

W. G. AXTELL
CLIP FOR LUGGAGE CASE SHELLS

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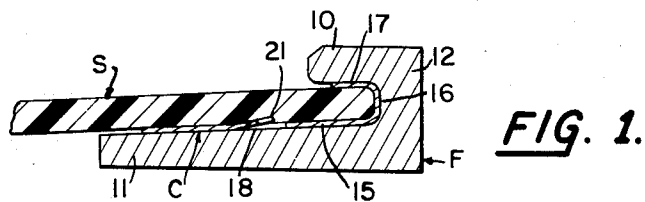


FIG. 1.

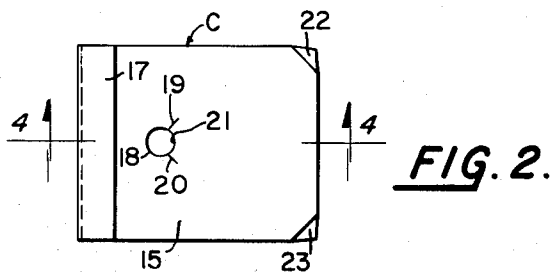


FIG. 2.

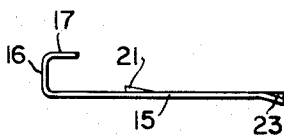


FIG. 3.

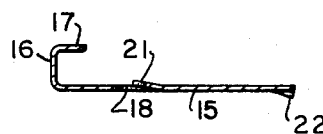


FIG. 4.

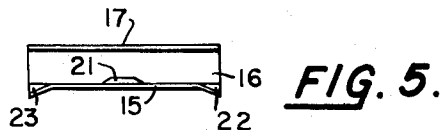


FIG. 5.

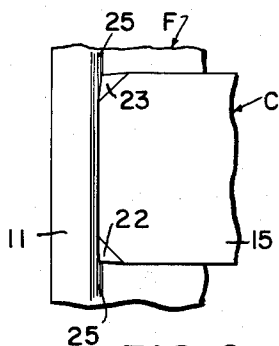


FIG. 6.

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CLIP FOR LUGGAGE CASE SHELLS

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6 Claims. (Cl. 190—54)

This invention relates to a clip and more particularly to a clip for holding the shell of a luggage case in a groove of a frame, as while an adhesive for holding the shell and frame together hardens.

In the manufacture of luggage cases, non-metallic shells, such as formed of an acrylonitrile butadiene styrene copolymer or other plastic, have come into extensive use. Such luggage cases usually comprise two opposed concave sections, with each section comprising a concave shell whose edges are attached to a frame and the frames are adapted to fit together with the sections closed. Such a shell is usually attached to the metal frame within a groove formed between an outer flange and a normally wider inner flange. The frames are often formed of light weight metal, such as an aluminum or magnesium alloy, and may be formed from cast sections, from extruded strips bent to the desired shape, from strips rolled or otherwise formed to provide the desired groove and flanges, or in any other suitable manner. The inner flange provides a place for attachment, as by rivets, of hinges, hardware and inside appointments, while the outer flange provides a protective covering for the edge of the shell. The shell, of course, covers rivets extending only through the inner flange and the shell may be attached by rivets to the frame, but such rivets appear on the outside of the luggage case, thus detracting considerably from its appearance. A suitable adhesive may be used to adhere the edge of the shell in the groove of the frame, but the shell and frame must be maintained securely in position while the adhesive is setting. Due to the shape of the shell and frame, clamps or clamping devices for holding the shell and frame are unduly complicated and cumbersome, as well as occupying an undue amount of space, particularly when the luggage cases are manufactured on a production line basis. A clip which attaches such a shell to a frame, particularly while an adhesive is setting, will remain as part of the luggage case and therefore should not extend from the frame, particularly on the outside, to produce an unsightly appearance. The clips of this invention are adapted to be utilized in a luggage case constructed as disclosed in the copending application of Willard G. Axtell, Melvin H. Best and Clair A. Samhammer, Serial No. 266,683, filed March 20, 1963, although such clips are adapted to be utilized in numerous other types of luggage case constructions.

Among the objects of this invention are to provide a novel clip, particularly adapted to hold the shell of a luggage case in the groove of a peripheral metallic frame while an adhesive is setting; to provide such a clip which is simple in construction, yet highly efficient in operation; to provide such a clip which will positively engage both the frame and the edge of the luggage case shell; to provide such a clip which is hidden from view within the groove; to provide such a clip which contributes to the resistance against forces tending to separate the shell and frame after the adhesive has set; and to provide such a clip which is economical to manufacture.

Additional objects and the novel features will become apparent from the description which follows, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is an enlarged, fragmentary, longitudinal section, taken at an edge of one half of a luggage case, showing the frame, a portion of the shell and a clip of this invention secures the shell to the frame;

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FIG. 2 is a top plan view of the clip of this invention; FIG. 3 is a side elevation of the clip of FIG. 2;

FIG. 4 is a longitudinal section, taken along line 4—4 of FIG. 2;

FIG. 5 is a rear elevation of the clip of FIG. 2; and

FIG. 6 is a fragmentary, top plan view, taken underneath the shell, of the clip of FIG. 2 in engagement with the frame.

In accordance with this invention, a series of clips C are installed at spaced positions around the edge of a luggage case shell S of FIG. 1, adhesive being applied to the edge of the shell or to the corresponding surfaces of a frame F, such as the inner surface of an outer flange 10, the outer surface of a wide, inner flange 11 and the inner surface of a web 12, or both the shell and frame. Then the edge of the shell is inserted into the frame groove formed by the web and flanges, each clip C attaching the shell to the frame while the adhesive is setting. It will be understood that, although the primary function of the clips is to secure the shell and frame securely together while the adhesive is setting, i.e., when there are no forces of great magnitude tending to separate the shell from the frame, the clips remain in position and assist to a limited degree the adhesive, after setting, in resisting forces tending to separate the shell and frame. The number of clips utilized, such as two or more clips along each of the top, bottom and end edges of the shell, will depend primarily upon the size of the case.

The clip C of this invention, as in FIGS. 2-5, is formed of relatively thin, preferably resilient metal, such as spring steel and preferably having a hardness greater than that of both the shell and frame. The clip C is generally J-shaped, having a base 15 whose length is less than the width of inner flange 11 of frame F and having an up-turned front end 16 which is turned rearwardly to form an outer flange 17 having a width less than outer flange 10 of frame F, so that flange 17 will be hidden from view after installation. Conveniently, base 15 is provided with a central hole 18, which may be formed by a punch having an angular projection to provide a pair of diagonal slits 19 and 20, extending rearwardly and outwardly from opposite sides of hole 18 to form an upwardly projecting prong 21 having two sharp points which will dig into the underside of shell S, as in FIG. 1, when the clip is pushed onto the shell. Thus, prong 21 prevents the shell from slipping out of the clip. It will be understood that the extent to which prong 21 enters shell S is exaggerated in FIG. 1, for clarity of illustration.

At the rear corners of base 15, conveniently triangular prongs 22 and 23 are struck downwardly, so that the sharp points thereof will dig into inner flange 11 of frame F, when the edge of a shell S, with an appropriate series of clips C, is pushed into the groove of frame F. As will be evident, prongs 22 and 23 will resist a considerable force which would tend to pull the clip out of the frame. It may also be desirable to place a few score lines 25, as in FIG. 6, as by a sharp instrument, along the inner flange 11 of frame F, at the position of each clip, to insure that end prongs 22 and 23 will dig into the metal of the frame more readily. Thus, it can be seen that a series of clips C will securely hold shell S in frame F, until the adhesive hardens.

As will be evident, the frame F may be any type of channel having inner and outer flanges, while the width and length of the clip may be varied considerably, limited only by the widths of the frame flanges. Also, triangular prongs for engaging the frame inner flange may be struck downwardly from the base at other positions than the corners, while prongs similar to prong 21 may be struck downwardly from the base for the same purpose.

From the foregoing, it will be evident that the objects of this invention, hereinbefore set forth, have been ful-

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filled to a marked degree. Clip C is of simple construction, yet highly efficient in operation, in that center prong 21 prevents shell S from slipping or twisting out of the clip, while corner prongs 22 and 23 prevent the clip from slipping out of frame F. Thus, the shell is firmly held in place in the frame until the adhesive can harden. The clip is easy to use, since it is readily pushed onto the edge of a shell and a shell with a series of clips thereon also is readily pushed into a frame groove. The clip is completely hidden from view, after installation, since the base of the clip is shorter than the width of the inner flange of the frame and the outer flange of the clip is narrower than the outer flange of the frame. Clearly, the clip is economical to manufacture, since it can merely be stamped from a piece of sheet metal and bent to the appropriate shape, in annealed condition, then heat treated for hardening.

Although a preferred form of this invention has been illustrated and described, it will be understood that various changes and variations may be made without departing from the spirit and scope of this invention.

What is claimed is:

1. The combination of
a luggage case shell;
a plurality of clips spaced along the peripheral edge of said shell; and
a frame providing a channel having inner and outer flanges and receiving the edge of said shell and said clips;
said clips being generally J-shaped and each including a generally flat base received between said frame and said shell and having at one end an angular flange engaging the edge of said shell;
first means extending from said body for engaging said shell and tending to prevent said shell from slipping out of said clip; and
a pair of prongs formed by downwardly turned corners of said base for engaging the inner flange of said channel and tending to prevent said clip from slipping out of said channel.
2. The combination defined in claim 1, wherein:
said first means comprises an upwardly extending prong having relatively sharp corners of the character produced by upsetting said prong between spaced slits extending to a hole.
3. A clip, adapted to secure the shell of a luggage case in a groove of a frame, including:
a base having a hole therein and a pair of slits extending diagonally outwardly from opposite sides of said hole;
an end extending upwardly at the front of said base and having a rearwardly extending flange adapted to engage the edge of said shell;

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an upwardly extending prong formed by the portion of said base between said slits for engaging said shell to retard said shell from sliding out of said clip; and means on said base for engaging said frame to retard said clip from slipping out of said frame.

4. A clip, adapted to secure the shell of a luggage case in the groove of a frame, including:

a base;

an end extending upwardly at the front of said base and having a rearwardly extending flange adapted to engage the edge of said shell;

means extending upwardly from said base for engaging said shell to retard said shell from sliding out of said clip; and

rear corners of said base turned downwardly for engaging said frame to retard said clip from slipping out of said frame.

5. The combination defined in claim 1, wherein the inner flange of said frame is provided with at least one groove adapted to be engaged by said downwardly turned corners of said base to prevent said clip from slipping out of said frame.

6. The combination of

a luggage case shell;

a plurality of clips spaced along the peripheral edge of said shell; and

a frame providing a channel having inner and outer flanges and receiving the edge of said shell and said clips;

said clips being generally J-shaped and each including a generally flat base received between said frame and said shell and having at one end an angular flange engaging the edge of said shell;

said base having an upturned portion, between a pair of slits extending diagonally outwardly from the opposite sides of a central hole, for engaging said shell and tending to prevent said shell from slipping out of said clip; and

means extending from said body for engaging the inner flange of said channel and tending to prevent said clip from slipping out of said channel.

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