



Date: October 10, 2017

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The documents are designated as:

- Laser light scanning head and laser show device, Patent No.: CN 201173996Y

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[19] The State Intellectual Property Office (SIPO) of the People's Republic of China

[51] Int. Cl.

G02B 26/10 (2006.01)

G02B 27/24 (2006.01)

G09F 19/12 (2006.01)



[12] Description of Utility Model Patent

Patent No. ZL 200820092734.7

[45] **Patent Date:** December 31, 2008

[11] **Patent No.:** CN 201173996Y

[22] **Filed on:** March 21, 2008

[21] **Appl. No.:** 200820092734. 7

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Claims: 2 pages, Description 6 pages, Drawings 3 pages

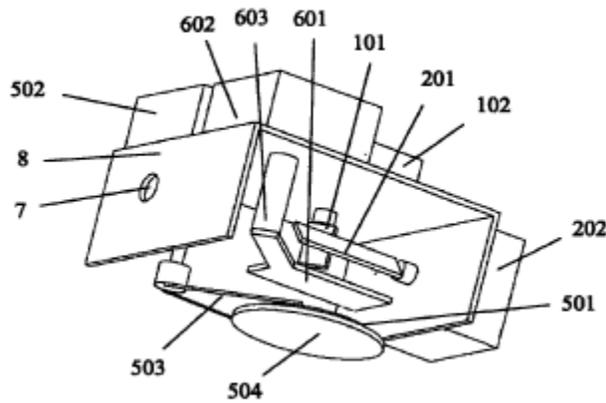
[54] **Title of Utility Model**

Laser light scanning head and laser show device

[57] **Abstract of Disclosures**

The present utility model discloses a laser light scanning head, which comprises an X-Y scanning module and a grating rotation scanning module, wherein the grating rotation scanning module comprises a first grating and a first driving device, a driving power output end of the first driving device is coupled to the first grating so as to drive the first grating to rotate, the X-Y scanning module is arranged at an incident laser receiving position, the first grating is arranged in a light output region of the X-Y scanning module, and the laser light scanning head further

comprises a second grating which is arranged between the X-Y scanning module and the first grating or is arranged in a light output region of the first grating. The present utility model also discloses a laser show device, and the laser light scanning head of the laser show device comprises the X-Y scanning module, the grating rotation scanning module, and the second grating which is arranged between the X-Y scanning module and the first grating, or is arranged in the light output region of the first grating. Due to the second grating provided in the present utility model, the laser can show a firefly pattern with integral movement through the diffraction of the two gratings, which thus provides better pattern shows than the prior art.



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What is claimed is:

1. A laser light scanning head, comprising an X-Y scanning module and a grating rotation scanning module, wherein the grating rotation scanning module comprises a first grating and a first driving device, a driving power output end of the first driving device is coupled to the first grating so as to drive the first grating to rotate, the X-Y scanning module is arranged at an incident laser receiving position, the first grating is arranged in a light output region of the X-Y scanning module, characterized in that the laser light scanning head further comprises a second grating which is arranged between the X-Y scanning module and the first grating.
2. The laser light scanning head according to claim 1, characterized in that the laser light scanning head further comprises a second driving device, a driving power output end of the second driving device is coupled to the second grating so as to control the second grating to enter or exit a position of action.
3. The laser light scanning head according to claim 2, characterized in that the laser light scanning head further comprises a connecting rod, the second driving device is a grating motor, a shaft end of the grating motor is connected to a portion of the connecting rod, another portion of the connection rod is connected to the second grating, and the grating motor drives the second grating via the connection rod to move in a plane perpendicular to a light beam traveling direction.
4. A laser light scanning head, comprising an X-Y scanning module and a grating rotation scanning module, wherein the grating rotation scanning module comprises a first grating and a first driving device, a driving power output end of the first driving device is coupled to the first grating so as to drive the first grating to rotate, the X-Y scanning module is arranged at an incident laser receiving position, the first grating is arranged in a light output region of the X-Y scanning module, characterized in that the laser light

scanning head further comprises a second grating which is arranged in a light output region of the first grating.

5. The laser light scanning head according to claim 4, characterized in that the laser light scanning head further comprises a second driving device, a driving power output end of the second driving device is coupled to the second grating so as to control the second grating to enter or exit a position of action.
6. The laser light scanning head according to claim 5, characterized in that the laser light scanning head further comprises a connecting rod, the second driving device is a grating motor, a shaft end of the grating motor is connected to a portion of the connecting rod, another portion of the connection rod is connected to the second grating, and the grating motor drives the second grating via the connection rod to move in a plane perpendicular to a light beam traveling direction.
7. A laser show device, comprising a laser light scanning head, wherein the laser light scanning head comprises an X-Y scanning module and a grating rotation scanning module, wherein the grating rotation scanning module comprises a first grating and a first driving device, a driving power output end of the first driving device is coupled to the first grating so as to drive the first grating to rotate, the X-Y scanning module is arranged at an incident laser receiving position, the first grating is arranged in a light output region of the X-Y scanning module, characterized in that the laser light scanning head further comprises a second grating which is arranged between the X-Y scanning module and the first grating.
8. The laser show device according to claim 7, characterized in that the laser light scanning head further comprises a second driving device, a driving power output end of the second driving device is coupled to the second grating so as to control the second grating to enter or exit a position of action.

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