Forklift Pinion

Forklift Pinion - The main axis, called the king pin, is found in the steering mechanism of a forklift. The very first design was a steel pin which the movable steerable wheel was mounted to the suspension. Able to freely rotate on a single axis, it limited the levels of freedom of motion of the rest of the front suspension. During the nineteen fifties, when its bearings were substituted by ball joints, more in depth suspension designs became available to designers. King pin suspensions are still utilized on some heavy trucks in view of the fact that they can carry much heavier weights.

The new designs of the king pin no longer restrict to moving similar to a pin. Today, the term might not even refer to an actual pin but the axis in which the steered wheels revolve.

The kingpin inclination or KPI is also called the steering axis inclination or otherwise known as SAI. This is the explanation of having the kingpin put at an angle relative to the true vertical line on most modern 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 return to the straight ahead or center position. The centre position is where the wheel is at its uppermost position relative to the suspended body of the lift truck. The motor 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. Even though a zero scrub radius is possible without an inclined king pin, it needs a deeply dished wheel in order to maintain that the king pin is at the centerline of the wheel. It is much more practical to incline the king pin and use a less dished wheel. This likewise offers the self-centering effect.