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SEPARABLE CONTAINER

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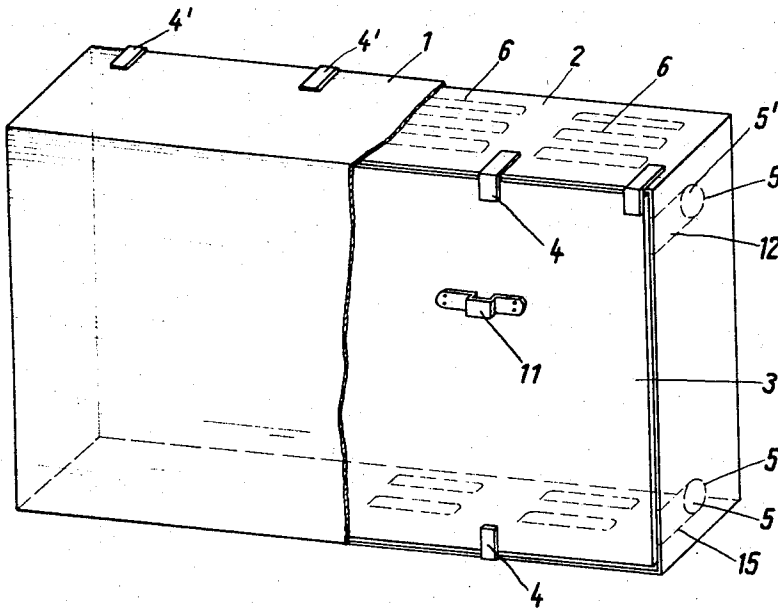


Fig. 1

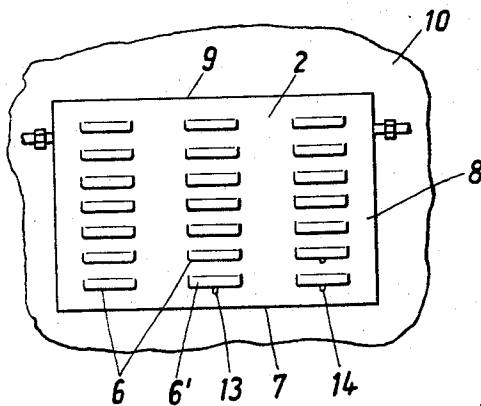


Fig. 2

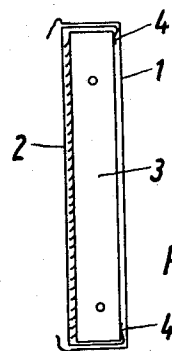


Fig. 3

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SEPARABLE CONTAINER

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13 Claims

ABSTRACT OF THE DISCLOSURE

A separable container for heating elements such as radiators comprises a first hollow section through an open side of which the heating element may be introduced so that only the back of the heating element remains exposed. A second hollow section is constructed so as to receive therewithin telescopically the first section together with the heating element so that the back of the latter is covered and the side wall of the first section is received within the second section. Adhesive tape secures the first and second sections to one another and the first section to the heating element. Apertures and/or knock-out portions are provided in the first section so that access may be gained to the heating element whereby the latter may be connected to utility lines and operated for testing and other purposes while the first section remains in place to afford protection against damage to the heating element.

Background of the invention

The present invention relates to a separable container in general, and more specifically to a separable container for appliances. Still more specifically, the present invention relates to a separable storage and shipping container for heat exchanging devices such as radiators and other heaters which are to be mounted at their place of operation.

Heating devices, particularly radiators and other heat-producing or heat-radiating elements must be shipped from their place of manufacture to the place of use. During such shipping they must be protected against damage. However, damage may also occur during installation and subsequent to installation but prior to the time at which the radiator, as the heating device will hereafter be identified for reasons of convenience, is to be placed into actual use.

It is therefore an object of the invention to provide a separable container which will afford for such radiators protection not only during shipping, but also during and subsequent to the installation of the radiators at their intended place of use.

A further object of the invention is to provide such a separable container which is inexpensive and which can be applied to as well as removed from the radiator readily and without tools.

An additional object of the invention is to provide such a separable container which permits in partially removed condition the installation and trial operation of the radiator.

Summary of the invention

In accordance with one feature of our invention we provide a separable container for appliances, particularly for heat exchangers such as radiators which have a front, a back and a lateral edge face extending from one to the other thereof. This container comprises a first hollow section having a first open side and being configured in such a manner that it may be placed around an appli-

ance from the front thereof so that the back of the appliance faces the first open side. A second hollow section has a second open side and is configured for telescopically receiving the first section and the appliance therein through the second hollow side. Securing means is provided which is operative for releasably securing the first section to the appliance. Access means is provided in the first section and is so configured and arranged as to facilitate, when the second section is removed from the first section, access to selected portions of the appliance while the latter is located in the first section so that the appliance may be installed and/or operated while it remains within the protection provided by the first section.

The container may consist in known manner of cardboard, corrugated cardboard, synthetic plastic material or any of the many different materials conventionally used for shipping and storage containers. The securing means may be provided in form of strips of adhesive tape though this is of course by no means intended to preclude the use of other securing means.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

Brief description of the drawing

FIG. 1 is a perspective view, partly broken away, showing a radiator received within a separable container according to the present invention;

FIG. 2 illustrates the embodiment of FIG. 1, but with the second hollow section removed and with the radiator mounted on a row and still located within the first hollow section; and

FIG. 3 is a schematic vertical section through the embodiment illustrated in FIG. 1.

Description of the preferred embodiments

The embodiment illustrated in FIG. 1 comprises an inner or first hollow container section 2 and a second or outer hollow container section 1. As pointed out, these container sections may consist of the various materials which already have been listed above. Each of the container sections has an open side and a heater, here shown as a radiator and identified with reference numeral 3, is received in the first section 2 through the open side thereof. The first section 2 is placed over the radiator 3 from the front thereof so that the back, which is visible in FIG. 1 where the second section 1 is broken away, will be visible. The first section 2 is secured to the radiator 3 in suitable manner so as to be readily releasable, and the securing means employed in the illustrated embodiment by way of example consists of strips 4 of adhesive tape which are adhered to the radiator 3 as well as to the first section 2. The second section 1 is of somewhat larger inner cross-sectional area than the first section 2 so that the latter, together with the radiator 3, can be received in the second section 1 in the manner illustrated in FIG. 1 and also seen clearly in FIG. 3. The outer or second section 1 is provided only for protective purposes during transportation and storage because it will protect not only the peripheral edge face of the first section 2 but also the back of the radiator 3. It is advantageous if the second section 1 is made moisture-resistant by a suitable liner, or a suitable coating or impregnation by means of a paraffin-containing substance or the like.

When the thus-completed package is received at the

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point of use of the radiator 3, the second section 1, which is advantageously secured to the first section 2 by means of additional adhesive tape strips 4' or by any other suitable means, is withdrawn, leaving the radiator 3 disposed within the first section 2. In this form the radiator 3 may now be mounted, for instance by the schematically illustrated mounting means 11, on a wall 10 which is also schematically shown in FIG. 2. It is of course often desirable, for instance if the radiator is installed in a building or in a room which is not yet fully completed so that danger of damage to the radiator 3 exists because of further activity which goes on in the vicinity of the radiator, to protect the latter against the possibility of such damage. For this reason, the first section 2 is so constructed that it may remain in place on the radiator 3 but will permit not only installation of the radiator 3 on the wall 10 but also connection of the radiator to the various auxiliary supply elements and even test or trial operation of the radiator. For this purpose the first section 2 is provided with access means which may for instance be in form of cut-outs or weakened—e.g. perforated—lines 6 at such parts of the peripheral side wall portions 7, 8 and/or the main wall portion 9 of the first section 2 where the radiator is to receive cold air or is to emit warm air. Of course, these weakened portions can be provided at other locations of the first section 2 also.

FIG. 2 shows the radiator of FIG. 1 mounted on the wall 10. Actually, the radiator 3 itself is not visible and it is the front or main wall 8 of the first section 2 which is shown in FIG. 2. The weakened portions or lines 6 are clearly visible. It is also clear that the number and distribution of such weakened portions, which constitute of course knock-outs, is of no consequence for the purposes of the present invention. If desired, the knock-outs may not be completely surrounded by weakened portions or lines 6, but only partly so as to be provided in form of movable flaps 6' as shown in FIG. 2. In that case, cut-outs 13 may be provided in the flaps 6' or in the respective wall portion, through which the finger of a user, or a suitable tool, may be inserted for the purpose of moving the flaps 6'. In place of the cut-outs 13 it is also possible to provide strips or other handle portions 14 for the same purpose.

FIG. 1 also shows that apertures or knock-outs 5 may be provided in the lateral peripheral side wall of the first section 2. If these are constructed as knock-outs, then the portions 5' which are to be moved by the user will remain in the apertures 5 until they are knocked or pushed out of their associated apertures. The apertures 5 are provided so that supply pipes, cables or the like may be connected to the radiator 3 while the same is still located within the first section 2. To facilitate in this case the subsequent withdrawal of the first section 2 from the radiator 3, the apertures 5 may be connected with the open side of the first section 2 by weakened lines 15 which also constitute a knock-out which may be removed so that the first section 2 may simply be slipped off, that is withdrawn from the radiator 3 when the latter is to be placed into permanent service.

It will be appreciated that the term "appliances" as used herein is intended to be construed in its broadest term so as to include not only various movable appliances but also such elements as radiators and the like which are to be permanently or semipermanently installed.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the types described above.

While the invention has been illustrated and described as embodied in a separable container for appliances such as radiators, it is not intended to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

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Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

We claim:

1. A separable container for appliances, particularly heat exchangers, which have a front, a back and a lateral edge face extending from one to the other thereof, said container comprising a first hollow section having a first open side and being configured in such a manner that it may be placed around an appliance from the front thereof so that the back of the appliance faces said first open side; a second hollow section having a second open side and being configured for telescopically receiving said first section and the appliance therein through said second hollow side; securing means operative for releasably securing said first section to the appliance; and access means provided in said first section and being configured and arranged so as to facilitate access to selected portions of the appliance while the same is located within said first section only, whereby the appliance may be installed and/or operated while it remains within the protection of said first section.

2. A container as defined in claim 1, said first section including a main wall portion which covers the front of the appliance and a circumferential side wall portion which covers the lateral edge face of the appliance, and wherein said second section covers the back of the appliance and the circumferential side wall portion of said first section.

3. A container as defined in claim 2, said securing means being also operative for releasably securing said second section to said first section.

4. A container as defined in claim 2, said access means comprising apertures provided in said second section.

5. A container as defined in claim 4, said apertures being provided in said side wall portion intermediate said main wall portion and said first open side and through which auxiliary elements may be extended to the interior of said first section for connection with the appliance; said access means further comprising weakened knock-out portions extending from the respective apertures to said first open side and adapted to be removed by a user so that said first section may be withdrawn from the appliance without requiring disconnecting of the auxiliary elements from the appliance.

6. A container as defined in claim 4, wherein at least some of said apertures are provided in said side wall portion.

7. A container as defined in claim 5, wherein at least some others of said apertures are provided in said main wall portion.

8. A container as defined in claim 1, wherein said securing means comprises lengths of adhesive tape.

9. A container as defined in claim 1, said access means comprising weakened portions provided in said first hollow section surrounding and outlining respective parts of said first section so that such parts may be readily received to provide access apertures.

10. A container as defined in claim 1, said access means comprising flap-shaped portions partially severed from said first section so as to provide in the latter apertures which are substantially closed by the respective partially severed portions.

11. A container as defined in claim 10; and further comprising engaging means provided on the respective partially severed portions.

12. A container as defined in claim 11, said engaging means comprising cut-outs in the respective partially

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severed portions so as to facilitate engaging of said portions for moving the same out of their respectively associated apertures.

13. A container as defined in claim 11, said engaging means comprising handle members provided on the respectively severed portions and adapted to be gripped by a user so as to facilitate moving of said portions out of their respectively associated apertures. 5

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