inclination or likewise known as SAI. This is the description of having the kingpin placed at an angle relative to the true vertical line on nearly all recent designs, as looked at from the front or back of the lift truck. This has a major impact on the steering, making it tend to go back to the centre or straight ahead position. The centre location is where the wheel is at its peak point relative to the suspended body of the forklift. The vehicles' weight tends to turn the king pin to this position.

The kingpin inclination also sets the scrub radius of the steered wheel, which is the offset amid projected axis of the tire's contact point with the road surface and the steering down through the king pin. If these points coincide, the scrub radius is defined as zero. Even though a zero scrub radius is possible without an inclined king pin, it requires a deeply dished wheel so as to maintain that the king pin is at the centerline of the wheel. It is more practical to slant the king pin and utilize a less dished wheel. This likewise provides the self-centering effect.