

(12) UK Patent Application (19) GB (11) 2 156 773 A

(43) Application published 16 Oct 1985

(21) Application No 8509038

(22) Date of filing 9 Apr 1985

(30) Priority data

(31) 8408793 (32) 5 Apr 1984 (33) GB

(51) INT CL<sup>4</sup>  
B65D 8/08 25/24

(52) Domestic classification  
B8D 1B2 7M 7PY CW23  
U1S 1111 B8D

(56) Documents cited  
None

(58) Field of search  
B8D

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(54) Beer barrels

(57) A barrel has a container portion 1,20 to the closed ends 3,20A of which are attached spaced supports 4 or end legs 21 fabricated from sheet material. Each support 4 or end leg 21 is attached by welding to the corresponding end of the container portion 1,20 adjacent the circumference of the barrel. Readily detachable end rings 8,24 are fitted over and attached to the respective supports 4 or end legs 21 at each end of the barrel. Attachment of the end rings 24 to the end legs 21 is by means of rivets 27,28, such that in-house repair of the barrel is easier. The supports 4 may be triangular shaped off cuts produced during formation of the end pressings of the container (Fig. 2), and curved to conform to the barrel circumference, being welded to the barrel at spaced welds 5 giving a clear drainage gap 6 between. The end rings may be formed integrally with end reinforcement plates 25. The barrel and its supports or end legs are of metal but the end rings may be of many different materials including plastics.

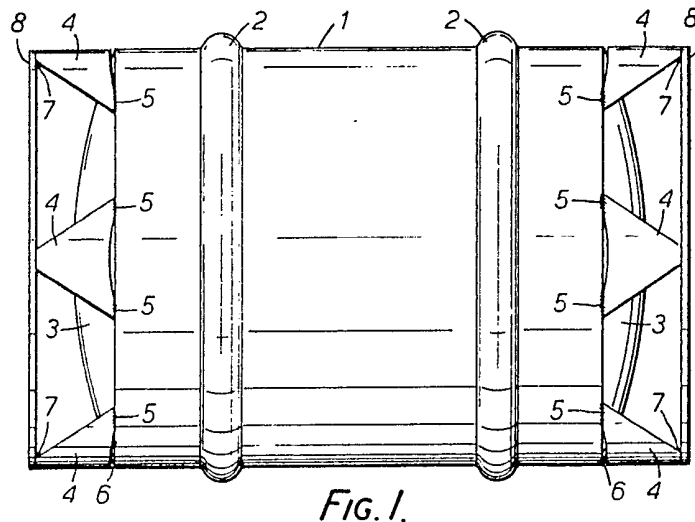


FIG. 1.

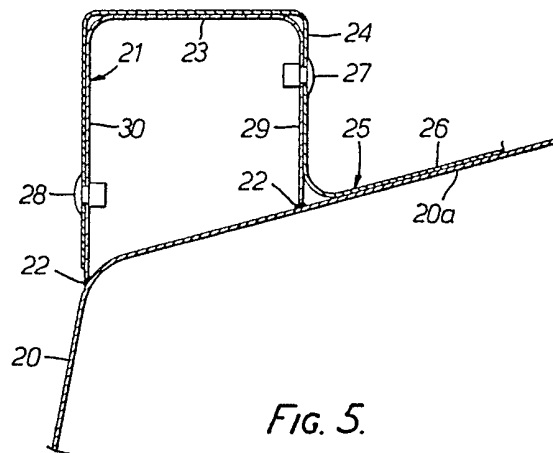


FIG. 5.

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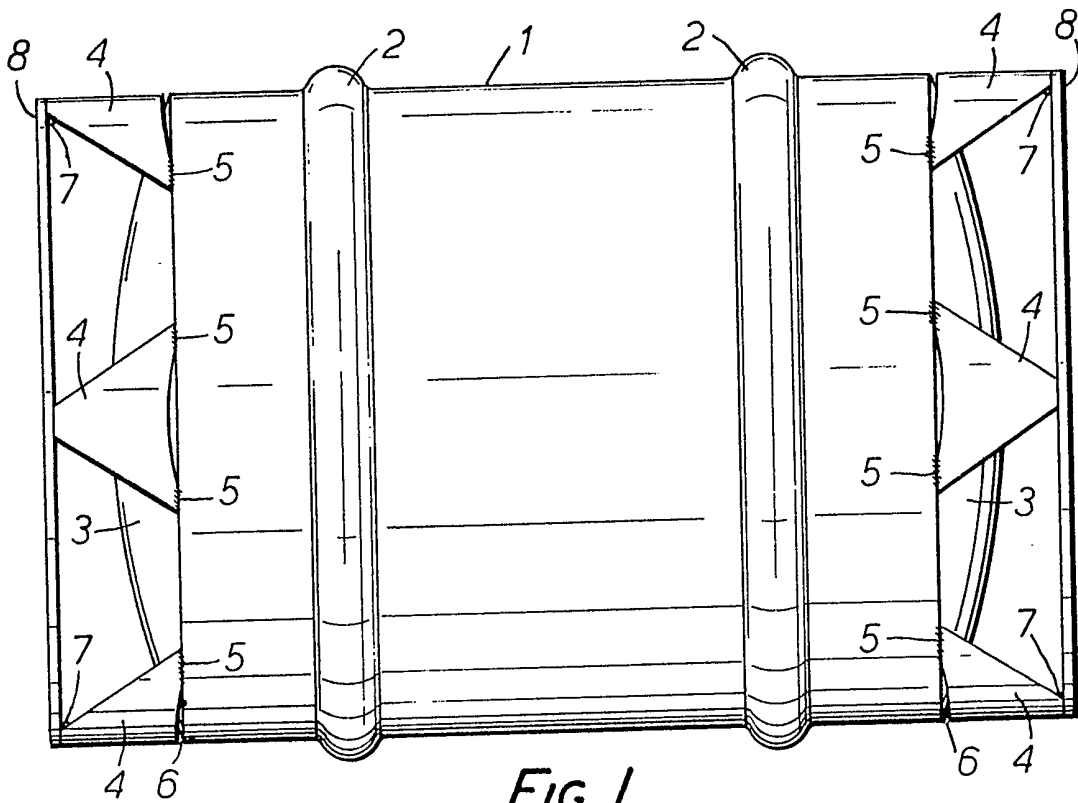


FIG. 1.

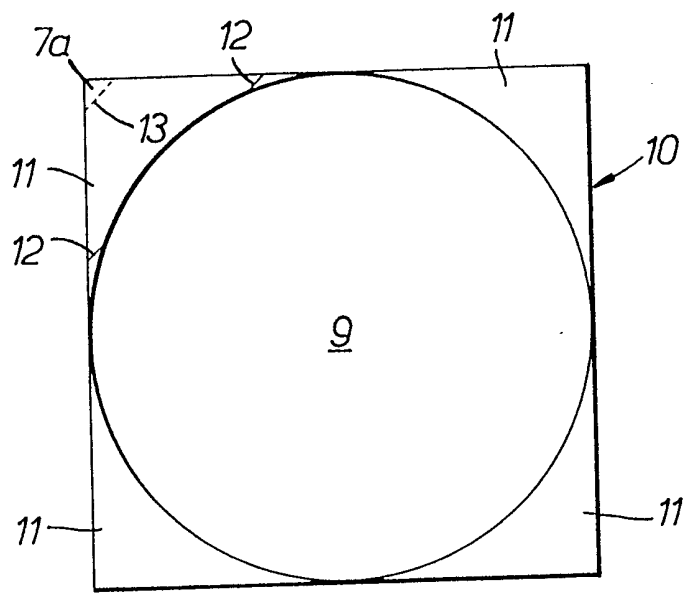


FIG. 2.

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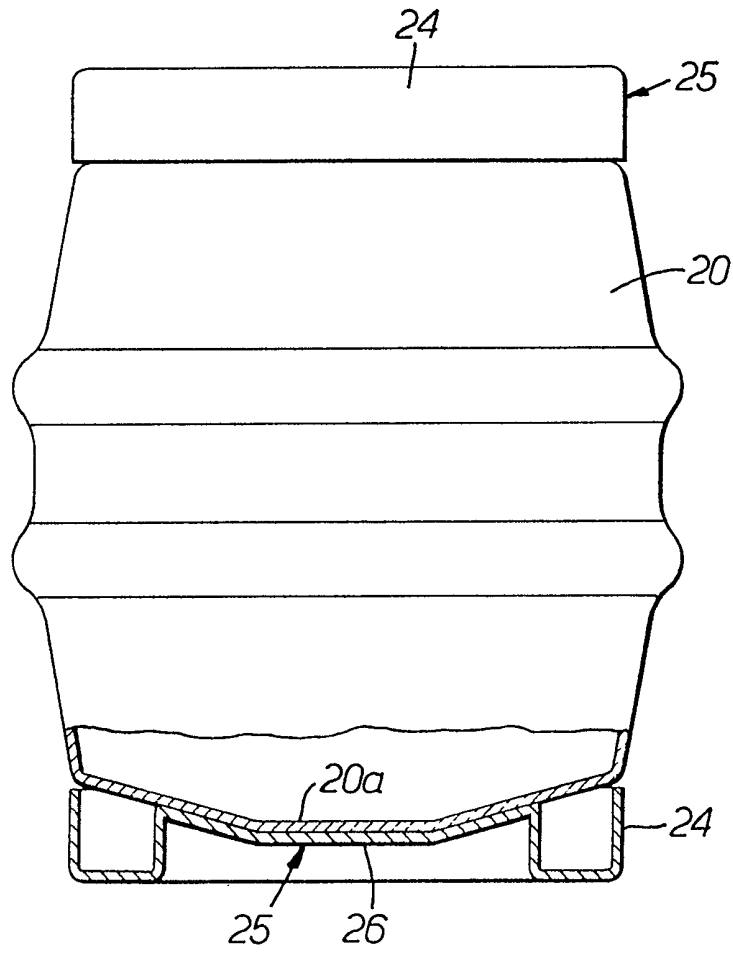


FIG. 3.

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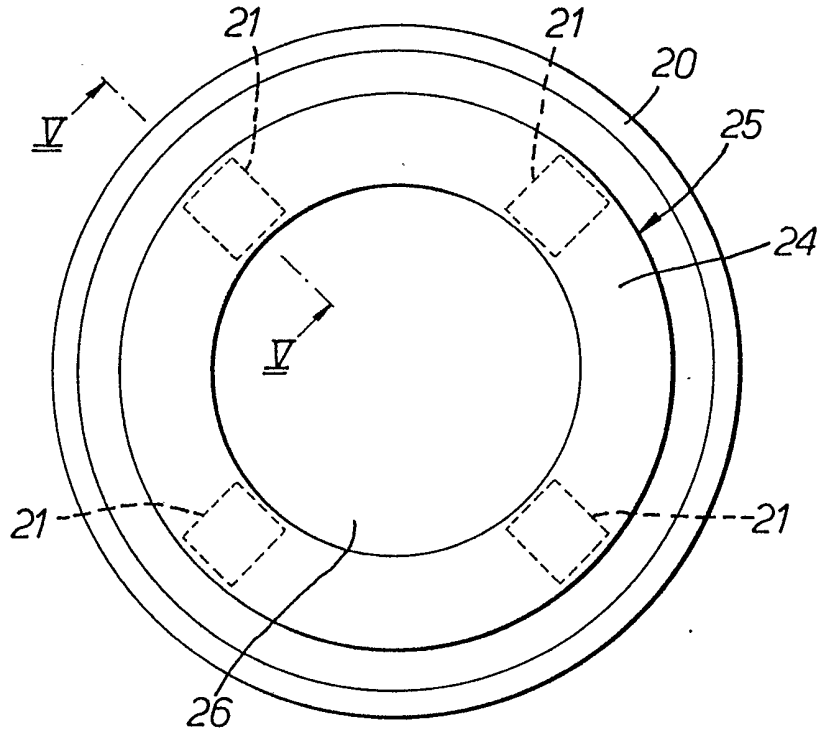


FIG. 4.

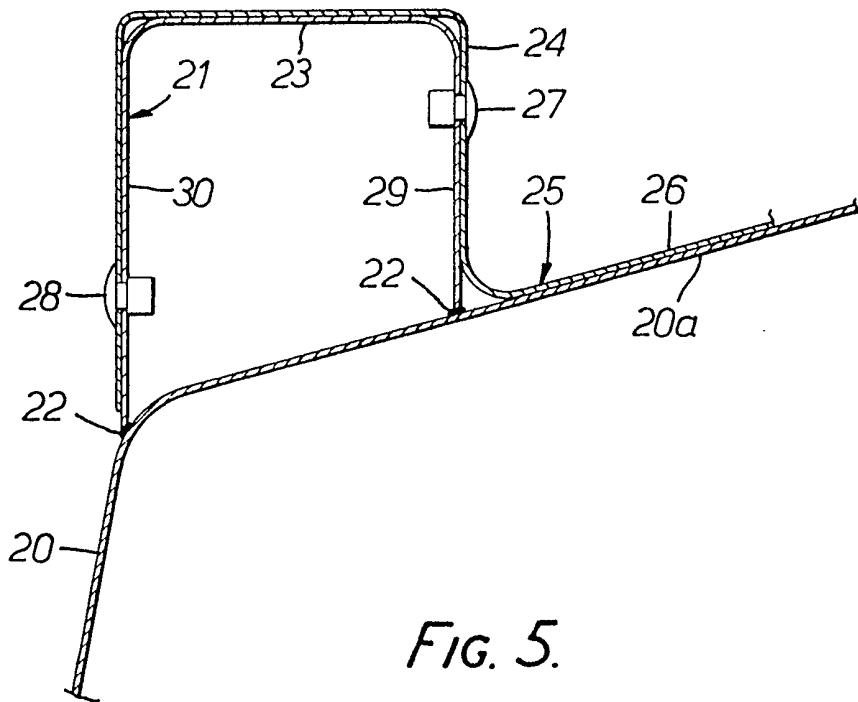


FIG. 5.

## SPECIFICATION

**Beer barrels**

5 The invention relates to fabricated metal beer barrels, which term includes both kegs and casks as well as dual-purpose containers. At present such barrels comprise a central container portion to the ends of which end or so-called 'chime' rings are directly attached by peripheral welds. The container portion normally comprises two end pressings welded to a centre section.

10 The chime rings protect the end of the container portion, enable the barrels to stand on end and to be stacked, and they facilitate handling. However, the manufacture of the chime rings, which are usually formed with hand holds and apertured to allow drainage, and the attachment thereof to the container portion represents a considerable portion of the total manufacturing cost of the barrel.

15 Furthermore, the end rings are particularly susceptible to damage as a result of the rough handling to which barrels are invariably subjected and repair of a damaged barrel frequently necessitates removal of the chime rings for reshaping followed by re-attachment, or for replacement, which is a costly repair procedure. It can only be effected by a specialised repairer having the necessary skill and equipment, and a brewer is faced not only with the repair charges but also with the substantial costs of withdrawing the damaged barrel from service and of transport to and from the repairer.

20 The stainless steel or aluminium sheet material from which the end pressings of the container portion are formed starts off as strip stock, from which the circular blanks from which the end pressings are formed have to be sheared. Thus each end pressing results in material wastage which is equivalent to four corners of a square.

25 The main object of the invention is to provide a barrel which is cheaper to manufacture and to repair as compared with the conventional chime ring arrangement, and which in particular can frequently be repaired in-house by a brewer. A further object is to provide such a barrel which can be constructed to avoid the foregoing wastage of material.

30 According to one aspect of the invention a barrel has a container portion to the ends of which are attached supports or spaced end legs formed from sheet material, each support or end leg being attached by welding to the corresponding end of the container portion adjacent the circumference of the barrel, readily detachable end rings being attached to the respective supports or end legs at each end of the container portion.

35 The end rings are conveniently attached to the respective supports or end legs by means

of rivets, which allows a wide choice of materials for the end rings including plastics. The rivets are easily removed during in-house repair by a brewer when an end ring becomes damaged. The end rings may be of conventional chime ring shape fitting as skirts around the supports or end legs, but they may be of any suitable shape including, for example, plain flat annular rings attached to the free ends or outer sides of a plurality of end legs at each end of the container portion.

40 In preferred embodiments the invention utilises a plurality of spaced end legs at each end of the container portion, and thus it will be more particularly described hereinafter with reference to such embodiments.

45 Each end leg may be formed from a generally triangular blank of the sheet material, curved to conform to the circumferential diameter of the barrel and welded to the container portion by spaced welds at two apices of the triangle with the corresponding end ring attached at the other apex. A section of the leg at said other apex may be bent inwardly to provide a support surface to which the end ring is attached. A central portion of the side of the triangle which is welded to the container portion may be concave to provide a wide clear drainage gap between the welds, and such a leg is conveniently manufactured from one of the 'corners' normally wasted in the formation of an end pressing of the container portion.

50 Thus, according to another aspect of the invention, a barrel has at each end spaced end legs each of which is formed from a 'corner' off-cut produced when a circular blank to be used in formation of a container end pressing is sheared from a square of sheet material, the inner side of the off-cut being welded to the barrel adjacent the ends of that side leaving a drainage gap between the welds.

55 Preferably four end legs are attached at each end of the barrel, so that the off-cuts from each end pressing provide the four legs for the corresponding end of the barrel.

60 Alternatively, the end legs may be of tubular form fabricated from said sheet material in which case they are desirably of generally rectangular cross-section. By appropriate fabrication such tubular end legs can if desired also be made from said off-cuts produced during formation of the end pressings.

65 The invention will now be further described with reference to the accompanying drawings which illustrate, somewhat diagrammatically and by way of example, two preferred embodiments of the invention. In the drawings:

70 Fig. 1 is a side view of a barrel in accordance with the invention;

75 Fig. 2 illustrates how generally triangular blanks from which end legs are formed can be obtained from the off-cuts produced during formation of an end pressing of a container

portion of the barrel.

Fig. 3 is a partly-sectioned side view of another barrel in accordance with the invention;

5 Fig. 4 is an end view thereof; and

Fig. 5 is a scrap sectional view on the line V-V in Fig. 3 to a larger scale.

The stainless steel barrel construction shown in Figs. 1 and 2 has a container

10 portion 1 of conventional cylindrical shape with integral rolling rings 2 and domed end walls 3. Four identical end legs 4 are attached by short spaced welds 5 to each end of the container portion 1, a long drainage gap such as 6 between an end leg 4 and the container

15 portion 1 being left between each pair of welds 5. Each leg 4 is of basically triangular shape, curved to conform to the circumferential diameter of the container portion 1.

20 The free apex of each leg 4 is bent inwardly as at 7 to provide a support surface to which an end ring 8 is fixed by rivets (not shown) so as to be readily detachable. In this embodiment the end rings 8 are of plain annular

25 form and they may be of any suitable material, for example mild steel rings attached to the stainless steel legs 4 or of plastics material. Alternatively, each end ring might be in the form of a skirt surrounding the respective

30 end legs 4 and such a skirt may be of normal chime ring form, again of any desired material. Whatever the form or material of the end rings they are readily detachable for repair, particularly in-house repair by a brewer,

35 as are the legs 4 themselves because the short external welds 5 are easily cut through for this purpose.

Fig. 2 shows how the generally triangular blank from which a leg 4 is formed can be

40 obtained from an off-cut produced during formation of an end pressing of the container portion 1. A circular blank 9 from which the end pressing is formed is sheared from a square sheet 10 of stainless steel obtained

45 from strip stock. Shearing of the blank 9 produces four identical corner off-cuts 11 each of which can be utilised to provide one of the end legs 4. As illustrated with respect to the top left-hand corner off-cut 11, the

50 latter merely requires its inner corners to be sheared off on the lines 12 to provide the blank from which a leg 4 can be formed.

Such a blank is a right-angle isosceles triangle with the subsequently bent-in apical portion

55 7a being at the right-angled apex. This portion 7a is bent in along the broken line 13. The opposite side of the triangle has short aligned end portions at the cuts 12 which seat on the end of the container portion 1 for

60 attachment by the welds 5, and the intermediate concave portion of this side provides the corresponding drainage gap 6.

The barrel of Figs. 3 to 5 has a container

65 portion 20 of similar construction to that of the earlier embodiment, although of a differ-

ent basic shape. However, in this case the four equi-angularly spaced end 21 legs at each end of the container portion 20 are of fabricated tubular form with a rectangular

70 cross-section. These legs 21 are welded to the end of the container portion 20 along all four sides as at 22, and they are closed at their outer ends at 23. This provides strong and rigid support for the closely fitting end ring

75 24 which is formed integrally with an end reinforcement plate 25. This plate 25 is an annular pressing comprising the peripheral end ring 24 portion, of rectangular radial section, and a central portion 26 which conforms closely to the end wall 20a of the container portion 20.

Inner and outer rivets 27 and 28 secure the end ring 24, and thus the complete end plate 25, to the inner walls 29 and the outer walls

85 30 of the tubular end legs 21. Two such rivets are provided at each end leg 21, and they are again easily removed to detach the end plate 25 for re-striking to re-shape the end ring 21, or for replacement if very badly

90 damaged or to facilitate repair. Such repair can easily be effected in-house by a brewer, as with the first embodiment.

As will be appreciated, at one end the barrel will have a keystone or tapping bung fitting and/or a pressure neck fitting for use,

95 respectively, to dispense traditional draft or pressure-dispensed keg beer. The end plate 25 at the upper end of the barrel of Figs. 3 to 5 is suitably apertured to allow access to such

100 a fitting or fittings. With present barrels it can happen that damage to an end chime ring deforms the latter sufficiently to render tapping of the barrel extremely difficult or even impossible. Previously this has meant return

105 of the full barrel to the brewer, who then sends the barrel to a repairer for repair. In such circumstances with the present invention it is envisaged that the damaged end ring could easily be removed in the beer cellar,

110 thus allowing the beer to be drawn even though the repair might be completed by the brewer after return of the empty barrel. If desired, a replacement end ring could be fitted in the cellar to complete the repair,

115 which might alternatively be effected on the brewer's delivery lorry.

In addition to the repair facilities provided by the invention, the latter provides a wide choice in respect of the end strengthening elements or end rings. For example, they can be formed from low cost materials with the requisite strength achieved by using an appropriate thickness. Thus they may be formed of galvanized mild steel. However, if weight is a

120 major consideration it is economic to form them from more exotic and correspondingly expensive materials, the cost of this being justified by their ease of removal for re-striking and replacement.

## CLAIMS

1. A barrel having a container portion to the ends of which are attached supports or spaced end legs formed from sheet material, each support or end leg being attached by welding to the corresponding end of the container portion adjacent the circumference of the barrel, readily detachable end rings being attached to the respective supports or end legs at each end of the barrel.
2. A barrel according to claim 1, wherein the end rings are attached to the respective supports or end legs by means of rivets.
3. A barrel according to claim 1 or claim 2, wherein the end rings are plain flat annular rings attached to the free ends or outer sides of a plurality of end legs at each end of the container portion.
4. A barrel according to claim 1 or claim 2, wherein spaced end legs at each end of the barrel are of tubular form fabricated from said sheet material.
5. A barrel according to claim 4, wherein the end legs are of generally rectangular cross-section and welded at their side edges to the container portion.
6. A barrel according to claim 4 or claim 5, wherein the tubular end legs have closed outer ends.
7. A barrel according to claim 5 or claim 6, wherein each end ring is of generally rectangular radial cross-section and is fitted closely over the corresponding end legs.
8. A barrel according to claim 7, wherein each end ring is attached to each of the corresponding end legs by inner and outer rivets.
9. A barrel according to any one of the preceding claims, wherein each end ring is formed as an integral portion of a reinforcing end plate, a central portion of which reinforces the corresponding end wall of the container portion within the end ring portion.
10. A barrel according to any one of claims 1 to 3, wherein each of the plurality of end legs at each end of the container portion is formed from a generally triangular blank of said sheet material, curved to conform to the circumferential diameter of the barrel and welded to the container portion by spaced welds with a clear drainage gap between the welds.
11. A barrel according to any one of the preceding claims, wherein spaced end legs at each end of the container portion are formed from the corner off-cuts produced during manufacture of an end pressing of the container portion.
12. A barrel having at each end spaced end legs each of which is formed from a 'corner' off-cut produced when a circular blank to be used in formation of a container end pressing is sheared from a square of sheet material, the inner side of the off-cut being welded to the barrel adjacent the ends of that side leaving a

drainage gap between the welds.

13. A barrel according to any one of the preceding claims, wherein four end legs are attached at each end of the container portion of the barrel.

14. A barrel constructed and arranged substantially as hereinbefore particularly described with reference to Figs. 1 and 2, or Figs. 3 to 5, of the accompanying drawings.

Printed in the United Kingdom for  
Her Majesty's Stationery Office, Dd 8818935, 1985, 4235.  
Published at The Patent Office, 25 Southampton Buildings,  
London, WC2A 1AY, from which copies may be obtained.