

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113654 A1

(51) International Patent Classification⁷: **E05B 65/20**,
B60Q 1/32

(21) International Application Number:
PCT/CA2004/000900

(22) International Filing Date: 18 June 2004 (18.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/479,854 20 June 2003 (20.06.2003) US

(71) Applicant (for all designated States except US): **INTIER
AUTOMOTIVE CLOSURES INC.** [CA/CA]; 521 New-
park Boulevard, Newmarket, Ontario L3Y 4X7 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HARGENRADER,
John, T.** [US/US]; 11764 Burke Court, Brighton, MI 48114

(US). **PETROIANU, Ion** [CA/CA]; 43 Slidell Crescent,
Toronto, Ontario M3A 2C5 (CA). **BOMBSKI, Boguslaw**
[CA/CA]; 6 Dewitt Road, Etobicoke, Ontario M9B 3E1
(CA).

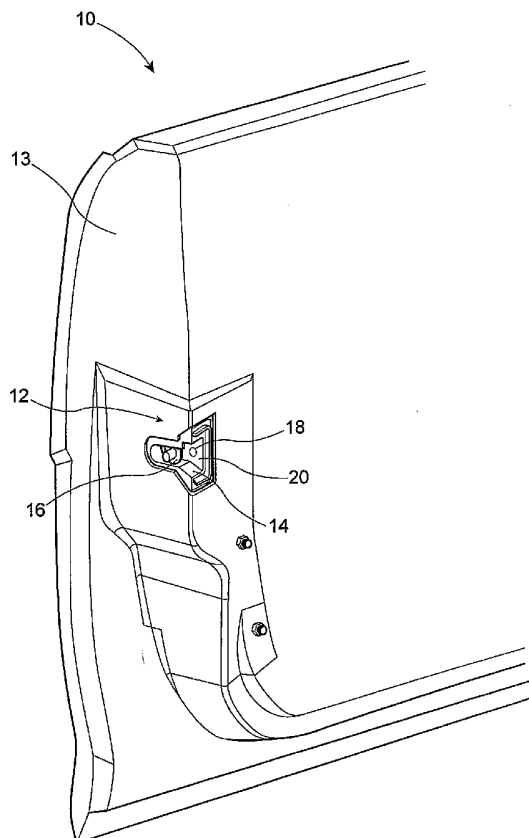
(74) Agents: **IMAI, Jeffrey, T.** et al.; Magna International Inc.,
337 Magna Drive, Aurora, Ontario L4G 7K1 (CA).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: SIDE DOOR LATCH SAFETY WARNING



(57) Abstract: A side door latch safety warning system has a
visual indicator such as an LED (18) mounted in the latch (12)
of a side door (10). The system enables oncoming traffic ap-
proaching from the rear to clearly see the warning indicator.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SIDE DOOR LATCH SAFETY WARNING

FIELD OF THE INVENTION

The invention generally relates to automotive warning indicators and more particularly to a side door latch safety warning system.

BACKGROUND OF THE INVENTION

When a vehicle is stopped along the shoulder of a highway and the vehicle door is opened along a roadway, limited notice is given to oncoming traffic with respect to the opened door, especially under conditions of poor visibility. This problem is particularly acute along the traffic side of the roadway with respect to traffic coming up from behind a stopped vehicle.

The prior art has attempted to solve this problem by providing or mounting a reflective surface on the trim surface of the inner door. One of the drawbacks to this approach is that the inner trim surface can thus be visually unpleasing, or alternatively, a great deal of effort must be expended to visually harmonize the reflective surface with the aesthetics of the rest of the interior design. Reflective surfaces are also not the most efficient warning indicators, e.g., they are not generally effective in bright light or when the angle of approach is not conducive to directly reflecting a beam of light.

SUMMARY OF INVENTION

The invention utilizes the fact that when a side door is open, the door edge generally faces oncoming traffic and thus presents a suitable surface for including an electrically powered visual warning indicator such as a lamp or light emitting diode. In particular, it is preferred to integrally mount the warning indicator within the door latch. One opportune position is a surface that defines a fishmouth of a latch since the warning indicator can be clearly viewed by traffic approaching from the rear of the door. Mounting the warning indicator on the latch simplifies the construction of the door and enables the warning indicator to be controlled by the latch switch/electronics.

BRIEF DESCRIPTION OF DRAWINGS

The foregoing and other aspects of the invention will become more apparent from the following description of illustrative embodiments thereof and the accompanying drawings, which illustrate, by way of example, the principles of the invention. In the drawings:

Fig. 1 is a fragmentary perspective view of a vehicle door according to one embodiment of the invention; and

Fig. 2 is a schematic circuit diagram of a door control system.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Fig. 1 shows a vehicle side door 10 which pivots away from the vehicle along a horizontal plane. The door 10 includes a latch 12 mounted to a rear edge 13 of the door as a bolted-on sub-assembly. The constructional details of the latch 12 are not important to the invention. One almost universal feature of every vehicle door latch is a fishmouth 14 that provides access to a ratchet 16, thus enabling the ratchet 16 to catch a striker (not shown) mounted on the body of the vehicle. The fishmouth 14 provides a number of surfaces which can be used to mount a warning indicator such as a lamp or high intensity light emitting diode (LED). In the illustrated embodiment, for example, an LED 18 is mounted against a rear surface 20 defining the fishmouth 14. In this manner, when the door is opened, oncoming traffic approaching from the rear can clearly see the warning indicator.

Fig. 2 shows a portion of a latch control system 30. A microprocessor 32 provides the control logic. The latch 12, as well known in the art, includes a variety of internal switches designed to inform the microprocessor 32 of the state of the latch or door. The illustrated embodiment, for example, includes a switch 34 for informing the microprocessor of the status a door handle (handle position status, which is set or active when an occupant actuates the door handle) and a switch 36 which informs the microprocessor as to the status of the latch (latch position status, which is set or active when the vehicle door is ajar). In the illustrated embodiment, if the handle position status is active or the latch position status is active, the microprocessor energizes the LED 18 so as to activate the warning indicator. When the latch position status and the

handle position status are inactive, the microprocessor de-energizes the LED 18. The LED 18 may be controlled to blink in any desired pattern.

Those skilled in the art will understand that the foregoing circuitry and control algorithm and will vary depending on the particulars of the latch or door electronics employed in any given vehicle.

CLAIMS

What is claimed is:

1. A latch having an electrically powered visual warning indicator mounted thereto.
2. A latch having an electrically powered visual warning indicator mounted to a fishmouth-defining surface of the latch, and control circuitry for energizing the warning indicator in response to a signal representing a door open condition.
3. A vehicle, comprising:
 - a door;
 - a latch mounted on an edge of the door;
 - an electrically powered visual warning indicator mounted on a fishmouth-defining surface of the latch so as to be visible by oncoming traffic; and
 - control circuitry for energizing the warning indicator in response to a signal representing a door open condition.

1/2

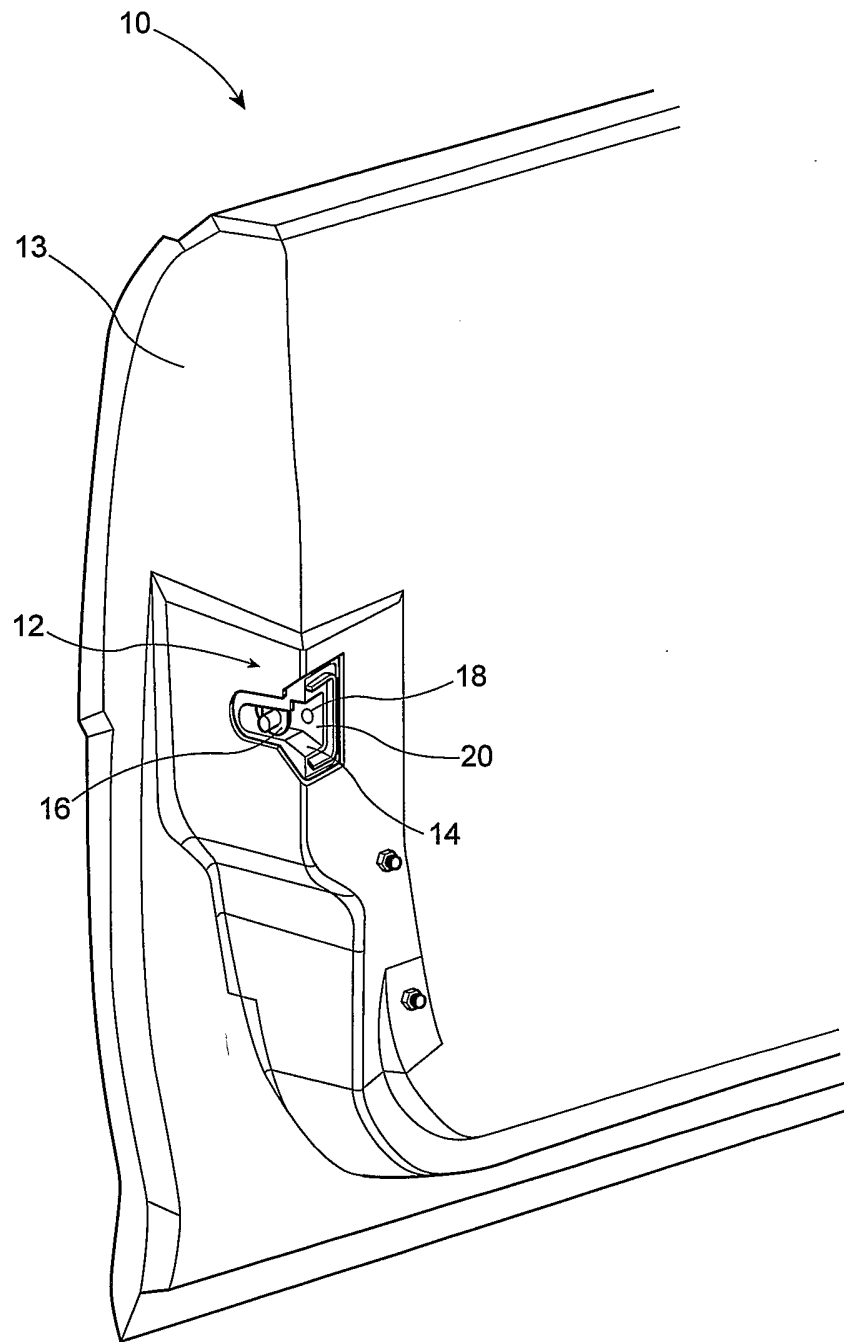
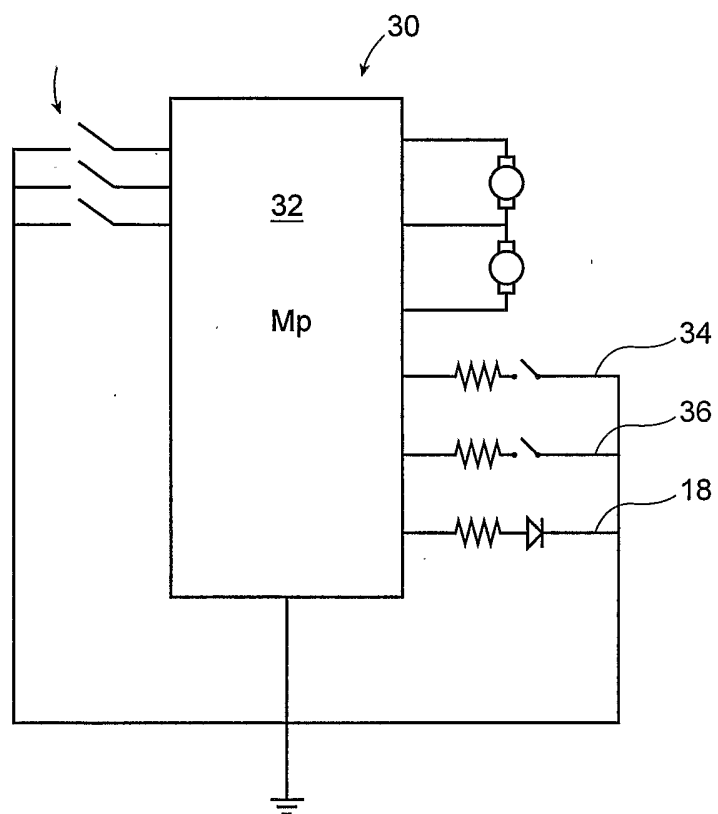


Figure 1

2/2

**Figure 2**

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA2004/000900

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E05B65/20 B60Q1/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E05B B60Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 39 08 995 A (NAU J F YVES) 12 July 1990 (1990-07-12) column 3, line 60 - column 4, line 35 column 5, line 46 - line 56 figures 1,2,5	1-3
X	EP 1 254 808 A (ARVINMERITOR LIGHT VEHICLE SYS) 6 November 2002 (2002-11-06) column 1, line 27 - column 2, line 52; figures	1-3
X	DE 297 16 022 U (KIEKERT AG) 13 November 1997 (1997-11-13) page 2, line 5 - page 4, line 22; figures	1-3

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

14 September 2004

Date of mailing of the international search report

01/10/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Sallard, F

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/CA2004/000900

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 3908995	A	12-07-1990	DE 3908995 A1	12-07-1990
EP 1254808	A	06-11-2002	EP 1254808 A1	06-11-2002
			US 2002149207 A1	17-10-2002
DE 29716022	U	13-11-1997	DE 29716022 U1	13-11-1997