Pinion for Forklifts

Forklift Pinion - The king pin, usually made from metal, is the main axis in the steering mechanism of a motor vehicle. The initial design was really a steel pin wherein the movable steerable wheel was mounted to the suspension. Since it can freely revolve on a single axis, it limited the levels of freedom of motion of the rest of the front suspension. During the 1950s, when its bearings were replaced by ball joints, more comprehensive suspension designs became available to designers. King pin suspensions are still used on several heavy trucks since they can carry much heavier load.

New designs no longer limit this particular machine to moving like a pin and now, the term may not be used for an actual pin but for the axis around which the steered wheels revolve.

The kingpin inclination or likewise called KPI is also known as the steering axis inclination or SAI. This is the explanation of having the kingpin set at an angle relative to the true vertical line on the majority of recent designs, as looked at from the back or front of the lift truck. This has a major impact on the steering, making it tend to return to the straight ahead or center position. The centre arrangement is where the wheel is at its highest position relative to the suspended body of the lift truck. The vehicles' weight has the tendency to turn the king pin to this position.

Another effect of the kingpin inclination is to fix the scrub radius of the steered wheel. The scrub radius is the offset between the tire's contact point with the road surface and the projected axis of the steering down through the king pin. If these points coincide, the scrub radius is defined as zero. Although 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 sensible to incline the king pin and make use of a less dished wheel. This also supplies the self-centering effect.