Patent claims

1. Kingpin assembly (1) for a semi-trailer of an articulated vehicle which, when assembled, comprises
a kingpin (2) defining an axis of rotation (A), wherein the kingpin (2) has a kingpin flange (3) for connecting the kingpin (2) directly or indirectly to the semi-trailer,
characterized by an angle measuring device (15) at least partially recessed into the kingpin (2) with a shaft (17) rotatably mounted about the axis of rotation (A) and by a driver (18) connected to the shaft (17) and pivotable about the axis of rotation (A).

2. Kingpin assembly (1) according to claim 1,
characterized in that the shaft (17) is led out on an bottom side (19) of the king pin (2) facing away from the king pin flange (3) and is connected to the driver (18).

3. Kingpin assembly (1) according to one of the preceding claims,
characterized in that the king pin (2) protrudes on an bottom side (19) facing away from the king pin flange (3) with at least one projection (21) in the axial direction (R) downwards beyond the driver (18) and the shaft (17).

4. Kingpin assembly (1) according to one of the preceding claims,
characterized in that the driver (18) comprises a centering element which is arranged to center the driver (18) with respect to the entry opening of a fifth wheel coupling plate of a tractor vehicle.

5. Kingpin assembly (1) according to one of the preceding claims, characterized in that the angle measuring device (15) comprises a magnetic angle sensor and an angle encoder generating a magnetization pattern.

6. Kingpin assembly (1) according to claim 5,
characterized in that the magnetization pattern defines a center position.

7. Kingpin assembly (1) according to one of the preceding claims,
characterized by a weld-in plate (7) connected or connectable to the semi-trailer, which is designed for connection to the kingpin flange (3).

8. Kingpin assembly (1) according to one of the preceding claims,

characterized in that the angle measuring device (15) is recessed into the kingpin (2) on the upper side (13) attributed to the kingpin flange (3) and in that the shaft (17) is rotatably mounted or received in a bore axially penetrating the kingpin (2).

9. Kingpin assembly (1) according to claims 7 and 8,
characterized in that the angle measuring device (15) is recessed on the upper side (13) into the kingpin (2) to such an extent that the angle measuring device (15) has a distance d > 1 mm from the bottom (16) of the weld-in plate (7) when the kingpin (2) is connected to the weld-in plate (7).

10. Kingpin assembly (1) according to claim 9,
characterized in that the angle measuring device (15) is recessed flush with the upper side (13) in the kingpin (2).

11. Kingpin assembly (1) according to one of claims 1 to 7,
characterized in that the angle measuring device (15) is recessed into the kingpin (2) on the bottom side (19) facing away from the kingpin flange (3).

12. Kingpin assembly (1) according to one of the preceding claims,
characterized by a pivot bearing (25) arranged about the axis of rotation (A), which has a bearing ring (31) stationary relative to the kingpin (2) or a stationary bearing ring segment and a bearing ring (32) rotatable relative thereto or a rotatable bearing ring segment, wherein the driver (18) is fixed directly or indirectly to the rotatable bearing ring (32) or rotatable bearing ring segment,

13. Kingpin assembly (1) according to claim 12,
characterized by a support frame (26) fixed to the rotatable bearing ring (32) or rotatable bearing ring segment, wherein the driver (18) is fixed to the support frame (26).

14. Kingpin assembly (1) according to claim 13,
characterized in that the support frame (26) is designed to accommodate a connecting means for connection to a corresponding connecting unit of a tractor vehicle, in particular an electrical and/or electromagnetic and/or pneumatic and/or hydraulic connecting means.

15. Kingpin assembly (1) according to one of claims 13 or 14,
characterized in that the support frame (26) has a support element (35) which is axially spaced from the rotatable bearing ring (32) or the rotatable bearing ring segment and rests directly against the kingpin (2).