

July 28, 1953

F. S. SCHADE

2,647,071

METHOD OF MAKING LAMINATED CASE CONSTRUCTION

Filed May 2, 1951

2 Sheets-Sheet 1

Fig. 1.

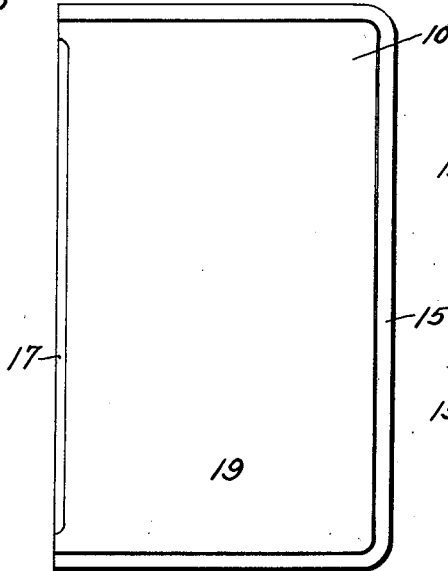


Fig. 4.

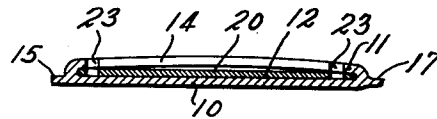


Fig. 5.

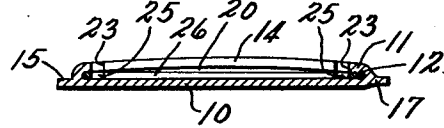


Fig. 2.

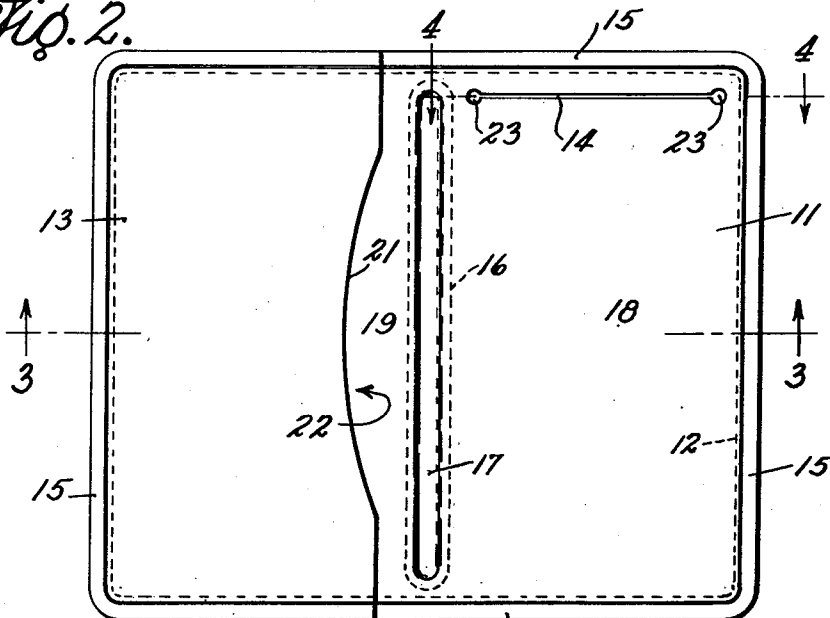
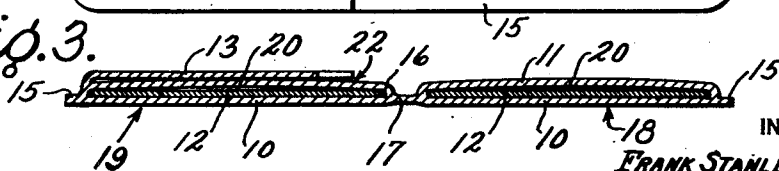


Fig. 3.



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Fig. 6.

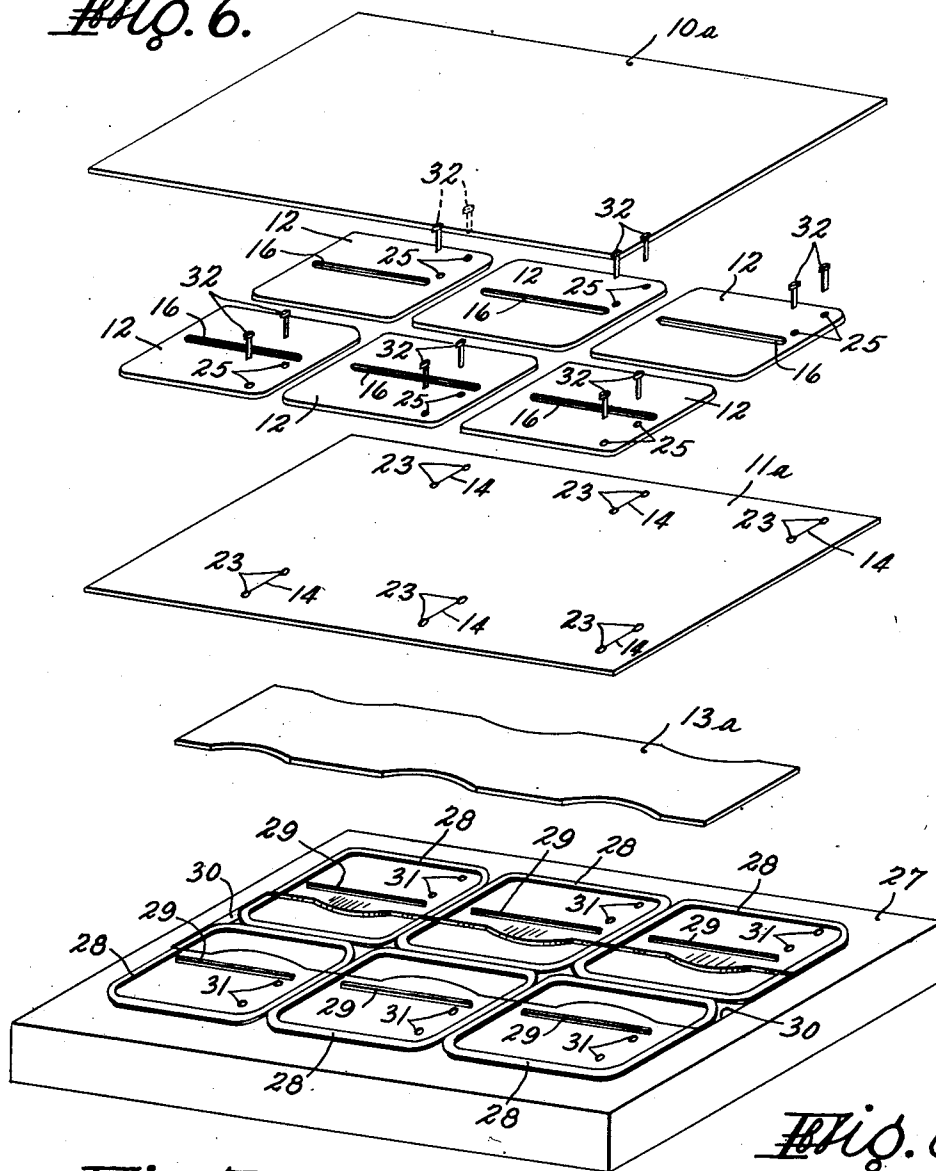


Fig. 7.

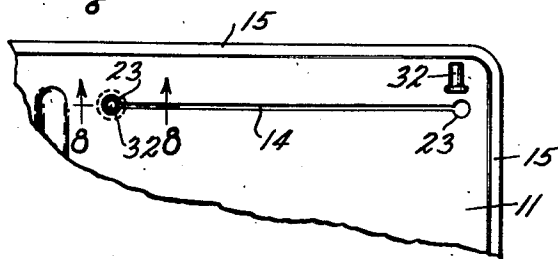
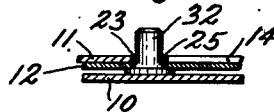


Fig. 8.



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METHOD OF MAKING LAMINATED CASE CONSTRUCTION

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2 Claims. (Cl. 154—83)

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This invention relates to an improved case construction as a wallet and memorandum pad casing and to a novel method for making the same.

The primary objects of the invention are to provide a laminated case construction of plastic sheet materials adapted for use as a wallet and memorandum pad case, stationary portfolio, etui, desk envelope, carrying case, and the like and to provide a method for making a plurality of the same efficiently and with a minimum of expense.

Other objects, features and advantages of the improved article and method for making it will become apparent from the drawings and accompanying description.

Fig. 1 is a plan view of the new wallet and memorandum pad case construction folded into carrying position;

Fig. 2 is a plan view of the same in opened position;

Fig. 3 is a cross section taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary cross section taken on line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 4 but showing a modification;

Fig. 6 is an exploded view of the elements which are combined to form a plurality of cases, such as the one shown in Figs. 1—4;

Fig. 7 is a plan view of a fragment of one of a plurality of cases made from the elements shown by Fig. 6 and illustrates how aligning buttons or pins may be removed; and

Fig. 8 is a fragmentary cross section taken on line 8—8 of Fig. 7.

Referring to the drawings, Figs. 1—4 show an example of the new wallet or case construction. It consists of an outside limp sheet member 10, an inside limp sheet member 11 with an unattached stiffening sheet or stiffener member 12 between, and a pocket forming limp sheet member 13.

An incision or slit 14 is provided in inside sheet member 11 to permit access to the space between this member and the unattached stiffener member 12 for insertion of the tab of a memorandum pad, as will be readily appreciated, or to provide an opening for an additional pocket in the case.

The stiffener member 12 is smaller in area than the limp sheet members 10 and 11 and is so dimensioned that a single integrally welded marginal band 15, formed by bonding overlapping peripheral margins of the sheet members, surrounds the peripheral edges of stiffener member

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12 and thus encases the stiffener member between the sheet members. The stiffener member is centered between the sheet members and the marginal band 15 is substantially of the same width all around the stiffening member.

Stiffener member 12 also has a central slotted opening 16 through it and sheet members 10 and 11 are also integrally welded together through this opening. The bonding of the sheet members through the slotted opening 16 prevents any possible displacement or shucking of the unattached stiffener member as well as providing an integral hinge strip 17 for the case construction. The strip 17 is centrally spaced on the case construction and divides it into two foldable portions 18 and 19.

The integral marginal band 15 around the periphery of the wallet or case construction and the integral hinge strip 17 centrally spaced on the wallet provide a chamber 20 in each foldable portion substantially enclosed by the marginal band 15 and hinge strip 17. This medial chamber is formed by the limp sheet member 10 as an outer wall and limp sheet member 11 as an inner wall.

The stiffener member 12 extends into each medial chamber and around the ends of the welded hinge strip 17 and is loosely held by the band 15 and the strip 17. The stiffener member 12 is not attached to the walls or edge margins of either chamber.

The limp pocket forming sheet member 13, which is also made of similarly thermoplastic material, is positioned on foldable portion 19 of the wallet. The peripheral edges of member 13 are also welded integrally with the marginal band 15. One edge 21 of the sheet member 13 is unattached, and faces the hinge strip 17 to form a side pocket 22 in the wallet.

A set of spaced circular holes or openings 23 are provided in limp sheet 11 forming the inner wall 19 of chamber 20 in the foldable portion 18 opposite the portion having pocket 22. Between openings 23 the slit 14 is cut to form a pocket entrance into medial chamber 20 in front of the stiffener member 12. The slit intersects the circular openings at the sides thereof on a line joining the centers of the openings. This provides terminal openings at each end of the slit to reduce any tendency of the material to tear at these ends.

The stiffener member 12 is also provided with circular holes or openings 25 (Fig. 5) corresponding to openings 23 and registering therewith. A slit 26 may also be made between openings 25 in

the stiffener member 12 to register with slit 14. A pocket entrance is then formed to the portion of the medial chamber behind the stiffener member 12. A memorandum pad tab inserted through the aligned slits 14 and 26 will then be firmly retained for a more secure backing for the pad. This modification is illustrated by Fig. 5.

According to the method of making the case construction, a bed plate 27 (Fig. 6) or similar surface is used and material for making a number of cases is laid in super imposed relation on the plate for the assembly and bonding operations. Preferably bed plate 27 is one face of an electronic heat sealing tool. The bed plate contains a plurality of band forming raised strip surfaces 28 to form the welded marginal band 15 on each case construction, as will be described. Also on the plate are spaced hinge strip forming raised strip surfaces 29, one for each case construction to be made on the bed plate.

The strips 28 as seen in the plate of Fig. 6 along corresponding outer side edges of each case may of course be formed as one continuous strip. And the sides of strips 28 lying in adjacent relation to form the side edges of the cases may also be provided by single widened intersecting strips. Figure 6 shows a strip formation for each individual case by way of example.

The bed plate illustrated by Fig. 6 will permit six case constructions to be made at the same time. To do this, a limp sheet of plastic material 13a, large enough and preformed to provide six pocket forming sheet members 13, is first placed in the center of the bed plate in a shallow cavity 30 formed to receive the same.

Overlying sheet 13a and covering the rest of the bed plate, a rectangular limp sheet of plastic material 11a, large enough to form six inside sheet members 11 is placed. Bed plate 27 is provided with a plurality of sets of holes 31, the holes of each set being spaced to correspond with a set of terminal openings 23 (Fig. 2) at the ends of the slit 14 in the inside sheet member of each individual case construction to be formed.

Sheet 11a is provided with spaced sets of openings 23 with slits 14 joining each set. The openings are located to register with each set of plate holes 31. The sheet may thus be properly aligned on the bed plates by aligning the openings 23 with bed plate holes 31.

Six individual stiffener members 12 are placed on sheet 11a, each stiffener member having a set of spaced openings 25 corresponding to the openings 23 in sheet 11a and a central slot opening 16 provided for positioning over each hinge band forming strip 29 of the bed plate.

Aligning pins or buttons 32, each having a short shank and headed at one end, are then inserted through openings 25 of stiffeners 12, openings 23 of sheet 11a, and then inserted in plate holes 31. The openings are thus in registration with the sub-assembly pinned down in the plate overlying the pocket forming sheet 13a.

A limp plastic sheet 10a, of the same size as sheet 11a, is then placed over the stiffeners and aligned with sheet 11a. Sheet 10a is to form an outside sheet member 10 for each of the six case constructions.

With the sheets and stiffener so placed on the bed plate, a flat bonding plate or bonding plate with strips mating with strips 28 and 29 may be applied to hold together and bond the portions of sheets 10a, 11a and 13a overlying the band forming raised surfaces 28, and the portions of sheets 10a and 11a overlying the hinge strip forming raised surfaces 29.

With the thermoplastic material for the sheets it has been found preferable to electronically heat seal the sheets together to form the bands 15 and hinge strips 17. To do this the band forming raised surfaces 28 and the hinge strip forming raised surfaces 29 on the bed plate are made electrodes of an electronic generator (not shown) and corresponding electrodes are provided on an upper bonding plate. When power is supplied to the electrodes holding together the overlapped portions of sheets 10a, 11a and 13a, heat is concentrated at the interfaces causing them to soften and intermingle and producing an integral weld essentially as strong as the material itself.

The welded assemblies are then removed from the plate and the six case constructions are cut from it as by a cutting die.

The element aligning buttons 32 are then removed as a final step in each case construction. The stiffener members 12 preferably being of plastic or similar yieldable material, the pins 32 may be forced out through the openings by thumb pressure. Fig. 7 shows one pin 32 still in place and the other removed and in the position relative to the slit terminal opening 23 where it is forced out. Thumb pressure on the exposed shank end will roll the head free of the stiffener opening by merely stretching the material.

As mentioned above, a useful variation in the case construction may be obtained by providing the stiffener member 12 with slit 26 corresponding to slit 14 (see Fig. 5). The method of making this assembly is the same. The modification permits access to the space between the stiffener member 12 and the outside limp sheet member 10 as well as to the space between the stiffener member 12 and the inside limp sheet 11. An additional pocket is thus formed. When the tab piece of a memorandum pad is inserted behind the stiffener member additional stiffness is supplied in the assembly for retaining the pad.

Because the stiffener member 12 is not attached to the limp sheet members 10 and 11 but is encased between them by the integral welding of their overlapping peripheral portions and the portions at the central opening 16 of the stiffener member 12, the construction has a feeling characteristic of leather. This results from the slight movement of the outer sheets between the fingers when the case is handled, the movement of the sheet members being relative to the stiffener. The limpness of the sheet material used and the elastic properties of the plastic material permit such movement in the laminated arrangement as disclosed.

What is claimed is:

1. The method of making a laminated case construction of the single fold type of the class described for wallets which consists in forming a set of spaced holes in a limp sheet of thermoplastic material and in a position on said sheet laterally of a central hinge line area and cutting a slit between said spaced holes; forming a central slotted opening in a sheet of stiffening material defining a hinge line area for the case and laterally of said slot forming a correspondingly spaced set of holes for registration with said spaced holes of the thermoplastic sheet, said stiffener sheet being of lesser overall dimensions than said thermoplastic sheet for providing a peripheral marginal edge portion of the latter around said stiffening sheet; superimposing said two sheets with the thermoplastic sheet underneath on a heat sealing tool having spaced holes corresponding to said spaced holes of said sheets;

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threading aligning pins having heads of a slightly larger size than said holes through the holes of said sheets and inserting the stems of said pins into the holes of said tool for maintaining the relative positioning of said sheets on said sealing tool; mounting a second sheet of limp thermoplastic material of greater overall dimensions than said stiffener sheet over said superimposed sheets; integrally welding said thermoplastic sheets in the contacting areas of the peripheral marginal edge portions around the stiffening sheet and in the area of said central slot to form an edge band and a central hinge band; removing the assembled casing from the tool and withdrawing the headed aligning pins through the registered openings of said stiffener and limp sheet by flexing the material of said stiffener sheet immediately adjacent said openings.

2. The method of making laminated case constructions of the single fold type of the class described for wallets which consists in placing a limp sheet of thermoplastic material against the face of a heat sealing tool and covering adjacent lateral edge portions only of a series of rectangular areas defined by ridges on the tool and having within each said area a centrally disposed single ridge defining a fold line for a wallet and in the lateral portion of each area outwardly of the aforesaid adjacent sides provided with a set of spaced openings in said tool; placing a second limp sheet of thermoplastic material provided with sets of spaced openings with a slit cut therebetween and corresponding in position on said sheet to the sets of openings

of said tool and registering the same with said tool openings; mounting on said second limp sheet a plurality of stiffening sheets each having a centrally disposed slotted opening registering with said central ridges and laterally thereof a set of spaced openings in said sheet to register with the openings of one of said rectangular areas, with the peripheral edge of said stiffener sheets lying within the boundary defined by said rectangular ridges; threading headed aligning pins in the openings of the superposed stiffener sheets and said second limp sheet and inserting the shanks of said pins in said tool openings; mounting over the subassemblies of said plurality of stiffener sheets and limp plastic sheet, a third limp thermoplastic sheet extending over said rectangular areas; then heat sealing the superposed limp plastic sheets by welding the same integrally in the contacting areas of the rectangular marginal ridges and the central ridges; removing the laminated sheets comprising a plurality of casing assemblies, severing each casing from the other along said marginal welded areas, and withdrawing the headed pins by rolling the same out through the openings in said stiffener sheet and said limp sheet.

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