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(54) Title: ENHANCED POSITION DETECTOR IN LASER TRACKER

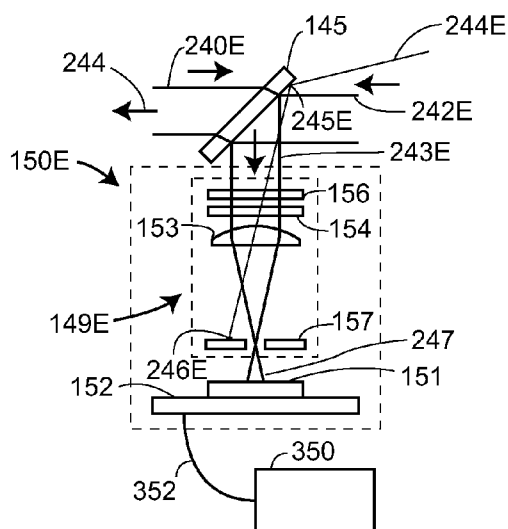


FIG. 6E

(57) Abstract: A coordinate measurement device sends a first beam of light to a retroreflector target which returns a portion of the first beam as a second beam. The device includes first and second motors that direct the first beam of light to a first direction determined by first and second angles of rotation about first and second axes, first and second angle measuring devices that measure the first and second angles of rotation, respectively. A distance meter measures a first distance from the device to the target. The device also includes a position detector and a diffuser, a second portion of the second beam passing through the diffuser and onto the position detector, the position detector configured to produce a first signal in response to a position of the second portion on the position detector. A control system sends a second signal to the first motor and a third signal to the second motor, the second and third signals based at least in part on the first signal, the control system configured to adjust the first direction of the first beam to the position of the target. A processor provides a 3D coordinate of the target.



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— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

AMENDED CLAIMS

received by the International Bureau on 27 November 2012 (27.11.2012)

4. (Original) A coordinate measurement device that sends a first beam of light to a remote retroreflector target, the retroreflector target having a position in space, the position in space being a function of time, the retroreflector target returning a portion of the first beam as a second beam, the measurement device comprising:

a first motor and a second motor that together direct the first beam of light to a first direction, the first direction determined by a first angle of rotation about a first axis and a second angle of rotation about a second axis, the first angle of rotation produced by the first motor and the second angle of rotation produced by the second motor;

a first angle measuring device that measures the first angle of rotation and a second angle measuring device that measures the second angle of rotation;

a distance meter that measures a first distance from the coordinate measurement device to the retroreflector target based at least in part on a first portion of the second beam received by a first optical detector;

a position detector assembly that includes a position detector, a lens, and a spatial filter, the lens having a positive focal length, the spatial filter placed a second distance from the lens approximately equal to the lens focal length, the spatial filter placed between the lens and the position detector, a second portion of the second beam passing through the lens and spatial filter onto the position detector, the position detector configured to produce a first signal in response to a position of the second portion on the position detector;

a control system that sends a second signal to the first motor and a third signal to the second motor, the second signal and the third signal based at least in part on the first signal, the control system configured to adjust the first direction of the first beam to the position in space of the retroreflector target; and

a processor that provides a three-dimensional coordinate of the retroreflector target, the three-dimensional coordinate based at least in part on the first distance, the first angle of rotation, and the second angle of rotation.

5. (Original) The coordinate measurement device of claim 4 wherein the position detector assembly further includes a diffuser, the second portion of the second light passing through the diffuser.

6. (Original) The coordinate measurement device of claim 5 wherein the diffuser is a holographic diffuser.

STATEMENT UNDER ARTICLE 19(1)

Applicant, by this Amendment, has cancelled Claims 1 – 3. Claims 4 – 6 remain unchanged.