(12) UK Patent Application (19) GB (11) 2 245 236 (13) A

(43) Date of A publication 02.01.1992

(21) Application No 9013862.9

(22) Date of filing 21.06.1990

(51) INT CL[5]
B60K 1/04

(52) UK CL (Edition K)
B7H HDX H727 H741 H755

(56) Documents cited
None

(58) Field of search
UK CL (Edition K) B7H HC HDX
INT CL[5] B60K 1/04
Online databases: WPI

(71) Applicant
Aubrey George Carroll
Millcott House, Passfield Common, Liphook, Hampshire, GU30 7RP, United Kingdom

(72) Inventor
Aubrey George Carroll

(74) Agent and/or Address for Service
Lloyd Wise Tregear & Co
Norman House, 105-109 Strand, London, WC2R 0AE, United Kingdom

(54) Dual battery mounting adaptor for electric golf trolleys

(57) Existing electric golf trolleys are generally designed to be operated by a single electric storage battery. The invention provides an adaptor device for attachment to an existing trolley, and adapted to carry two or more batteries. The device may comprise a back panel (16) which nests against the original battery tray and has a ledge (18) to support the batteries.

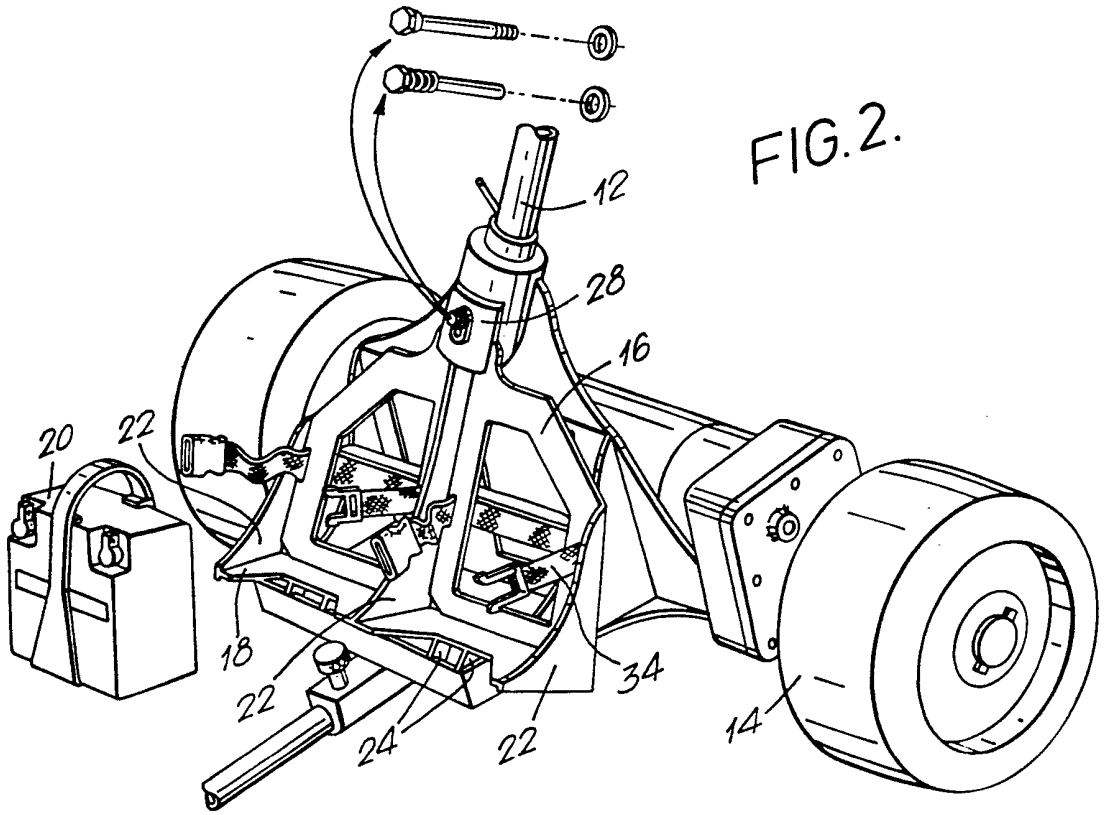


FIG.2.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 245 236 A

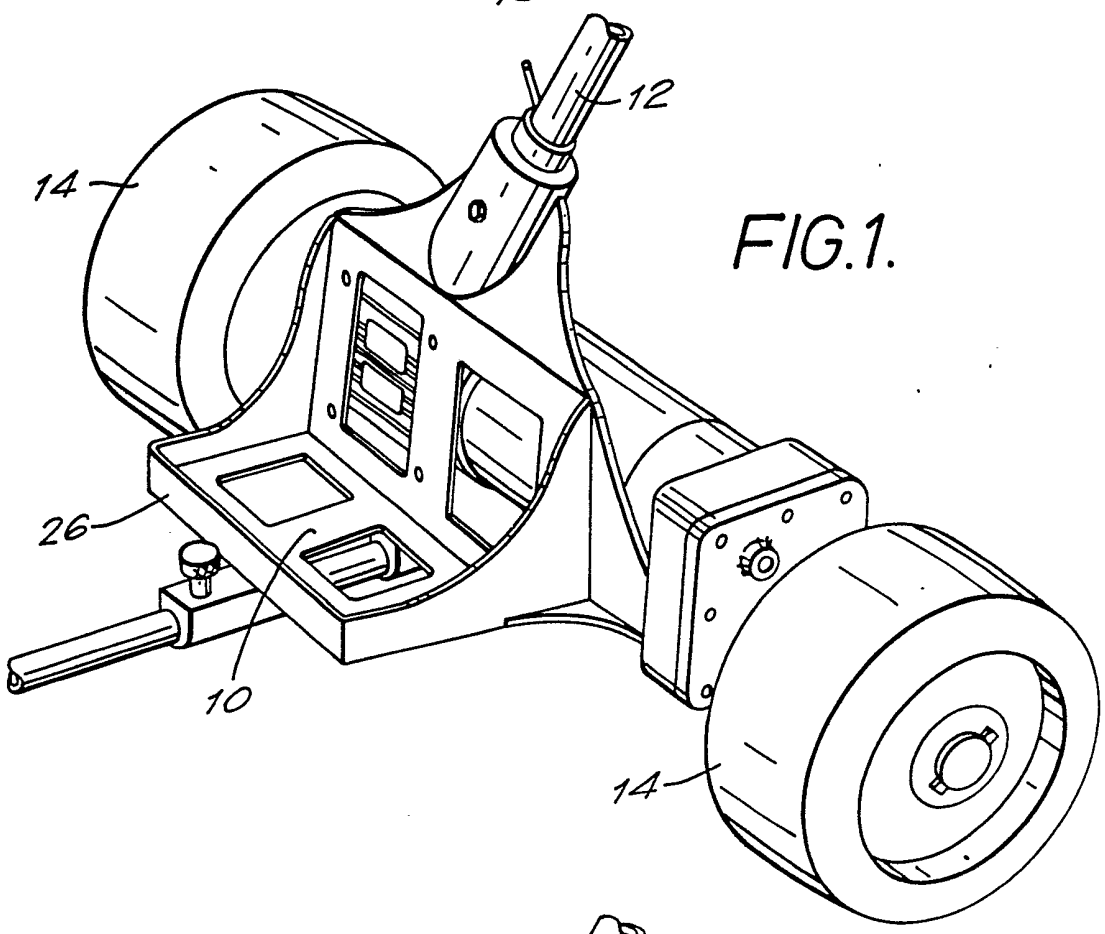


FIG.1.

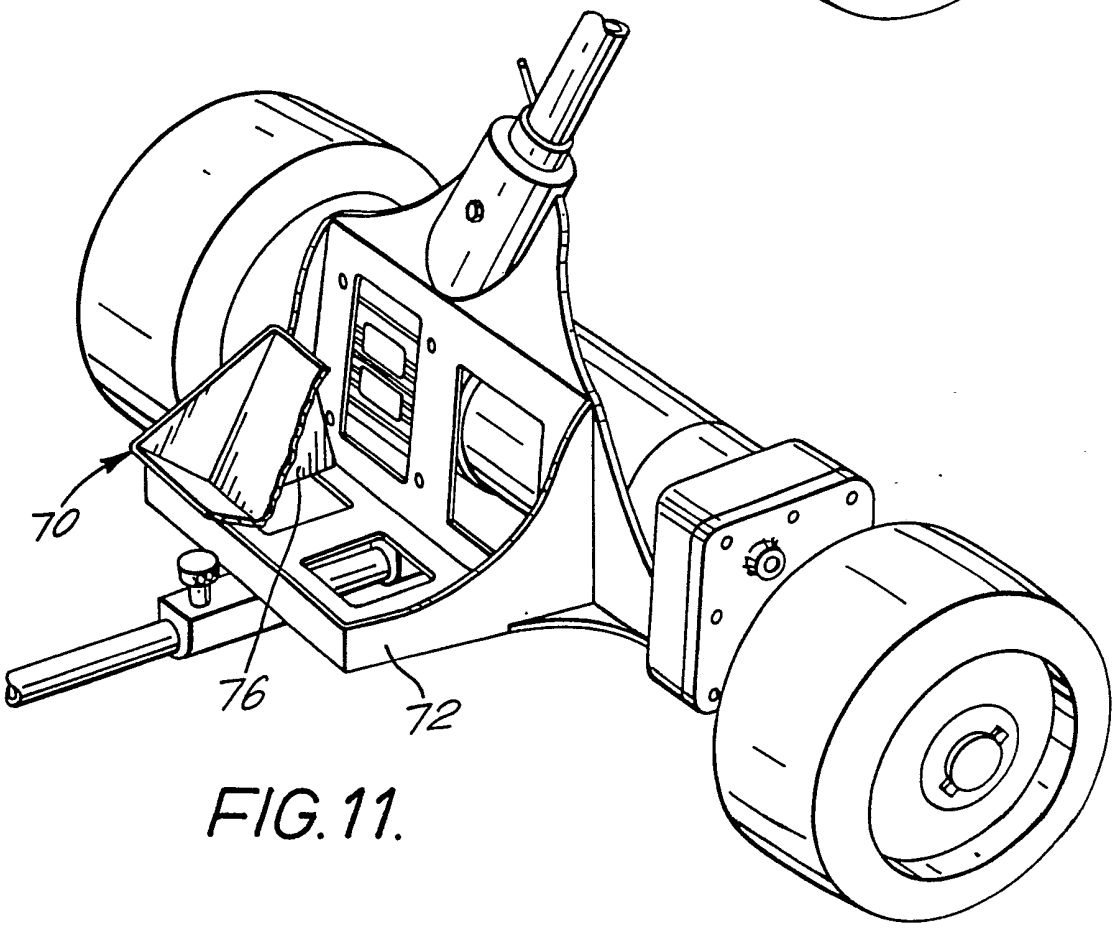


FIG.11.

FIG.2.

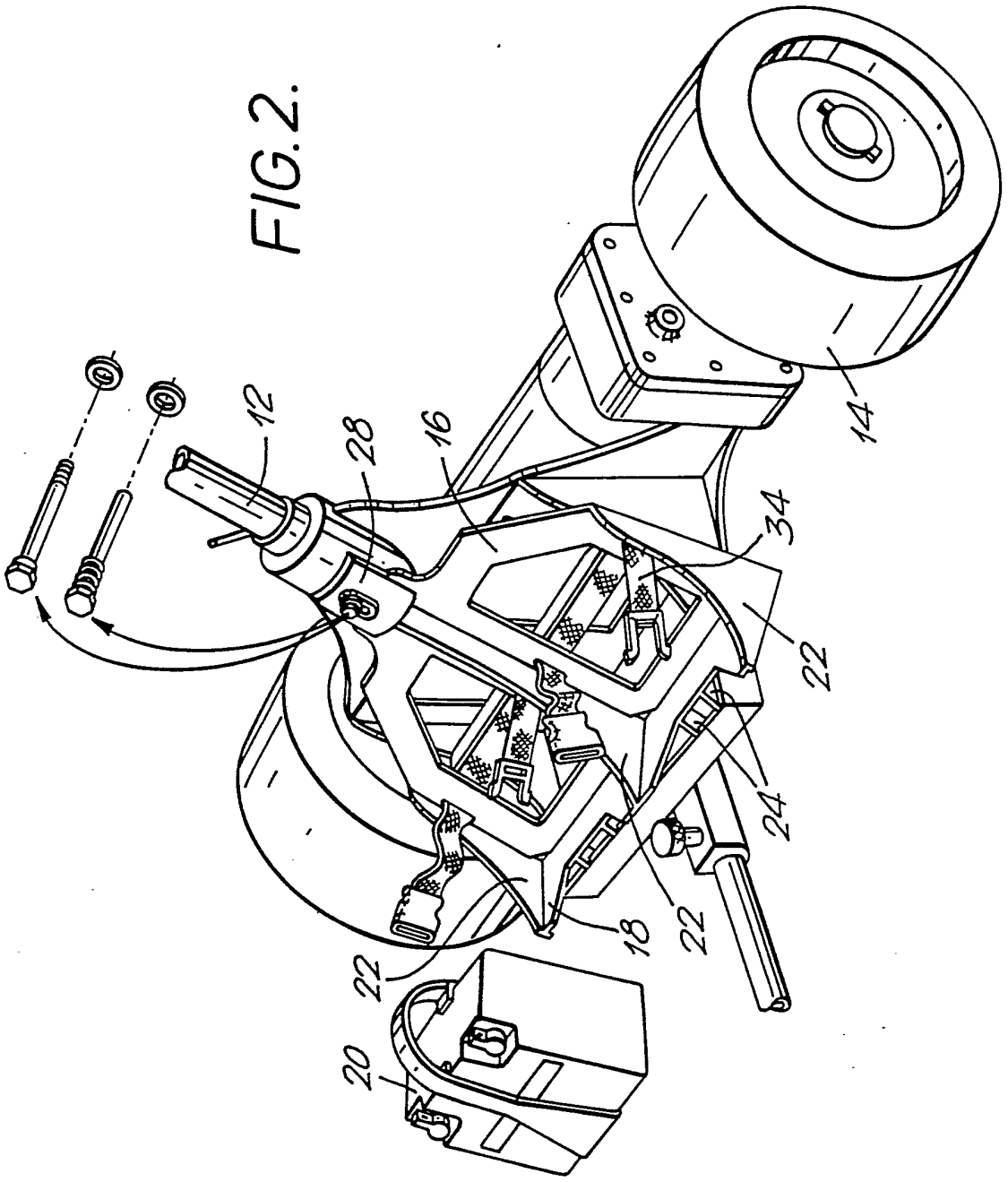


FIG. 3.

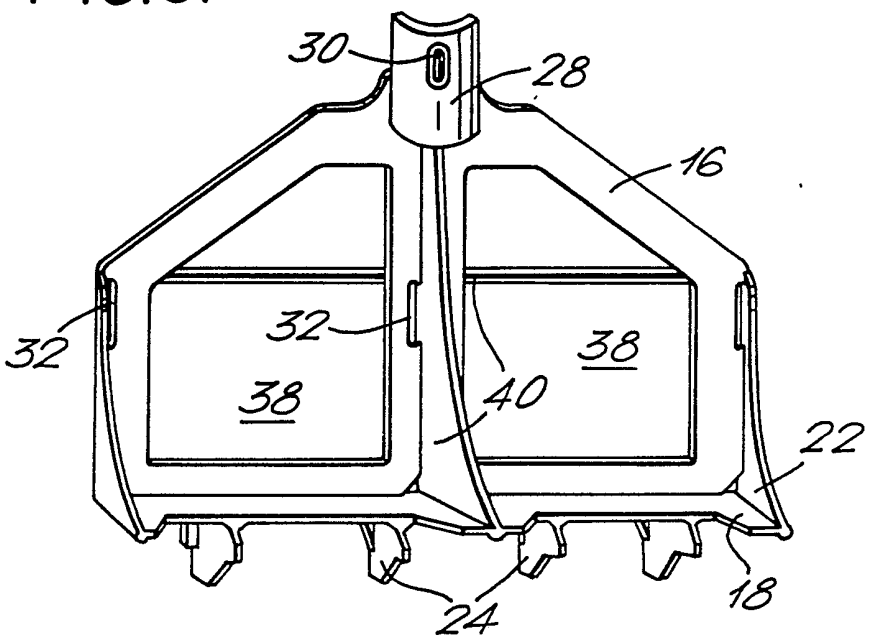
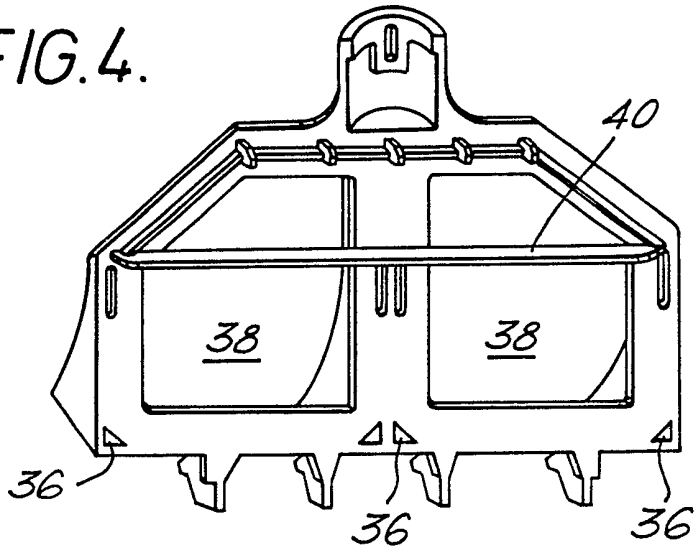


FIG. 4.



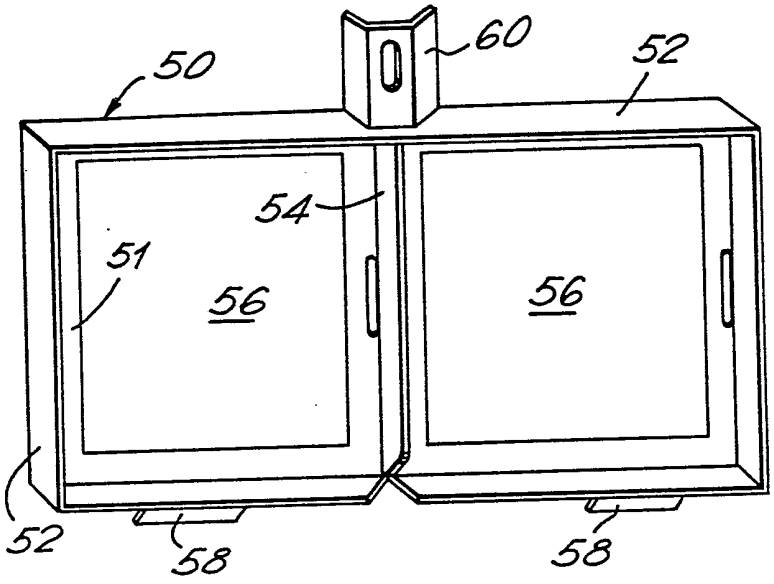


FIG.5.

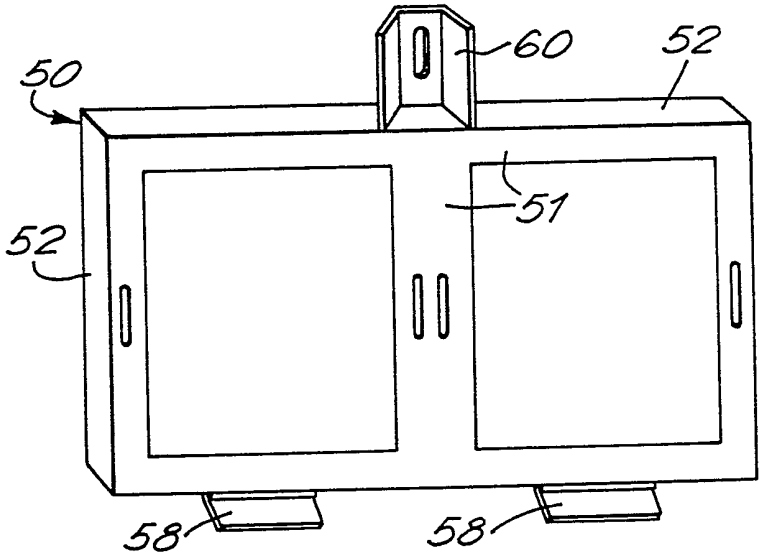


FIG.6.

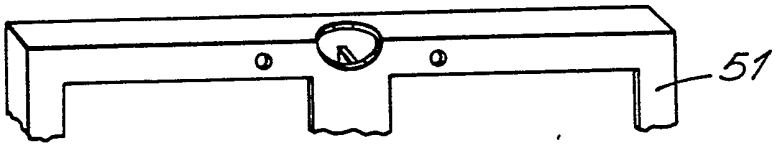


FIG.7.

FIG.8.

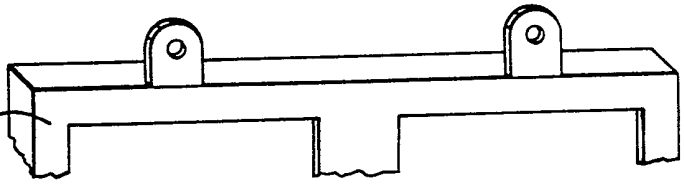
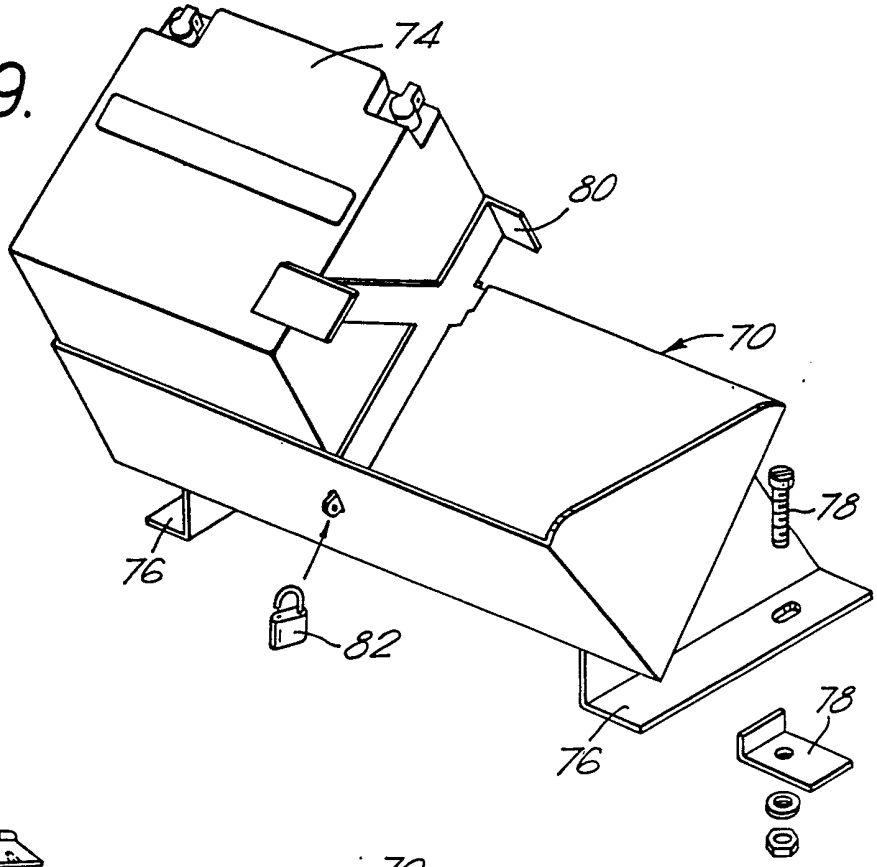


FIG.9.



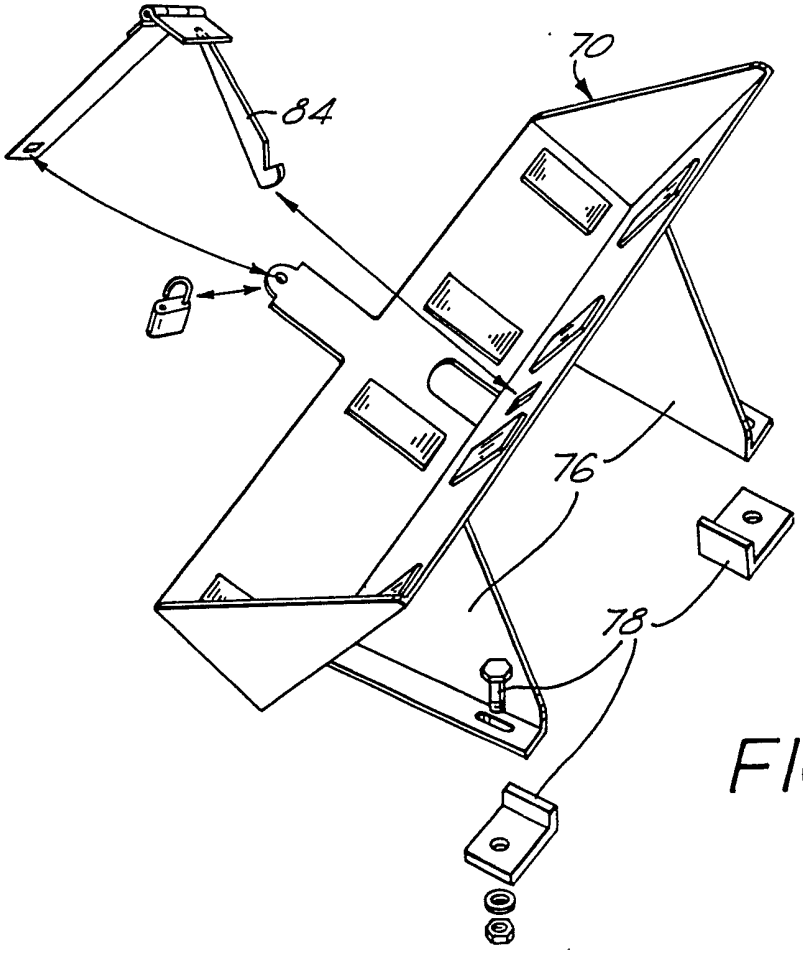


FIG.10.

IMPROVEMENTS IN AND RELATING TO ELECTRIC GOLF TROLLEYS

Generally, electric golf trolleys or caddies are designed to be operated by a single electric storage battery, usually of 12 volt 24 amp. hour, totally sealed, rechargeable type. Such batteries when new have the capacity to power a trolley around an 18 hole golf course with a margin to spare but with continued use the battery gradually deteriorates to a state when it will not recharge sufficiently to be able to complete a full round of 18 holes. When this happens the user is considerably inconvenienced. Moreover, the only option for continued use of the trolley is to purchase a new battery and discard the old one, even though it still has a substantial amount of residual life.

The object of this invention is to provide an adaptor device whereby an electric golf trolley which has been designed to carry only one electric battery may be adapted simply and cheaply to carry two or more batteries.

By providing for the trolley to carry, say, two similar batteries, the old battery may be continued in use, supplemented by a new battery, until all its potential capacity has been utilised. This leads to the possibility of reducing battery costs by up to 50 percent.

The adaptor device of this invention, therefore, is a multi-battery carrier adapted to be attached to electric golf trolleys of the kind which incorporate a single operating battery.

The adaptor device of this invention should, of course, be constructed to be compatible with the particular golf trolley which is to be adapted by the device to carry two or more operating batteries.

For instance, one well known electric golf trolley incorporates a recessed platform projecting forward of the trolley chassis for holding a single

operating battery in an upright position. A preferred adaptor device in accordance with this invention for attachment to such a golf trolley comprises a back panel having attachment means at its upper end for releasably attaching the panel to the trolley chassis and formed at its lower end with a forwardly projecting ledge of a width sufficient to support two of the operating batteries side-by-side. Projecting downwardly below the ledge are support members for locating and supporting the device on the recessed tray, so that when the device is fitted, by inserting the support members within the recessed tray and attaching the back panel to the chassis eg with a simple screw or nut-and-bolt arrangement, the device will be inclined rearwardly and upwardly across the recessed tray and provide firm support for a pair of operating batteries.

The preferred adaptor device of the present invention will now be described in more detail with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a part of an electrically driven golf trolley having a recessed tray for holding a single operating battery,

Fig. 2 is a perspective view of the golf trolley fitted with the adaptor device according to the preferred embodiment of the present invention,

Fig. 3 is a front view of the device, and

Fig. 4 is a rear view of the device.

Fig. 1 shows part of a successful battery-powered golf trolley sold under the trade mark "Powa Kaddy". This trolley, as manufactured and sold, is equipped with a recessed tray 10 for supporting in an upright position a single operating battery (not shown). The tray 10 extends forward of the chassis 12 of the trolley which, as shown, has the usual drive wheels 14 and a forward guide wheel (not shown).

The device in accordance with this invention for adapting the "Powa Kaddy" trolley to carry two

operating batteries is shown in Figs. 2-4. As illustrated, the device comprises a back panel 16 which when fitted will lie angularly backwards across the single battery tray 10 of the trolley. The bottom edge of the panel 16 is provided with a 90°, forwardly extending ledge 18 on which the two batteries 20 (only one of which is shown) are supported when lying backwardly against panel 16.

Buttress supports 22 are provided between the panel 16 and the ledge 18 to prevent undue sideways movement of the batteries. The underside of ledge 18 is provided with a plurality (here shown as four) of downwardly projecting support members 24 which fit inside the front wall 26 of the single battery carrier tray to support the device and prevent forward movement. The upper end of the panel 16 is provided with an extension 28 having a screw hole 30 to allow securing of the panel to the trolley chassis 12, utilising an existing screw or, by other means. Slots 32 may be provided in panel 16 for the location of battery retaining straps 34 which may be fastened by quick release latches, buckles or "Velcro" fastenings. Holes 36 may be provided at the intersection of panel 16 and ledge 18 for drainage of rainwater (see Fig. 4).

The adaptor device shown in Figs. 2-4 is preferably produced as a plastics moulding as shown, or alternatively it may be a sheet metal fabrication or a light alloy casting. The back panel 16 may be a continuous solid panel or, as shown, lightened by cutouts 38 having strengthening ribs 40.

Further embodiments of the adaptor device in accordance with this invention are shown in Figs. 5-11 of the accompanying drawings, in which:

Figs. 5 and 6 are, respectively, front and rear views of a modified form of the device illustrated in Figs. 2-4;

Figs. 7 and 8 show details of two alternative methods of fixing the device of Figs. 5 and 6 to the chassis of a golf trolley;

Figs. 9 and 10 are perspective views of a third embodiment of adaptor device of this invention; and

Fig. 11 is a view illustrating the attachment of the device of Figs. 9 and 10 to a golf trolley.

Referring, then, first to Figs. 5 and 6, the adaptor device 50 there shown is a flat, rectangular frame 51 with upstanding sides 52 and a central upstanding partition 54 which together form two side-by-side battery-carrying trays 56. The device of Figs. 5 and 6 is adapted to be fitted onto a "Powa Kaddy" golf trolley in the same general way as the device of Figs. 2-4, for which purpose one side of the frame 51 is provided with two downwardly and forwardly projecting support members 58, similar to support members 24 of Figs. 2-4, to fit inside the forward edge of the trolley's battery tray, whilst an extension 60, similar to extension 28 of Figs. 2-4, extends from the opposite side of the frame 51 for attaching the frame to the trolley chassis by means of a screw of nut-and-bolt fixing (not shown).

The upper side of the frame 51 may be attached to the trolley chassis in other ways, two of which are illustrated in Figs. 7 and 8, respectively.

A third embodiment of adaptor device in accordance with this invention is shown in Figs. 9-11.

The device 70 of this embodiment is trough-shaped and, like the adaptor devices of the two previously described embodiments, is designed to fit onto the battery tray 72 of the "Powa Kaddy" golf trolley, to adapt the trolley to carry two operating batteries 74, side-by-side (see Fig. 9). The device is fixed to the trolley tray 72 by means of a pair of support brackets 76 which stand in the tray 72 of the trolley and are secured to the trolley by a pair of bolt-and-clamp fixing

arrangements 78. Alternatively, the fixing could be made by means of screws or bolts drilled in the base of the tray 72.

Fig. 9 also shows a battery retainer 80 which can be locked in place, to prevent theft of the batteries 74, by means of a padlock 82 or the like.

An alternative form of lockable battery retainer 84 is shown in Fig. 10.

CLAIMS:

1. An adaptor device for attachment to an electric golf trolley of the type incorporating a single operating battery, the adaptor device being adapted to carry two or more operating batteries.

2. An adaptor device according to Claim 1, comprising a back panel having attachment means at its upper end for releasably attaching the panel to the trolley chassis.

3. An adaptor according to Claim 2, formed at its lower end with a forwardly projecting ledge of a width sufficient to support two operating batteries side by side.

4. An adaptor device according to Claim 3, further provided, beneath the ledge, with support means for locating and supporting the device on a tray provided on the trolley, whereby the adaptor device is inclined rearwardly and upwardly across the tray, when attached, to provide firm support for a pair of batteries.

5. An adaptor device according to any preceding claim, further comprising support means for preventing movement of the operating batteries when mounted.

6. An adaptor device according to any preceding claim, further comprising releasable or lockable means for preventing removal of the operating batteries.

7. An adaptor device substantially as hereinbefore described, with reference to and as shown in Figs. 1 to 4 of the drawings.

8. An adaptor device substantially as hereinbefore described, with reference to and as shown in Figs. 5 and 6 of the drawings.

9. An adaptor device substantially as hereinbefore described, with reference to and as shown in Figs. 9 to 11 of the drawings.

10. An electric golf trolley fitted with an adaptor device according to any preceding claim.

Published 1991 at The Patent Office, Concept House, Cardiff Road, Newport, Gwent NP9 1RH. Further copies may be obtained from Sales Branch, Unit 6, Nine Mile Point, Cwmfelinfach, Cross Keys, Newport, NP1 7HZ. Printed by Multiplex techniques ltd, St Mary Cray, Kent.