(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 853 269 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
15.07.1998 Bulletin 1998/29

(51) Int Cl.[6]: **G05G 1/28**, H01H 9/16, D06F 75/26

(21) Application number: **98300103.3**

(22) Date of filing: **08.01.1998**

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **10.01.1997 US 781089**

(71) Applicant: **Black & Decker Inc.**
Newark Delaware 19711 (US)

(72) Inventor: **Naft, Stuart**
Fairfield, Connecticut 06432 (US)

(74) Representative: **Stagg, Diana Christine et al**
Emhart Patents Department
Emhart International Ltd.
177 Walsall Road
Birmingham B42 1BP (GB)

(54) Shield and control mechanism assembly

(57) A shield (1) is provided for protecting graphics related to a control mechanism (6). In order to achieve the objective of enhancing visibility, a dome or bubble shaped magnifying section (4) is provided within the shield (1). The magnifying section (4) is sized and positioned such that it magnifies only the setting that the user has selected. The shield (1) is secured by an attachment mechanism (5a,5b) to the controlled device. The control mechanism (6) is movable such that the setting selected by the user appears under the magnifying section (4) of the shield (1).

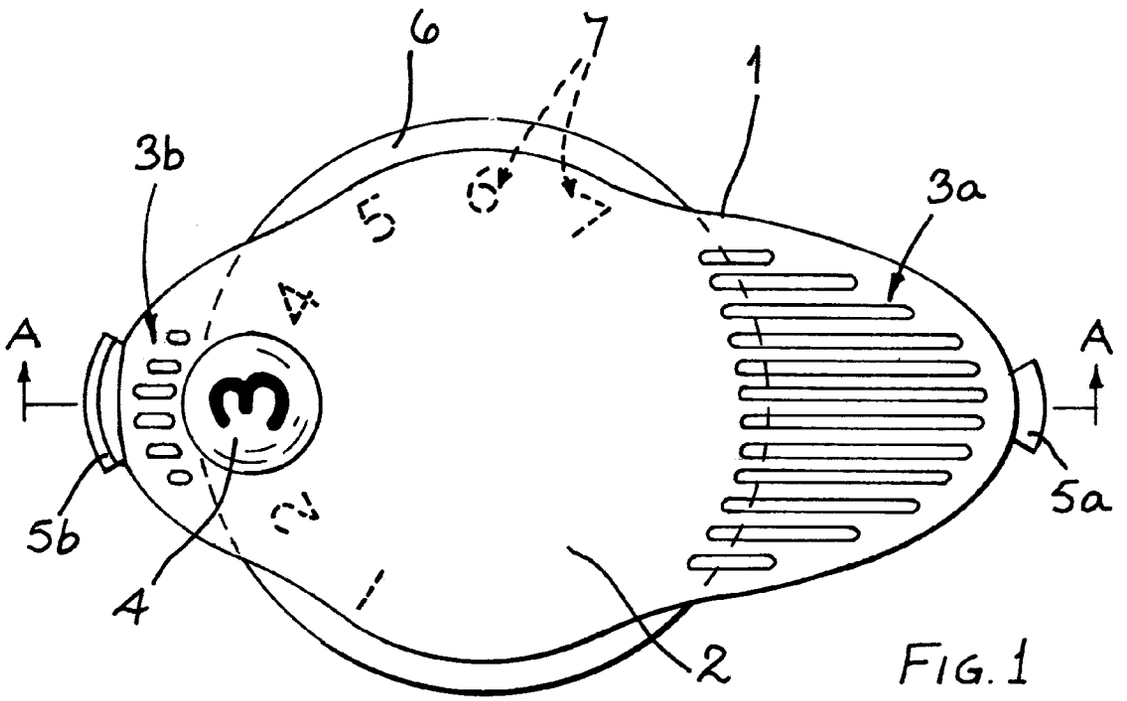

FIG. 1

EP 0 853 269 A1

Description

The invention relates to an assembly for protecting user operated controls while ensuring that the controls are visible to the user. Such user operated controls may be present on any user operated device. The controls and devices may, for example, include volume or tone controls for an electronic device, temperature settings for an iron, timer for a toaster or oven, power settings for a mixer or blender, or any other user operated controls which occupy a limited space on the associated device.

Control mechanisms on user operated devices are often difficult to read. Product design and size often limit the space available for providing information to a user.

Common methods of providing user indications include providing a raised dot, an arrow, or a line to indicate the selected setting. These indicators are sometimes printed in a colour contrasting with the colour of the background.

Generally, the graphics related to the control mechanism are printed directly on the control mechanism and/or associated controlled device. Accordingly, the graphics are not protected and eventually are damaged through wear.

An object of the invention is to protect the graphics related to a user operated control mechanism.

A further object of the invention is to enhance the visibility of a user-selected setting.

In order to achieve the objective of protecting the graphics, a shield is provided to protect the graphics related to a control mechanism.

The present invention provides a shield for a user operable control mechanism having a plurality of settings, the shield comprising:

a main portion for covering a substantial portion of the user operable control mechanism; and
a magnifying section within the main portion, wherein the magnifying section is positioned and sized for magnifying only a setting selected by the user.

A first embodiment of the invention includes a control assembly having a manually operable control mechanism with a plurality of settings selectable by a user. A shield for the control mechanism includes a main portion for covering a substantial portion of the control mechanism and an indicator portion having a magnifying section that is positioned and sized for magnifying only a setting selected by the user.

In an alternative embodiment, the invention comprises an iron with a control assembly. The assembly includes a temperature control mechanism protected by a shield. The shield includes a main portion and an indicator portion with magnification capabilities.

The invention will now be further described with reference to the accompanying drawings, in which:

Figure 1 is a front elevational view of an embodiment of the shield and control mechanism;
Figure 2 is a side view of the embodiment of the shield shown in Figure 1;
Figure 3 is a sectional view along line A-A of the embodiment shown in Figure 1;
Figure 4 is a perspective view of the embodiment of Figure 1 incorporated on an iron;
Figure 5 is a perspective view of an alternative embodiment of the covering and control mechanism;
Figure 6 is a front elevation of a further alternative embodiment of the covering and control mechanism; and
Figure 7 shows a further embodiment in which the covering functions as the control mechanism.

Figure 1 is a front elevation view of an embodiment of the invention. A shield 1 covers control mechanism 6. The shield includes a main portion 2. In the embodiment illustrated, the main portion is translucent or transparent so that control setting options 7 can be viewed through main portion 2. Shield 1 also includes a magnifying section 4. The magnifying section 4 is sized such that it magnifies only the setting selected by the user.

The shield also includes peripheral portions 3a and 3b, which are ribbed in the embodiment illustrated. Attachment areas 5b and 5a allow the covering to be attached to the controlled device (not shown in Figure 1). The attachment areas are disclosed in detail below with reference to Figure 2.

The control mechanism 6 of Figure 1 is a rotatable dial with a plurality of control settings 7. The shield 1 covers all of the settings to protect the graphics from wear. However, the user can easily access the edges of control mechanism 6 in order to rotate it and change the setting. Shield 1 therefore remains stationary, while the control mechanism 6 is rotated by the user to select a setting.

Figure 2 is a side view of the shield illustrated in Figure 1. From Figure 2, the domed or bubble shape of the magnifying section 4 can be seen. The bubble acts as an indicator of the user-selected setting. Both the bubble shape and the magnification capability enhance visibility. Base 6 connects with the main portion 2 of the covering 1 and with peripheral portions 3a and 3b. The substantially elongated shape of the shield is designed to protect the graphics while maximising the visibility of the full range of settings. Attachment portions 5a and 5b extend from peripheral portions 3a and 3b. In Figure 2, attachment portion 5a is a hook mechanism and attachment portion 5b is a snap portion. These mechanisms are matched with attachment mechanisms in the control device 10. However, the particular method of attachment depends upon the selected device. The method of attachment may include, but is not limited to adhesive, friction fit, detent mechanism, or screws.

Figure 3 is a sectional view along the line A-A of Figure 1 of the shield in conjunction with the control

mechanism 6. Attachment portions 5a and 5b extend beyond the edges of control mechanism 6. In the embodiment illustrated, the shield has a convex shape such that the main portion 2 of shield 1 extends slightly above magnifying portion 4. The distance between the raised bubble and the control mechanism should be selected to maximise visibility.

Figure 4 illustrates the control mechanism 6 and shield 1 attached to a controlled device 10. The attachment is made, as explained above, by attachment portions 5a and 5b. In the embodiment illustrated, the shield 1 and control mechanism 6 are attached to iron 10.

The control mechanism 6 and covering 1 may be provided on any user operated device 10. The controls and devices may, for example, include volume or tone controls for an electronic device, temperature settings for an iron, timer or temperature setting for a toaster or oven, power settings for a mixer or blender, or any other user operated controls which occupy a limited space on the associated device.

Figure 5 illustrates an alternative embodiment in which control mechanism 6 is a sliding bar mechanism. Shield 1 has a modified rectangular shape and includes magnifying section 4. In operation, control mechanism 6 is slid under shield 1 and the user selected setting is magnified under magnifying section 4.

Figure 6 illustrates an alternative embodiment in which the control mechanisms 6 are rotatable dials and the covering 1 is rectangular and includes two magnifying sections 4. Of course, this configuration could be adapted to accommodate any number of control mechanisms.

In the embodiments described above, it is preferred that shield 1 is formed from a transparent or translucent plastic, such that all selectable settings are visible to the user. In a preferred embodiment, a polycarbonate such as LEXAN is used to form the shield. However, any suitable materials known to those skilled in the art may be used. Alternatively, the covering may be opaque except for magnifying portion 4, such that only the selected setting is visible to the user.

Figure 7 illustrates an alternative embodiment in which the settings are printed directly on the controlled device 10. The control mechanism 6 is also a shield for the numbers printed directly on the device. The shield/control mechanism is rotatable and includes a magnifying portion 4. Accordingly, the numbers 0-6 are stationary.

Claims

1. A shield (1) for a user operable control mechanism (6) having a plurality of settings (7), the shield (1) comprising:

   a main portion (2) for covering a substantial portion of the user operable control mechanism (6); and
   a magnifying section (4) within the main portion (2), wherein the magnifying section (4) is positioned and sized for magnifying only a setting selected by the user.

2. A shield according to claim 1, characterised in that the main portion (2) is translucent or transparent.

3. A shield according to claim 1, characterised in that the main portion (2) is opaque.

4. A shield according to any of claims 1 to 3, characterised in that the magnifying section (4) is bubble-shaped.

5. A shield according to any of claims 1 to 4, characterised in that the shield is substantially elongated.

6. A shield according to claim 5, characterised in that it further comprises peripheral ribbed portions (3a, 3b).

7. A shield according to claim 6, characterised in that the peripheral ribbed portions (3a,3b) are connected with attachment means (5a,5b) for attaching the shield (2) to a controlled device (10).

8. A control assembly, comprising:

   a manually operable control mechanism (6) having a plurality of settings (7) selectable by a user; and
   a shield (1) for the control mechanism (6), the shield comprising,
   a main portion (2) covering a substantial portion of the control mechanism and an indicator portion including a magnifying section (4) that is positioned and sized for magnifying only a setting selected by the user.

9. A control assembly according to claim 8, characterised in that the shield (1) is a shield as claimed in any of claims 1 to 7.

10. A control assembly according to claim 8 or claim 9, characterised in that the control mechanism (6) is a rotatable dial.

11. A control assembly according to any of claims 8 to 10, characterised in that the control mechanism (6) is a temperature control.

12. A control assembly according to claim 11, characterised in that the temperature control is for controlling the temperature of an iron (10).

13. A control assembly according to claim 8 or claim 9,

characterised in that the control mechanism (6) is a sliding mechanism.

14. An iron comprising a control assembly, as claimed in any of claims 8 to 13.

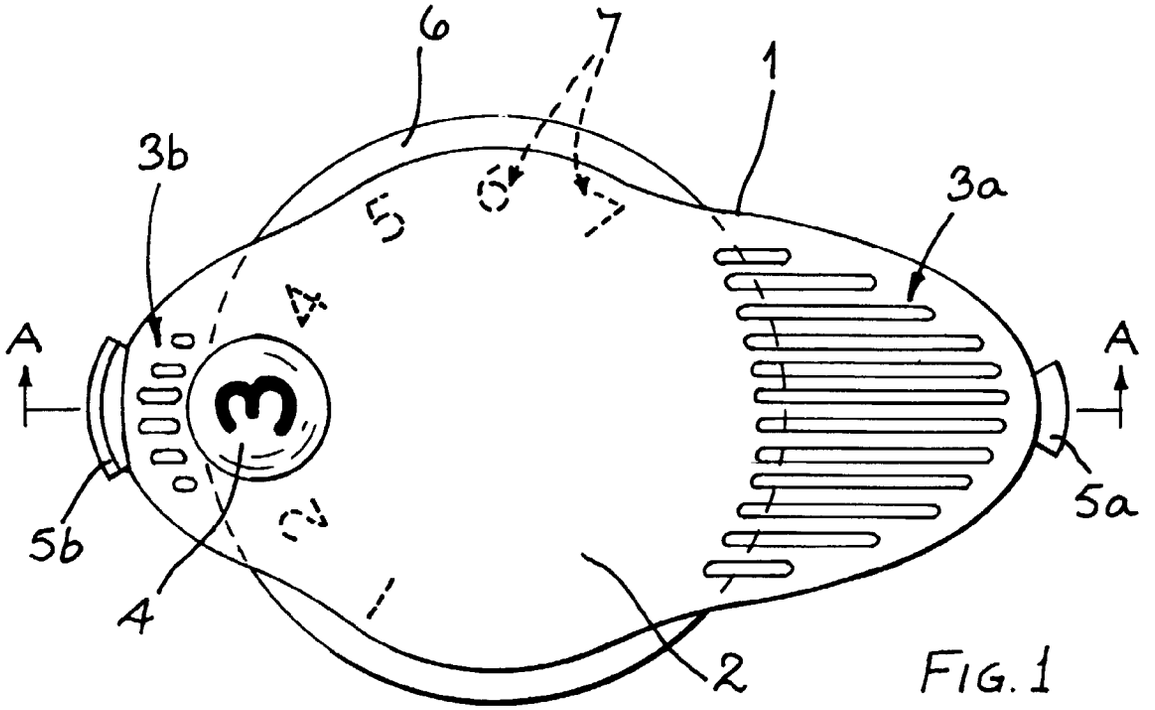

FIG. 1

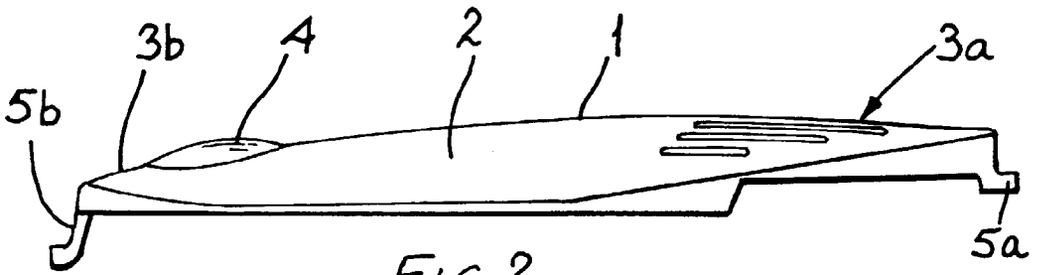

FIG. 2

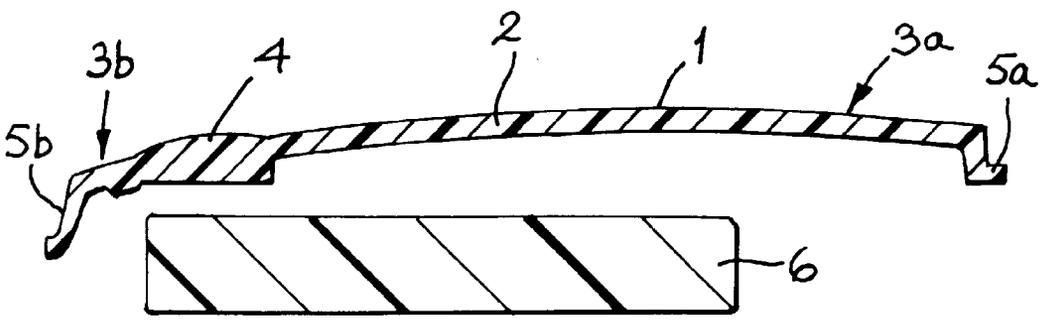

FIG. 3

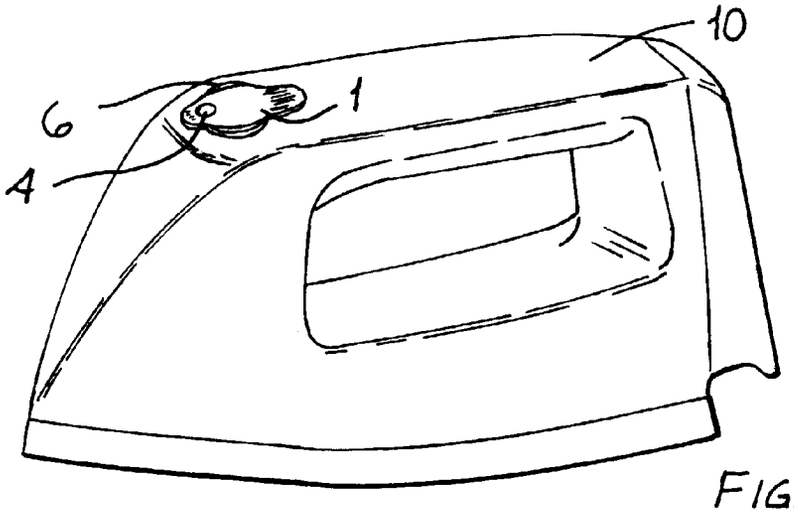

FIG.4

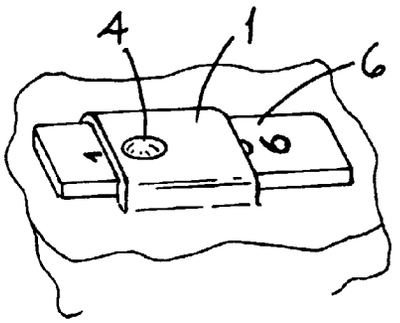

FIG.5

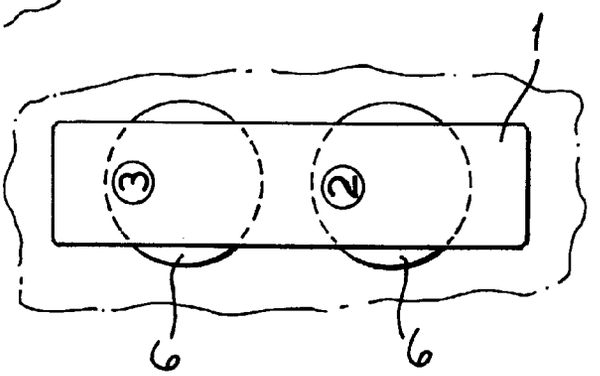

FIG.6

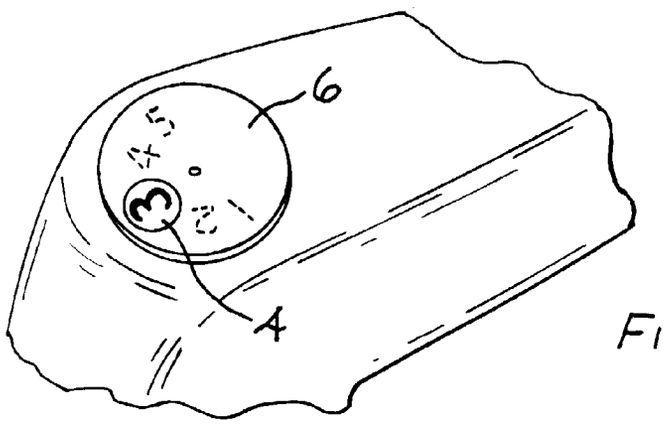

FIG.7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 30 0103

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	FR 1 422 833 A (UNITED-CARR FASTENER CORPORATION) 17 March 1966 * the whole document *	1,3,8,10	G05G1/28 H01H9/16 D06F75/26
A	US 3 450 091 A (WAJDIK JOSEPH S) 17 June 1969 * claims; figures *	1,4,10	
A	DE 30 05 457 A (MARQUARDT GMBH) 20 August 1981 * the whole document *	1	
A	DE 35 33 461 A (MANNESMANN REXROTH GMBH) 26 March 1987 * page - *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

G05G
H01H
D06F
E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24 April 1998	Areso y Salinas, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)