

EXHIBIT B

(Part 1)



US007084859B1

(12) **United States Patent**
Pryor

(10) **Patent No.:** **US 7,084,859 B1**
(45) **Date of Patent:** **Aug. 1, 2006**

(54) **PROGRAMMABLE TACTILE TOUCH
SCREEN DISPLAYS AND MAN-MACHINE
INTERFACES FOR IMPROVED VEHICLE
INSTRUMENTATION AND TELEMATICS**

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3S8

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 704 days.

(21) Appl. No.: **09/789,538**

(22) Filed: **Feb. 22, 2001**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 09/435,854,
filed on Nov. 8, 1999, which is a continuation-in-part
of application No. 08/290,516, filed on Aug. 15, 1994,
now Pat. No. 6,008,000, which is a continuation of
application No. 07/946,588, filed on Sep. 18, 1992,
now abandoned, which is a continuation of applica-
tion No. 07/496,908, filed on Sep. 18, 1992, now Pat.
No. 5,982,352.

(60) Provisional application No. 60/142,777, filed on Feb.
22, 2000, provisional application No. 60/183,807,
filed on Sep. 26, 2000.

(51) **Int. Cl.**
G09G 5/00 (2006.01)

(52) **U.S. Cl.** **345/173; 345/156**

(58) **Field of Classification Search** **345/156-184;**
482/8; 600/595

See application file for complete search history.

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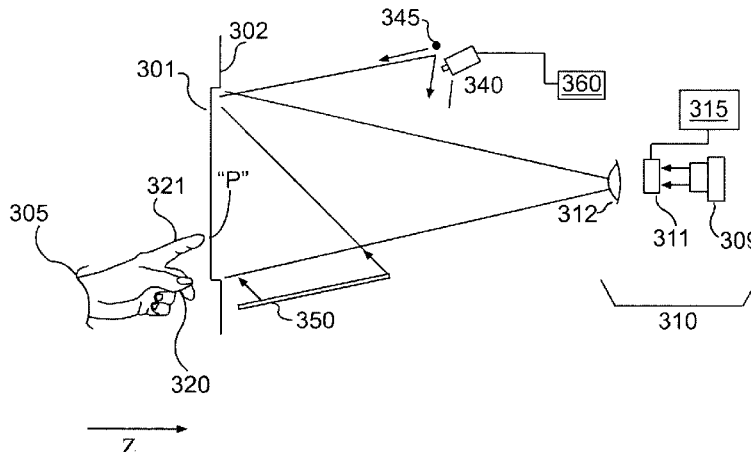
(Continued)

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Assistant Examiner—Srilakshmi K Kumar
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Ross F. Hunt, Jr.

(57) **ABSTRACT**

Disclosed are new methods and apparatus particularly suited
for applications in a vehicle, to provide a wide range of
information, and the safe input of data to a computer
controlling the vehicle subsystems or "Telematic" commu-
nication using for example GM's "ONSTAR" or cellular
based data sources. Preferred embodiments utilize new
programmable forms of tactile touch screens and displays
employing tactile physical selection or adjustment means
which utilize direct optical data input. A revolutionary form
of dashboard or instrument panel results which is stylisti-
cally attractive, lower in cost, customizable by the user,
programmable in both the tactile and visual sense, and with
the potential of enhancing interior safety and vehicle opera-
tion. Non-automotive applications of the invention are also
disclosed, for example means for general computer input
using touch screens and home automation systems.

28 Claims, 32 Drawing Sheets



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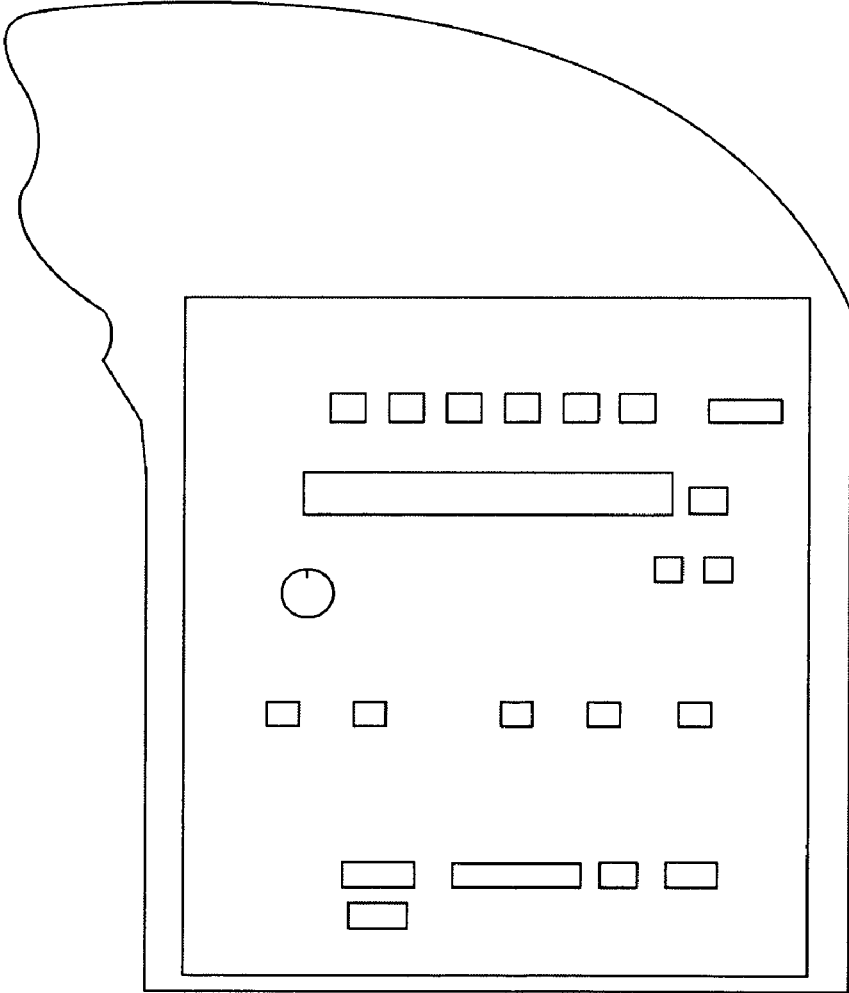


FIG. 1a
PRIOR ART

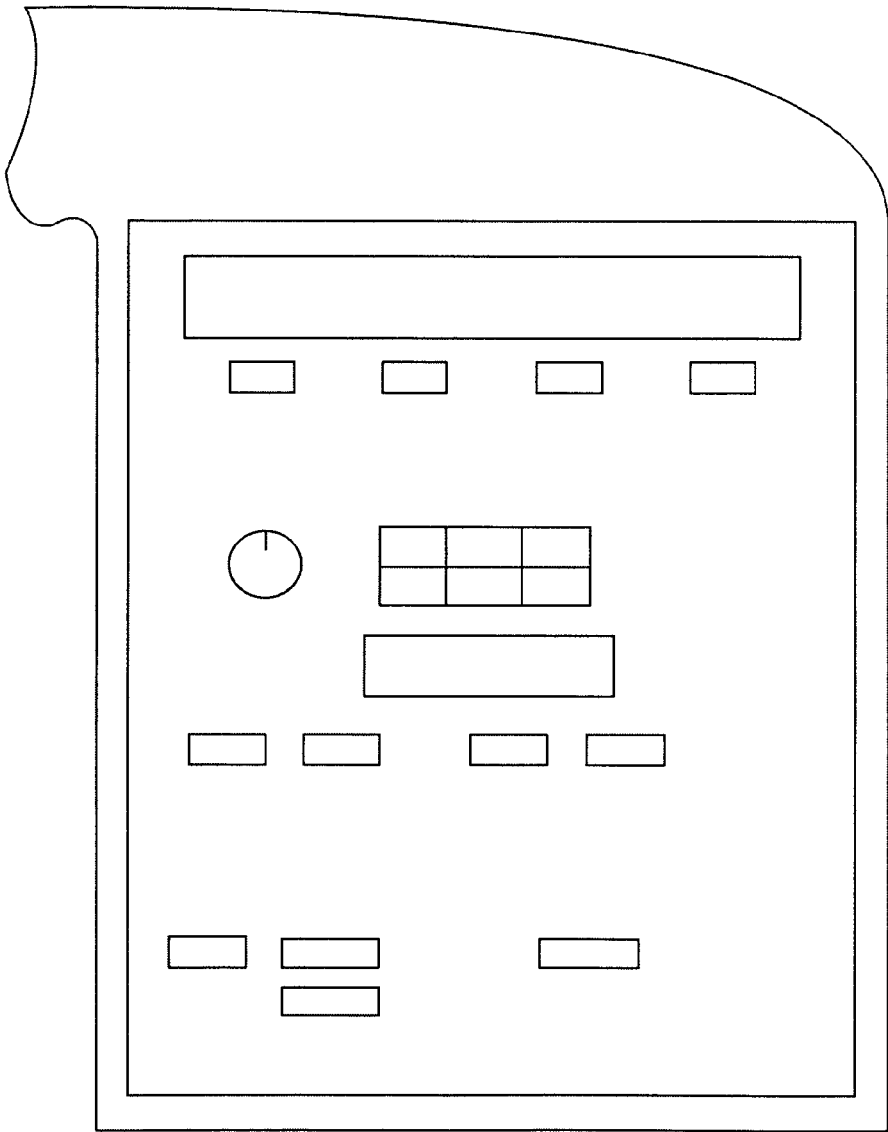


FIG. 1b

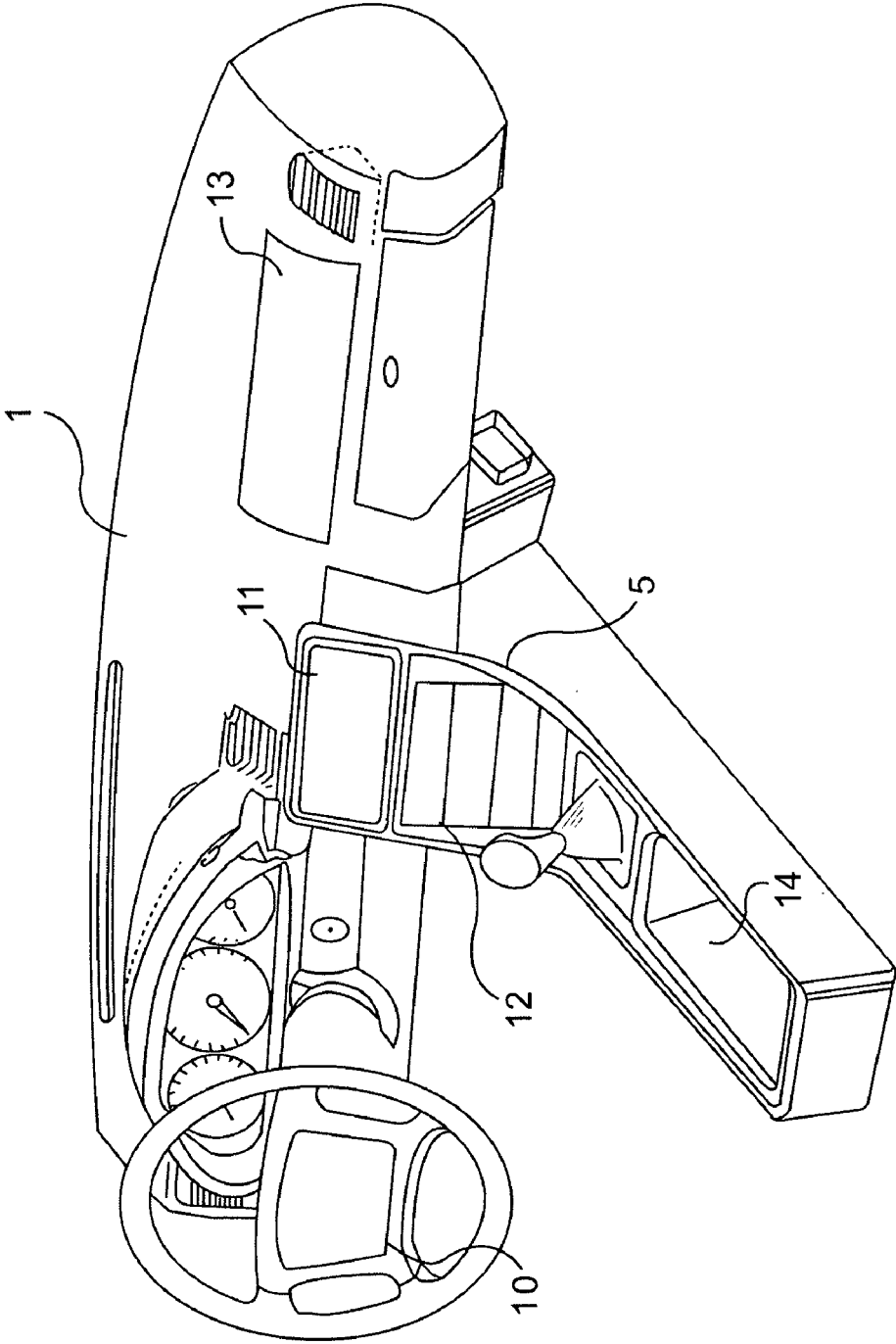


FIG. 1c

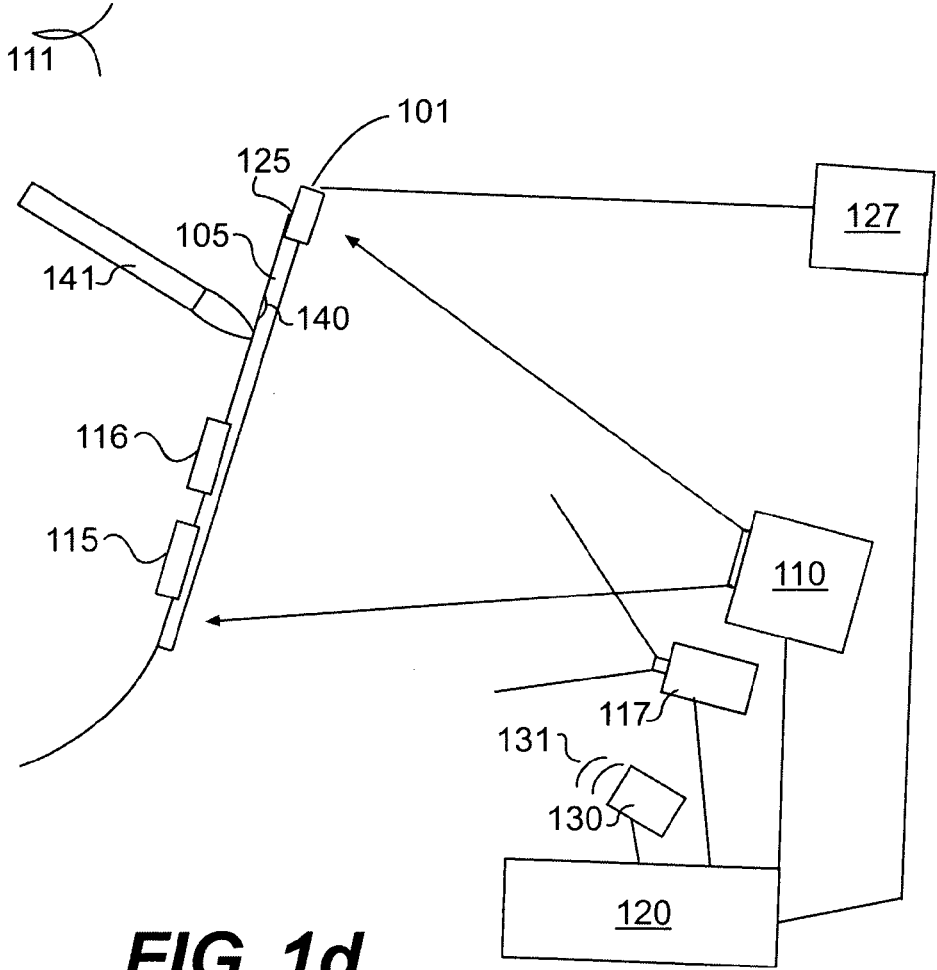


FIG. 1d

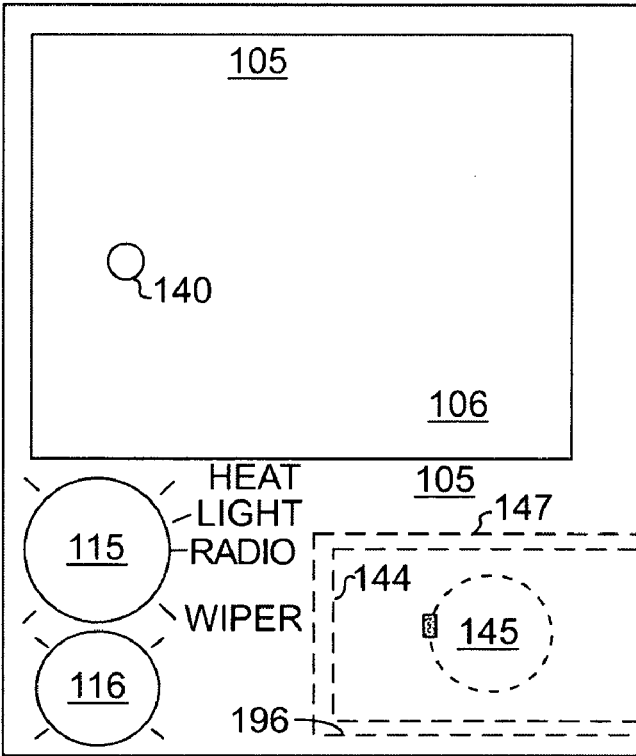


FIG. 1e

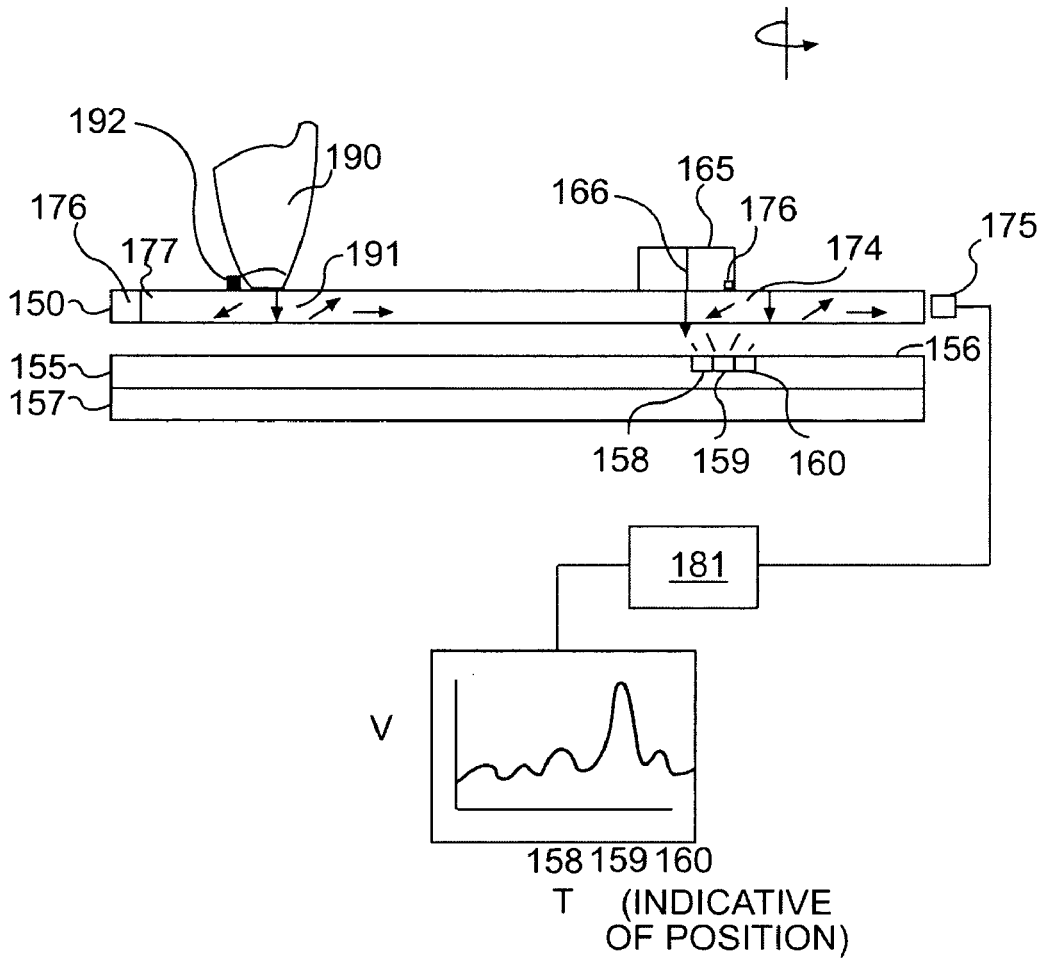
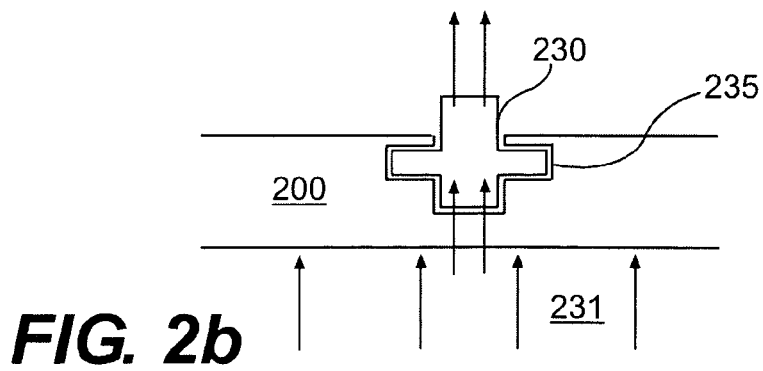
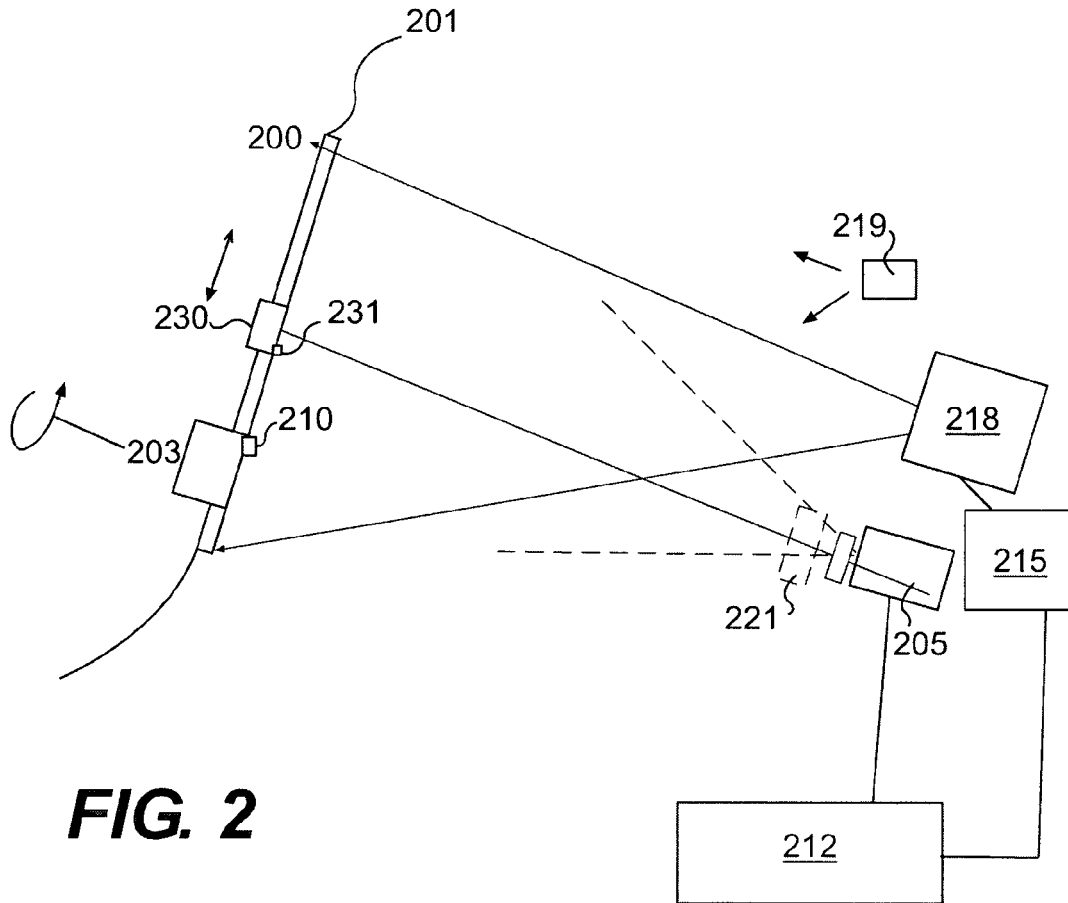


FIG. 1f



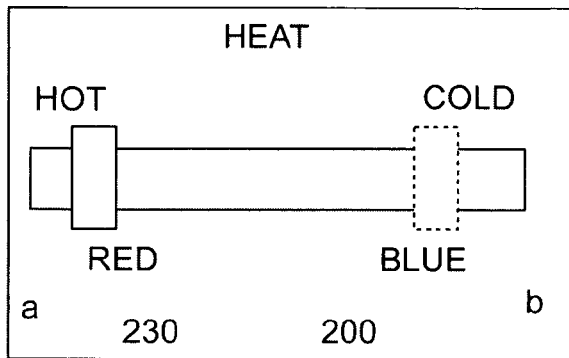


FIG. 2c

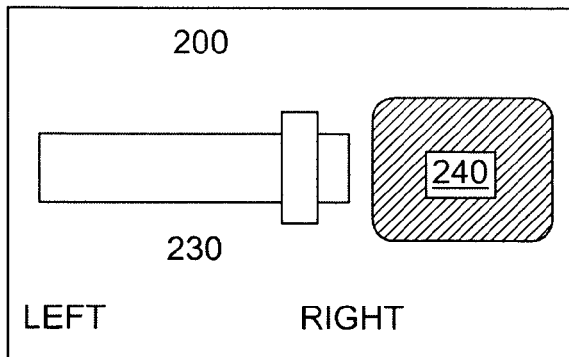


FIG. 2d

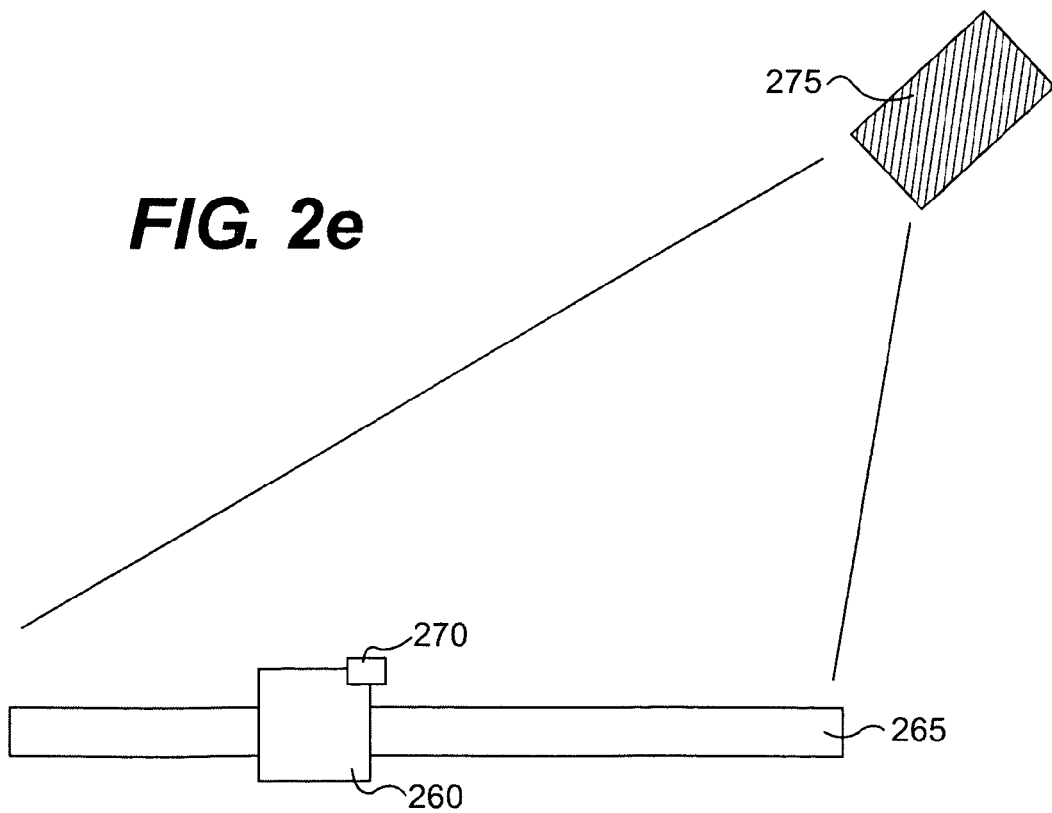


FIG. 2e

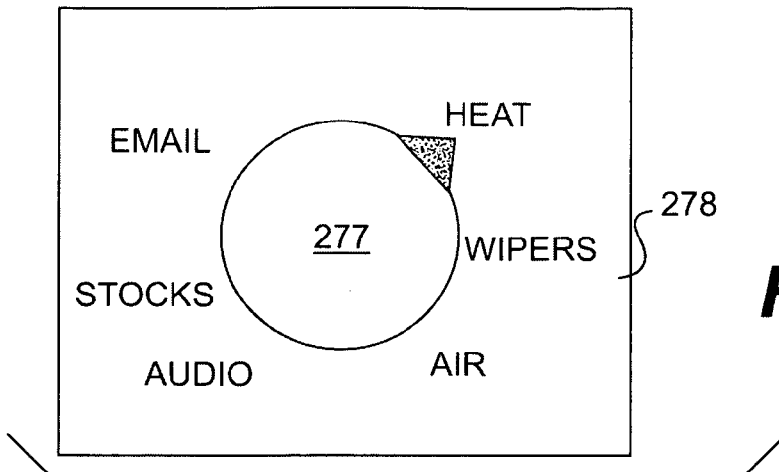


FIG. 2f

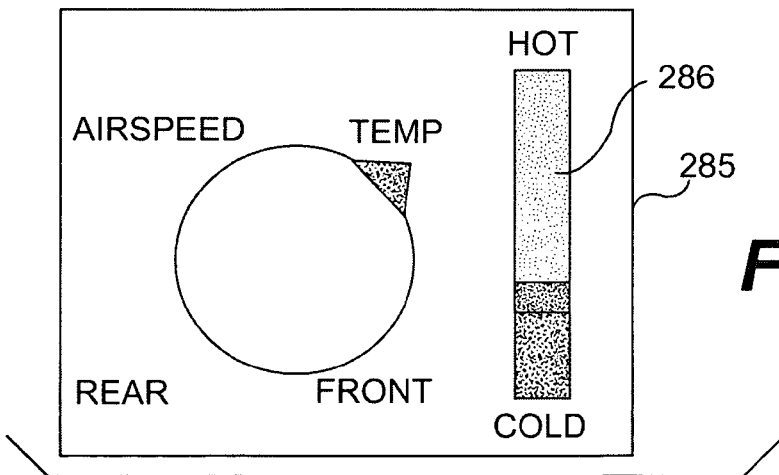


FIG. 2g

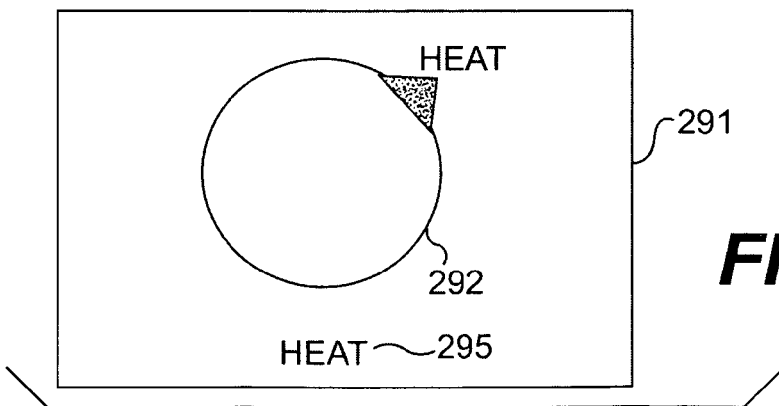
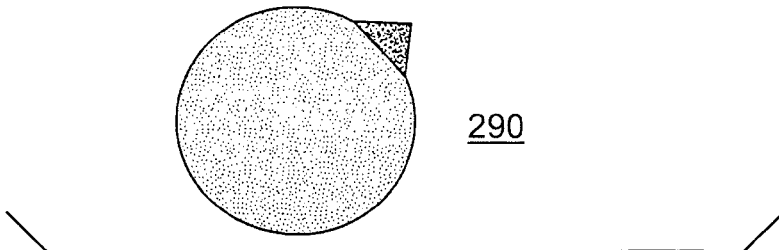


FIG. 2h



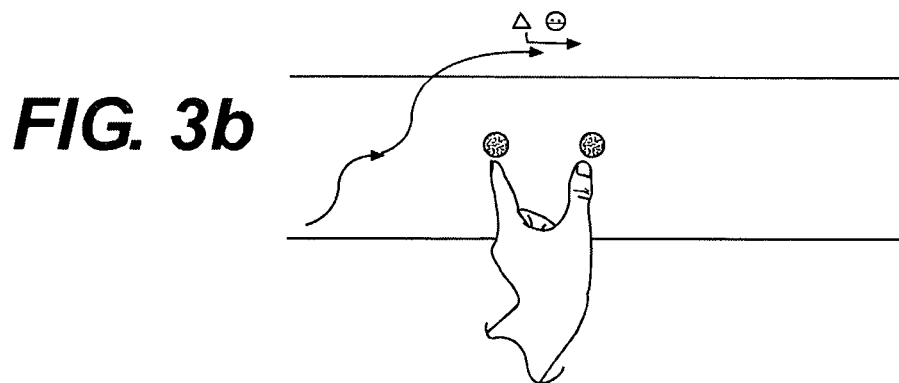
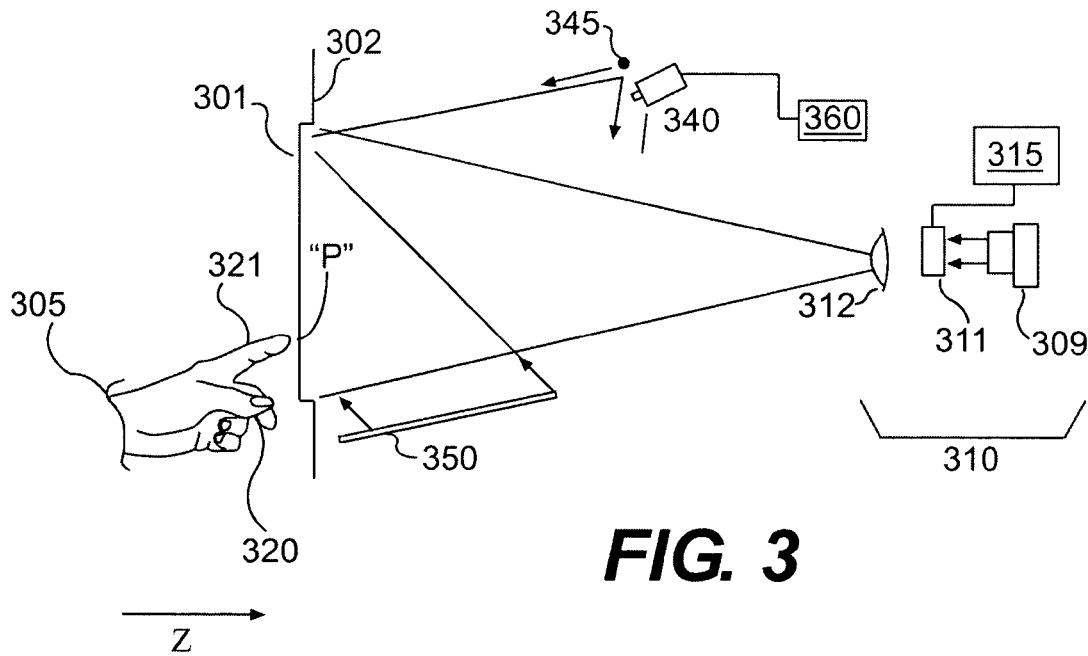


FIG. 3d

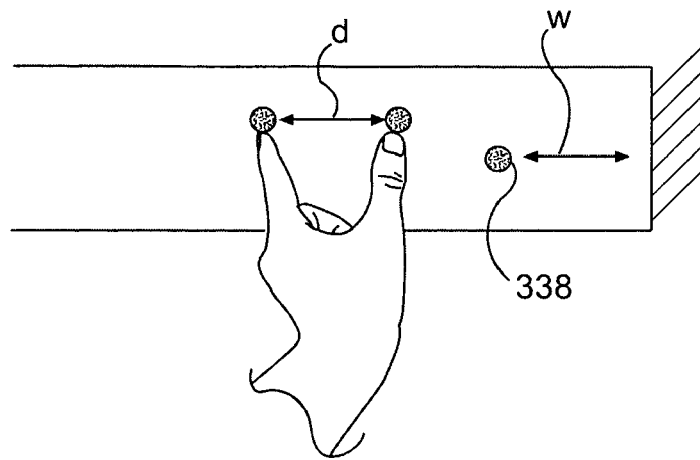


FIG. 3e

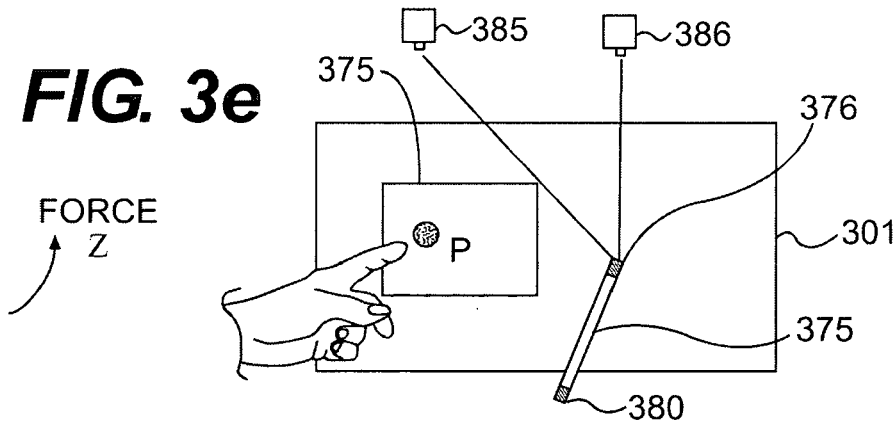


FIG. 4

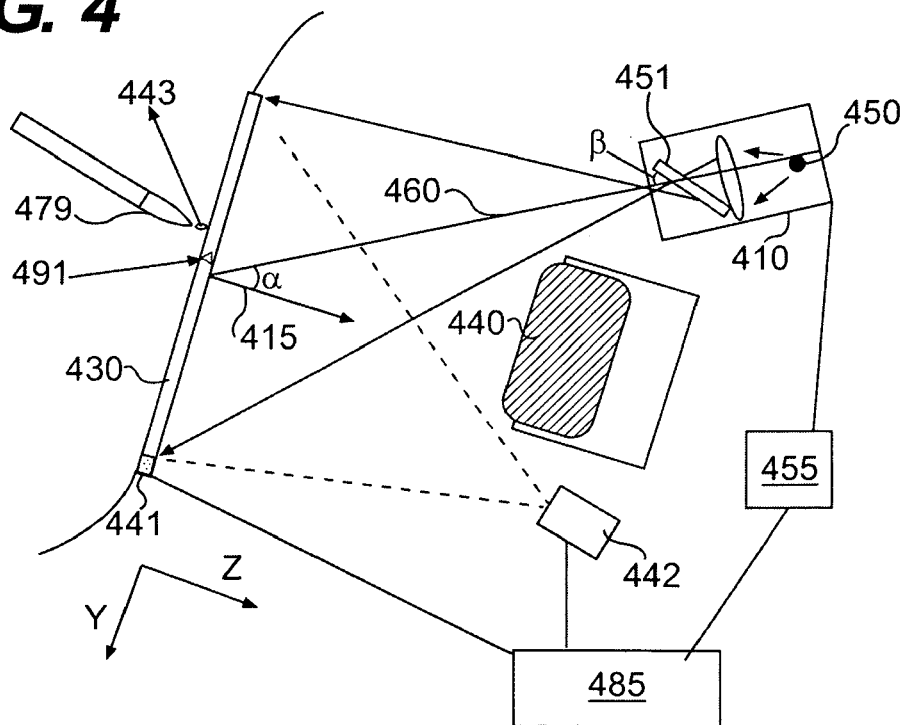


FIG. 5

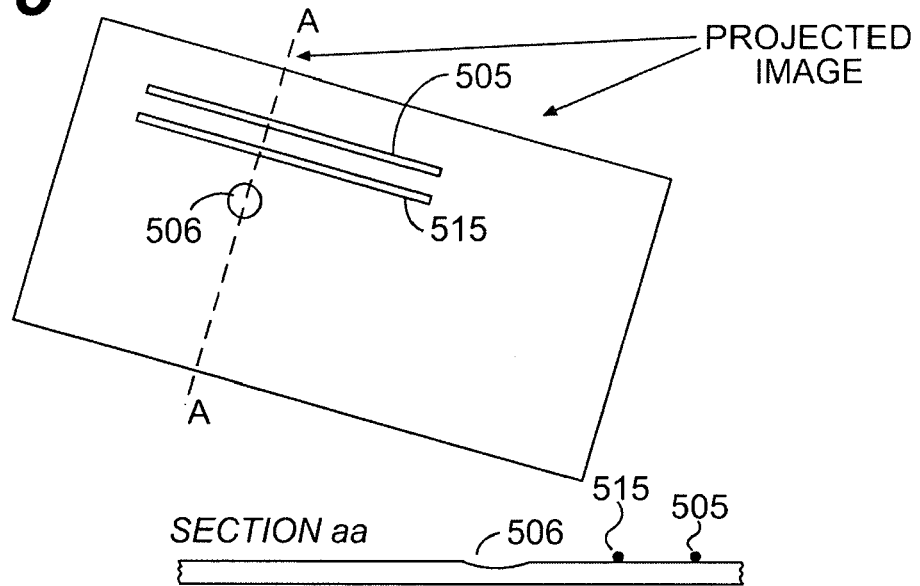


FIG. 5b

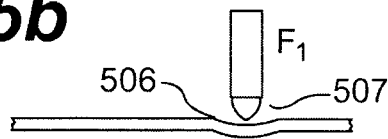


FIG. 5c

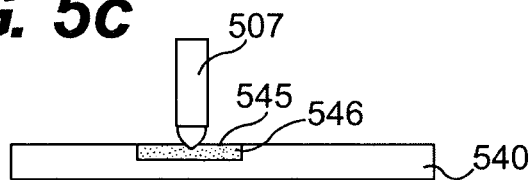


FIG. 5d

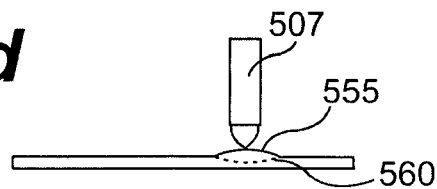


FIG. 5e

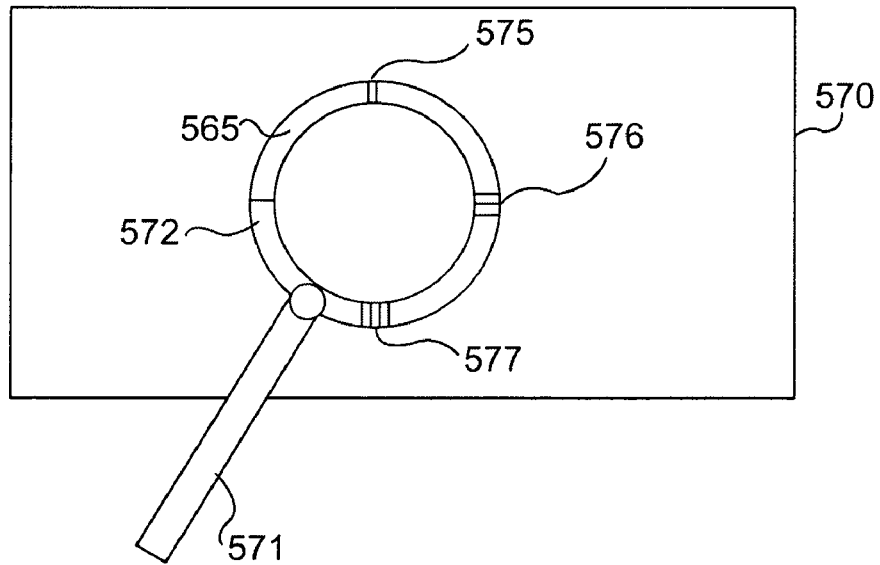
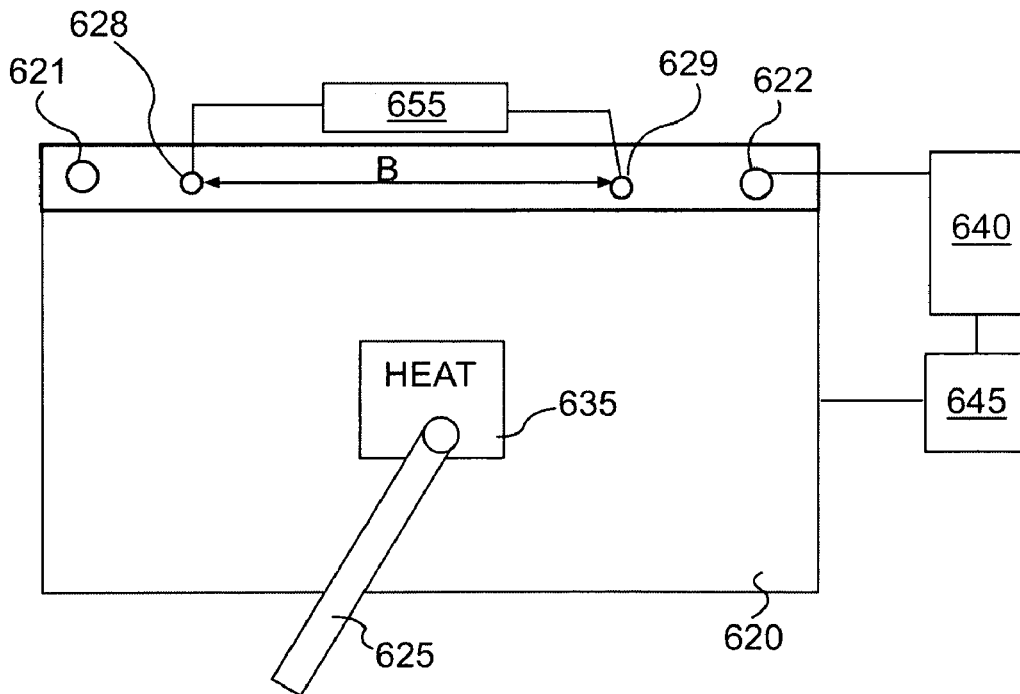


FIG. 6



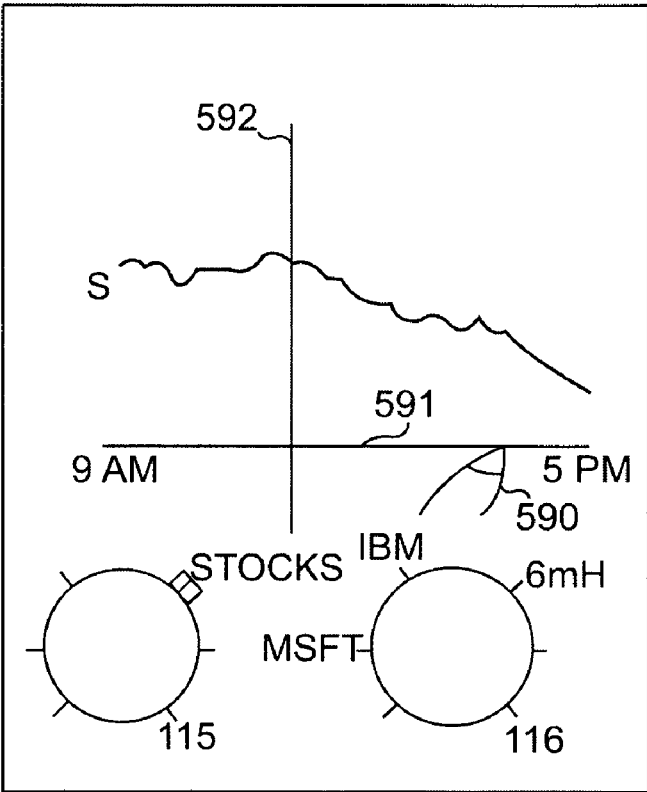


FIG. 5f

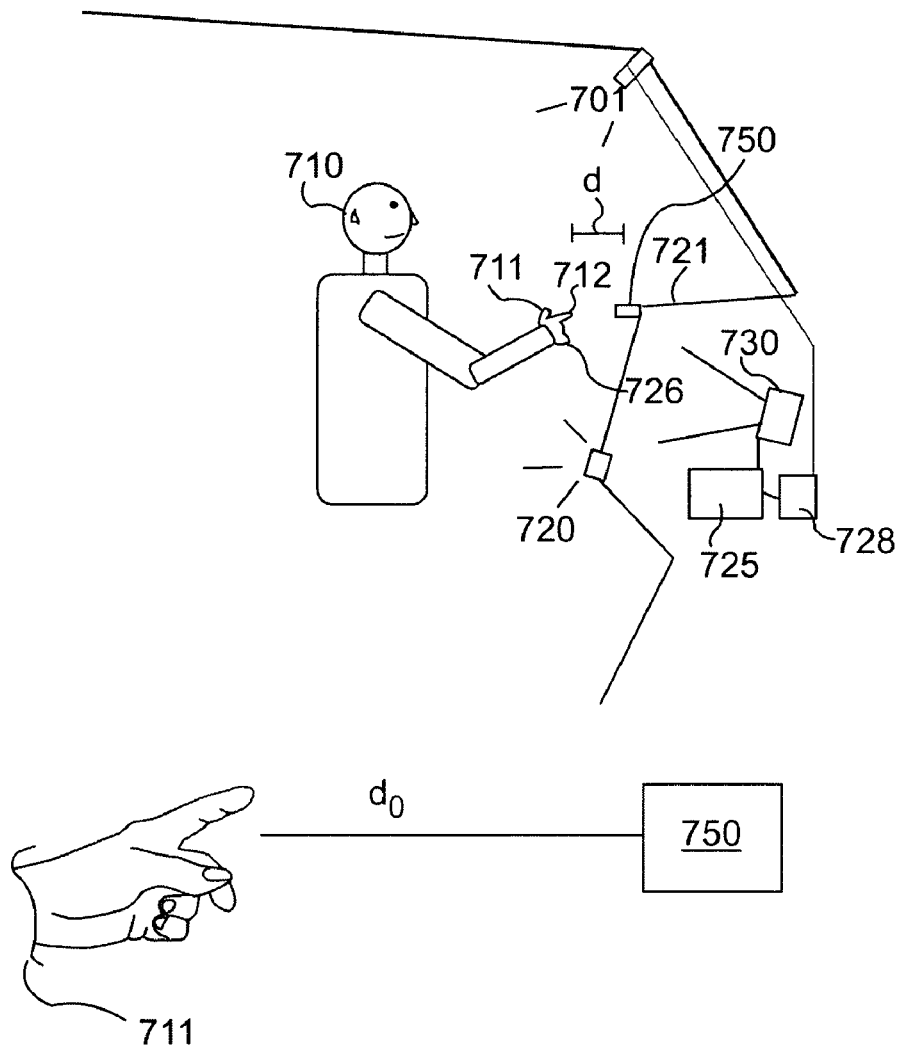


FIG. 7

FIG. 8

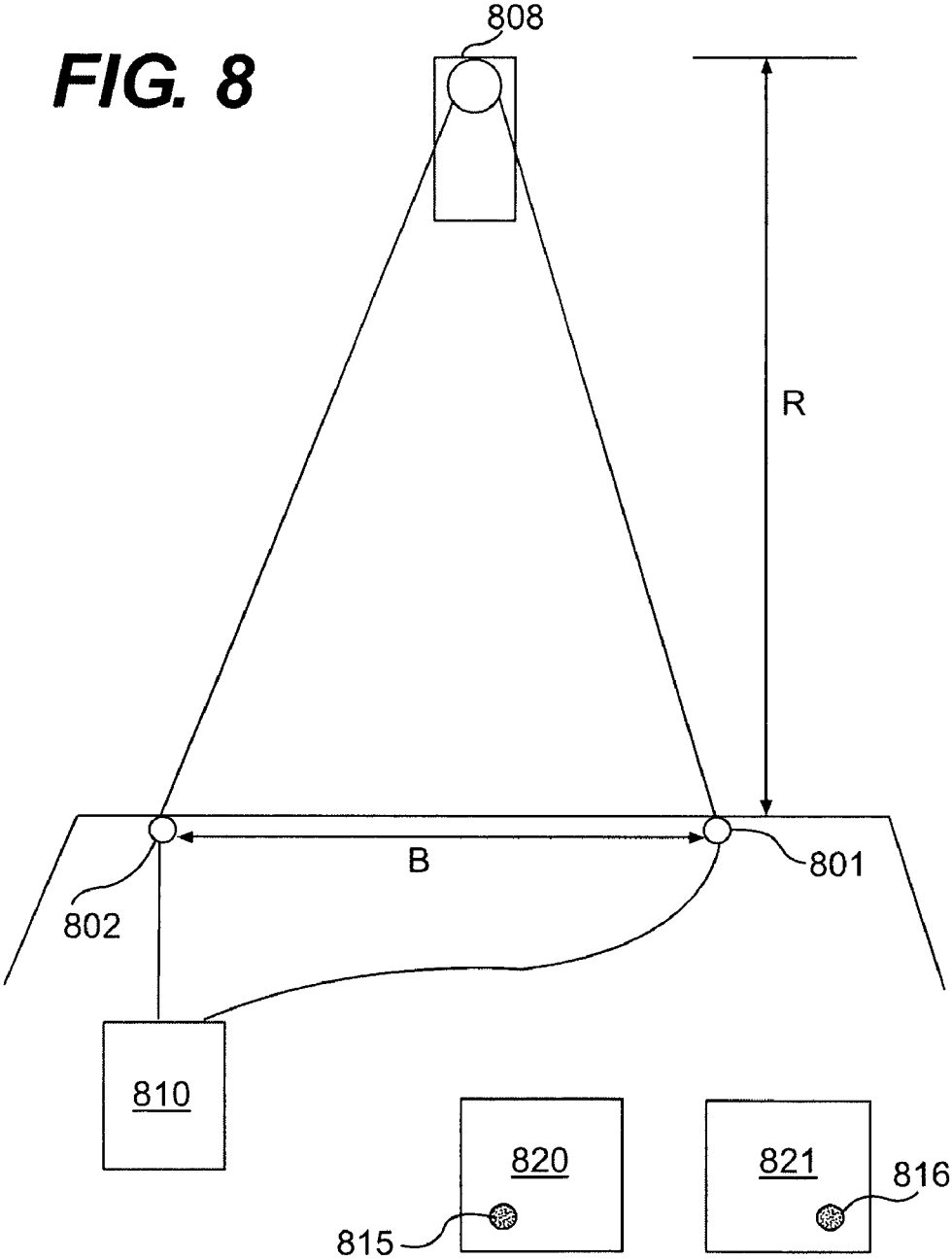


FIG. 8b

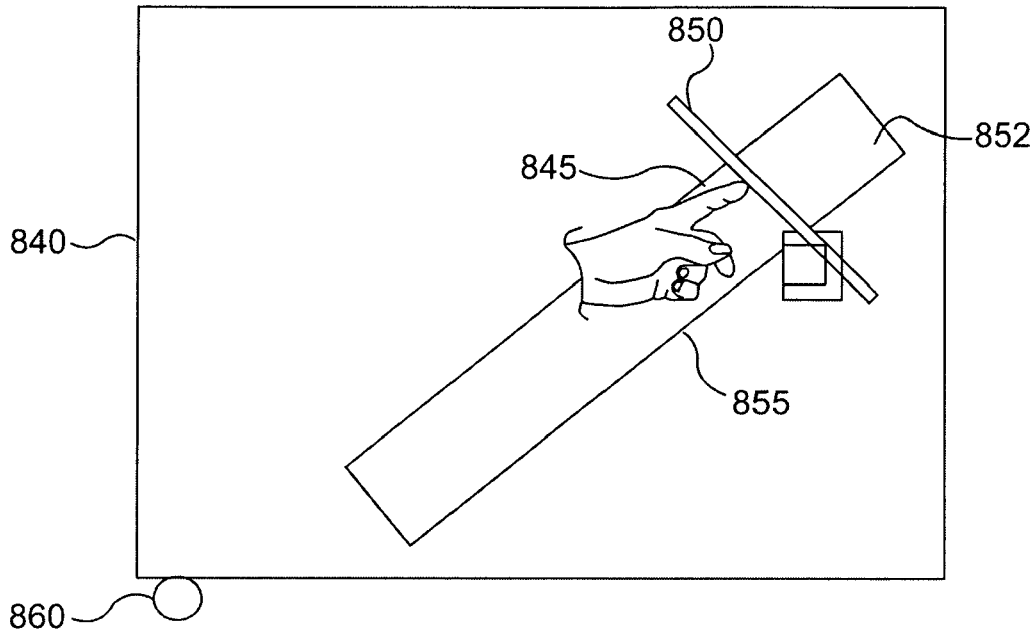


FIG. 9

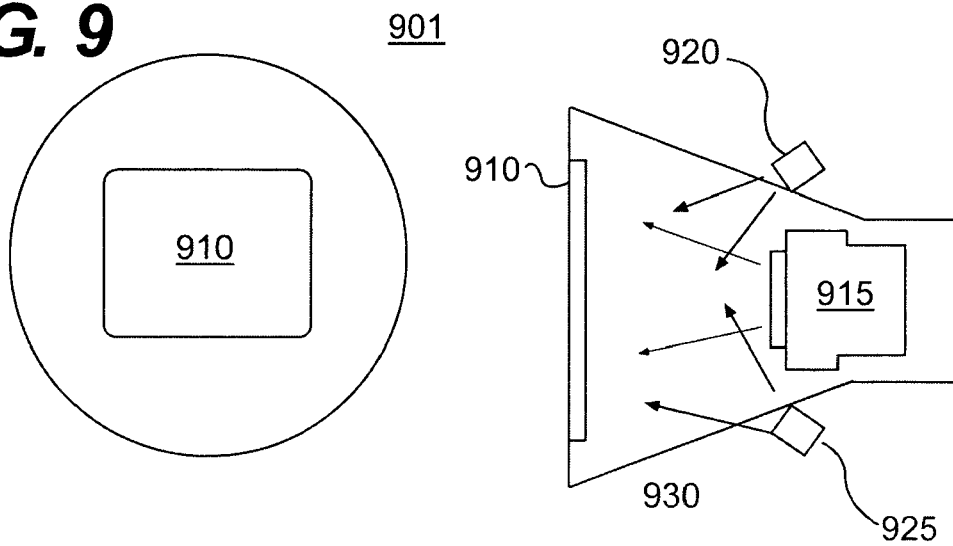


FIG. 10a

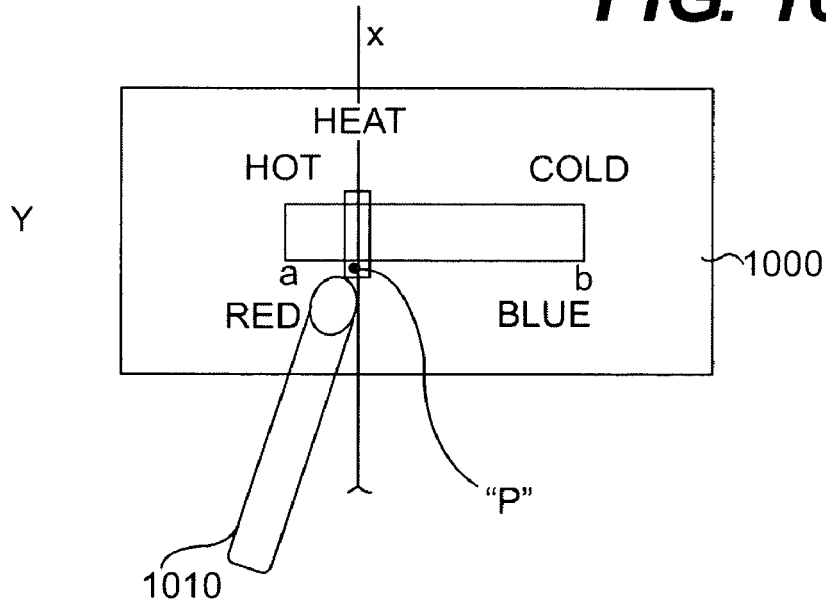


FIG. 10b

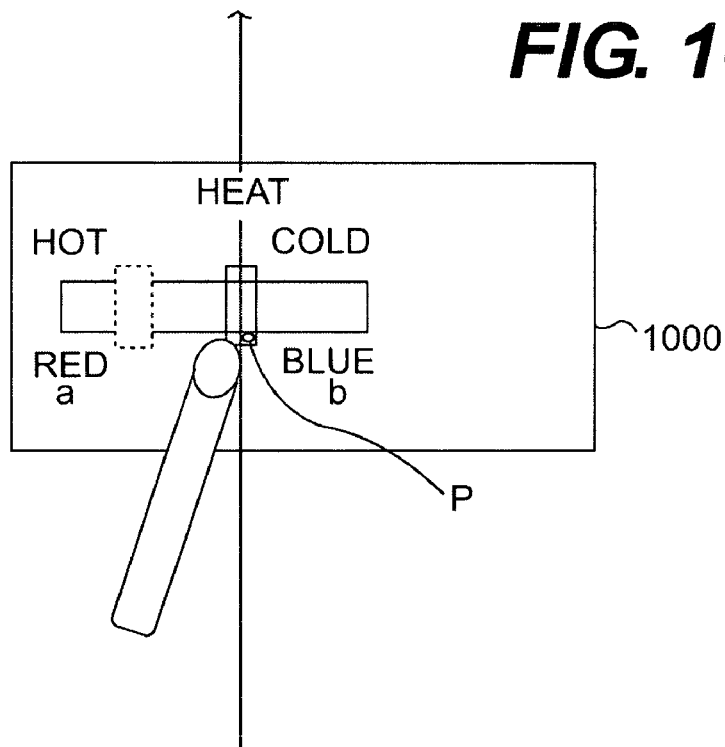


FIG. 10

FIG. 11

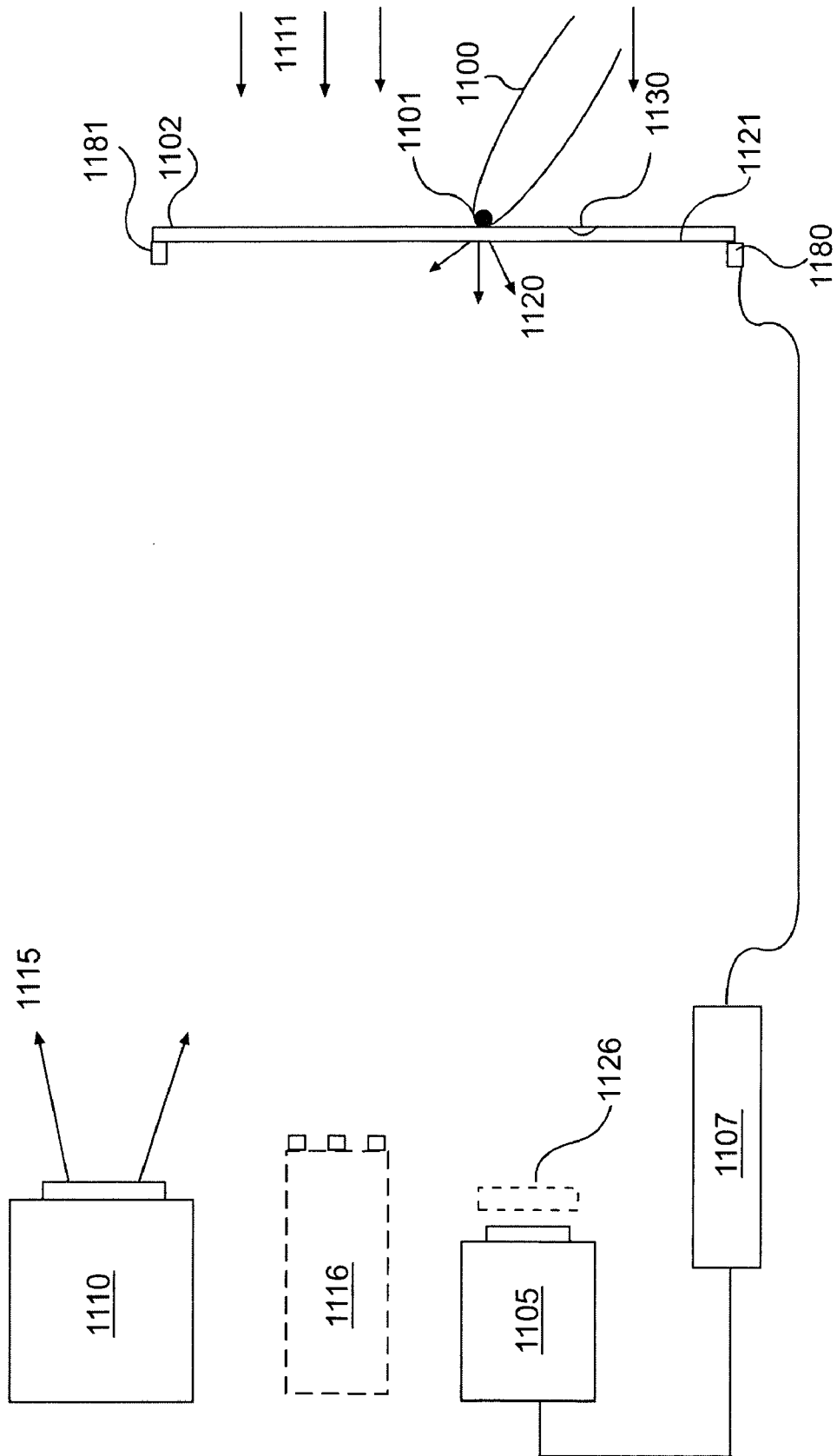


FIG. 11b

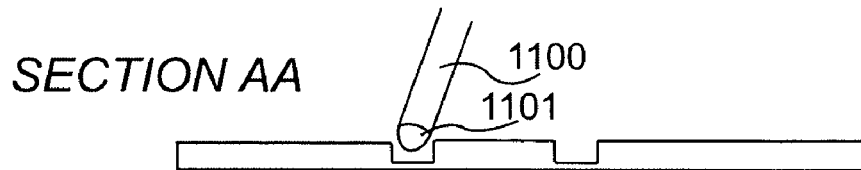
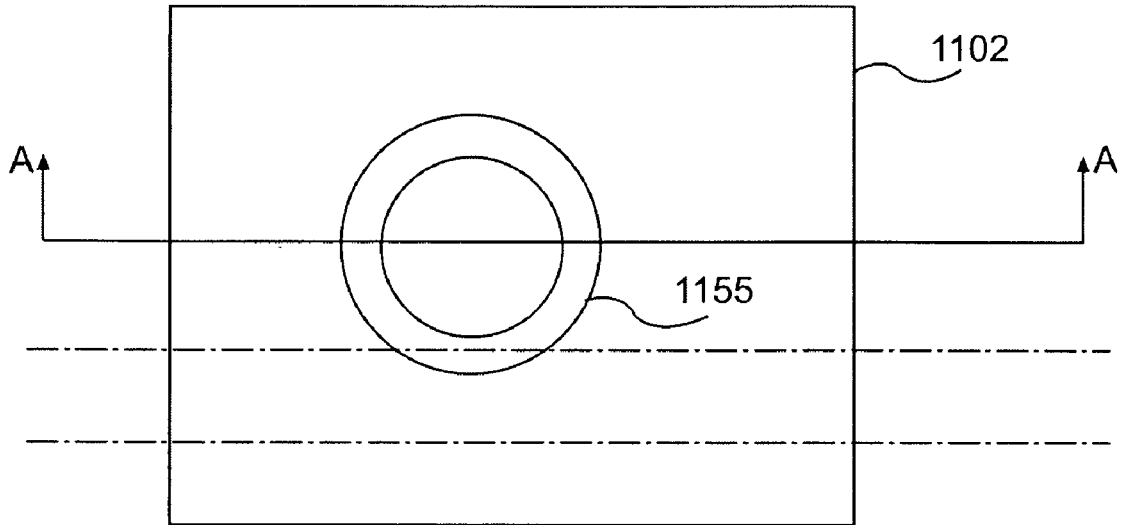


FIG. 11c

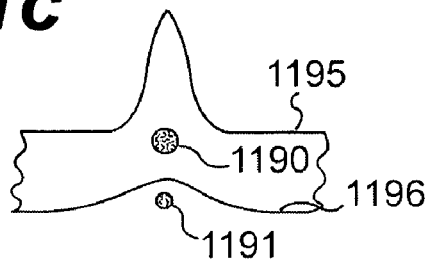


FIG. 12

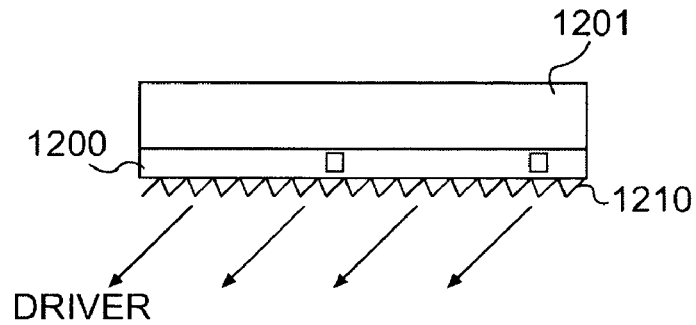


FIG. 12b

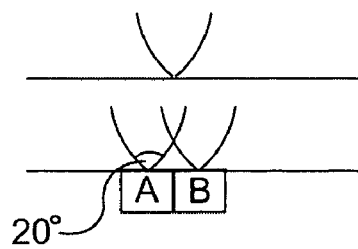
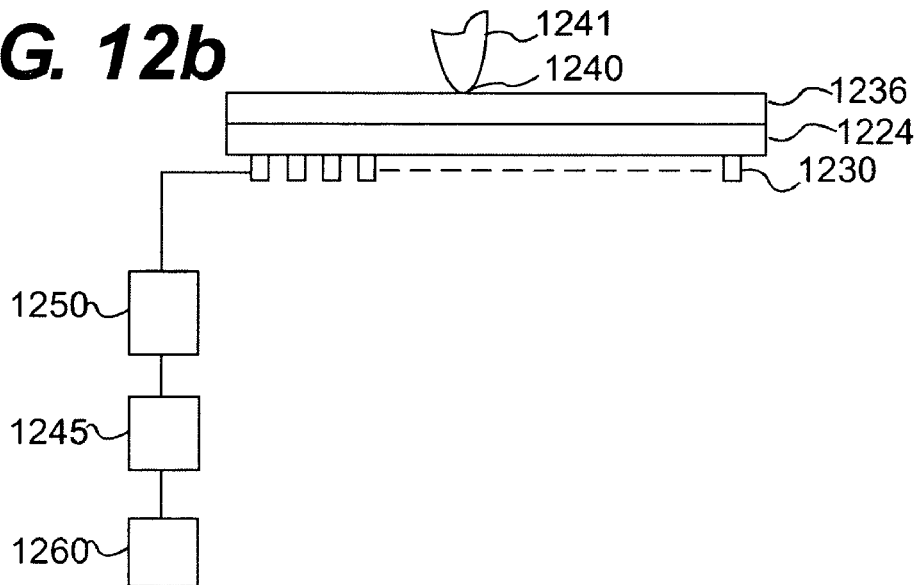


FIG. 12c

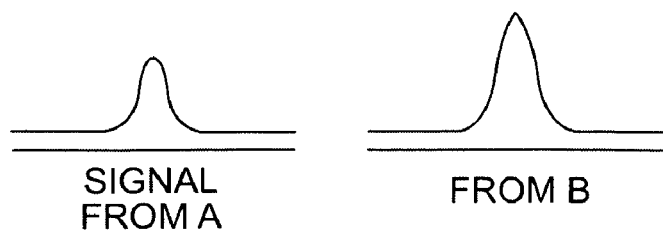


FIG. 13

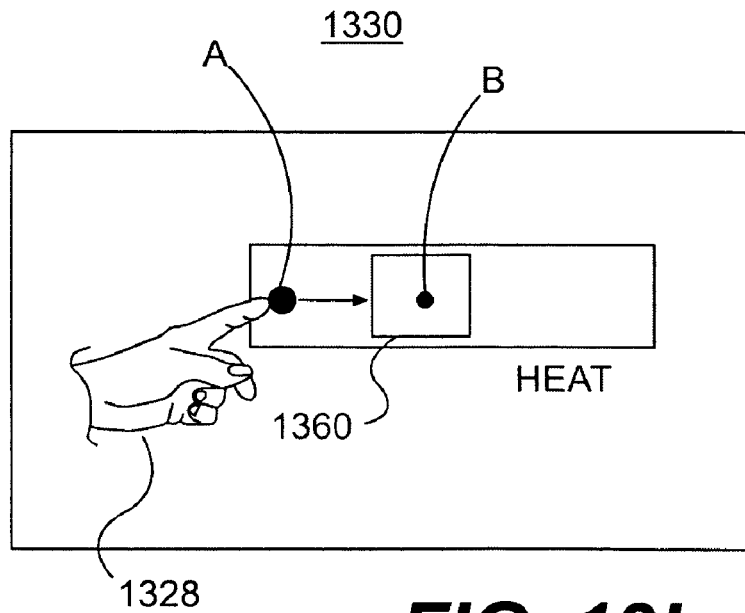
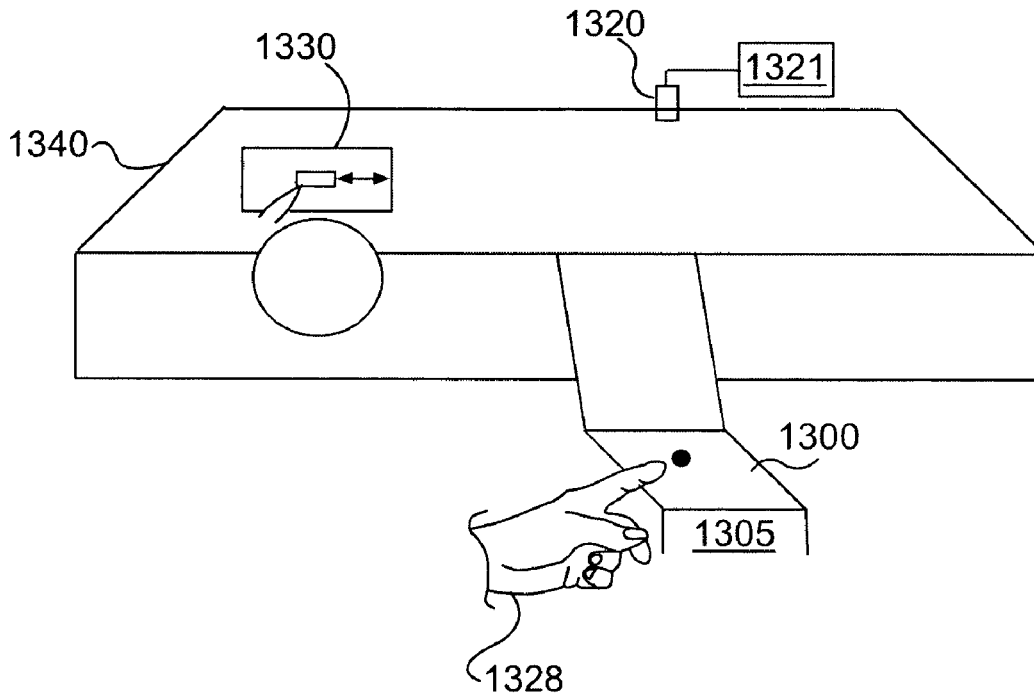


FIG. 13b

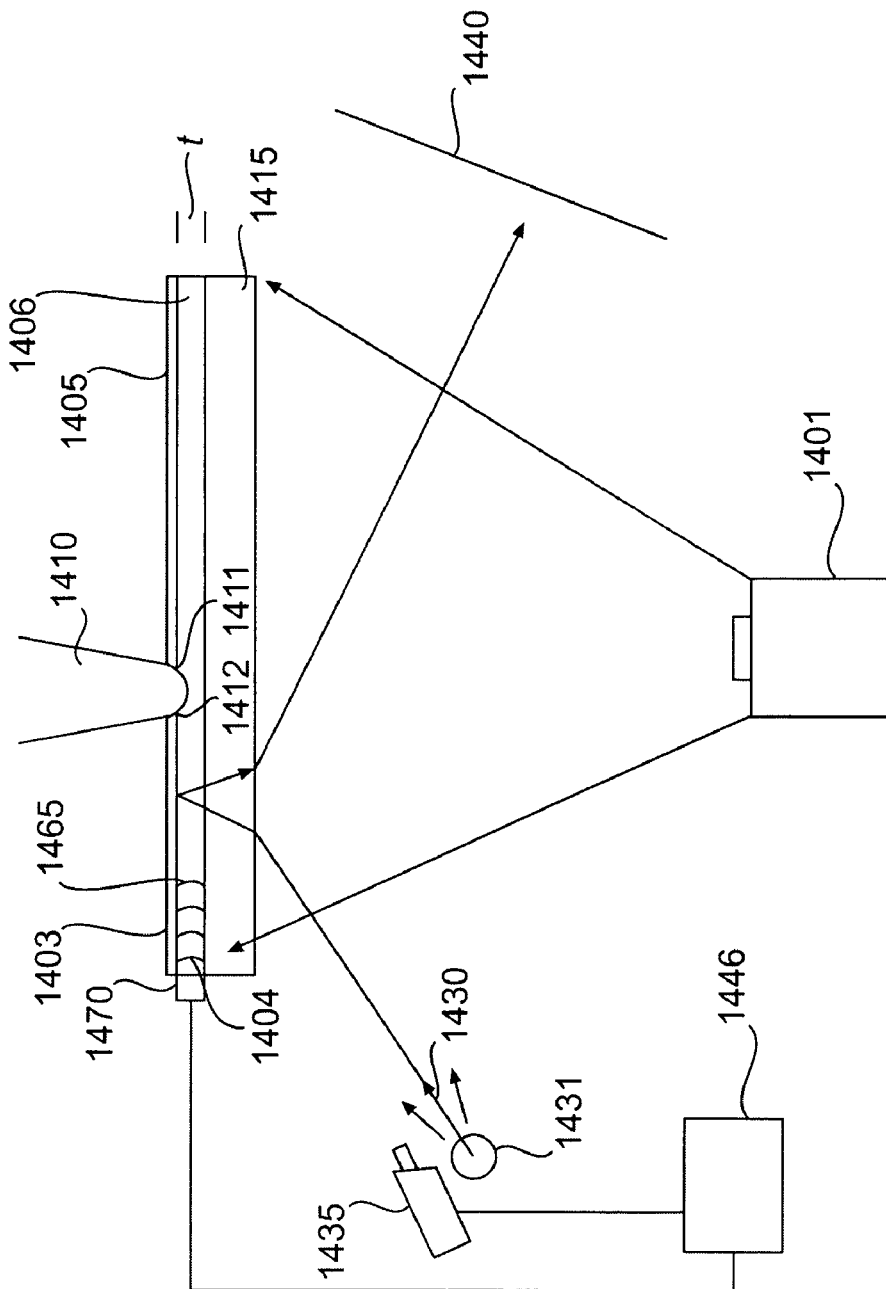


FIG. 14

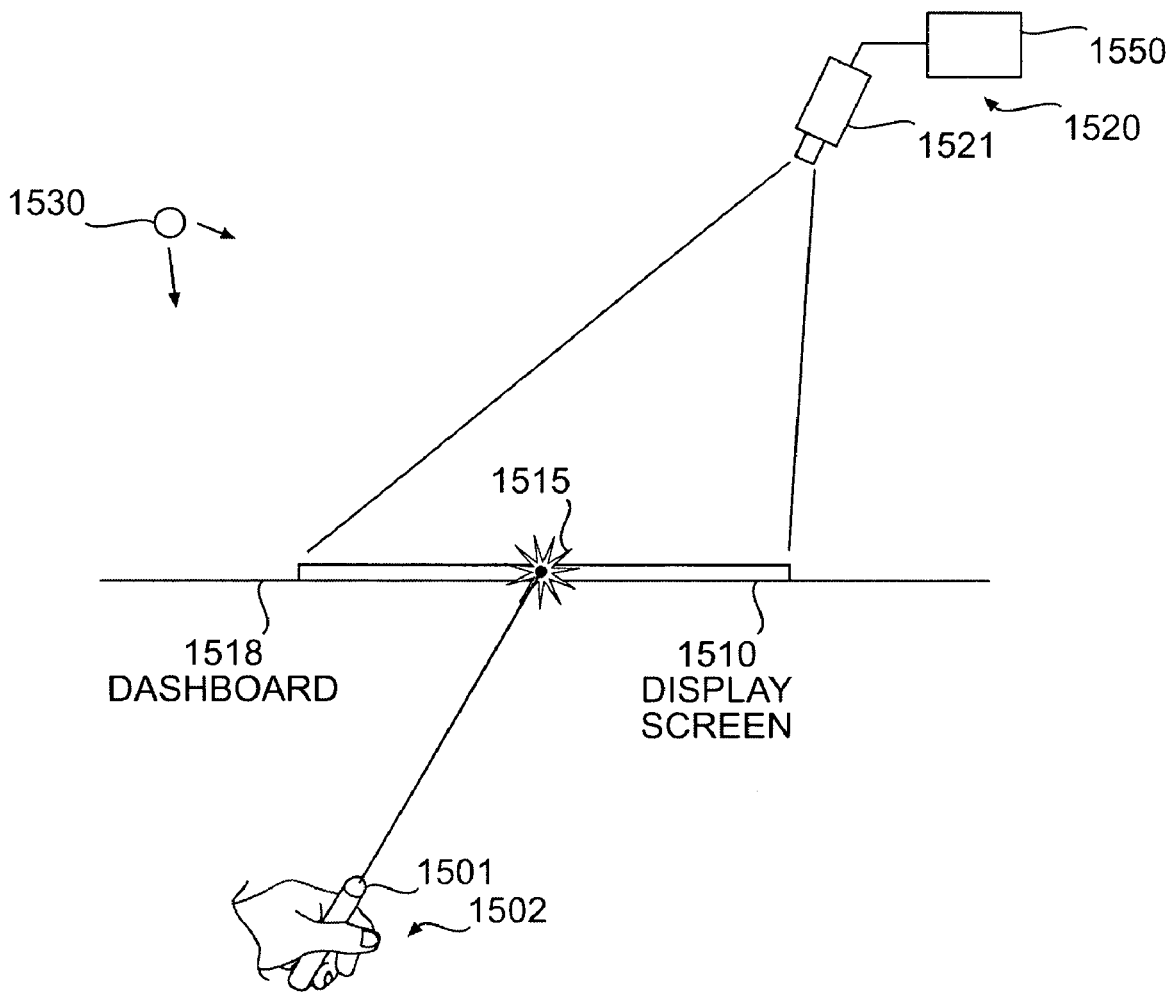


FIG. 15

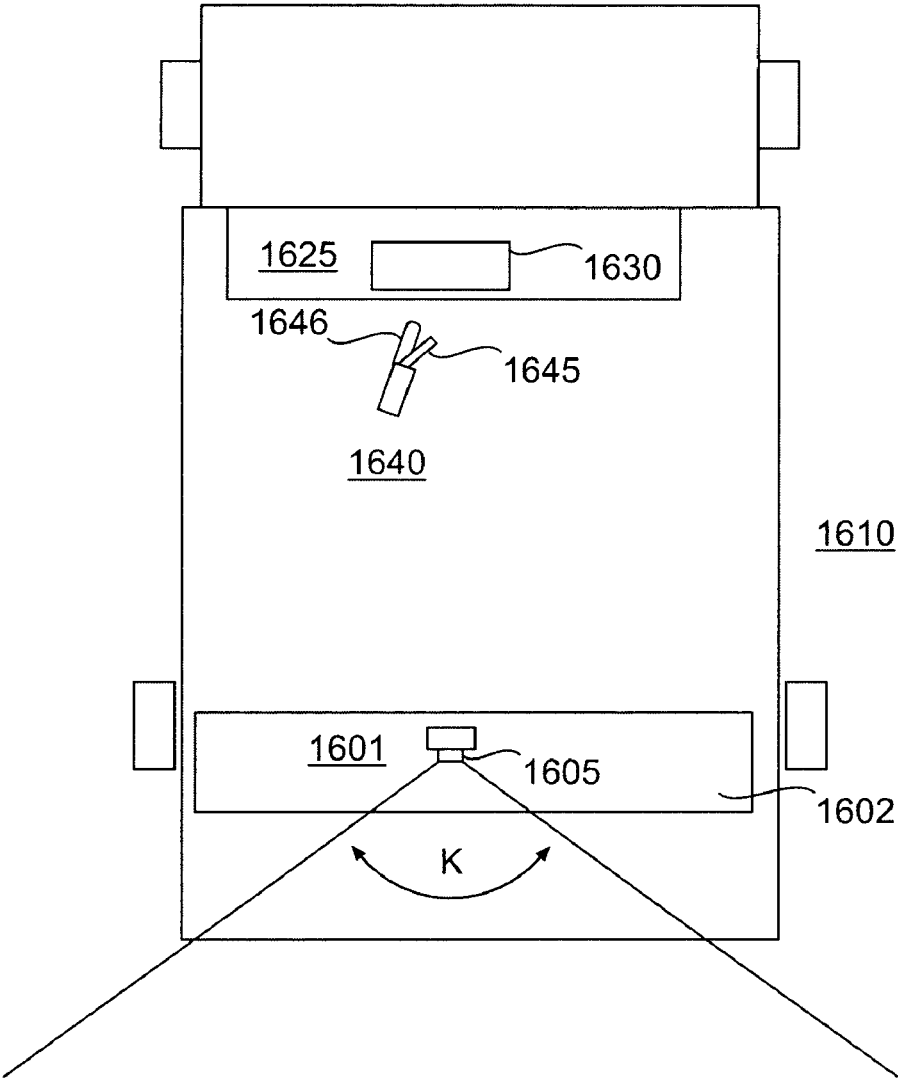


FIG. 16

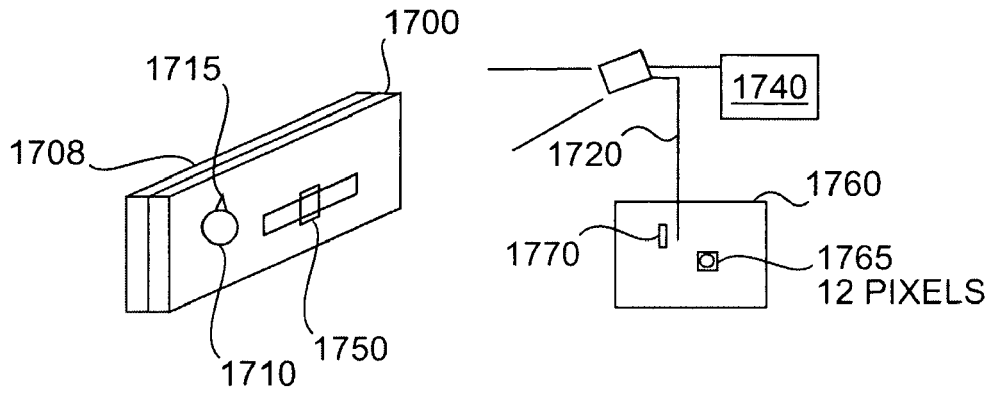


FIG. 17

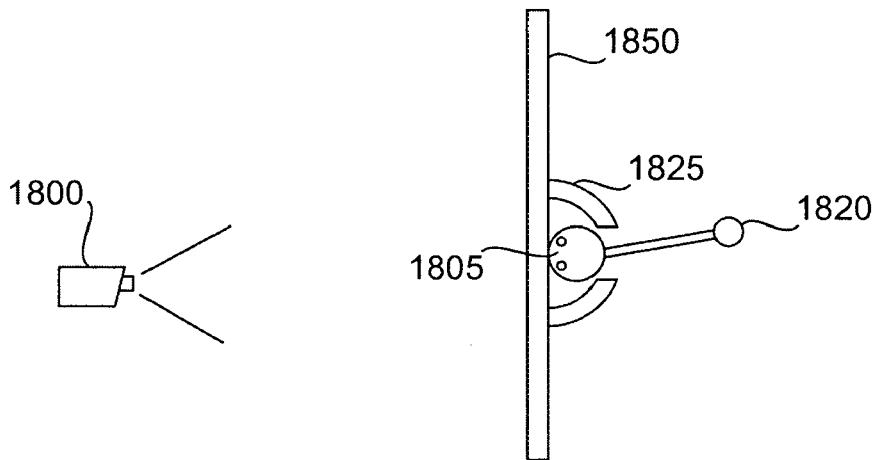


FIG. 18

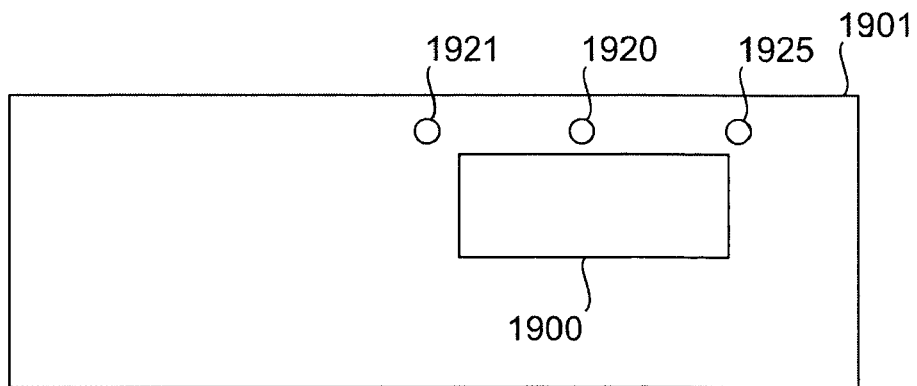


FIG. 19

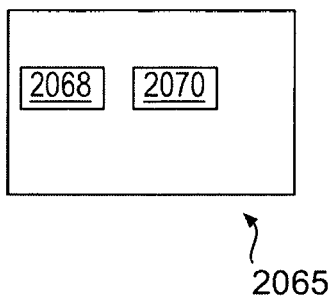
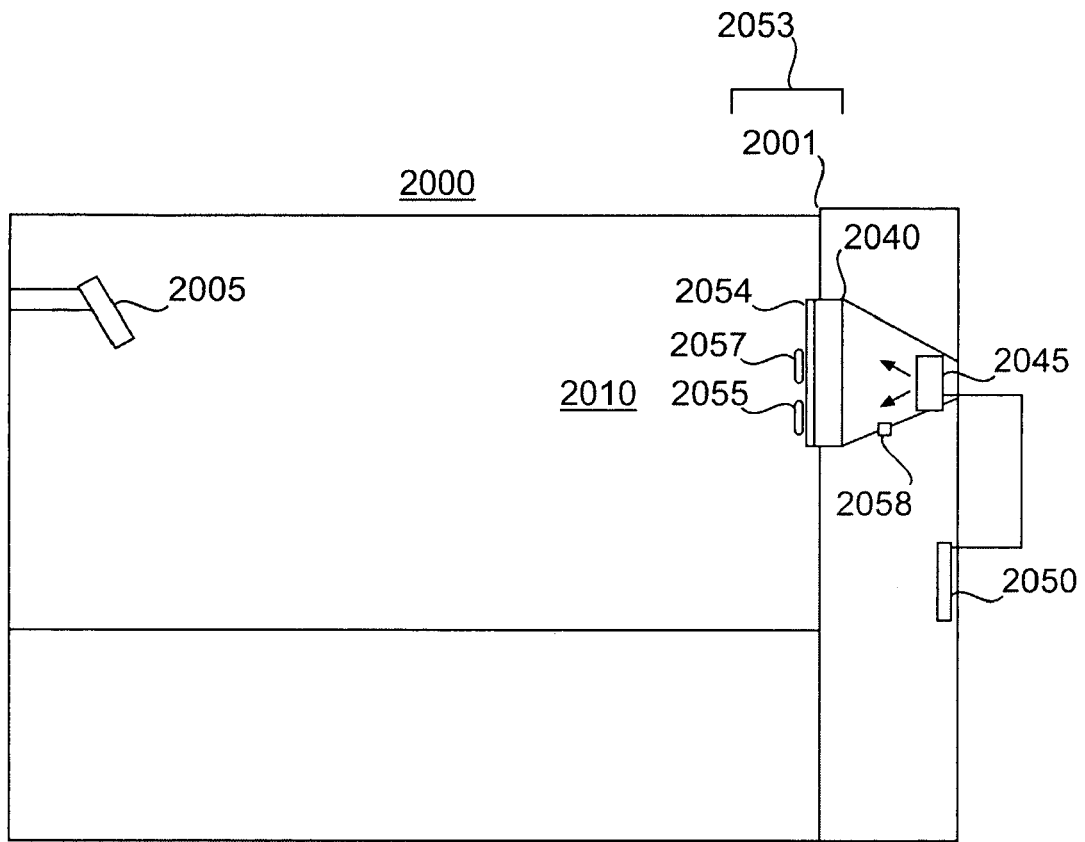


FIG. 20

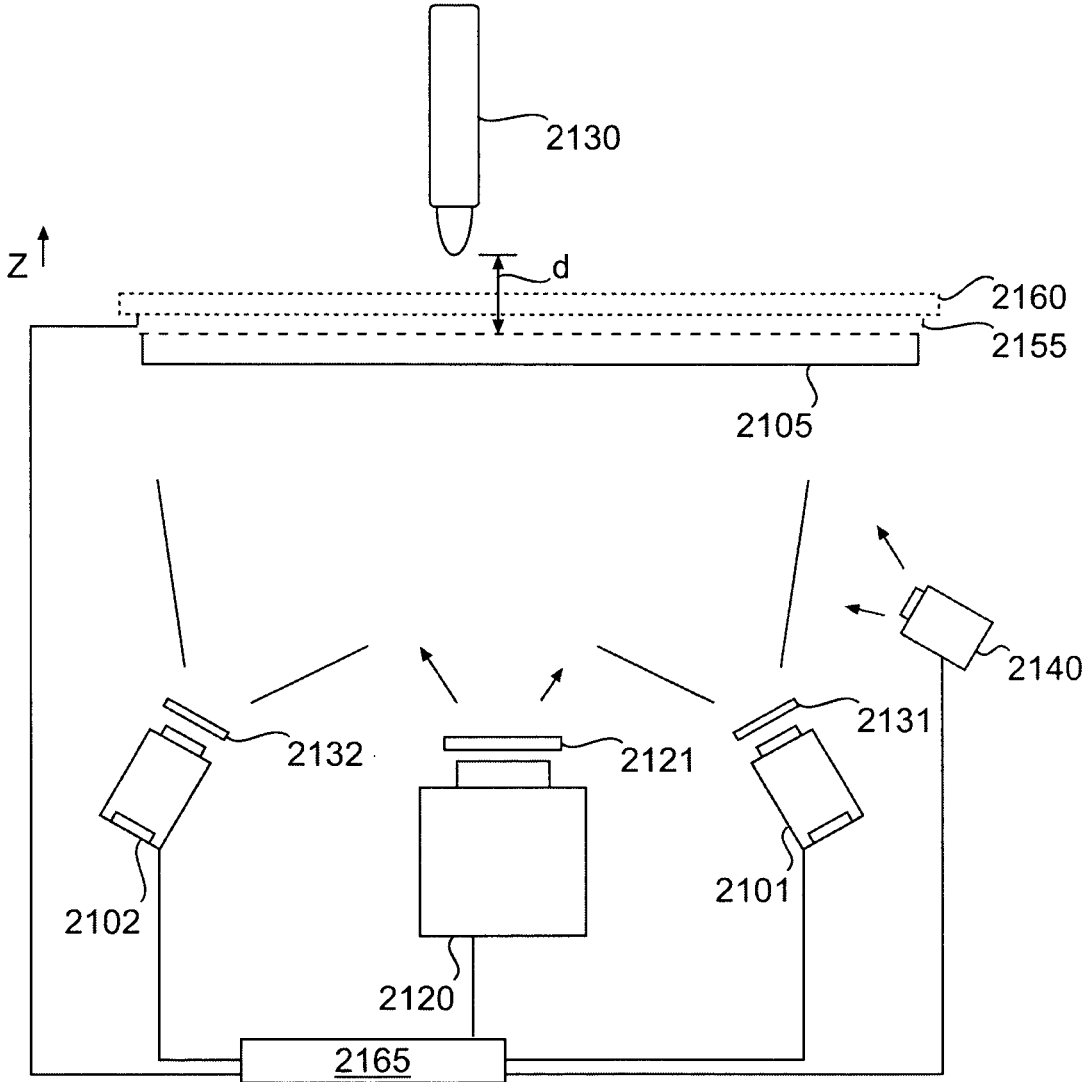


FIG. 21a

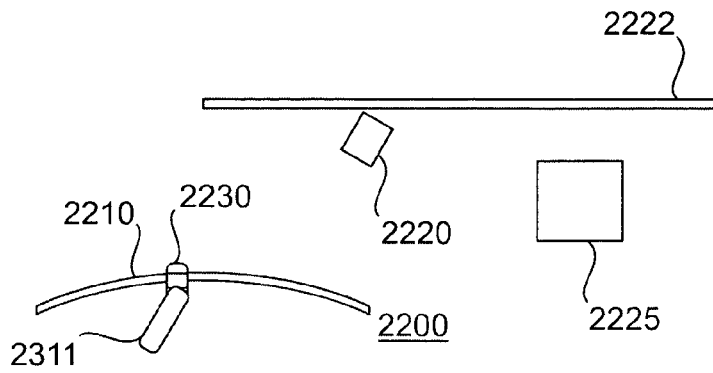


FIG. 22

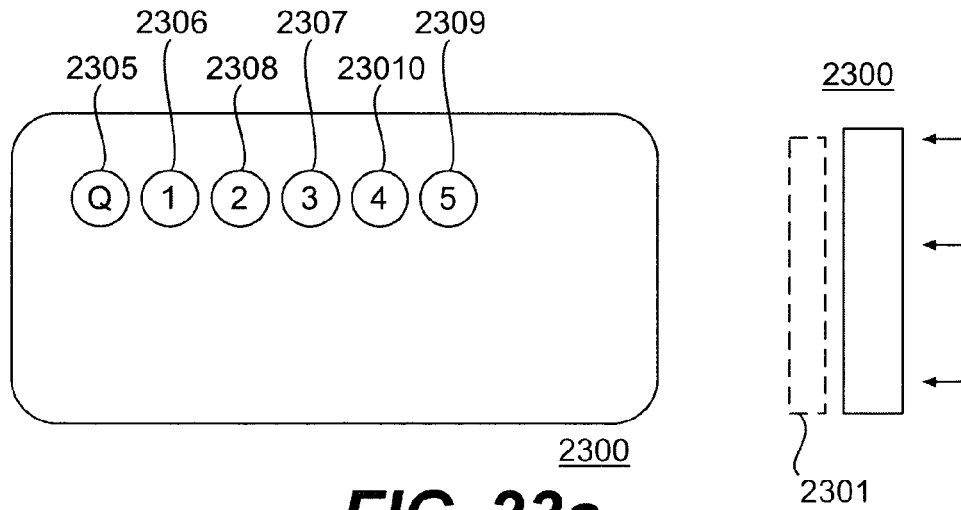


FIG. 23a

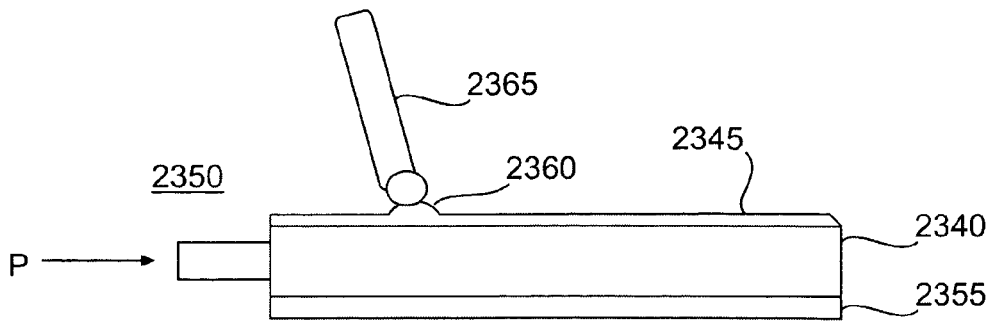


FIG. 23b

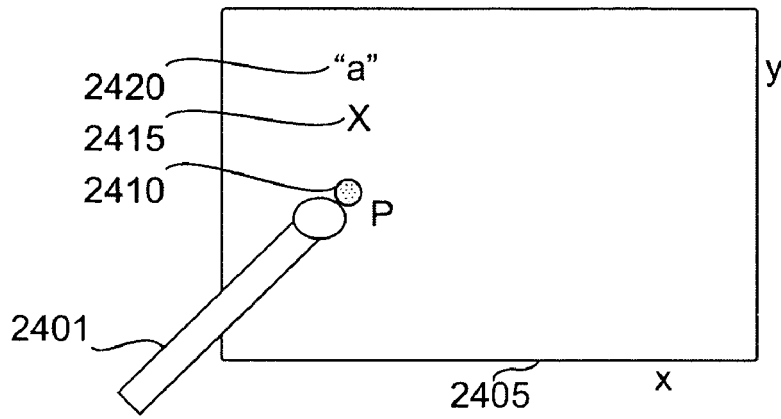


FIG. 24a

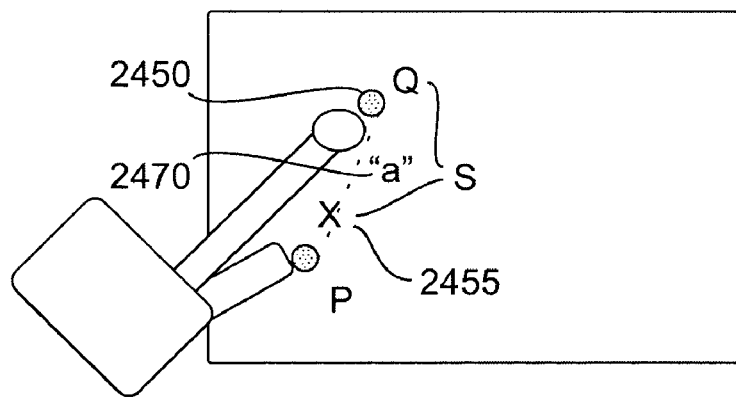


FIG. 24b

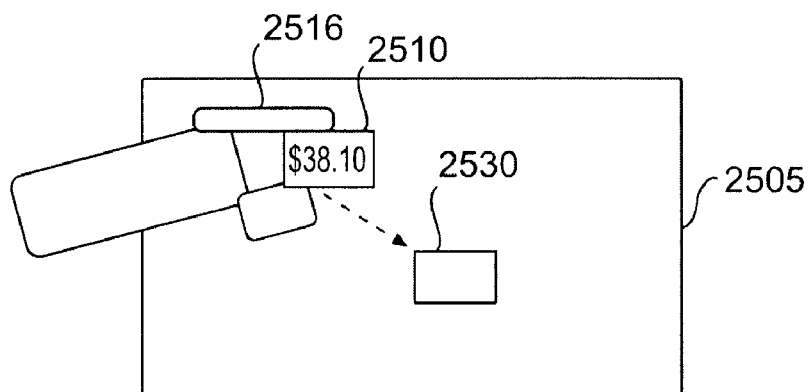


FIG. 25

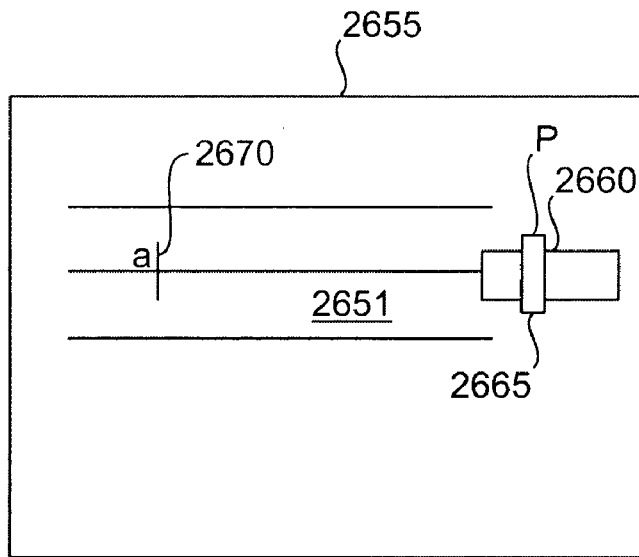


FIG. 26

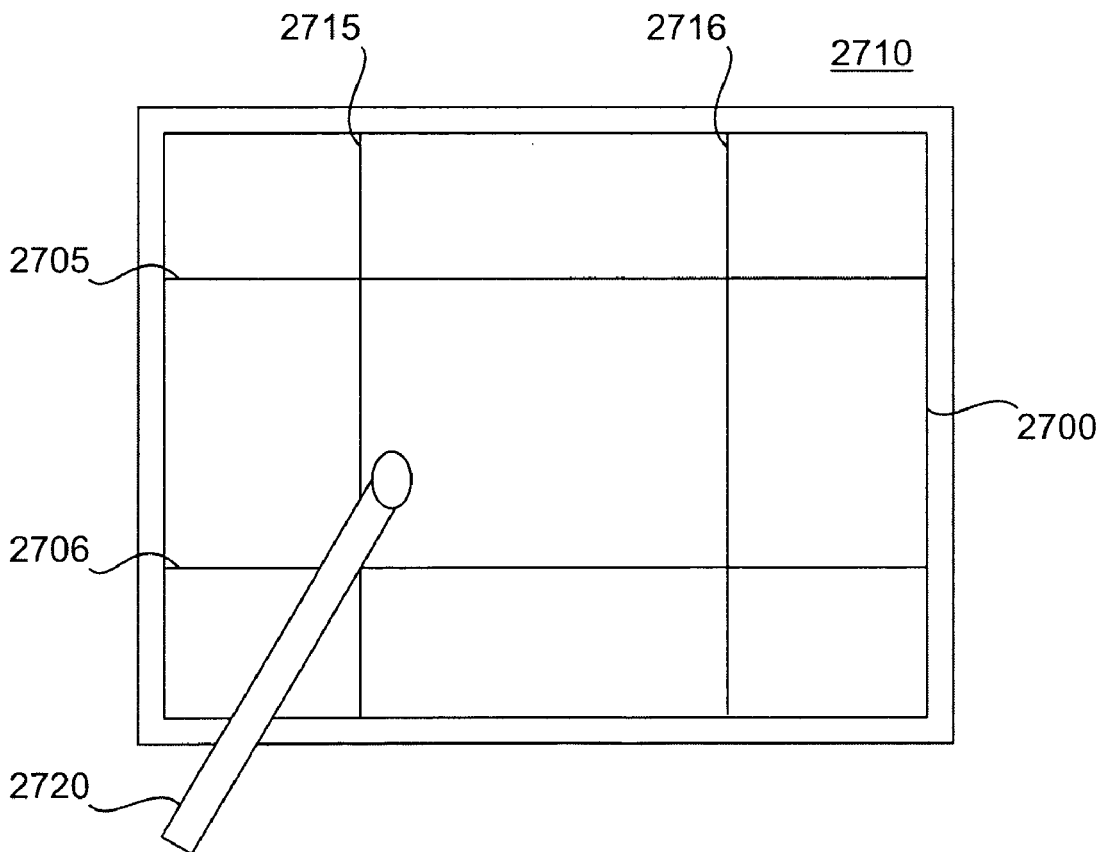


FIG. 27

