Dec. 19, 1933. M. STUBNITZ 1,940,637

CUSHION SEAT AND THE LIKE

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Fig. 1.

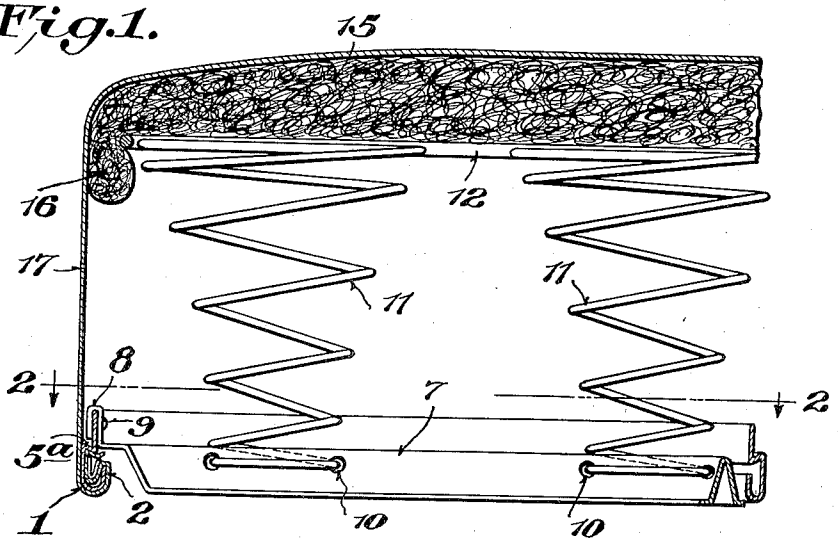


Fig. 2.

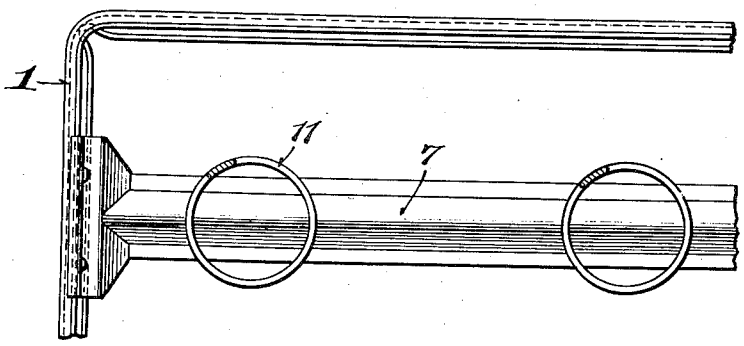


Fig. 3.

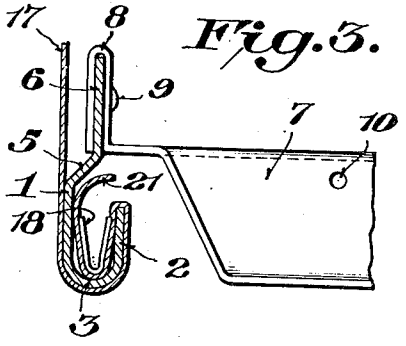
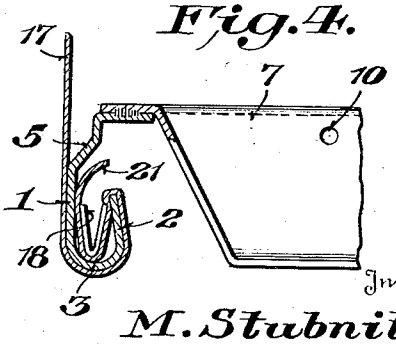


Fig. 4.



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CUSHION SEAT AND THE LIKE

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Fig. 5.

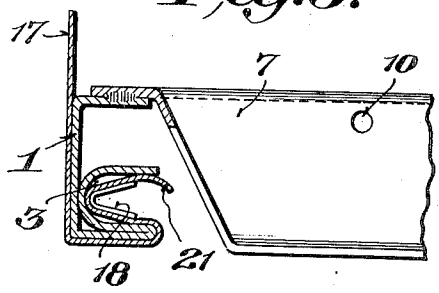


Fig. 6.

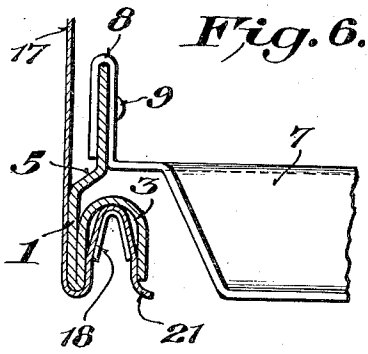


Fig. 7.

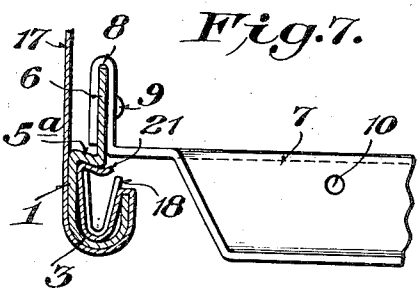


Fig. 8.

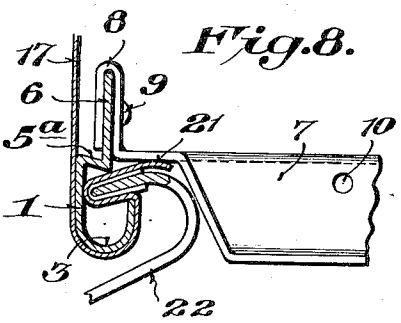


Fig. 9.

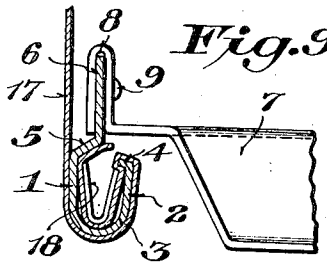


Fig. 10.

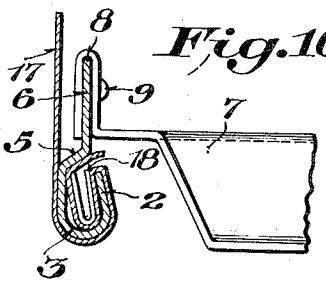


Fig. 11.

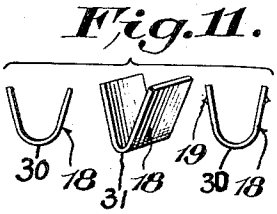


Fig. 12.

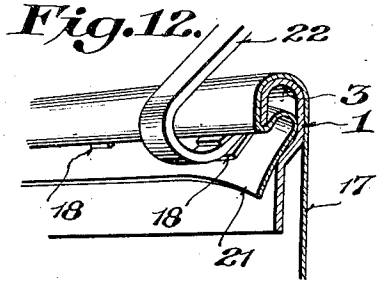
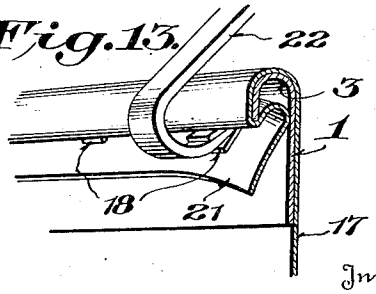


Fig. 13.



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UNITED STATES PATENT OFFICE

1,940,637

CUSHION SEAT AND THE LIKE

Maurice Stubnitz, Pittsburgh, Pa., assignor to Fort Pitt Bedding Company, Pittsburgh, Pa., a corporation of Pennsylvania

Application July 27, 1933. Serial No. 682,494

8 Claims. (Cl. 155—180)

This invention relates to improvements in cushion seats and the like; and it comprises a cushion seat having a lower border frame, an upper border frame, spring-supporting means attached to the lower frame, coil springs supported on said means and attached to the upper border frame and a cover over the upper and lower border frames, the lower frame being provided with an inwardly turned edge forming a pocket for receiving the edge of the cover, and a plurality of expansible spring clips wider at their extremities, when expanded, than the insides of the pocket and located in the pocket under compression, holding the cover firmly in the pocket under compression, all as more fully hereinafter set forth and as claimed.

In manufacturing cushion seats many difficulties are encountered; particularly in the case of seats for automobiles, where the strains and shocks put upon the seat are uncommonly severe. Perhaps the most troublesome problem in cushion seats is the provision of satisfactory cover retaining means. Permanent, sightly cover fastening means have long been a desideratum in the art. The oldest way of fastening is tacks; the cover is tacked to a wooden seat frame. Seats covered in this way are not entirely satisfactory. The tacks tend to loosen and drop out, and they are also apt to tear the cloth covering. For this reason and others, wooden seat frames are obsolescent. Metal frames are taking the place of wooden ones in the industry. They lend themselves more readily to cheap mass production. All-metal frames require different cover fastening means; tacks cannot be used. Various cover fastening means for use with metal frames have been proposed. In imitation of wood construction and tacks, rivets have been used for attaching the cover to the frame. In some designs the edge of the cover is provided with a corded or rolled edge, and this edge is retained by a bent-in pocket. In others, metal bars, rods and clamps have been used to hold the cover against the frame.

None of these fastenings has proved to be entirely satisfactory from the standpoint of workmanship. Seat cushions with the various retaining means mentioned often develop unsightly wrinkles in use, or the cover becomes loose or even detached. Seat cushions with these fastening means are costly, in labor of assemblage or in materials or in both. In many designs removal and replacement of the cover is impossible. Most of the seat cover attachments proposed also have the defect that part of the attachment means are exposed to view; the finished cushion shows a metal binding strip or part of the frame. This is objectionable in the modern passenger automobile industry.

In the seat industry of today, the most serious disadvantage of most of the old cover-fastening means and methods is their high cost of manufacture, both in materials and labor. A tacked cushion seat to be satisfactory must have a wooden frame made from selected lumber, well joined; and the tacking operation is relatively time consuming and costly. Cushion seats using metal bars or binding strips are heavy and costly, on account of the large amount of metal required; and the process of attaching the cover to the frame by means of the metal bars is time-consuming. In the highly competitive mass-production seat cushion industry of today, the cost of manufacture of a cushion seat frame and the cost of upholstering it must be low.

According to the present invention I provide the lower edge of a border frame with a pocket, and provide a plurality of spring clips adapted to clamp the cover in the pocket in such a way that the clip and the cover may be readily removed and replaced without injury. The cover retaining means are not permanently deformed in any way by attachment or detachment of the cover; yet the cover is held securely in position without slippage or loosening, and can be easily, quickly and smoothly positioned. The pocket is formed on the lower border frame by bending the lower edge of the frame inwardly and around into substantially a U shape. The clip used is advantageously a short V or U shaped piece of spring steel, the sides in a loose clip being wider apart than the inside of the pocket. A plurality of these clips is set at spaced intervals in the pocket.

This construction presents many advantages. In upholstering, the clips may be forced into the pocket together with the cover edge by a simple tool. Neither the frame nor the clip is in any way deformed in the operation, nor is the cover fabric broken or torn. Removal of the clips and the cover is easy; yet while in place the cover is firmly retained. There is nothing to come loose. The pocket being on the inside, the cover retaining means is concealed from view. The frame is inexpensively manufacturable, being made from stamped metal. I have replaced the cumbersome locking bars of earlier seats with a few simple metal clips. The amount of material represented in all the clips required for a seat equals only two or three ounces, as com-

pared with a weight of a pound or more for locking strips and the like. The frame can be manufactured, and it can be upholstered, at surprisingly low cost. The finished seat is entirely acceptable to the passenger car industry; it presents a neat appearance free from wrinkles and with no metal parts exposed.

Several advantages are presented by my frame design in upholstering. In covering my seat frame, a portion of the cover edge is inserted in the pocket and a clip is forced into the pocket at that point, securely retaining the cover. The cover is pulled out along the length of the pocket free of wrinkles and another clip is inserted at a suitably spaced interval. When one side is completed, the others are finished in the same manner. Although the cover is smoothed out between each fastening, an operation obviously impossible with long bars, yet the whole operation can be performed in a surprisingly short time. Equal, regulated tension on all parts of the cover is obtained. Excesssive strains on one part of the cover, such as often occurred with old fastening means, are avoided.

In the accompanying drawings are illustrated several forms of a specific embodiment of my invention. In these showings,

Fig. 1 is a view in vertical section, some parts being shown in elevation, of a portion of an upholstered cushion seat embodying my invention,

Fig. 2 is a horizontal section taken along line 2—2 looking in the direction of the arrows and with the cover removed,

Fig. 3 is a detail segmental view, partly in section, of one embodiment of the invention showing lower border frame with a cover edge and clip in place, and the end of a spring supporting bar riveted to the frame,

Fig. 4 is a similar view, the pocket having a constricted mouth and the bar being welded to the frame,

Fig. 5 is a similar view of a modification having an inturned horizontal pocket,

Fig. 6 is a similar view of a modification having an inner open-bottomed pocket,

Fig. 7 is a similar view of a modification having an inwardly extending shoulder formed in the lower border frame.

Fig. 8 is a similar view showing a clip being forced into place by means of a tool,

Fig. 9 is a similar view of a modification having an inwardly-extending shoulder on the edge of the pocket,

Fig. 10 is a similar view of a modification having the pocket bent inwardly, compressing the clip,

Fig. 11 is a view of three useful forms of spring clips,

Fig. 12 is a perspective view of a portion of the lower frame and pocket with a clip being inserted, and

Fig. 13 is a similar view of a modification having a straight-sided lower border frame.

Referring to the drawings, in which similar reference numerals designate corresponding parts throughout the several views, 1 is the sheet metal lower border frame having along its lower edge the inwardly extending section 2 resulting in a substantially U shaped pocket 3. Inwardly extending section 2 may be provided with a lip, shoulder or abutment 4 projecting into the entrance of the pocket 3 as shown in Fig. 9. The purpose of this shoulder will be hereinafter more fully described.

In the embodiments shown in Figs. 1 to 3, and 6 to 12, at a point slightly above the U shaped pocket 3 the top or upper portion of the lower border frame is offset or bent inwardly to form the shoulder 5 (or bent inwardly and downwardly to form the shoulder 5^a, see Figs. 1, 7 and 8) and then extends vertically as at 6 to provide attaching and supporting means for the spring cross bars 7 which bridge opposite sides of the frame. These bars are provided with hooked ends 8 which fit over the vertical portion 6 of the lower border frame and are riveted, spot welded, punched or otherwise securely attached thereto as clearly shown at 9. In Figs. 4 and 5 the upper portion of the lower border frame is bent horizontal, and is spot welded to the ends of the bars, as shown. The shoulder partially restricts the entrance to the pocket 3 and may extend downwardly, making an acute angle with the side of the border frame, as shown at 5 in Figs. 1, 2, 7 and 8 or upwardly forming an obtuse angle, as shown at 5^a in Figs. 3, 4, 9, 10 and 12. The spring supporting bars or slats 7 are provided at intervals along their lengths with perforations 10 for the reception and retention of the lowermost coil of coil springs 11 which extend upwardly to the top of the cushion and which are tied together by tie wires or clips not shown. At their tops the springs are attached by means of clips not shown to an upper border frame 12 of stout wire and on this wire is supported the usual padding 15 extending below the upper border frame as shown at 16. Embracing the upholstery or padding 15 is the cover 17 which extends downwardly, contacting with the outer face of the lower border frame 1 but not contacting with the upper portion 6. The cover is secured to the lower border frame by wrapping the lower extremities thereof around the lower edge of the border frame and tucking the same into the pocket 3 in which it is secured by cover clips 18 spaced at convenient intervals about the frame.

Clips 18 which consist simply of a V shaped strip of spring steel as shown in Fig. 11 are easily compressed and forced with the cover into the pocket 3 by means of a hook shaped tool 22 as shown in Fig. 8. The distance between the extremities of the clips is greater than the distance across the opening of the pocket so that the clips must be compressed before they will enter the pocket and after entering they will expand to press the cover against the sides of the pocket. I have found that pressure of the clips against the cover and the pocket walls is normally sufficient to hold the cover edge in place, even without restraining abutments as used in the modifications shown in Figs. 1, 2, 7, 8, 9, 10 and 12. Three forms of clips that I have found useful in my invention are shown in Fig. 11; one has a U-shaped bend 30, one a V-shaped bend 31, and a third has small projections or barbs 19 as shown. This latter form is particularly useful when cover edges of heavy material are to be used in frames having straight sided pockets.

In the embodiments of my invention shown in Figs. 1, 2, 7 to 10 and 12 the clip forces a portion of the cover under the offset, or shoulder, and any attempt to loosen the cover by pulling upwards at the sides of the cushion only serves to cause the clip to more tightly grip the cover. However, the cover may readily be removed when necessary by gripping its free edge 21 with a pair of pliers and pulling in a direction towards the opposite side of the border frame.

This will compress the sides of the clip and permit its ready removal from the pocket.

In Fig. 4 the pocket is shown as having a narrow mouth portion, the expansible clip being retained behind this mouth portion.

In Fig. 9 is shown a modified form of my invention in which one end of the clip forces the cover under the lip 4 on the upwardly extending section 2 of the pocket 3. In this embodiment the offset 5 is bent upwardly instead of downwardly. This form also securely holds the cover against all normal tendencies of removal but it may be removed by simply pulling on the free edge 21.

In Fig. 10 I have shown a still further modification of my invention in which neither lip 4 nor downwardly extending offset 5 is used to hold the clip. In this form side 2 of pocket 3 is bent inwardly at the top after the cover and clip have been inserted and this tilts the clip on an angle to cause its end to clamp the cover against the offset 5. Removal of the cover in this embodiment necessitates straightening side 2 of pocket but the advantages of securing a tight substantially permanent and simple connection of the cover to the border frame make this design at times desirable.

In the embodiments shown in Figs. 3, 5, 6, and 13 pressure of the clip against the wall of the pocket retains the cover edge and clip firmly in the pocket against all ordinary strains.

In Figs. 8, 12 and 13 are shown one method of fastening the cover to the frame. In Figs. 12 and 13 the frame is shown in inverted position, the ordinary position during upholstering. Clips are forced into the pocket together with the cover at spaced intervals by means of a curved tool 22 (advantageously magnetized so as to pick up and retain a loose clip) as shown. In operation, a clip is inserted and the cover pulled taut laterally, free of wrinkles; then another clip is inserted at a suitable interval, and the process repeated around the frame. Equal tension on the lower cover edge is obtained.

The seat together with its cover attaching means as described is extremely simple in construction, comprising few parts and when assembled is especially strong and durable; it is an all metallic seat which may be made of rolled or stamped metal, all parts of which are covered by the upholstery which is so held in place that the cover may be readily attached or detached therefrom in a minimum period of time by relatively unexperienced persons and without injury to the seat or cover attaching means. The construction of the lower border frame and cushion seat as described greatly facilitates trimming of the seat. Trimming time is reduced to a minimum and can readily be accomplished by relatively inexperienced help.

Other spring supporting means than the channeled bars chosen for illustration may of course be used, in conjunction with the lower border frame having a pocket. The only requirement is that sufficient space be left between the spring supporting means and the pocket to allow of the clips and cover edge being inserted therein.

What I claim is:

1. In a cushion seat or the like, a lower border frame having an inturned lower portion forming a pocket for the reception of a cover and expansible spring clips, the pocket having sides restricted in width less than the distance of the extremities of the clips when expanded, the frame carrying in its upper portion means adapted to support springs, the cover located on the outside of said frame and lower portion and extending into said pocket, and a plurality of the expansible spring clips located at spaced intervals in the pocket and under compression, pressing the cover firmly against the inside of the pocket and being retained against displacement by the walls thereof.

2. In a cushion seat or the like a lower border frame having an inturned lower portion forming a parallel sided pocket for the reception of a cover and expansible spring clips, the sides of the pocket being less in width than the distance of the extremities of the clips when expanded, the frame provided with means adapted to support springs, the cover located on the outside of said frame and extending into said pocket, and a plurality of expansible spring clips normally wider apart at their extremities than the insides of the pocket located at spaced intervals in the pocket under compression, holding the cover against the inside of the pocket.

3. In a cushion seat or the like comprising a cover, a plurality of V-shaped spring clips and a lower border frame, said lower border frame comprising a lower portion, means for supporting cross bars and an intermediate offset portion, the lower portion extending inwardly and upwardly to form a pocket, the offset portion extending inwardly and downwardly to form an abutment, the cover and the spring clips being positioned in said pocket, one end of the clips clamping a portion of the cover under said abutment to securely hold the cover in position on the frame.

4. In a cushion seat or the like a cover, a plurality of V-shaped spring clips and a lower border frame, said lower border frame comprising a lower portion, means for supporting cross bars and an intermediate, inwardly extending offset portion, said lower portion extending inwardly and upwardly to form a pocket, the extremities of said cover and the spring clip being inserted in the pocket, one end of said clips forcing a portion of the cover against said offset portion to securely clamp the cover to the frame.

5. In a cushion or the like having a cover, a plurality of V-shaped spring clips and a lower border frame, said lower border frame comprising a lower portion, means for supporting cross bars and an intermediate, inwardly extending offset portion, said lower portion extending inwardly and upwardly to form a pocket, the extremities of said cover and the spring clips being positioned in the pocket, the ends of said clips clamping the extremities of the cover against the walls of the pocket, one end of the clip being retained beneath the extended offset portion, to securely hold the cover in position on the frame.

6. In a cushion seat or the like having a cover, a plurality of V-shaped spring clips, a lower border frame and a plurality of spring supporting bars bridging opposite sides of said border frame, said lower border frame comprising a lower portion and an inwardly offset vertical portion, said lower portion extending inwardly and upwardly to form a pocket, said inwardly offset vertical portion being adapted to receive the end of said cross bars, the extremities of the cover and the spring clips being positioned in said pocket, the ends of the clips clamping the extremities of the cover against the walls of the pocket, one end of the clips being retained beneath the extended offset portion, to securely hold the cover in position on the frame.

7. In a cushion seat or the like having a cover and a lower border frame, means for attaching the cover to the border frame including a pocket on the inner side of said border frame, said pocket being open at the top, said pocket being provided with opposed abutments restricting the entrance to the pocket and a plurality of spaced spring metal V-shaped cover clamping clips adapted to be sprung into the pocket past said abutments to clamp the edge of the cover against the walls of the pocket and against said abutments to hold the cover on the seat.

8. In a cushion seat or the like comprising a cover, a plurality of V-shaped spring clips and a lower border frame comprising a lower portion, means for supporting cross bars and an intermediate, inwardly extending offset portion, the lower portion extending inwardly and upwardly to form a pocket and terminating in a shoulder extending partly across the entrance to the pocket, the cover and the spring clips being inserted in said pocket one end of the clips and a portion of the cover engaging said offset portion to force the other end of the clips against the shoulder to securely clamp the cover in position on the frame.

MAURICE STUBNITZ.