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E. H. NELSON

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CARRYING CASE

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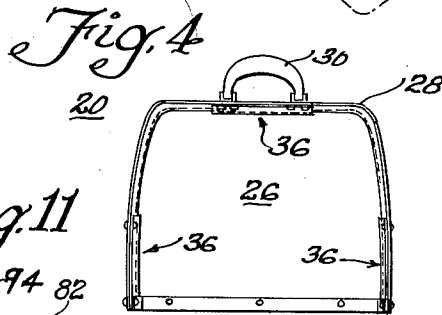
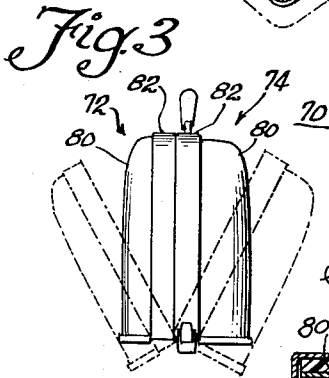
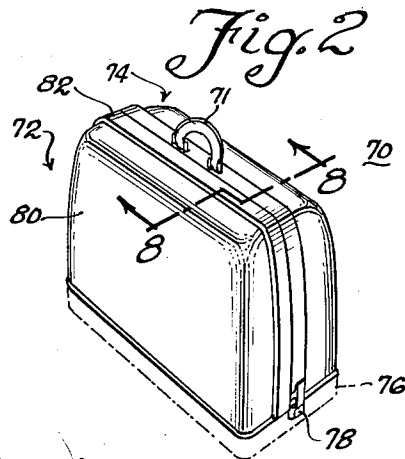
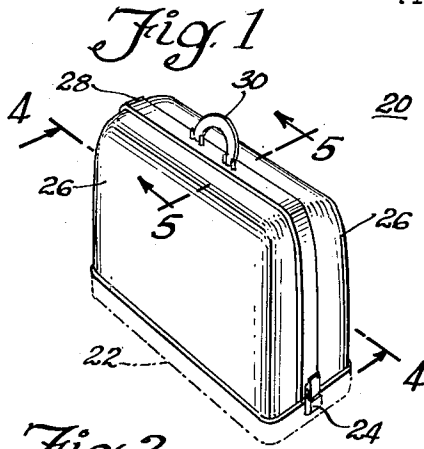
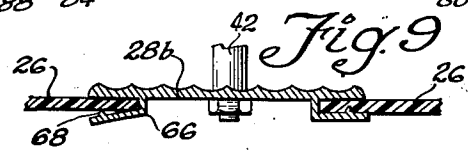
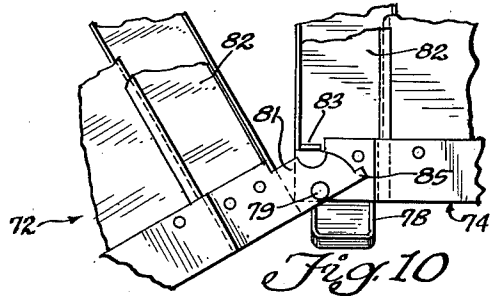
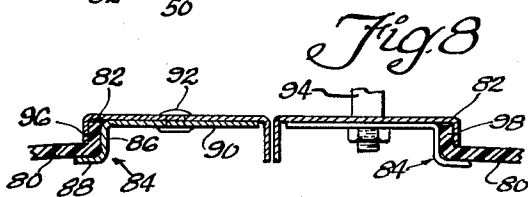
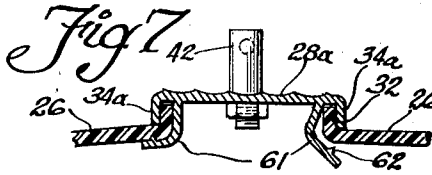
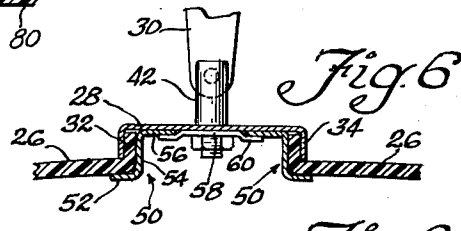
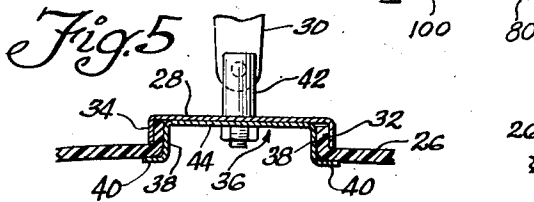
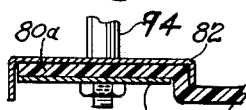


Fig. 11



INVENTOR.
Erdick H. Nelson
BY
Mason, Kohnmayer,
Kathburn and Wynn
Attorneys

1

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CARRYING CASE

Erdick H. Nelson, Naperville, Ill.

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This invention relates to a carrying case and more particularly to a carrying case embodying new and improved means for securing sheet material to a frame member.

The present styles and types of baggage or portable receptacles for such items as cameras, projectors, and tape recorders largely utilize light durable sheets of flexible plastic material. These sheets, which are easily formed into desired configurations by the use of heat and pressure, remain rather flexible once formed. In order to provide the necessary structural strength in these new types of portable receptacles, cheaply and easily produced metal stampings or extruded metal forms are used as supporting frame members.

The conventional means for joining sheet material with metal stampings or extruded forms by the use of a plurality of rivets or screws are slow inasmuch as these methods may require a plurality of punching and riveting operations. These conventional joining methods also do not provide enough rigid support for the flexible material or else produce a very unsightly article if enough rivets are used to adequately secure the flexible material to the supporting frame. In addition, these conventional methods of assembling often may produce a large number of damaged articles inasmuch as some types of preformed plastic sheet material are brittle and are easily splintered or fractured during the drilling or punching operations.

Accordingly, one object of this invention is to provide a new and improved portable receptacle utilizing sheet material.

Another object is to provide such a receptacle or carrying case wherein a new and improved means for fastening flexible sheet material to relatively rigid frame members is utilized.

A still further object is to provide a new and improved device for fastening sheets of brittle material to frame members.

Another object is the provision of means for fastening sheet material to frame or supporting members without the use of preliminary punching or drilling operations.

Another object of this invention is to provide a fastening device which permits a quick assembly of articles requiring the joining of sheet material with frame members.

In accordance with these and many other objects, there is provided a portable receptacle which comprises a unitary carrying case which is detachably mounted on a rigid base member. This detachable portion of the carrying case comprises a frame member provided with a handle to which are secured a plurality of wall members. One embodiment of a device for fastening the walls to the frame member comprises a unitary metal stamping having two depending edges from which a pair of lips project at right angles thereto. This stamping is secured to the frame member and cooperates with a pair of depending edges thereon to form a pair of openings within which are received a pair of turned edges formed integral with the sheets of material comprising the side walls of the carrying case.

In a second embodiment of the fastening device, an

2

extruded metal form is provided with a pair of depending edges adjacent to which are formed a pair of deformable clamping arms. These deformable arms cooperate with the depending edges of the metal frame to form a pair of channels or cavities within which are received a pair of turned edges formed on the sheets of material. The deformable arms are displaced to engage the ends of the sheet material whereby the side walls of the carrying case are secured to the frame member.

In a third embodiment of the fastening device there is provided an extruded metal frame member having a pair of oppositely positioned deformable arms which are depending from a lower surface of the frame member. These deformable arms are of a substantially L-shaped configuration and cooperate with the outer edges of the frame member to provide a pair of opposed openings within which are received the edges of the sheet material which are to be secured to the frame member. By displacing the deformable arms inwardly toward the frame member, the received ends of the sheet material are rigidly secured to the frame member.

A fourth embodiment of the fastening device comprises a frame member having a pair of oppositely positioned depending edges. A pair of clamping members having right angle projections thereon are positioned adjacent the depending edges of the frame member to form a pair of cavities within which are received a pair of turned edges formed on the sheet material comprising the side walls of the carrying case. The clamping means are engaged by a plate which is detachably secured to the frame member, and this plate urges the clamping members into intimate engagement with the ends of the sheet material received within the cavities to secure the sheet material to the frame member.

In a fifth embodiment of the fastening device, the sheet material forming the side walls of the carrying case is formed with an L-shaped edge which is received between a pair of depending edges on the frame member of the carrying device. A plate is positioned beneath the lower surface of the L-shaped edge and serves to hold the L-shaped projection in engagement with the frame member.

These embodiments of the fastening device may be utilized in conjunction with a carrying case comprising a second embodiment of this invention wherein the carrying case is formed in two separate portions which are pivotally joined together at a lower extremity thereof. This folding type of carrying case is also adapted to be detachably secured to a rigid base member and is provided with a handle to facilitate carrying the case.

Other objects and advantages of the present invention will become apparent from the ensuing description of illustrative embodiments thereof, in the course of which reference is had to the accompanying drawings, in which:

Fig. 1 is a perspective view of a unitary carrying case forming one embodiment of the invention;

Fig. 2 is a perspective view of a two piece carrying case forming a second embodiment of this invention;

Fig. 3 is an end elevational view of the carrying case shown in Fig. 2 indicating in dashed lines the manner in which the carrying case is opened;

Fig. 4 is a cross sectional view taken along line 4—4 in Fig. 1 of the drawings;

Fig. 5 is an enlarged fragmentary cross sectional view taken along line 5—5 in Fig. 1;

Fig. 6 is a fragmentary cross sectional view showing an embodiment of the fastening means shown in Fig. 5;

Fig. 7 is a fragmentary cross sectional view showing another embodiment of the fastening means shown in Fig. 5;

Fig. 8 is an enlarged fragmentary cross sectional view taken along line 8—8 in Fig. 2;

3

Fig. 9 is a fragmentary cross sectional view of another embodiment of the fastening device shown in Fig. 5;

Fig. 10 is an enlarged fragmentary sectional view of a means for pivotally joining the two piece case shown in Fig. 2; and

Fig. 11 is an enlarged fragmentary cross sectional view showing another embodiment of the fastening device shown in Fig. 8.

Referring now to Figs. 1 and 4 of the drawings, there is provided a carrying case, indicated generally as 20, which is adapted to be detachably mounted to a rigid base member 22 by a pair of locking devices 24. The carrying case comprises a pair of side walls 26 formed of sheet material which are secured to a metallic frame member 28 on which is pivotally mounted a handle 30.

The side walls 26 may be formed of any suitable material and in any desired configuration, although it is preferred to utilize light durable sheets of thermoplastic material such as "Royalite." "Royalite" is manufactured and sold under this tradename by the United States Rubber Company and comprises rubber, acrylonitrile, styrene, a peroxide catalyst, modifiers, and an emulsifying agent. These sheets of plastic may be formed into any desired configuration by the use of pressure and heated dies. Also, during the forming operation, the sheets of material comprising the side walls 26 may be provided with either straight or turned edges, as disclosed in Figs. 5 to 9, inclusive, of the drawings.

To provide a means for securing the side walls 26 to the frame member 28, a turned edge 32 may be formed in the sheets of material forming the side walls 26. The outer surfaces of these turned edges are placed adjacent the inner surface of a pair of depending edges 34 formed in the frame member 28. To hold the turned edges 32 in engagement with the depending edges 34, there is provided a clamping plate 36 having a pair of downwardly extending portions 38 from the lower end of which extend a pair of lip portions 40. The clamping plate 36 is secured to the frame member 28 either by means of rivets or by the use of a pair of threaded posts 42 which are utilized to secure the handle 30 to the frame 28.

The clamping means 36 is provided with a flat bight portion 44 which is slightly greater in length than the distance between the outer surfaces of the turned edges 32, so that when the clamping means 36 is secured to the frame member 28 the turned edges 32 are gripped between the inner surface of the depending edges 34 and the outer surface of the portions 38 of the clamping means 36. Also, the clamping means 36 is formed so that the distance between the lower edge of the depending edges 34 and the upper surface of the projecting lips 40 is less than the thickness of the side walls 26 so that the side walls 26 are gripped between the lower edge of the depending edge 34 and the upper surface of the projecting lips 40.

The clamping means 36 may be of such length as to extend around the entire inner surface of the frame member 28 and thereby provide a positive union of the side walls 26 with the frame member 28 throughout the entire length thereof. However, as shown in Fig. 4 of the drawings, the clamping means 36 may be formed in a plurality of relatively short pieces which are secured to the frame member 28 at spaced intervals. This method of securing the side walls 26 to the frame member 28 results in a large saving of material, although additional assembly operations are required, and produces a satisfactory bond between the side walls 26 and the frame 28.

Accordingly, the clamping means 36 not only provides a large supporting surface for sheets of flexible material but also provides a means for rigidly securing a pair of side walls 26 formed of brittle sheet material to the frame member 28 without forming any openings in the side walls 26 and thereby removes the possibility of splintering or destroying the material forming these side walls. Also, the side walls 26 may be quickly secured to the frame

4

member 28 inasmuch as the only assembling operation required is to place the clamping means 36 in engagement with the lower surface of the frame member 28 and thereafter secure these two structures together. This is particularly true inasmuch as the outer surfaces of the portions 38 and 40 of the clamping means 36 serve to properly position the turned edges 32 with respect to the edges 34 of the frame member 28.

Fig. 6 discloses a second means for fastening the side walls 26 to the frame member 28 and includes a pair of clamping members 50 having three legs 52, 54 and 56 formed at approximately right angles to each other. The pair of clamping means 50 are positioned adjacent the inner surfaces of the depending edges 32 to form a pair of cavities within which are received the turned edges 32 of the side walls 26. The clamping means 50 are secured to the frame 28 by means of a plate 58 having a pair of offset portions 60 adapted to engage the legs 56. The plate 58 may be secured to the frame 28 either by rivets or by utilizing the supporting posts 42 of the handle 30.

The clamping means 50 are so positioned on the frame 28 by the offset portions 60 of the plate 58 that the outer surfaces of the legs 54 are urged into engagement with the inner surfaces of the turned edges 32 to grip these edges between the inner surface of the depending edges 34 and the outer surface of the legs 54. Also, the length of the leg 54 is so selected that the distance between the lower ends of the depending edges 34 and the upper surface of the legs 52 is less than the thickness of the side walls 26 so that these side walls are gripped between the upper surface of the legs 52 and the lower edge of the depending ends 34.

The clamping means 50 may either extend around the entire inner surface of the frame member 28 or, as indicated in Fig. 4 in conjunction with the clamping means 36, the clamping means 50 may be divided into a plurality of separate short sections. In the event that a plurality of short segments of the clamping means 50 are utilized, the sections thereof displaced from the handle 30 may be secured to the frame 28 either by using additional clamping plates 58 which are secured to the frame 28 or by securing the individual segments of the clamping means 50 to the frame 28 with rivets.

Fig. 7 of the drawings discloses a third means for securing the side walls 26 to a frame member 28a. The frame member 28a is easily formed by an extrusion process and is provided with a pair of depending edges 34a. A pair of deformable legs 61 of substantially L-shaped configuration are formed integral with the frame 28a. An outer extremity of each of the legs 61 is provided with a serration 62 adapted to pierce the material forming the side walls 26.

When the side walls 26 are to be joined to the frame 28a, the turned edges 32 of the side walls 26 are placed in the opening formed by the inner surface of the depending edges 34a and the outer surfaces of the legs 61, as shown at the right hand portion of Fig. 7. Thereafter, the deformable legs 61 are displaced upwardly and to the right so that the turned edges 32 are gripped between the outer surfaces of the legs 61 and the inner surfaces of the depending edges 34a, as shown at the left hand portion of Fig. 7. Also, the serrations 62 pierce the material forming the side walls 26 to aid in positively securing the side walls 26 to the frame 28a.

Another embodiment of a fastening device for securing the side walls 26 is disclosed in Fig. 9 of the drawings wherein a frame member 28b is formed with a pair of deformable L-shaped legs 66. The legs 66 are each provided with a serration 68 which is adapted to pierce the material forming the side walls 26. The legs 66 cooperate with the outer portions of the lower surface of the frame member 28b to provide a pair of spaced openings within which are received the edges of the side walls 26.

When it is desired to secure the side walls 26 to the

5

frame member 28b, the ends of the side walls 26 are placed within the channels or openings formed by the deformable legs 66, and thereafter these legs are displaced upwardly to clamp the received ends of the side walls 26 between the lower surface of the frame members 28b and the upper surface of the deformable legs 66. The serrations 68 pierce the material forming the side walls 26 and thereby aid in preventing the side walls 26 from being displaced from the frame member 28b.

A second embodiment of a carrying case, indicated generally as 70 (Figs. 2 and 3), includes a handle 71 secured to one of a pair of relatively movable portions 72 and 74, which are pivotally joined together and detachably secured to a rigid base member 76 by a pair of locking devices 78. Each of the portions 72 and 74 of the carrying case 70 includes a side wall 80 and a frame member 82. The side walls 80 may be formed in exactly the same manner as the side walls 26, and the frame members 82 may be formed in the same manner and of the same or similar configurations as the frame members 28, 28a, and 28b.

The frame members 82 are pivotally secured to each other by a pair of pins 79 (Fig. 10) which are mounted at one end in the frame member 82 carrying the handle 71. The other ends of the pins 79 are received within a pair of pivot plates 81 secured to the other frame member 82. The frame 82 supporting the handle 71 is also provided with a pair of stop members 83 which cooperate with stop portions 85 formed on the plates 81 to limit the relative movement between the movable portions 72 and 74 of the carrying case 70.

The locking devices 78 are of the conventional toggle or cam locking type and move the carrying case 70 downwardly toward the rigid base member 76 when operated to secure the case 70 to the base 76. This downward movement obviates any need for providing a separate catch and latch to secure the movable portions 72 and 74 together because the engagement of the lower edges of the case 70 with the upper surface of the base 76 rotates the two portions 72 and 74 into engagement and holds them in this relationship when the case 70 is carried.

In order to provide a means for securing the side walls 80 to the frame members 82, there is provided a pair of clamping means 84 (Fig. 8) each including a downwardly extending portion 86, an outwardly projecting leg 88 and a securing portion 90. The clamping means 84 are similar to the clamping means 50 disclosed in Fig. 6 of the drawings although each of the clamping means 84 is secured to a separate frame member 82. The clamping devices 84 are so secured to the frame members 82, either by means of rivets 92 or by the posts 94 supporting the handle 71, that the distance between the inner surface of a depending edge 96 formed on the frame 82 and the outer surface of the downwardly extending portion 86 is less than the thickness of an upturned edge 98 formed in the side wall 80. Also, the distance between the lower edge of the depending edge 96 and the upper surface of the outwardly extending leg 88 is less than the thickness of the wall member 80 so that the side walls 80 are gripped therebetween when the clamping means 84 is secured to the frame member 82.

Obviously, the clamping means 84 may extend around the entire length of the frame member 82 or may be divided into a plurality of individual segments as disclosed in Fig. 4 in conjunction with the use of the clamping means 36. Also, the integral clamping means provided by the frame members 28a and 28b, disclosed in Figs. 7 and 9, respectively, of the drawings, may be modified for use in the carrying case 70 by merely removing one of the deformable legs 61 or 66 and by utilizing the remaining deformable legs 61 and 66 as a means for securing the side wall 80 of each of the carrying case portions 72 and 74.

Another embodiment of the fastening device for use in conjunction with the carrying case 70 is disclosed in

6

Fig. 11 of the drawings wherein the side walls 80 are formed with a substantially L-shaped end portion 80a. The L-shaped portion 80a is received between the depending edges of the frame member 82 and is clamped in this position by a plate 100 which is secured to the frame 82 either by means of the rivets 92 or by the posts 94 supporting the handle 71. The clamping plate 100 may either be formed in a plurality of short segments as illustrated in conjunction with the use of the clamping means 36 or may extend around the entire inner surface of the frame member 82.

Also, the fastening device shown in Fig. 11 may be utilized in conjunction with a unitary carrying case similar to that indicated generally as 20 in Fig. 1 of the drawings by using a single plate 100 to clamp a pair of adjacent L-shaped end portions formed in the side walls 26. The clamping plate 100 is secured to the frame 28 in the same manner as the plate 58 which engages the clamping members 50 (Fig. 6). Obviously, when utilized in conjunction with a unitary carrying case 20, the plate 100 could be formed in a plurality of short segments or could extend around the entire inner surface of the frame member 28.

While the present invention has been described in connection with the details of illustrative embodiments, it should be understood that these details are not intended to be limitative of the invention except in so far as set forth in the accompanying claims.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A fastening device for use with sheet material having a turned edge comprising a supporting member having a displaced edge, clamping means carried by the supporting member and extending outwardly therefrom in the same direction as the displaced edge of the member, and means extending outwardly from the clamping means toward the displaced edge of the member, said clamping means and said displaced edge of the member forming an opening within which the turned edge of the sheet material is received, said clamping means being movable relative to the supporting member to secure the turned edge of the sheet material in said opening.

2. A fastening device for sheet material having a turned edge comprising a supporting member having a turned edge, clamping means having a turned edge, said clamping means also having a portion projecting outwardly from the turned edge thereof, and means for securing the clamping member to the supporting member with the turned edges thereof parallel to and spaced from each other to receive the turned edges of the sheet material and with said projecting portion extending beneath the turned edge of the sheet material.

3. A fastening device for sheet material having a turned edge comprising a supporting member having a depending edge, a clamping member having a body portion from which an L-shaped portion depends, and means for securing the body portion of the clamping member to the supporting member so that the L-shaped portion and the depending edge of the supporting member define an opening within which the turned edge of the sheet material is received.

4. A fastening device for joining a pair of sheets of material each having a turned edge comprising a supporting member having a pair of spaced depending edges, clamping means having a pair of spaced L-shaped end portions, and means for securing the clamping means to the supporting member with the L-shaped portions adjacent the depending edges of the supporting member to define a pair of spaced openings within each of which one of the turned edges of the sheet material is received and secured thereby to join the pair of sheets of material with the supporting member.

5. The device defined by claim 4 in which the clamping means is an integral structure.

6. A receptacle comprising sheet material having turned edges, a frame member having depending edges parallel to and positioned at one side of the turned edges of the sheet material, clamping means having depending edges parallel to the depending edges of the frame member, said clamping means also having portions projecting outwardly from the depending edges thereof, and means for securing the clamping means to the frame member with the depending edges thereof positioned in gripping engagement with the turned edges of the sheet material and with the projecting portions in engagement with the lower surfaces of the sheet material.

7. A carrying case comprising a pair of wall members each having a turned edge, a frame member having a pair of spaced depending edges positioned adjacent one side of the pair of turned edges, clamping means including a pair of spaced L-shaped portions, and means for securing the clamping means to the frame member with the L-shaped portions engaging the other sides of the turned edges whereby the wall members are secured to the frame member.

8. A carrying case comprising a pair of wall members each having a turned edge, a frame member having a pair of spaced depending edges positioned on one side of the turned edges, clamping means including a pair of spaced L-shaped portions, and handle means secured to the frame member and holding the clamping means with the L-shaped portions in engagement with the other sides of the turned edges whereby the wall members are secured to the frame member to provide a portable carrying case.

9. A fastening device for sheet material having a turned edge comprising a supporting member having a depending lip, a deformable L-shaped member depending from the supporting member adjacent the lip to form a cavity for receiving the turned edges, and sheet material engaging means carried by the L-shaped member, said deformable member being movable relative to the supporting member to engage and secure the turned edge in said cavity thereby to secure the sheet material to the supporting member.

10. A fastening device for sheet material comprising a supporting member, a deformable approximately L-shaped member depending from and integral with the supporting member, said L-shaped member and said supporting member defining an opening to receive an end portion of the sheet material, and material engaging means carried by the L-shaped member, said L-shaped member being movable into engagement with the end portion of the sheet material received in the opening to secure this material to the supporting member.

11. A fastening device for securing sheets of material having turned edges comprising a supporting member having a pair of spaced depending edges, a pair of clamping means having right angle portions, each of said right angle portions cooperating with one of the depending edges to form a channel for receiving one of the turned edges, and a plate carried by said supporting

member and engaging the clamping means to urge said clamping means into gripping engagement with sheets of material.

12. A carrying case comprising sheet material having turned edges, a frame member having a pair of depending edges, a pair of clamping means having right angle portions, said right angle portions being positioned adjacent the depending edges to form an opening for receiving the turned edges, a plate in engagement with the clamping means, a handle, and securing means for securing the handle to the frame and for urging the plate against the clamping means to secure the sheet material to the frame.

13. A joint construction comprising sheet material having an offset end portion, a frame member having a depending edge, said depending edge being positioned adjacent to and engaging one part of the offset portion, and means for clamping another part of the offset portion to the lower surface of the frame member.

14. A joint construction comprising sheet material having an L-shaped end portion, a frame member having a depending edge, said depending edge engaging the outer surface of one of the legs of the L-shaped portion, and means for clamping the other leg of the L-shaped portion to the lower surface of the frame member.

15. A carrying case formed of sheet material having outwardly turned edge portions comprising a frame member having a pair of spaced depending edge portions, and a pair of right angle deformable means formed integral with said frame member and being positioned adjacent to said pair of edge portions of said frame member to define two spaced continuous cavities, said cavities being substantially parallel to each other and to said edge portions of said frame member and receiving the outwardly turned edge portions of said sheet material, said deformable means being movable toward said edge portions of the frame member to engage and to clamp therebetween the turned edge portions of said sheet material.

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