受験番号：34IPM003

問１.

[0002] Road markings such as white lines on the surface are typically used for indications to pedestrians and vehicle drivers traveling on the road.

[0003] Patent Document 1 describes a road marking paint containing a synthetic resin solution or dispersion and a filler. The paint is applied to a road surface and a retroreflective material such as glass beads is distributed and allowed to dry to form a paint layer.

[0007] In road markings produced by applying road marking paints, such as those described in Patent Literatures 1-3, paint layers may be easily lost due to abrasion caused by contact with pedestrians and vehicles. Therefore, periodic maintenance of the marking is necessary by sequentially applying a paint and a retroreflective material such as glass beads. Long hours of traffic control are required for such maintenance, and thus a method of road marking that requires less frequent maintenance has been desired.

[0008] Applying the road marking paint in a thicker layer may suppress loss of the marking despite contact with pedestrians or vehicles. However, a thick layer of road marking paint causes the force applied by contact with pedestrians and vehicles increase particularly on the underside of the road marking, resulting in the road marking susceptible to loss by peeling off from the surface.

問２.

[0014] According to the present embodiment, for backlash adjustment in the gear train of the reduction gear device 10, the gear box 8 is provided with the reference surface 8b as described above and the intermediate gear assembly 20 is disposed so as to be slidably displaceable on the reference surface 8b before being fixed. Recesses 18 and 34, which will be described later, are formed approximately along the central axis at the top of the input shaft 14 of the input gear assembly 10 and the top of the intermediate shaft 26 of the intermediate gear assembly 20.

[0015] According to the present embodiment, a simple tool is used to adjust the backlash in the gear train described above. As shown in Figures 2 to 4, this tool is a restrictor 50 that fixes and restricts the distance L between the central axis of the input shaft 14 of the input gear assembly 10 and the central axis of the intermediate shaft 26 of the intermediate gear assembly 20. The restrictor 50 has a rod-shaped portion 52 and engaging pins 54 and 56 protruding from both ends of the rod-shaped portion 52. The restrictor 50 is designed and formed such that the distance L between the centers of the engaging pins 54 and 56 with respect to the rod-shaped portion 52 is approximate the sum of the pitch circle radii of the input gear 16 and the first gear 22 of the intermediate gear assembly 20. The distance between the gears 16 and 22 can be restricted by engaging the engaging pins 54 and 56 of the restrictor 50 into the recesses 18, 34 formed at the top of the input shaft 14 of the input gear assembly 10 and the top of the intermediate shaft 26 of the intermediate gear assembly 20. It would be obvious that a similar restriction is achieved by forming pin-shaped protrusions corresponding to the pins 54 and 56 of the restrictor 50 at the tops of the input shaft 14 and the intermediate shaft 26, while forming recesses 18 and 34 at both ends of the rod-shaped portion 52 of the restrictor 50.

問３.

1. A sealing device (A) comprising a first annular sealing plate (1), a second annular sealing plate (2), and a sealing lip,

the first annular sealing plate (1) and the second annular sealing plate (2) being disposed in an annular space between a rotating-side inner member (11) and a fixed-side outer member (12) and being attached respectively to a rotating-side inner member (11) and a fixed-side outer member (12),

each of the first annular sealing plate (1) and the second annular sealing plate (2) having an L-shaped cross section including a vertical plate section (1a, 2b) and a cylindrical section (1b, 2b), with the cylindrical section (1b) fitted to the rotating-side inner member (11) and the cylindrical section (2b) fitted to the fixed-side outer member (12), and

the first annular sealing plate (1) and the second annular sealing plate (2) facing each other, wherein:

the first annular sealing plate (1) the vertical plate sections (1a, 2a) are disposed on the outer side in the axial direction;

the tips of the vertical plate portions (1a, 2a) and the cylindrical section of the second sealing plate (2) face each other with a radial gap therebetween;

the second sealing plate (2) has a side lip (3a) and radial lips (3b, 3c);

the side lip (3a) slidably contacts a planar inner surface of the vertical plate section (1a) of the first sealing plate (1), and has a tip inclined in a radially outward direction;

the radial lips (3b, 3c) slidably contact the cylindrical section (2b) of the first sealing plate (1);

the first sealing plate (1) is a magnetic steel plate; and

an elastomer with magnetic powder is vulcanized and adhered to the outer circumferential surfaces of the vertical plate portions (1a, 2a) with magnetic poles alternately arranged.