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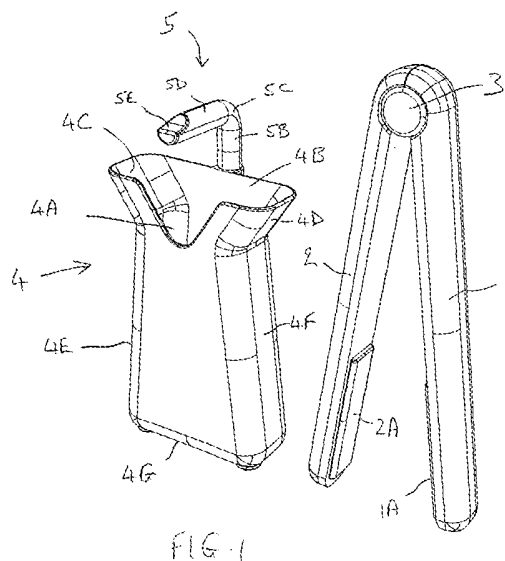
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(56) Documents Cited:
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GB 0985985 A **WO 2006/051291 A1**
US 6209732 B1 **US 5917694 A**
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(58) Field of Search:
UK CL (Edition X) **A4V**
INT CL **A45D**
Other: **Online: EPO - Internal, WPI.**

(54) Title of the Invention: **A safety housing**
Abstract Title: **Safety housing for hair straightening tongs**

(57) A safety housing for hair styling tongs and like devices having two arms 1,2 biased towards an open position comprises an enclosure 4 that in use receives the distal ends of the arms, the enclosure having a releasable retainer to and hold and retain the device within the enclosure. The enclosure has an opening 4A that is narrower than the arms when they are in the open position, so that the arms have to be compressed together to insert them through the opening and the enclosure is shaped so that once the arms have been inserted therein they move apart again. The retainer 5 acts to inhibit closure of the tongs so they cannot be withdrawn from the enclosure until the retainer has been released. The retainer may comprise a member located between the arms which must be depressed to release the arms. The retainer may be sized and shaped so as to be reached and/or released by an adult hand but not a child hand so as to provide a child-safe function.



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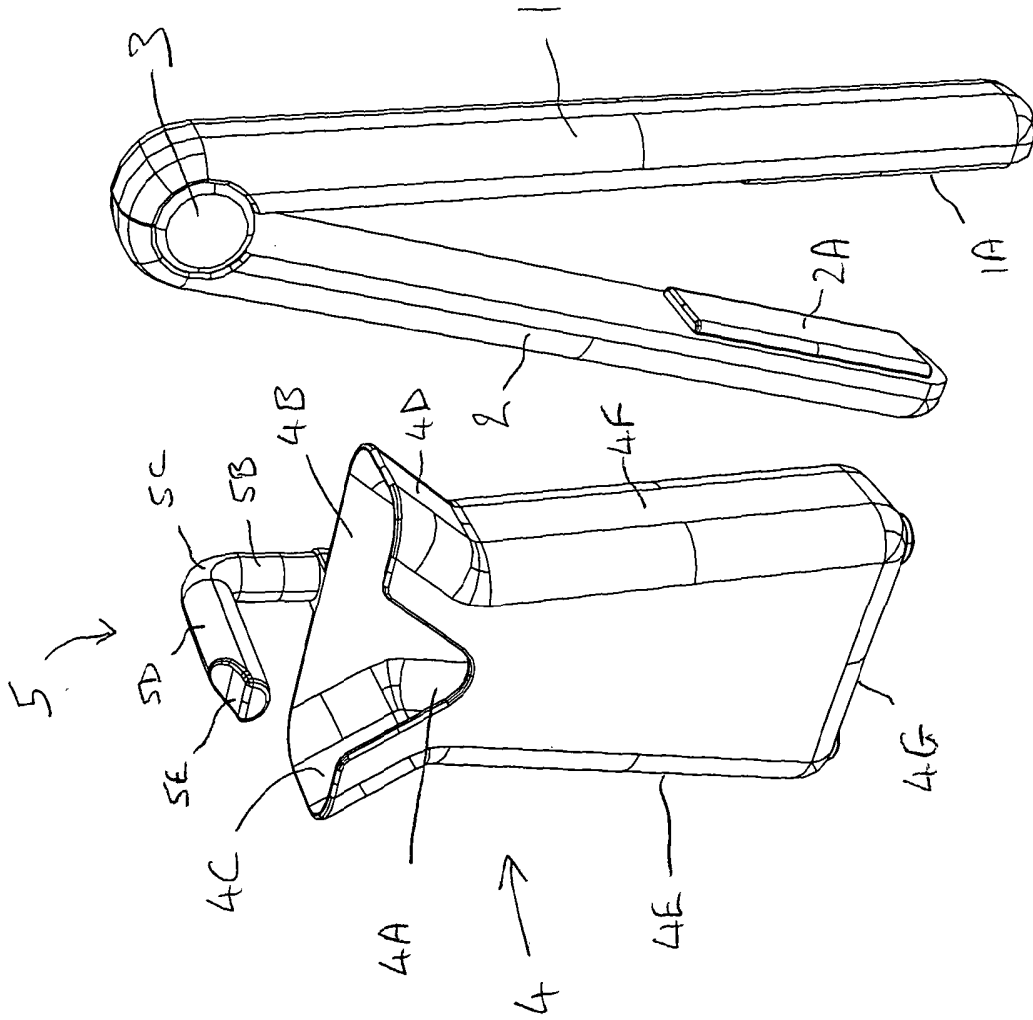


FIG. 1

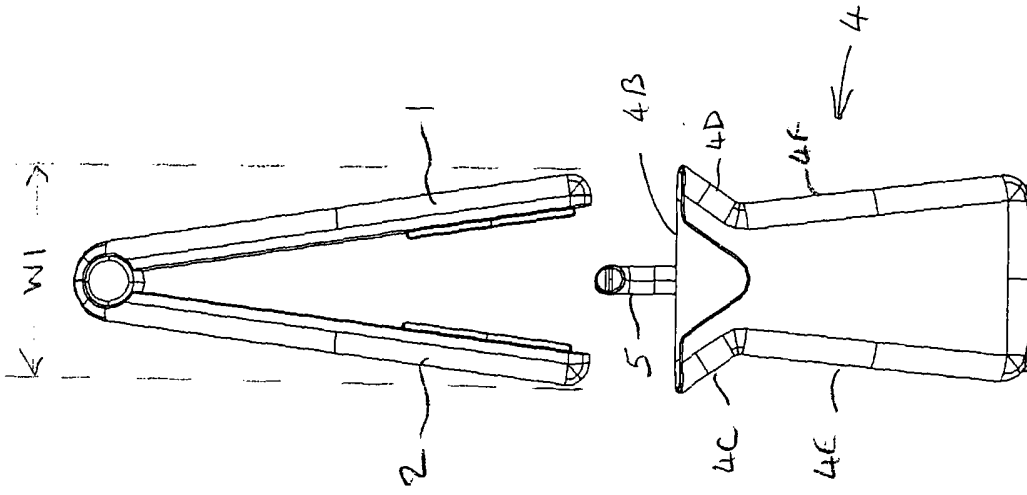


FIG 2B

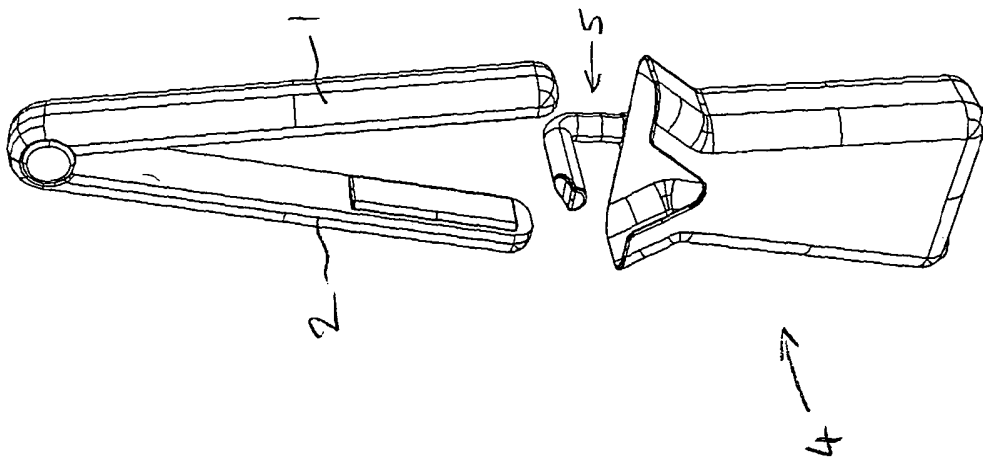


FIG 2A

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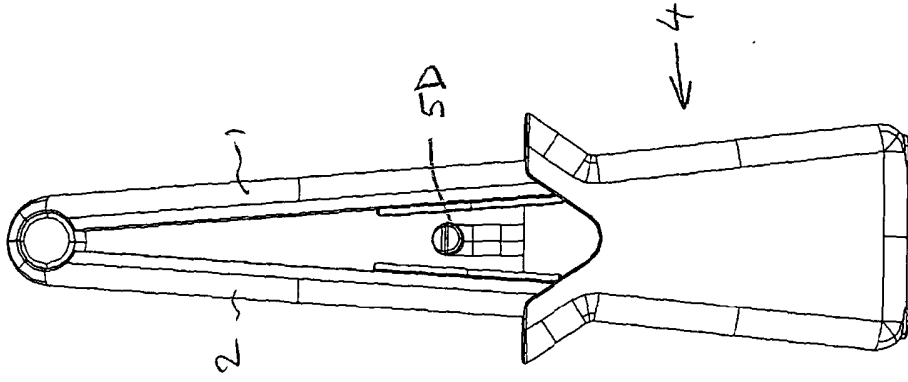


FIG 3B

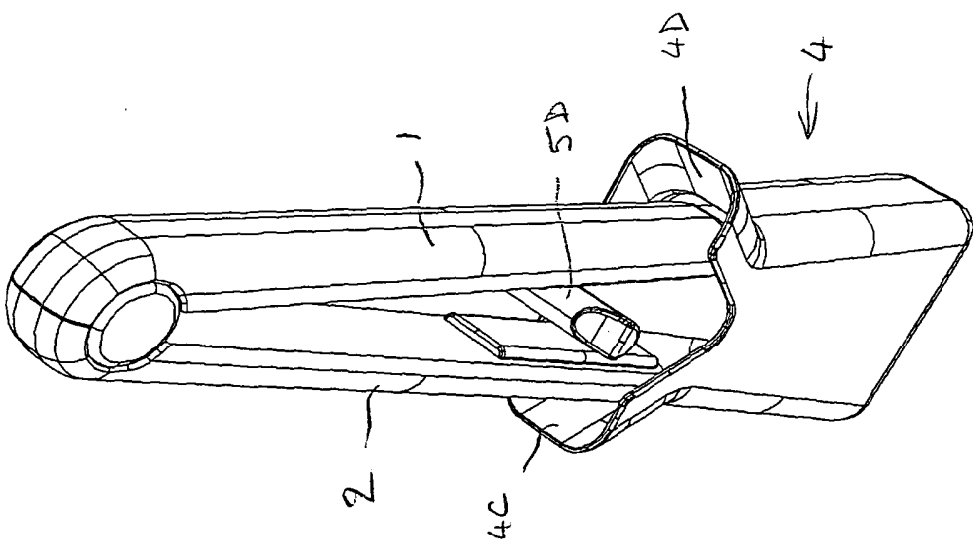


FIG 3A

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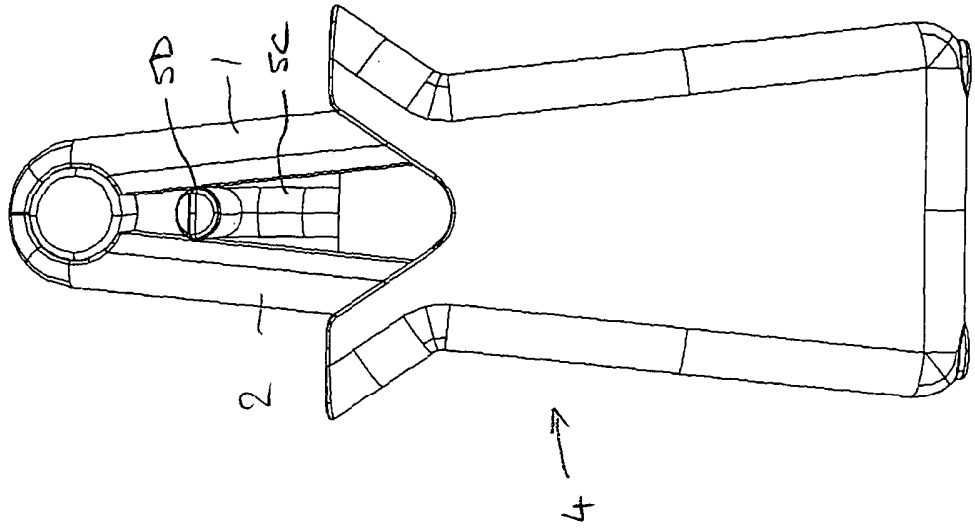


FIG 4B

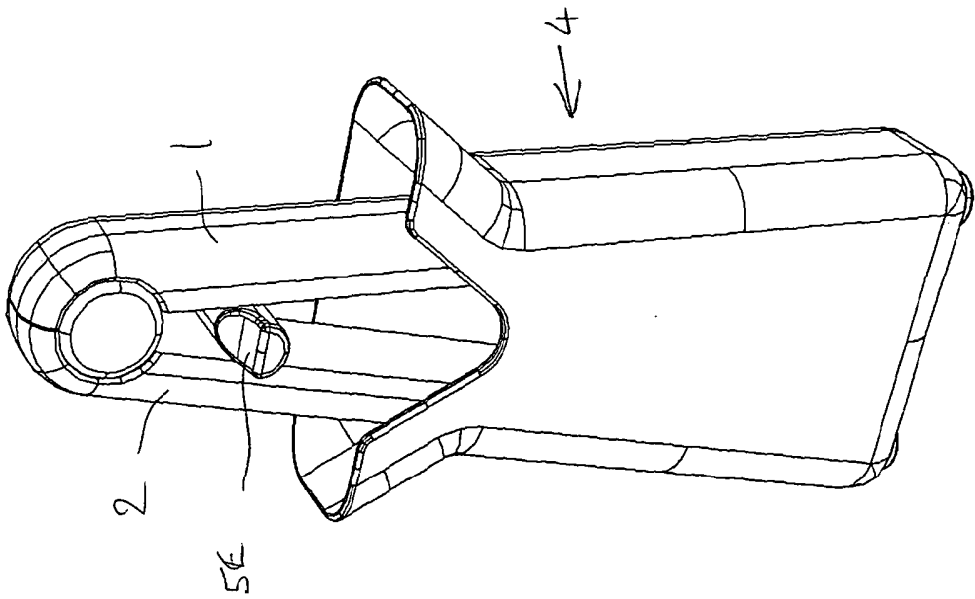


FIG 4A

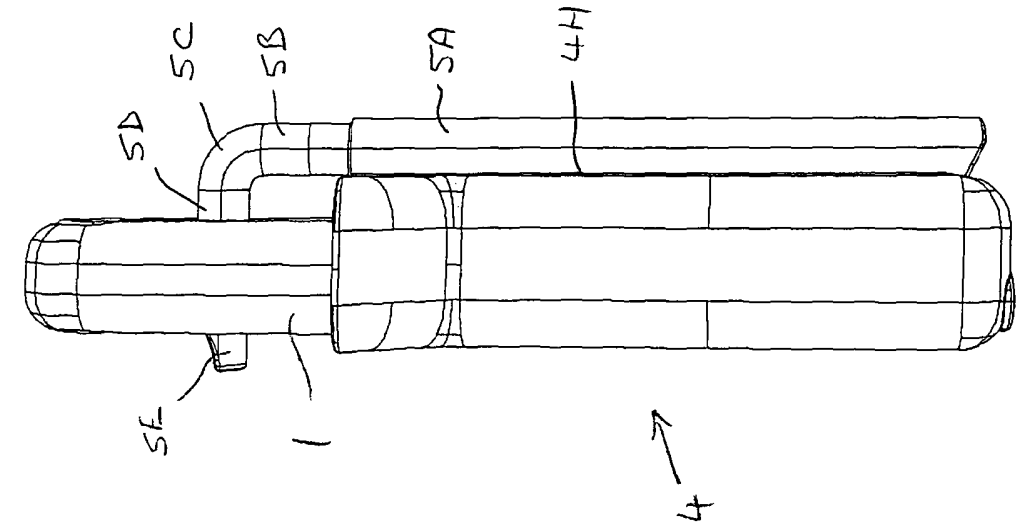


FIG 4D

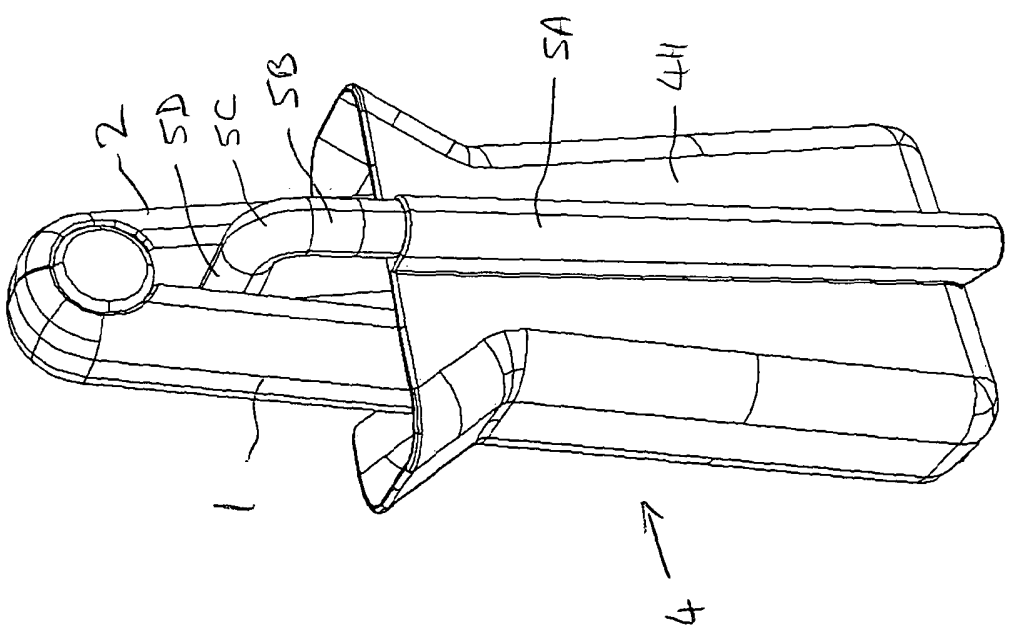


FIG 4C

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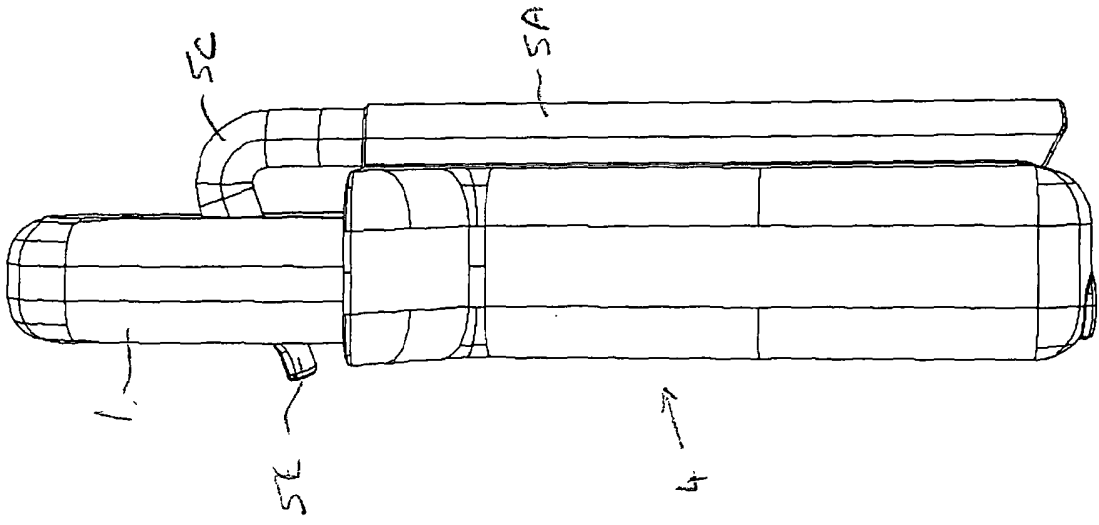


FIG 5B

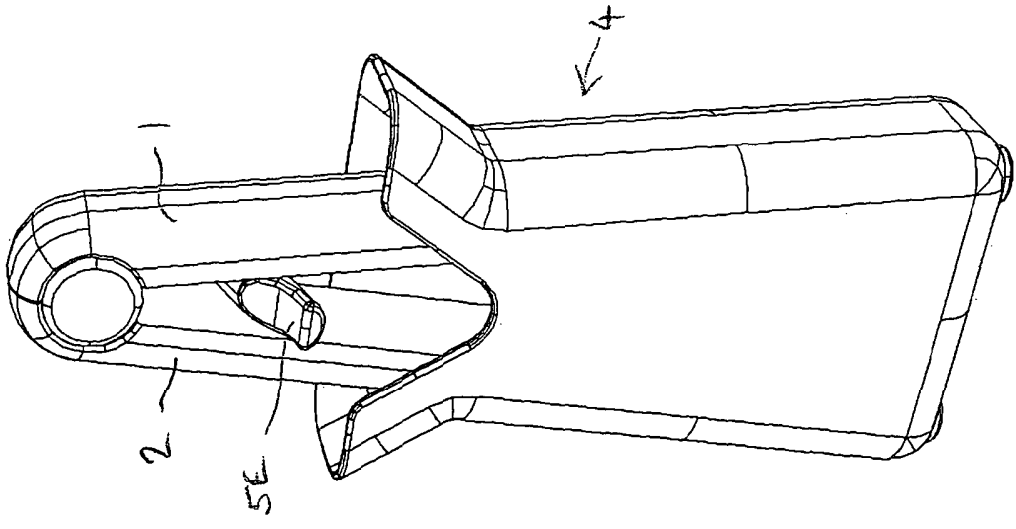
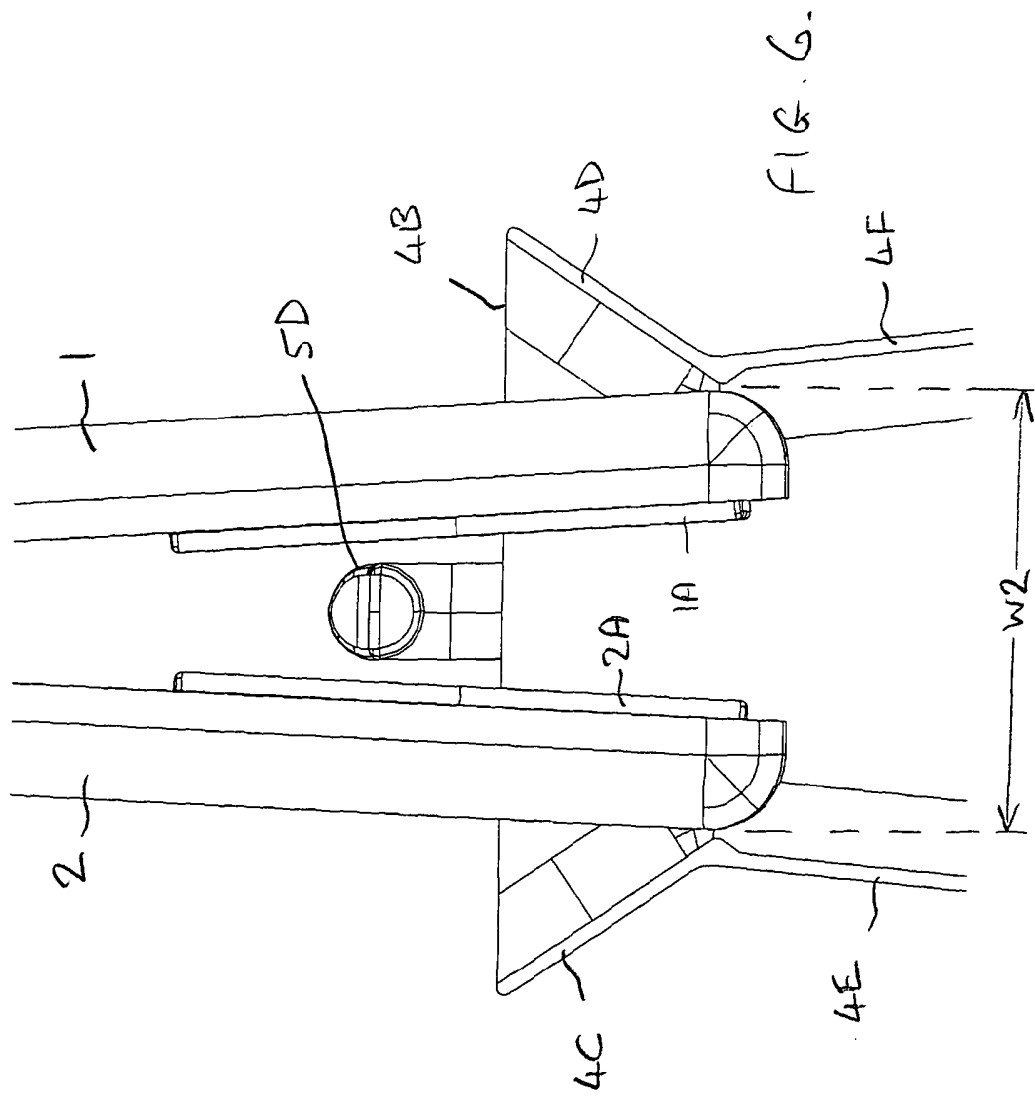


FIG 5A

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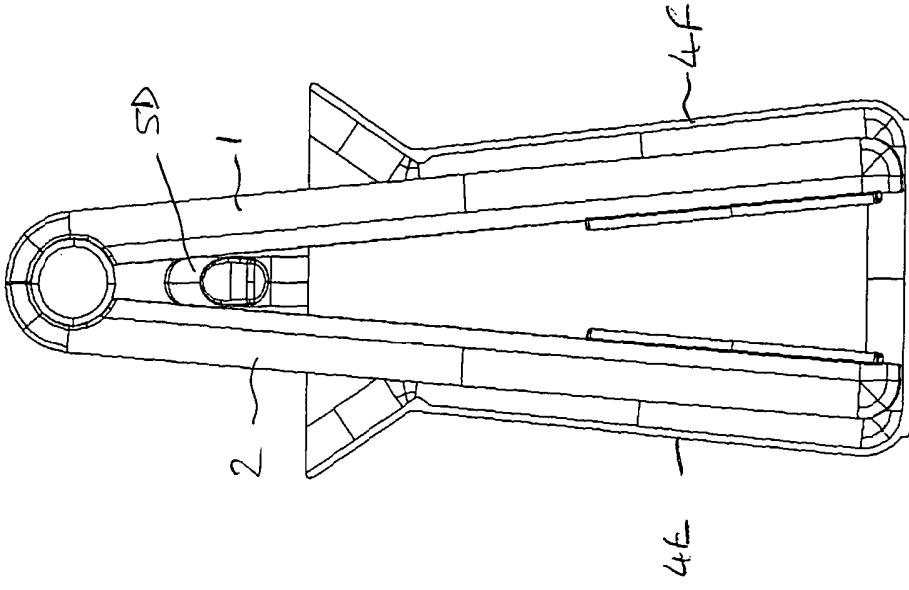


FIG. 8A

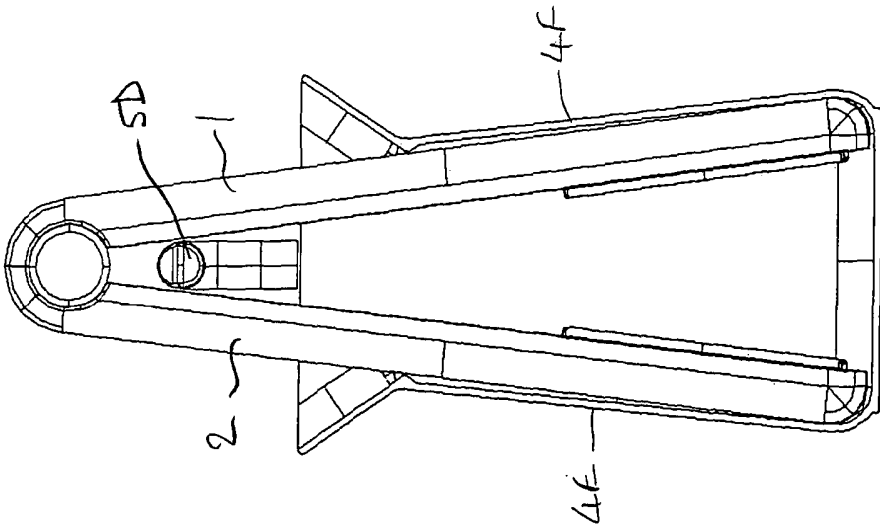


FIG. 7

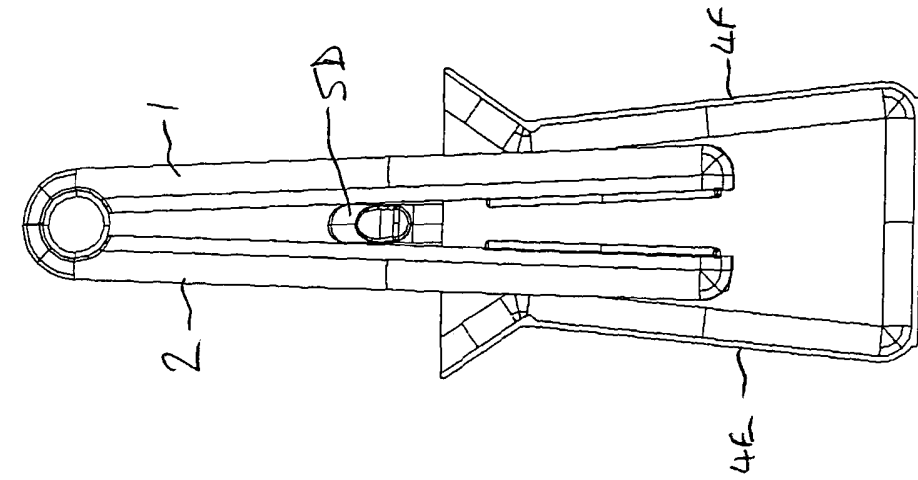


FIG. 8C

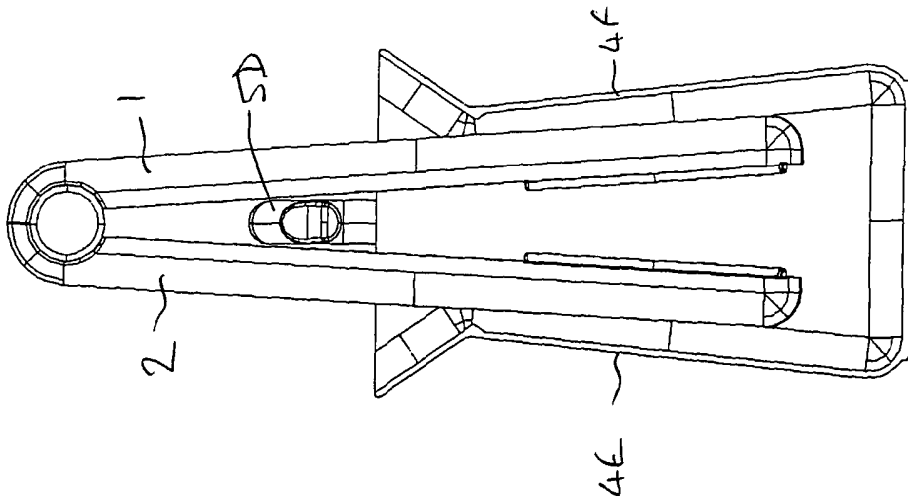


FIG. 8B

A SAFETY HOUSING

This invention relates to a safety housing for receiving a pair of tongs, for example hair straightening irons, which are resiliently biased apart towards an open position and carry one or more heating elements.

Hair straightening tongs typically have a pair of ceramic heating plates carried adjacent the distal ends of the tongs. In use, these may be heated to a temperature of 150°C or more. Indeed, there is an increasing tendency to increase the power of such implements and the temperature at which they operate. Some products currently available reach a temperature of 230°C.

The use of such implements carries considerable risk. There have been cases where the implement has been laid down on a flammable surface, eg a carpet or upholstery, whilst still hot and burning or setting fire to said surface. Of even greater concern, there have been instances where children have been burnt from handling the implement whilst it is still hot.

Some implements are now provided with automatic cut-outs to turn off the heating elements if the implement has not been used for a set period. However, as the heating elements can take several minutes to cool down to a safe temperature, this only goes part way to solving the problem.

The present invention provides a safety housing which seeks to reduce or eliminate the danger of burns in situations such as those referred to above.

According to the present invention, there is provided a safety housing for receiving a pair of tongs having two arms that are resiliently biased apart towards an open position and which carry one or more heating elements, the housing comprising an enclosure with an opening for receiving the distal ends of the arms of the tongs, the opening being of a width narrower than the distal ends in the open position so that the arms have

to be compressed together to some extent in order to insert them through the opening, the enclosure being shaped such that once the arms have been inserted through the opening, the arms are able to move apart again towards the open position, the enclosure comprising retaining means which at least inhibit closure of the tongs and/or movement of the tongs out of the opening so that, until the tongs have been released from said retaining means, their removal from the housing is inhibited or prevented.

The invention will be described in relation to hair straightening irons but is equally applicable to other implements which comprise tongs with heating elements thereon.

According to another aspect of the invention, there is provided a safety housing for receiving a pair of tongs having heating elements thereon, or some other potentially hazardous implement, the housing comprising an enclosure with an opening for receiving the implement, retaining means which retain the implement within the enclosure and release means for releasing the implement from the retaining means, the release means being provided in the enclosure in a position such that, when the implement is retained in the enclosure, the release means can be reached by an adult-sized hand but not by a smaller child-sized hand.

Preferred and optional features of the invention will be apparent from the subsidiary claims and from the following description.

The invention will now be further described, merely by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a front perspective view of a preferred embodiment of a safety housing according to the invention with a pair of tongs shown adjacent thereto (in the open position);

Figures 2A and 2B show a front perspective and front view of the safety housing of Figure 1 with a pair of tongs shown about to be inserted therein;

Figures 3A and 3B show a front perspective and front view of the safety housing with a pair of tongs partially inserted therein;

Figures 4A, 4B, 4C and 4D show a front perspective view, front view, rear perspective view and side view, respectively, of the safety housing with a pair of tongs fully inserted therein;

Figures 5A and 5B show a front perspective and side view of the safety housing with a locking member depressed ready for the tongs to be withdrawn from the housing;

Figure 6 is a cross-section of part of the safety housing showing the tongs in a partially inserted position (corresponding to that of Figures 3A and 3B);

Figure 7 is a cross-section of the safety housing showing the tongs fully inserted therein (corresponding to Figures 4A-4D); and

Figures 8A, 8B and 8C are cross-sections of the safety housing showing the locking member depressed (as in Figures 5A and 5B) and the tongs compressed together as they are withdrawn from the housing.

Figures 1-8 show a preferred embodiment of the safety housing and illustrate how a pair of tongs can be inserted therein and withdrawn therefrom.

The pair of tongs shown are of conventional design. They comprise first and second arms 1, 2 and heating plates 1A, 2A carried towards the distal ends of the arms 1, 2. The arms 1, 2 are joined together at a hinge 3

which is spring-loaded to urge the arms 1, 2 towards the open position shown in Figure 1.

The tongs also have an on-off switch, a power cord, etc. but these are omitted from the Figures for simplicity.

The safety housing comprises an enclosure 4 with a relatively narrow opening 4A for receiving the distal ends of the tongs. The enclosure has a wider mouth 4B for receiving the distal ends of the tongs in their open position and inclined walls 3C, 4D which lead from the mouth 4B to the narrow opening 4A. Beyond, the narrow opening, the walls 4E, 4F of the enclosure diverge arms from each other towards the base 4G of the housing.

The housing may be a plastic moulding. The plastic needs to be selected such that it is not adversely affected by the heat of the tongs and to provide sufficient insulation such that the temperature of the exterior of the housing does not itself present a hazard. Plastics such as, polyethylene terephthalate (PET) or acrylonitrile butadiene styrene (ABS) may be suitable.

The illustrated embodiment also has a tubular locking member 5, a lower part 5A of which is secured to a back wall 4H of the enclosure (see Figures 4C, 4D) and an upper part 5B which extends above the mouth 4B of the enclosure 4. The upper part has a resilient elbow 5C and an engagement portion 5D which extends substantially horizontally from the elbow 5C over the mouth 4B of the enclosure 4. The distal end of the engagement portion 5D has a projecting portion 5E for engagement by a user's finger to depress the engagement portion 5D by flexing it about the elbow 5C. The function of the locking member will be described further below.

The function of the safety housing will now be described with reference to Figures 2-8.

Figures 2A and 2B show the tongs positioned over the safety housing ready to be inserted therein. The arms 1, 2 of the tongs are in the open position (the spring-loaded hinge 3 urging them to this position). The width W_1 of the tongs in the open position (measure from the outward facing surfaces of the arms 1, 2) is typically around 8-12 cm. The mouth 4B of the enclosure 4 has a width similar to, or slightly greater than, W_1 so the distal ends of the tongs can be located in the upper portion of the housing without compressing the arms 1, 2 together.

As the tongs are pushed into the housing 4, the distal ends of the arms 1, 2 slide along the inclined surfaces 4C, 4D and so are compressed together until the width of the open end of the tongs is reduced to the width W_2 of the narrow opening 4A of the enclosure (see Figure 6). Figures 3A and 3B show the tongs in this partially inserted position. W_2 is typically in the range 5-18 cm.

As the tongs are pushed further into the enclosure 4, the arms are able to open out again as the side walls 4E, 4F of the lower part of the housing diverge away from each other. Figure 7 shows the position of the tongs after they have been fully inserted. The width of the open ends of the tongs in this position may be the fully open width W_1 or may be slightly less than W_1 . Figures 4A, 4B, 4C, 4D and Figure 7 show the tongs in this position. Preferably, the arms 1, 2 of the tongs lie substantially parallel to the walls 4E, 4F of the enclosure and adjacent thereto in this position.

The locking member 5 is arranged so that when the tongs are in the fully inserted position shown in Figure 4, the engagement portion 5D lies substantially horizontal and fits snugly between inner surfaces of the arms 1, 2. Thus, in this position, the arms 1, 2 cannot be compressed together as the location of the engagement portion 5D therebetween prevents this. If an attempt is made to pull the tongs out of the housing, the engagement between the outer surfaces of the arms 1, 2 and the inclined walls 4E, 4F and/or the fact that the tongs are open too wide to pass back through the narrow opening 4A, prevent them from being withdrawn from

the enclosure. The inclined walls 4E, 4F thus act to retain the tongs within the enclosure.

Moreover, if the tongs are moved a small distance out of the enclosure (which may be permitted due to manufacturing tolerances or if the tongs are a relatively loose fit, rather than a snug fit, within the enclosure in the fully inserted position), the engagement portion 5D of the locking member 5 tends to move with the tongs (due to frictional engagement therewith as it is wedged between the arms 1, 2) so it continues to prevent the arms 1, 2 from being compressed together; this movement of the engagement portion 5D being permitted by upward flexing of the portion 5D about the elbow 5C. The tongs are thus locked within the enclosure.

The engagement portion 5D may be resiliently biased away from the mouth of the enclosure, e.g. by resilience of the elbow 5C or a resilient member (not shown) provided at the elbow, so it is urged towards the horizontal position and/or towards a raised position.

One or more interchangeable sleeves, or other components, may be provided for fitting to the engagement portion 5D in order to adjust its lateral dimension to provide said snug fit between the arms of the tongs so the safety housing can be adapted for use with tongs of a variety of different sizes.

In order to remove the tongs from the enclosure, it is necessary to release the locking members. This can be achieved by simply depressing the projecting portion 5E of the locking member slightly so that it does not move upwards with the tongs as they are withdrawn. Figures 5A, 5B and Figure 8A show the depressed position of the engagement portion 5D. Depression of the projecting portion 5E disengages the engagement portion 5D from the inner surfaces of the arms 1, 2 so the arms 1, 2 can be compressed together (as shown in Figure 8A) and thus withdrawn further from the enclosure (as shown in Figure 8B). As the tongs are withdrawn, they can be compressed together further (as shown in Figure

8C) as the engagement portion 5D then lies between the arms 1, 2 at a position nearer to the distal ends thereof.

Once the tongs have been withdrawn to a position corresponding to that shown in Figures 3A, 3B, and the arms 1, 2 compressed together sufficiently for them to pass both through the narrow opening 4A, the tongs can be removed from the safety housing. Figures 8A-8C illustrate the arms being compressed together and withdrawn from the enclosure.

The projecting portion 5E of the locking member is preferably positioned so that it can be depressed by a finger of a hand as the hand grasps the tongs to compress and withdraw them so they can be removed in a single-handed operation. Alternatively, the user may grasp the tongs with one hand and use a finger of their other hand to depress the projecting portion 5E.

The embodiments described above can be varied in many different ways. Whilst it is convenient to provide a locking member in the form of a *resiliently flexible engagement member*, other forms of locking means may be provided.

The locking means may, for example, comprise other forms of member that can be wedged between the arms 1, 2 of the tongs to prevent them being compressed together when located within the enclosure and which has to be removed or released to enable the tongs to be withdrawn.

In another embodiment (not shown), the enclosure may be designed such that it encloses a greater proportion of the tongs and the projecting portion 5E located within the enclosure such that it can only be reached, and hence actuated, by an adult-sized hand. The portion 5E may, for example, be located at least 6cm and preferably at least 8cm from the mouth of the enclosure so that it cannot be reached by a child-sized hand or finger.

In the embodiment described, the tongs are retained in the enclosure by their engagement with the internal walls of the enclosure and they are effectively locked in this position by a locking member located between the arms of the tongs.

In other arrangements, the arms of the tongs may engage features on the internal walls of the enclosure which prevent the arms being compressed together until released from engagement with these features. A snap-fit connection may, for example, be provided between the arms and the enclosure. The engagement with such features may be released by pushing the tongs further into the enclosure and/or actuating a release member and/or by compression or flexing of part of the enclosure.

The retaining and/or locking means preferably provide some degree of child resistance, ie they provide a release mechanism which is concealed and/or which is difficult for a child to operate. Where a lower degree of child resistance is acceptable (eg within a hair salon), the tongs may simply be retained in the enclosure by the engagement of the arms within internal walls of the enclosure such that the tongs can only be removed from the enclosure if they are first compressed together. In such an arrangement, a locking member may not be required.

The safety housing preferably provides a stand in which the tongs can be stored when not in use. The enclosure should thus be designed to be stood stably on a horizontal surface with a pair of tongs located therein. The safety housing may also provide other functions: it may provide packaging for the tongs when they are being sold and/or may provide a housing for the tongs when being transported, eg when taken on holiday.

The safety housing described above provides a convenient and safe enclosure in which a user can place the tongs whilst in use, or after use, rather than simply putting them down on a surface where there is a danger of burning or injury. They also provide a degree of child resistance, to help prevent the tongs being handled or used by a child.

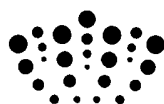
It has also been found that the energy consumed by the heating elements to maintain a given temperature is reduced while the tongs are located within an enclosure due to the reduction of heat loss therefrom.

CLAIMS

1. A safety housing for receiving a pair of tongs having two arms that are resiliently biased apart towards an open position and which carry one or more heating elements, the housing comprising an enclosure with an opening for receiving the distal ends of the arms of the tongs, the opening being of a width narrower than the distal ends in the open position so that the arms have to be compressed together to some extent in order to insert them through the opening, the enclosure being shaped such that once the arms have been inserted through the opening, the arms are able to move apart again towards the open position, the enclosure comprising retaining means which at least inhibit closure of the tongs and/or movement of the tongs out of the opening so that, until the tongs have been released from said retaining means, their removal from the housing is inhibited or prevented.
2. A safety housing as claimed in claim 1 in which the retaining means comprise internal walls of the enclosure or features provided thereon which engage the arms and inhibit movement of the arms relative thereto towards the opening.
3. A safety housing as claimed in claim 1 or 2 in which the retaining means comprises a locking member located between the arms (when the tongs are positioned within the housing) which inhibits or prevents closure of the arms.
4. A safety housing as claimed in claim 3 in which the locking member is arranged to engage the arms at a position spaced from the distal ends and is able to move to some extent towards and away from said opening, the engagement with the arms being such that the locking member tends to move with the tongs, and hence continues to prevent them being compressed together, if an attempt is made to withdraw the tongs from the housing.

5. A safety housing as claimed in claim 4 in which the locking member has a projecting portion for engagement by a user's finger so that the locking member can be pressed towards the open end of the tongs as the tongs are withdrawn whereby the arms can be compressed together so the tongs can be withdrawn through the opening.
6. A safety housing as claimed in any preceding claim comprising a mouth wide enough to receive the arms in their open position and inclined surfaces leading from the mouth to said opening which urge the arms towards the closed position as they are moved from the mouth towards said opening.
7. A safety housing as claimed in any preceding claim in which the internal walls of the enclosure are inclined so that the arms lie substantially parallel and adjacent thereto when located within the housing.
8. A safety housing as claimed in claim 3 or any claim dependent thereon in which a release member for releasing the locking member is provided in the enclosure in a position such that, in use, it can be reached by an adult-sized hand but not by a smaller child-sized hand.
9. A safety housing as claimed in any preceding claim which provides a stand in which a pair of tongs can be stably supported.
10. A safety housing substantially as hereinbefore described with reference to and/or as shown in one of more of the accompanying drawings.
11. A safety housing as claimed in any preceding claim in combination with a pair of tongs for installing therein or installed therein.
12. A safety housing for receiving a pair of tongs having heating elements thereon, or some other potentially hazardous implement, the

housing comprising an enclosure with an opening for receiving the implement, retaining means which retain the implement within the enclosure and release means for releasing the implement from the retaining means, the release means being provided in the enclosure in a position such that, when the implement is retained in the enclosure, the release means can be reached by an adult-sized hand but not by a smaller child-sized hand.



Application No: GB0903410.9

Examiner: Mr Mike Leaning

Claims searched: 1-12

Date of search: 15 May 2009

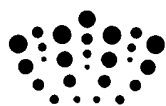
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1,2,7,9&1 1	US793229 A (ROLFE) Please see the figures noting the styling apparatus receiving enclosures 6 provided with device-retaining clips 7.
X	1,2	WO2006/051291 A1 (MACKAY et al.) Please see the figure and page 8 lines 1-12. A safety housing for hair styling tongs and like devices having two arms comprising an enclosure that in use receives the distal ends of the arms.
X	1,2	US5917694 A (DENNY) Please see the figures. An appliance organiser having a number of storage receptacles 16 suitable for use with styling devices with two arms.
X	1,2	US6209732 B1 (DENNIS et al.) Please see the figures. A holder for a styling device with two arms.
X	1,2	GB2443792 A (PETTIGREW) Please see the figures. A holder for hair styling tools that is provided as a wall-mounted housing.
A	-	US5141189 A (ANDREW) Please see the figures. A housing for hair styling tongs and like devices having two arms comprising an enclosure that in use receives the distal ends of the arms, the enclosure having a clip 16 to and hold and retain the device within the enclosure.
A	-	GB2421906 A (MORPHY RICHARDS LTD.) Please see the figures noting the base plate having a housing for receiving a hair iron
A	-	GB985985 A (DESSANGE et al.) Please see figure 1 noting the enclosure and two-armed styling tool.
A	-	US5090649 A (TIPP) Please see the figures. A safety housing for an electrically heated styling device.

Categories:

X Document indicating lack of novelty or inventive A Document indicating technological background and/or state



step		of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

A4V

Worldwide search of patent documents classified in the following areas of the IPC

A45D

The following online and other databases have been used in the preparation of this search report

Online: EPO - Internal, WPI.

International Classification:

Subclass	Subgroup	Valid From
A45D	0044/02	01/01/2006
A45D	0044/04	01/01/2006