

April 30, 1963

A. C. DIRCK
ANIMAL CAGE

3,087,459

Filed July 14, 1961

3 Sheets-Sheet 1

Fig. 1

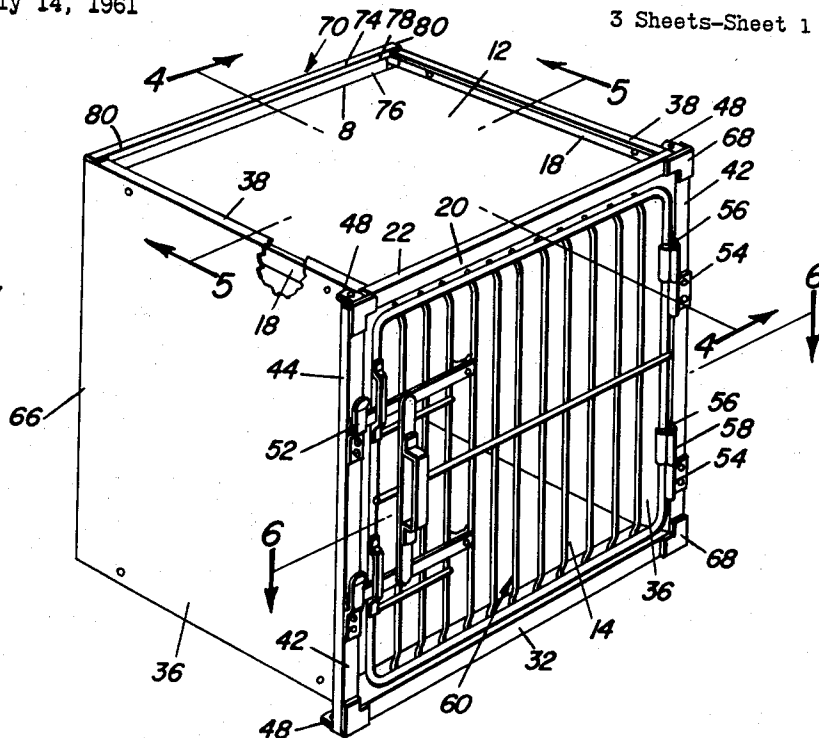


Fig. 4

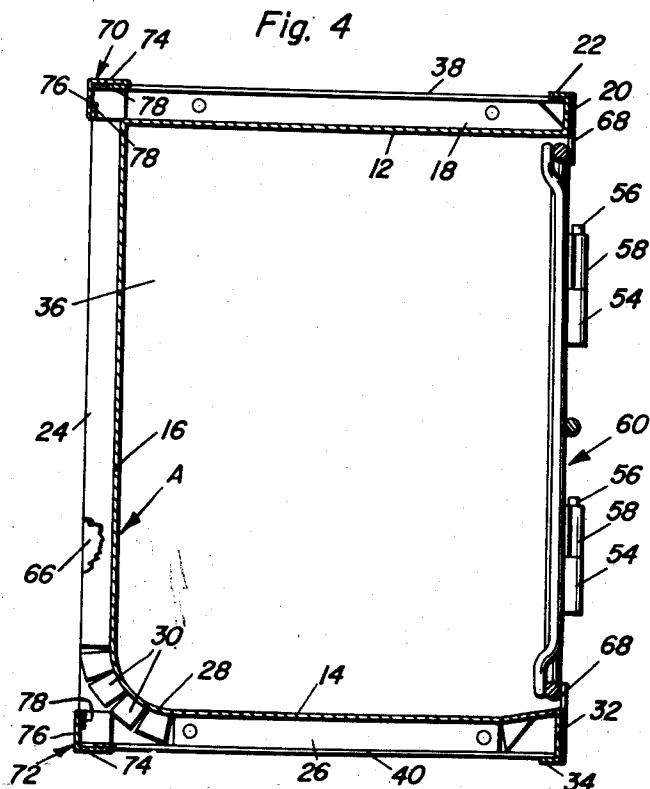
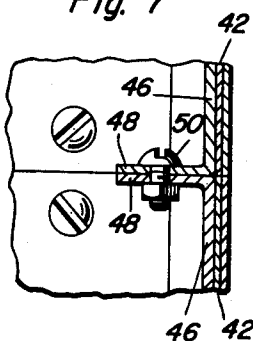


Fig. 7



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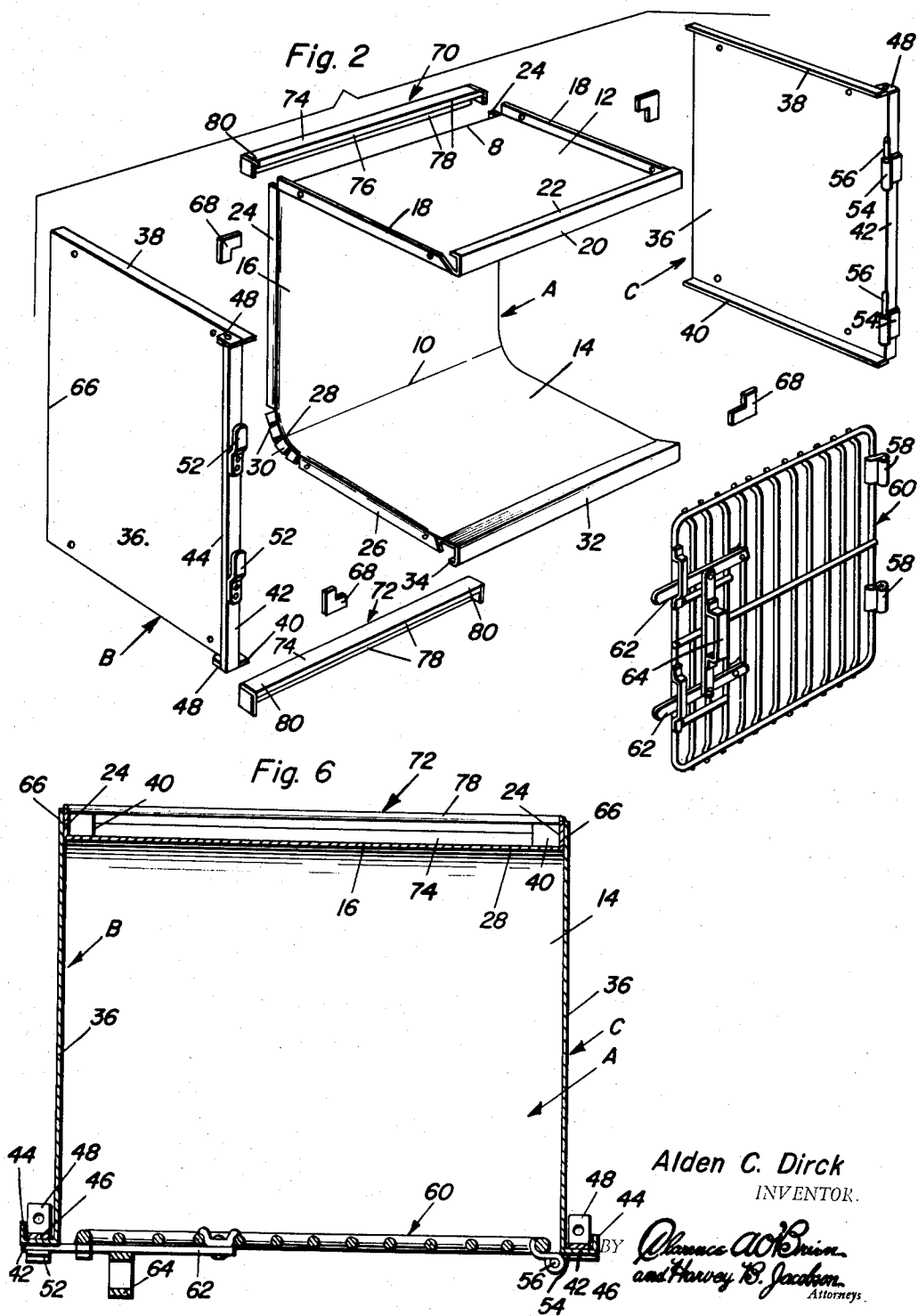
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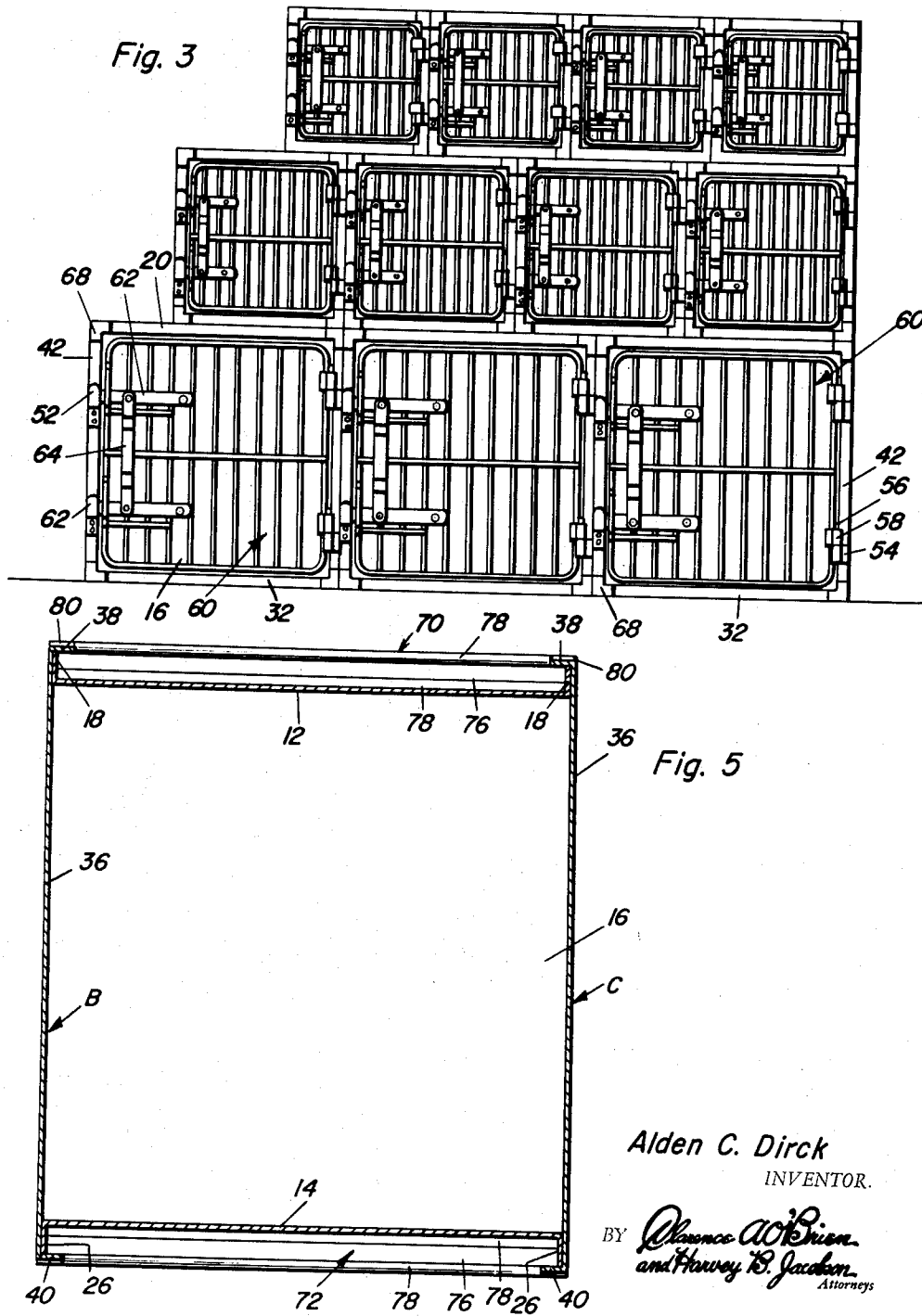
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ANIMAL CAGE

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5 Claims. (Cl. 119-17)

This invention relates to an animal cage embodying certain new and useful improvements and pertains, more particularly stated, to a sheet material open-front box-type enclosure having a suitably latched front door which permits ready access to the enclosed space to be had.

Cages in this field of endeavor are made so that they are portable, easy to handle and clean and are also capable of being stacked in systematized horizontal and vertical tiers or rows. Many and varied cages having such characteristics are being used. One style or type has met with widespread adoption and use; namely, a cage wherein the sheet metal cage proper is mounted within the bounding or bordering confines of rigid framing, or, alternatively a skeleton frame structure. The commonly used framing is made up of connected angle irons which are so arranged that the overall "framing" embodies rectangular top, bottom, back, front and side frames. As a matter of fact twelve angle irons are secured together and form a six-sided rectangular frame structure with the sheet metal box encompassed by said angle irons. The object of the present invention is to effectively eliminate this heavy expensive angle iron framing. To this end the framing in the herein disclosed invention is incorporated in and constitutes a prefabricated part of the thus improved cage.

In carrying out the principles of this apparently original concept, the walls of the box or cage proper and the members which combine to provide the unique framing are fabricated from sheet metal and thus the place of the aforementioned angle iron framing and providing a simple, practical, economical construction which should be quickly endorsed by industrious manufacturers, and welcomed by wholesalers, retailers and users.

It follows that this improved adaptation may be fabricated from sheet metal only with the result that the novel finished structure embodies its own complete equally efficient frame.

Briefly summarized the invention comprises an animal cage which permits horizontal and vertical ensemble stacking in an ensemble of separably connectible portable cages. It comprises a sheet material open front and enclosure having top, bottom, back and side walls and rigidifying framing which borders and has its parts contiguous to marginal portions of said walls and which facilitates handling and stacking, said framing being characterized by complemental rigidly joined frame components or members all fabricated from sheet material.

The invention also features outstanding vertical flanges on the front or forward edges of the side or end walls of the enclosure which flanges are L-shaped in cross-section and which cooperate with the surfaces of the walls in defining channels which are open at the top and bottom portions. These flanges constitute components of the overall framing and have the additional function of accommodating rigid metal bars which are seated and fastened therein. The upper and lower ends of the bars are directed rearwardly and apertured to provide lugs. These lugs are used in fastening adjacent cages together in the assemblage, that is where the cages are stacked in horizontal and vertical rows or tiers. The invention further features the use of a central or body section which is fashioned from a single length of sheet metal bent upon itself between its ends and defining top, bottom and back walls said walls being suitably provided with the desired flanges which constitute elements of the framing. In addition

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two end or side walls are provided to close the ends or side spaces of the body section. Here again the side walls are provided with special frame-forming flanges.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in perspective of an animal cage featuring the improvements of the instant invention;

FIGURE 2 is an exploded perspective view wherein all of the essential parts are illustrated in an orderly ready-to-assemble relationship;

FIGURE 3 is a front elevational view the purpose of which is to show how animal cages in the category under consideration are stacked one upon the other in assembled row relationship;

FIGURE 4 is a central section taken on the plane of the section line 4-4 of FIGURE 1, looking in the direction of the arrows;

FIGURES 5 and 6 are similar sections taken on the section lines 5-5 and 6-6, respectively, of FIGURE 1; and

FIGURE 7 is a fragmentary sectional and elevational view which shows how the corner portions of two cages are stacked and bolted or otherwise secured together.

Referring first to FIGURE 2 the box-like enclosure is made up chiefly of the three sections; namely the central or body section A and side or end sections B and C respectively. These sections B and C are the same in construction and a description of one will suffice for both. The body section comprises a single piece or length of sheet metal which is bent upon itself between its ends on transverse fold lines 8 and 10 thus defining a flat top wall 12, flat bottom wall 14 and flat rear or back wall 16. The side marginal edges of the top wall have upstanding lateral lengthwise assembling and rim-forming flanges 18. The forward or front edge has an upstanding flange 20 with a laterally directed lip 22 which flange may be said to be L-shaped in cross-section. The vertical edges of the rear wall 18 have rearwardly directed lengthwise flanges 24. The lengthwise edges of the bottom wall 14 have depending side or lengthwise flanges 26. Where the bottom and back walls join as at 28 the metal is slightly curved to provide the formation better shown in FIGURE 4 and here the junctional flanges are transversely slitted as at 30 to facilitate the bending step. Across the front edge the bottom wall 14 has a depending flange 32 with a rearwardly directed lip 34 and here again this flange may be described as L-shaped in cross-section. Each end section or side wall B or C comprises a flat sheet metal plate or wall 36 which spans the space and provides the desired box-forming relationship of the parts A, B and C. The upper and lower marginal edges of the walls 36 have lateral inbent flanges with the top flange denoted by the numeral 38 and the bottom flange by the numeral 40. The front vertical edges are provided with outstanding somewhat wider flanges 42 each having a rearwardly bent lip 44 and with this arrangement the flange 42 and lip 44 cooperate with the surface of the wall in providing a channel which is open at the top and the bottom. This channel, resulting from the L-shaped flange (42 and 44) is not only a reinforcing frame element or component it also has seated therein a rigid metal bar 46 (FIG. 6). This bar is commensurate in length with the length of the channel and has rearwardly directed ends opening through the top and bottom ends of the channel and defining lugs 48. Each lug is apertured and the apertures serve to accommodate a bolt or an equivalent fastening 50 (see FIG. 7) whereby to fa-

facilitate stacking and temporary fastening of the cages to one another in the horizontal and vertical arrangement depicted in FIG. 3. The flange 42 is provided with latch accommodating keepers 52. The corresponding flange at the right in FIG. 2 is provided with brackets 54 each provided with an upstanding hinge pintle 56. The hinge pintle serves to accommodate hinging knuckles 58 mounted on a cooperating edge portion of the openwork or grill-like door or front wall 60. While considering this door it will be seen that it is provided with pivoted latches 62 joined for united movement by a pivoted tripping handle 64.

It will be clear that the side or end walls 36 abut their respective flanges 18, 24 and 26 on the top, back and bottom walls 12, 16 and 14 and are spot-welded at 37 thereto. The height of each plate or wall 36 is such that the top and bottom flanges 38 and 40 overlie the edges of the flanges 18 and 26 and actually project beyond same with the result that the portions of the plates abutting the flanges and the projecting top and bottom flanges 38 define what is in effect an angle iron. These "angle irons" constitute components or members of the overall framing.

It will be clear that the L-shaped flanges 22, 32 and 44 form an outstanding rim flange around the open front of the cage and provide a rigid support and mounting for the readily attachable and detachable latched door 60 (FIG. 1). The rearward edges 66 of the side plates or walls 36 are flush with the cooperating edges of the back walls flanges 24. Thus all of the main or essential component parts which go to make up the framing would appear to be evident from the drawing. As to the numeral 68 this designates a corner cleat and there are four of these and they are welded in place on the front corners in the manner shown in FIG. 1 primarily for decoration and, of course, to cover the joints which they overlie. For further stability and rigidity two additional top and bottom frame components or members are provided and these are denoted at 70 and 72 respectively. Each frame member is the same in construction and each frame member is formed from a strip of sheet metal which is bent upon itself to provide flanges 74 and 76 at right angles to each other. The longitudinal edge portions are doubled upon themselves as at 78. The end portions of these sheet metal "angle irons" are suitably constructed and mounted in place as at 80 (FIG. 1). It follows that by prefabricating the main units or sections A, B and C and the extra framing members 70 and 72 and properly assembling the same a highly rigid and simple cage or box is had, one which, as before stressed, comprises a cage with a built-in frame structure.

The construction is such that the interior of the cage has no pockets or hidden portions for trapping of dirt, refuse and other matter and at the same time retains its own framing in a method that permits horizontal and vertical stacking with each other.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A portable animal cage capable of being manually handled and stacked on and separably connected to correspondingly constructed companion cages comprising: a one-piece U-shaped body section embodying spaced parallel horizontal top and bottom walls joined to each other at corresponding rearward ends by an intervening vertical back wall, said top wall having spaced parallel upstanding flanges along marginal side edges thereof and an upstanding flange extending across the front marginal edge, the edge of said front flange being directed rearwardly and overlying the top wall in spaced parallel relation and defin-

ing a first rigidifying member, said bottom wall having downbent flanges along its side marginal edges and also having a downbent flange across said front marginal edge the free lengthwise edge of which is also bent rearwardly and disposed in spaced parallel relation to said bottom wall to define a second rigidifying member, said back wall having rearwardly directed lateral reinforcing flanges, a pair of oppositely disposed vertically positioned side walls spanning the respective open end portion of the U-shaped body section and having surfaces thereof abutting the cooperating flanges on the top, bottom and back walls, each side wall having lateral inwardly bent flanges at upper and lower marginal edges thereof and said flanges overlying and projecting beyond the cooperating side flanges of the top and bottom walls and being spaced from the exterior surfaces of the respective top and bottom walls and coacting in providing additional rigidifying members, said thus associated and connected walls providing an open front animal cage, and an openwork door operatively mounted on at least one of said walls, closing said open front and provided with manually actuatable fastening means.

2. The structure defined in claim 1 and wherein the cooperating top and bottom wall flanges and the abutting overhanging side wall flanges cooperate with each other in providing rigidifying members which are resemblance of angle iron, and a pair of top and bottom rearwardly disposed horizontal additional but separate frame members secured at their respective ends to cooperating and portions of the flanges on said top and bottom walls.

3. The structure according to claim 1, and wherein the front vertical edges of said side walls are provided with lateral outwardly bent ancillary flanges provided with vertical bar members secured to rearwardly facing surfaces, upper and lower ends of said bar members having lateral apertured end portions providing lugs, said lugs serving to accommodate fasteners when the cages are being stacked and thus grouped together in an orderly ensemble of cages.

4. The structure defined in claim 1 and wherein the front vertical edges of the side walls are provided with lateral outwardly directed ancillary flanges which are L-shaped in cross-section and which in conjunction with the coacting surfaces of the side walls define and provide open ended channels, and a rigid bar seated and secured in each channel and commensurate in length with the length of the channel, said bar having upper and lower ends which are laterally and rearwardly directed and are apertured to provide lugs, said lugs serving to accommodate insertable and removable fasteners when two or more cages are stacked and grouped and thus orderly assembled.

5. A box-shaped animal cage comprising a one-piece U-shaped body section embodying spaced parallel horizontal top and bottom walls joined to each other at corresponding rearward ends by a vertical back wall, said top wall having spaced parallel upstanding flanges along the marginal edges thereof and an upstanding flange across the front marginal edge, the edge of said front flange being directed rearwardly and overlying the top wall in spaced parallel relation, said bottom wall having downbent flanges along its marginal edges and a downbent flange across its front marginal edge, the edge of said front flange being bent rearwardly and disposed in spaced parallel relation to said bottom wall, the vertical marginal edges of said back wall having rearwardly directed lateral flanges, opposed vertical side walls abutting and being connected to the cooperating flanges on the top, bottom and back walls, each side wall having inwardly bent flanges at upper and lower marginal edges and said flanges overlying and projecting beyond the cooperating side flanges of the top and bottom walls and being spaced from the exterior surfaces of the respective top and bottom walls and coacting in providing rigidifying members, the front vertical edges of the two side walls being provided with rigidly mounted vertical bar members project-

ing beyond the side walls, the upper and lower ends of said bar members having rearwardly directed apertured lugs, the front of said cage being provided with closure means.

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