Title: MULTILAYER OPTICAL INFORMATION RECORDING MEDIUM, OPTICAL HEAD, AND OPTICAL DRIVE

Abstract: A disclosed optical recording medium includes multiple recording layer units in each of which one or more recording layers and one or more middle layers are stacked alternately; and one or more spacer layers. In the disclosed optical recording medium, the recording layer units and the spacer layers are stacked alternately in a depth direction of the optical recording medium.
AMENDED CLAIMS
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1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

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18. (Cancelled)

19. An optical recording medium, comprising:

   multiple multilayer units each including
   a guide layer corresponding to light with a first wavelength, and
   multiple recording layers corresponding to light with a second wavelength that is different from the first wavelength;

   wherein the multilayer units are stacked in a depth direction of the optical recording medium.
20. The optical recording medium as claimed in claim 19, wherein the recording layers are stacked on an upper side or a lower side of the guide layer.

21. The optical recording medium as claimed in claim 20, wherein both the light with the first wavelength and the light with the second wavelength enter the optical recording medium through a same incidence plane; and the guide layer is positioned closer to the incidence plane than the recording layers in each of the multilayer units.

22. The optical recording medium as claimed in claim 21, wherein tracks are formed spirally or concentrically on the guide layer; and when n indicates a number of the recording layers in each of the multilayer units, d indicates a thickness of each of the recording layers, and p indicates a pitch between the tracks, \( n \times d \times \sin(1^\circ) < p \) is true.

23. An optical recording medium, comprising: multiple guide layers corresponding to light with a first wavelength; and
multiple recording layers corresponding to light
with a second wavelength that is different from the first
wavelength.

24. The optical recording medium as claimed in
claim 23, wherein

both the light with the first wavelength and the
light with the second wavelength enter the optical
recording medium through a same incidence plane; and

the guide layers are positioned closer to the
incidence plane than the recording layers.

25. The optical recording medium as claimed in
claim 23, wherein a filter layer that reflects the light
with the first wavelength and transmits the light with the
second wavelength is provided between the guide layers and
the recording layers.

26. An optical recording medium, comprising:

multiple multilayer units each including
multiple guide layers corresponding to light
with a first wavelength, and
multiple recording layers corresponding to
light with a second wavelength that is different from the
first wavelength;
wherein the multilayer units are stacked in a depth direction of the optical recording medium.

27. The optical recording medium as claimed in claim 26, wherein both the light with the first wavelength and the light with the second wavelength enter the optical recording medium through a same incidence plane; and the guide layers are positioned closer to the incidence plane than the recording layers in each of the multilayer units.

28. The optical recording medium as claimed in claim 19, wherein information can be recorded on the guide layer.

29. The optical recording medium as claimed in claim 19, wherein information is prerecorded on the guide layer.

30. The optical recording medium as claimed in claim 29, wherein the information prerecorded on the guide layer includes information to identify a location of the guide layer in the optical recording medium.
31. The optical recording medium as claimed in claim 19, wherein the first wavelength is shorter than the second wavelength.

32. The optical recording medium as claimed in claim 31, wherein the first wavelength is between 390 and 420 nm and the second wavelength is between 650 and 680 nm.

33. The optical recording medium as claimed in claim 19, wherein at least guide grooves or guide pits are formed on the guide layer.

34. An optical head for recording or reproducing information on the optical recording medium as claimed in claim 19, comprising:
   a first light source configured to emit a light beam with the first wavelength;
   a second light source configured to emit a light beam with the second wavelength;
   an objective lens configured to focus the light beam with the first wavelength on the guide layer and to focus the light beam with the second wavelength on one of the recording layers;
   an optical system configured to guide the light beam with the first wavelength and the light beam with the
second wavelength to the objective lens and to separate a light beam reflected from the guide layer and a light beam reflected from the one of the recording layers;

a first photodetector configured to detect the light beam reflected from the guide layer; and

a second photodetector configured to detect the light beam reflected from the one of the recording layers.

35. An optical head for recording or reproducing information on the optical recording medium as claimed in claim 19, comprising:

a first light source configured to emit a light beam with the first wavelength;

a second light source including multiple light-emitting parts and configured to emit multiple light beams with the second wavelength from the light-emitting parts;

an objective lens configured to focus the light beam with the first wavelength on the guide layer and to focus the light beams with the second wavelength on the recording layers;

an optical system configured to guide the light beam with the first wavelength and the light beams with the second wavelength to the objective lens and to separate light beam reflected from the guide layer and light beams reflected from the recording layers;
a first photodetector configured to detect the light beam reflected from the guide layer; and

a second photodetector including multiple light-receiving parts and configured to detect the light beams reflected from the recording layers separately with the light-receiving parts.

36. The optical head as claimed in claim 34, wherein the objective lens is configured so that a focal point of the light beam with the first wavelength becomes closer to the objective lens than a focal point of the light beam with the second wavelength.

37. An optical drive for recording, reproducing, or deleting information on the optical recording medium as claimed in claim 19, comprising:

an optical head including

a first light source configured to emit a light beam with the first wavelength,

a second light source configured to emit a light beam with the second wavelength,

an objective lens configured to focus the light beam with the first wavelength on the guide layer and to focus the light beam with the second wavelength on one of the recording layers,
an optical system configured to guide the light beam with the first wavelength and the light beam with the second wavelength to the objective lens and to separate a light beam reflected from the guide layer and a light beam reflected from the one of the recording layers,

a first photodetector configured to detect the light beam reflected from the guide layer, and

a second photodetector configured to detect the light beam reflected from the one of the recording layers; and

a processing unit configured to reproduce the information on the optical recording medium based on an output signal from the second photodetector of the optical head.