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2,606,060

ATTACHING MEANS FOR THE SIDES OF CONVERTIBLE TOP FABRIC

Filed March 6, 1950

3 Sheets-Sheet 1

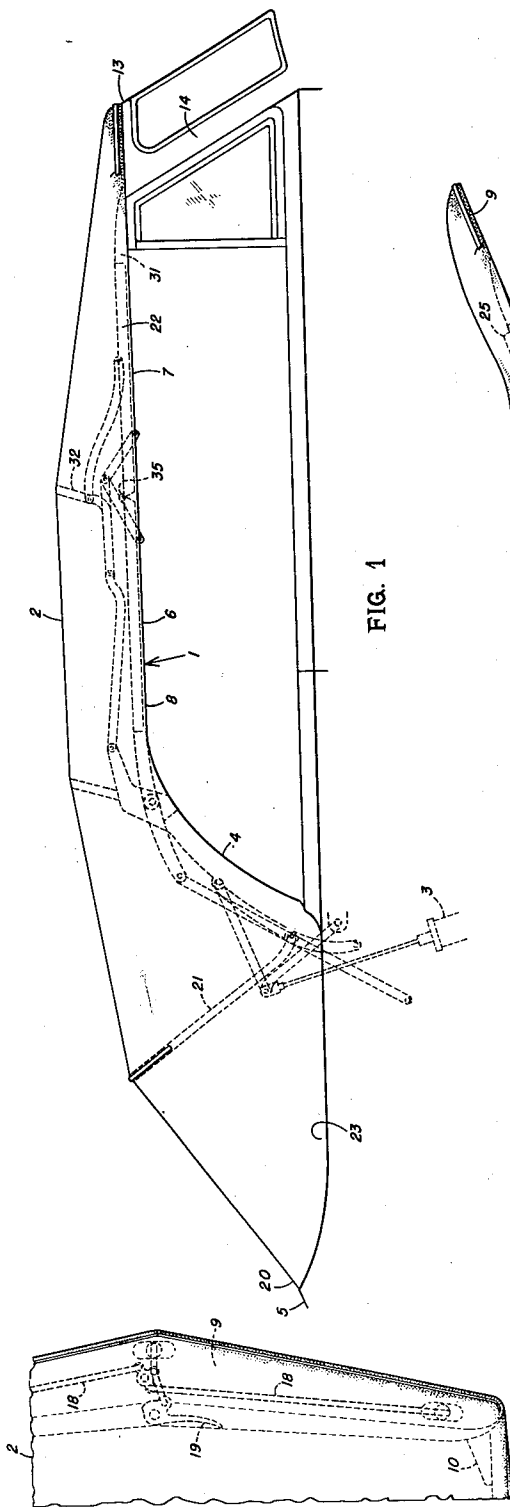


FIG. 1

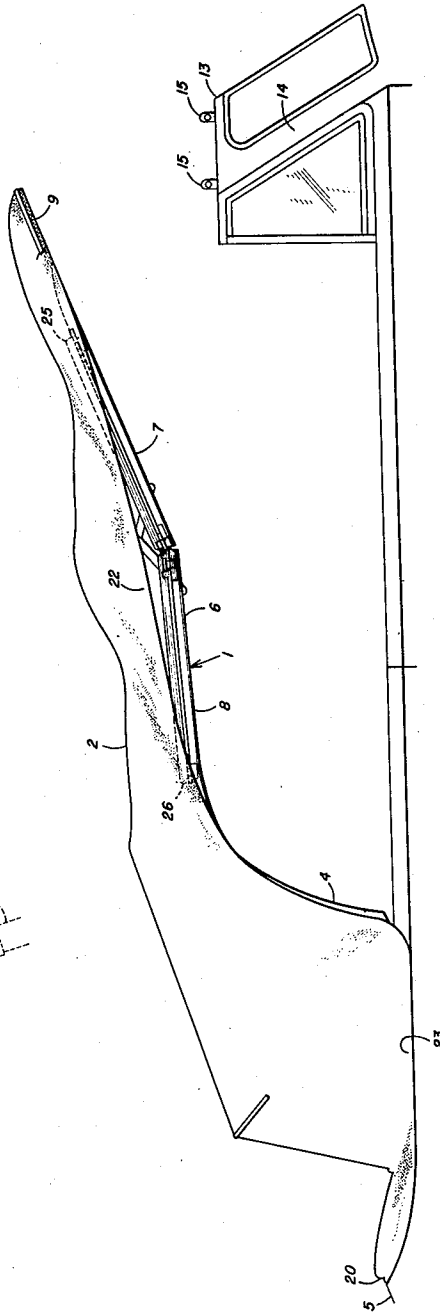


FIG. 2

FIG. 3

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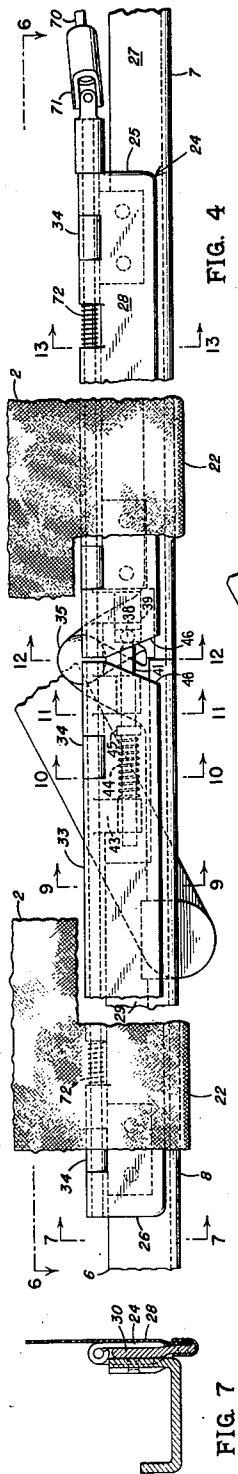


FIG. 7

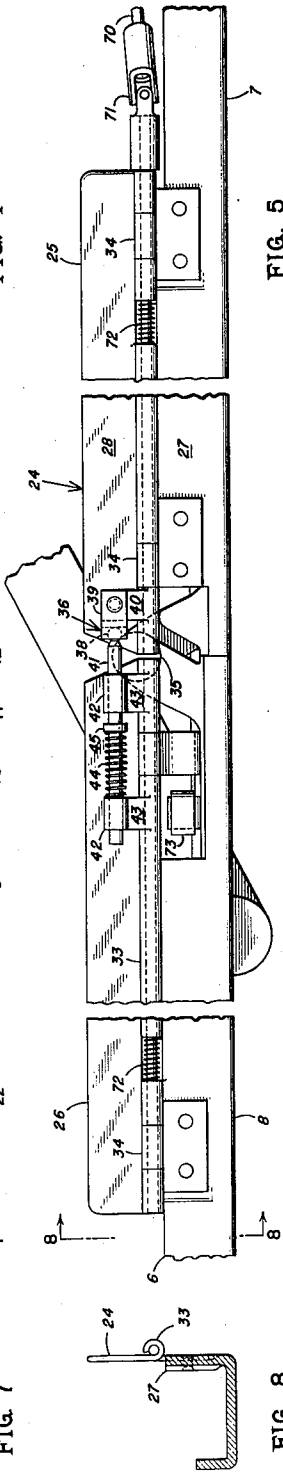


FIG. 8

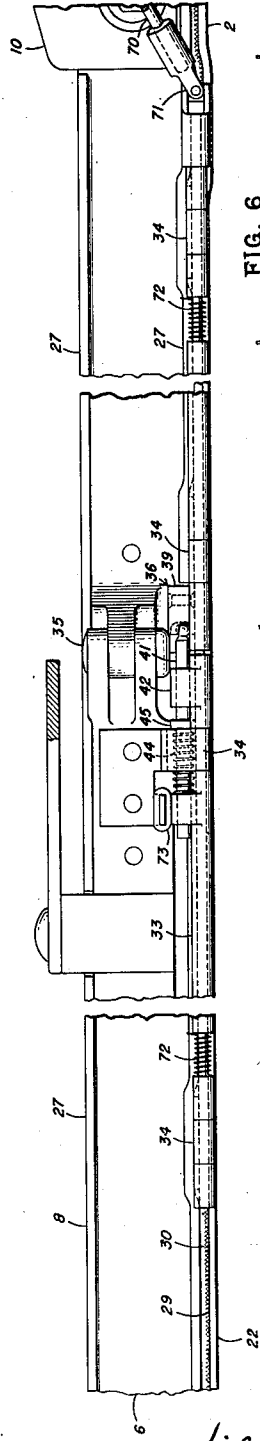


FIG. 9

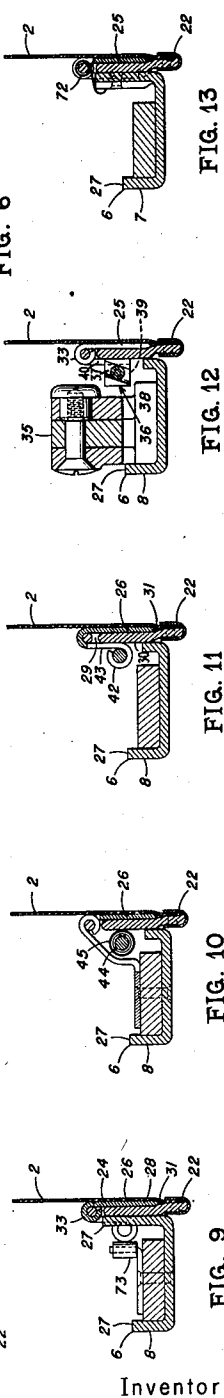


FIG. 10

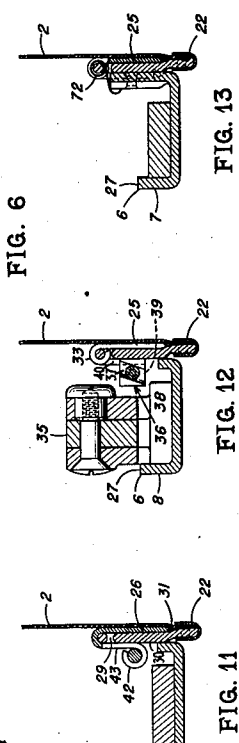


FIG. 11

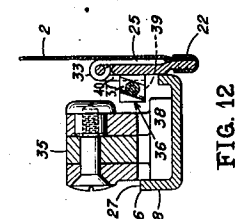


FIG. 12

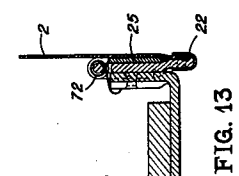


FIG. 13

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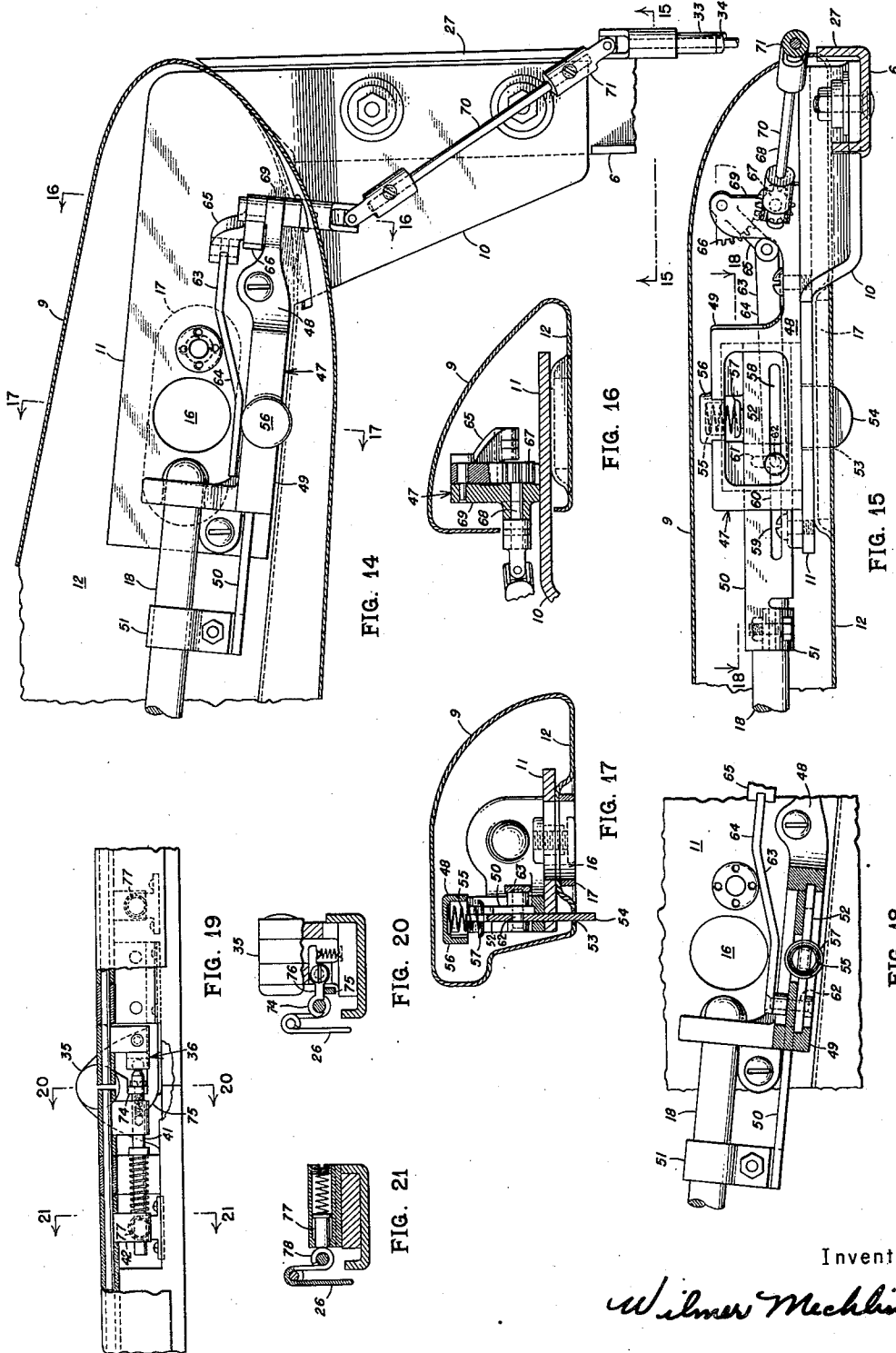
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ATTACHING MEANS FOR THE SIDES OF CONVERTIBLE TOP FABRIC

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UNITED STATES PATENT OFFICE

2,606,060

ATTACHING MEANS FOR THE SIDES OF
CONVERTIBLE TOP FABRIC

Wilmer Mechlin, Washington, D. C.

Application March 6, 1950, Serial No. 147,909

20 Claims. (Cl. 296—107)

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This invention relates generally to tops of the let-down or convertible type and has for its primary object the provision of improved means for releasably attaching the top fabric to the sides of the supporting frame.

In convertible tops of the type used on automobiles, the top fabric is fixed or tacked to the supporting frame at front and back, and usually along the rear quarter pillars by which the frame is hinged to the body. The side and rear quarter sections of the top fabric cannot be tacked in the same manner, since the fabric must give at these points in order to enable the top to be raised and lowered. For securing the latter sections to the frame when the top is in closed position, resort has been had to securing members of two general types, one, snap fasteners and the other, retainer strips fixed to the body or frame and fitting into pockets in the fabric. With the introduction of the automatic top, in which the top is raised or lowered by hydraulic, electric or other power, it became desirable to provide self-releasing or automatic attachments, not only for simplicity of operation but to prevent damage by collapse of the top with the fabric still secured. The desired automatic release is obtained, in one type of top, by the utilization of snap fasteners seating in rearwardly inclined tracks on the frame which, while securing the fasteners on the fabric when the top is closed, permit them to slide out of engagement as the top is collapsed.

In common with most other fabrics, top fabrics tend to shrink with exposure to the elements, the shrinkage being particularly pronounced in the lighter fabrics which have been widely adopted to reduce the bulkiness of the top. Wherever unresisted, this tendency causes the fabric actually to shrink and, in its side sections, to form arches or loops between the fasteners. With the automatic releasing fasteners of the type mentioned, this shrinkage not only forms loops between the fasteners, but gradually pulls the fastening elements on the fabric above the level of the slides on the frame and, in exaggerated cases, ultimately exposes the interior of the automobile.

The device of the present invention is designed to secure the top fabric against shrinkage and, at the same time, automatically release the fabric when the top is collapsed. This it accomplishes by the provision of retainer strips or members attached to the side roof rails of the supporting frame and affording a substantially continuous, rigid connection between the fabric and the frame when the top is in closed position. Unlike the

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forementioned rear quarter retainers, these retainer strips are movable relative to the frame and are so moved as the top is collapsed automatically to release the fabric. With this its principle of operation, it is an object of the present invention to provide in a convertible top, means for attaching the sides of the top fabric to the supporting frame, which will both release automatically when the top is collapsed and secure the sides against shrinkage when the top is closed.

Another object of the invention is to provide in a convertible top, means for attaching the sides of the top fabric to the frame, which not only secures the sides against shrinkage in closed position and automatically releases when the top is collapsed, but automatically reengages the sides when the top is returned to closed position.

An additional object of the invention is to provide means by which the top-locking lever is utilized to detach and resecure the sides of the top fabric as the top is collapsed and closed.

A further object of the invention is to provide a side attachment for convertible tops in which the sides are held in closed position by flaps, the flaps being hinged to the frame and adapted automatically to release the sides as the top is collapsed.

Other objects and advantages of the invention will appear hereinafter in the detailed description, be particularly pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of an automobile top of the let-down type to which the invention has been applied, the top being shown in closed position;

Figure 2 is a side elevational view of the top of Figure 1 in partly collapsed position;

Figure 3 is a fragmentary plan view of the front portion of the top of Figure 1;

Figure 4 is a fragmentary side elevational view on an enlarged scale of a side of the top of Figure 1, with portions of the top fabric broken away to more clearly disclose the details of construction of one embodiment of the side valance attachment of the present invention, the securing flaps being shown in closed position;

Figure 5 is a side elevational view of the side rail and associated structure of Figure 4, with the securing flaps shown in open position;

Figure 6 is a horizontal sectional view, taken along the lines 6—6 of Figure 4;

Figure 7 is a transverse vertical sectional view, taken along the lines 7—7 of Figure 4;

Figure 8 is a transverse vertical sectional view, taken along the lines 8—8 of Figure 5;

Figure 9 is a transverse vertical sectional view, taken along the lines 9—9 of Figure 4;

Figure 10 is a transverse vertical sectional view, taken along the lines 10—10 of Figure 4;

Figure 11 is a transverse vertical sectional view, taken along the lines 11—11 of Figure 4;

Figure 12 is a transverse vertical sectional view, taken along the lines 12—12 of Figure 4;

Figure 13 is a transverse vertical sectional view, taken along the lines 13—13 of Figure 4;

Figure 14 is a fragmentary plan view on the scale of Figure 4 of a front corner portion of the top frame with the upper part of the front roof rail broken away to disclose the details of construction of the flap-operating mechanism of the embodiment of Figure 4;

Figure 15 is a vertical sectional view, taken along the lines 15—15 of Figure 14, with the rear wall of the front roof rail broken away to more clearly disclose certain of the details of construction;

Figure 16 is a vertical sectional view, taken along the lines 16—16 of Figure 14;

Figure 17 is a vertical sectional view, taken along the lines 17—17 of Figure 14;

Figure 18 is a fragmentary horizontal sectional view, taken along the lines 18—18 of Figure 15;

Figure 19 is a fragmentary side elevational view of the central portion of the side roof rail and attendant structure of Figure 4, showing a different form of flap-latching and actuating mechanism, portions of the flap being broken away to more clearly disclose certain of the details of construction;

Figure 20 is a vertical sectional view, taken along the lines 20—20 of Figure 19; and

Figure 21 is a vertical sectional view, taken along the lines 21—21 of Figure 19.

Referring now in detail to the drawings in which like reference characters designate like parts, there have been illustrated two embodiments of the invention, both applied to a let-down or convertible top having a frame 1 of the collapsible, outrigger type, and a top fabric, cover or material 2 covering the frame when the top is in closed position. While applicable to either a manually or a power operated top, the illustrated embodiments are especially designed for the latter, the particular top shown being raised and lowered through hydraulic pistons 3 connected to rear quarter pillars or other main pivot members 4, pivoted to the body 5 of the automobile and acting through the pillars upon the several linkages of the frame.

Again for illustrative purposes, there has been selected a frame having side roof rails 6 of channel or U-shape and each broken or divided into two hinged or jointed parts, with the forward side roof rails 7 adapted to fold back over the rearward or rear side roof rails 8 when the top is collapsed. The side rails 6 are rigidly connected at the front of the top by a front roof rail 9 of hollow or shell construction, the connection being obtained by corner braces 10, which are enlarged within the front rail to provide reinforcing members 11, welded or otherwise connected to and covering substantial areas of the end portions of the bottom wall 12 of the front rail. The front rail is designed in the usual manner to rest or be supported in closed position upon the header 13 of the windshield frame 14, and is connected thereto through

pierced header dowels or studs 15 adapted to seat or fit in dowel holes 16 in the front rail, the holes normally being reinforced by guide plates 17. The illustrated top is adapted to be locked in closed position by locking pins or bars 18 projecting into the dowels and reciprocable to locked and unlocked position by a common central locking handle or lever 19.

The top fabric 2 of the illustrated top is tacked in the usual fashion to the body 5 along the rear belt section 20, and to the frame 1 along the front rail 9, the rear quarter pillars 4 and the rear cross-bow 21, leaving untacked the side valances 22 and the rear quarter valances 23 of the top fabric. While forming no part of the present invention, the rear quarter valances are preferably secured when the top is in closed position by the aforementioned rear quarter belt retainers (not shown), under which the valances normally are tucked, downward bulging of the rear quarter valances, as the top is collapsed, rendering this form of attachment self-releasing.

The present invention is directed to the attachment of the side valances 22 to the top frame 1 and is designed to provide an attachment which combines the releasable feature of the slanted track snap fasteners previously mentioned, and a rigid support for the side valances when the top is in closed position. To this end, the attachment or attaching device is comprised of side flaps, wings or retainer members 24 attached to and extending along the side rails 6 and movable or shiftable relative thereto on collapse of the top. The side flap of either side may be of one piece but for the jointed side roof rails 6 of the usual top, is in two sections, the front or forward section 25 attached to the forward side rail 7, and the rear section 26 attached to the rear side rail 8. These flaps are designed to provide a rigid, depending or downturned strip, plate or lip, under which the side valances may be tucked when the top is in closed position. For this purpose, the flaps may be flat strips, elongated members of inverted channel or L-shape or angle members, the last being preferred as possessing sufficient rigidity with minimum bulkiness. In either case, the flap sections are hingedly attached to the corresponding side rails such that they will swing or hinge about axes substantially parallel to the longitudinal axes of the rails. For side rails of the illustrated U-shape, the side flaps may conveniently be mounted on or attached to the outer, upstanding flanges 27 of the rails adjacent the upper edges of the latter, with the outer or lower legs 28 of the flaps, which form the aforementioned downturned strip, plate or lip, normally confronting and spaced from the outer faces of the upstanding flanges. The downwardly opening space 29, so provided between the strips 28 and the flanges 27, is adapted to receive a stiffener or stiffening element 30 on the top fabric. Utilizing the construction now employed for rear quarter valances, the stiffening element may be of rubber, reinforced fabric or other suitable material, which is stitched to each side valance 22 along the lower edge of the latter and forms with the top fabric a pocket 31 substantially co-extensive with the side valances and preferably slightly less in depth than the depending lower leg or lip 28 of the flap.

By providing means for locking the flaps in their normal or closed positions, it is evident that rigid strips are obtained on either side of the frame which will engage the side valances

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substantially throughout their lengths and resist any tendency of the top material to shrink. If these hinged flaps then can be released to swing upwardly about the side rails when the top is to be moved, they will disengage the stiffeners 30 and, thereafter, permit the side valances to move freely as they are pulled away from the side rails by the displacement of the latter relative to the front bow 32 of the frame 1. To accomplish this result, the flaps must swing about a sufficient arc, and at the proper time, to ensure disengagement of the valances before damage to the fabric could occur by the aforementioned displacement. In addition, once swung to releasing position, provision must be made for preventing interference by the flaps with overfolding of the forward and rear side rails, 7 and 8, incident to collapse of the type of frame here illustrated. The flaps of both embodiments of the present invention are designed to accomplish this result; those of the first embodiment additionally being adapted to reengage the side valances when the top is restored to closed position.

Considering now the first embodiment of Figures 4 through 18, in which the aforementioned inverted, substantially P-shaped flaps 24 are employed, the flaps have been hinged about the upper edges of the upstanding flanges 27 of the side rails 6 to afford maximum engagement with the stiffeners 30 on the side valances 22, but with their upper, overturned or bent-over legs 33 and their hinges 34 so disposed relative to the side rail joints or hinges 35 as to permit overfolding of the side rails without interference. To enable the forward and rear sections, 25 and 26, of each flap to be operated as a unit, they are connected at their confronting or inner ends. This, to accommodate the relative angling movements of the flaps as the top is collapsed, requires a universal connection 36. An inexpensive yet particularly effective universal connection is that shown, in which there is provided a socket 37 carried by the forward flap section 25 of each of the side rails 6 and a mating ball 38 on the companion rear section 26. The socket 37 is substantially semi-cylindrical and preferably formed in a block 39, which may be welded or otherwise fixed to a detent or flange 40 depending from the inner end of the upper leg 33 of the front flap section 25. The mating member, the ball 38, is mounted on the end of a stem 41 which may be carried in loops 42 formed in depending flanges 43 integral with the rear flap section 26. Encircling the stem 41 between the loops is a coil spring 44 acting between a collar 45 on the stem and the rear loop, to yieldably urge the ball 38 into engagement with the socket 37. When the flaps are in their releasing position, as shown in Figure 5 in which they have been swung through an arc of substantially 180° from the normal or locking position of Figure 4, they overlie the side rails and, as the latter fold together, the confronting edges 46 of the lips 28 are in position to wedge or jam together. To provide against this contingency, the edges 46 are cut back or bevelled outwardly for a considerable angle. In the illustrated embodiments, a total angle of some 45° has been selected as providing an adequate factor of safety, this angle being employed, as well, to determine the dispositions of the ball and socket and the extent to which the ball is retractable against its spring 45.

To operate the flaps, use is made of the top-locking lever 19 by which the front roof rail 9 is locked in closed position to the windshield header 13. As previously mentioned, this lever

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acts through locking pins 18 which, in turn, engage the pierced header dowels 15 of the windshield header. In normal operation of the top, the locking lever is first thrown to open position, causing the locking pins on either side to retract from the pierced dowels, whereupon, the front rail is raised manually above the dowels. After the rail has cleared the dowels, the locking lever is thrown to closed position so as to be out of the way as the top collapses into the usual top compartment (not shown). Power is then applied to lower the top. When the top is again to be closed, it is raised by power until the front rail rests upon the dowels 15, when the lever 19 is thrown to open position to permit the dowels to enter their dowel holes 16. After the dowels 15 have been seated, the lever is finally thrown to closed position, locking the top in place. These movements of the top-locking lever are here utilized to operate the flaps 26. This is accomplished by mounting within the hollow front rail 9 of the illustrated top, adjacent either side, a drive unit 47 by which power is taken from the adjacent locking bar 18. Were manual operation of the flaps 24 alone required, a direct drive through gearing or a suitable crank could be utilized. This would be satisfactory for opening the flaps when the top was initially unlocked, but, since the lever 19 is normally reclosed when the front rail clears the dowels, the flaps would immediately be resealed in the pockets 31 in the side valances 22. Accordingly, the drive unit 47 is so constructed that opening of the lever will always swing the flaps to open position, while closing of the lever will only operate the flaps when the front rail abuts the windshield header.

In its illustrated form, the drive unit is comprised of a mounting 48 which may be die-cast and supported upon the reinforcing member 11 of the corner brace 10. Part of the mounting is formed as a housing 49 in which slidably reciprocates a drive plate or member 50. The latter member has its inner end connected to the adjacent locking bar 18 through a clamp or collar 51, to enable it to reciprocate with and substantially parallel to the bar. Within the same housing 49 is mounted a clutch or disengaging member in the form of a clutch, guide or shifting plate 52, reciprocable substantially vertically of the housing and transversely of the path of movement of the drive member 50. Depending below the plate and projecting through an opening 53 in the bottom wall 12 of the front rail 9 is a plunger or detent 54, which is adapted to engage the confronting face of the windshield header 13, when the top is in closed position, and to be projected outwardly, as the top is raised, by downward movement of the clutch plate under force of a coil spring or other resilient means 55. This spring is disposed between the top of the housing and the clutch plate, riding in a dome 56 in the housing and bearing against a cup 57 carried by the clutch plate. As shown, the inner walls of the housing are suitably grooved to guide the drive and clutch plates, 50 and 52, in their respective movements. The clutch plate 52 has formed in it a guide slot 58 which is disposed substantially transversely of the path of movement of the plate and parallel to that of the locking bar 18, the slot being of sufficient length to accommodate the limits of movement of the locking bar. Aligned with the guide slot 58 of the clutch plate 52, when the latter is in its down position, is a substantially horizontally extending lower leg 59 of an L-shaped drive slot 60,

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having an upstanding, outer or vertical leg 61, the lower and upstanding legs encompassing the limits of movement of the locking bar 18 and clutch plate 52, respectively. Riding in the drive and guide slots, 60 and 58, is an arm or pin 62 of a drive link 63. This arm is bent at substantially right-angles to the main portion or arm 64 of the link and, by virtue of the disposition of the vertical leg 61 of the slot 60, is positively driven inwardly whenever the locking lever 19 is thrown to open position. However, closing of the lever can drive the arm 62 only when the clutch plate is displaced to its upper position by engagement of its plunger 54 with the windshield header 13, the arm, when the clutch plate is in its down position, sliding in the longitudinal lower leg 59 of the drive slot 60.

While the arm 62 may drive a rack for swinging the flaps through a meshing pinion, it is preferred that the drive link 63 be a bent lever, of which the arm 62 forms an integral inner end. At its outer end, the lever 63 is swivelly connected to a crank arm 65 of a driving gear 66. To fit within the space available in the front rail 9, while limiting the movement of the crank arm to an effective arc, the driving gear 66 is in the form of a sector or segmental gear, with the crank arm 65 disposed below its axis. This gear, in turn, meshes with a driven gear 67, the latter being of less diameter to provide reduction gearing by which the movement of the crank arm, within the limits imposed by the extent of movement of the locking bar 18, will rotate the axle or shaft 68 of the driven gear through substantially 180°. The reduction gearing, formed of the two gears, may conveniently be mounted as a unit on a post or upright 69 formed as an integral part of the mounting 48. It will be noted that the flap-swinging or driven gear 67 must be mounted inwardly of the hinging axes of the flaps 24, due to the end curvature of the front rail 9, necessitating a flexible connection therebetween. In the illustrated embodiment, this flexible connection is obtained by extending the axle 68 through the rear wall of the front rail 9 and there connecting it to a drive rod or shaft 70 having a universal joint 71 at either end, one connected to the axle 68 and the other to the flap 24. At least one of the universal joints is not fixed, but splined or otherwise pinned to the drive rod to permit it to slide axially thereof so as to accommodate any adjustments which may need to be made in the position of the front rail 9 relative to the side rails 6.

This driving mechanism, coupled with the universal connection 36 between the front and rear flap sections, enables the flaps 24 to be swung or driven in unison through an arc of substantially 180° between closed and open position, and to be locked as a unit in closed position by the top-locking lever 19, coincident with locking of the top, the flaps in the latter position providing the rigid, substantially continuous lips required for holding the top fabric against shrinkage. The device operates in this fashion. Opening of the lever, as the top is unlocked, swings the flaps to open or up position, freeing the stiffeners 30 of the side valances 22. When the lever is subsequently closed, after the front rail has been cleared of the dowels 15, the flaps remain in their up position, due to the one-way drive which is then brought into operation by downward movement of the clutch plate 51. As the power is then operated to collapse the top, the flaps are held in their upright position by engagement with the

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inside of the top fabric 2, this engagement progressively decreasing as the top collapses so that the flaps are substantially free by the time the top has reached the position shown in Figure 2. To cause the flaps then to return to their normal or closed position, the hinges 34 of both sections of the flaps are provided with springs 72, normally urging the flaps closed but having insufficient force to accomplish such closure until the flaps are substantially free of the top fabric. The hinge springs thus act to move the flaps out of the way of overfolding of the side rails 6, while permitting the top fabric initially to hold the flaps in open position and ensure against reengagement of the flaps with the stiffeners 30. While the springs alone will normally be adequate to ensure return of the flaps before jamming can occur, there may be provided, as an added safety factor, a by-pass (not shown) in the hydraulic system, operated by a by-pass valve (also not shown) by which the added resistance to movement caused by possible jamming of the flaps can be utilized to stop further collapse of the top until the flaps are manually released.

On subsequent raising of the top, the flaps, then held in their normal position by the hinge springs 72, will automatically be so disposed as to realign the ball 38 and socket 37 and reconnect the front and rear flaps, 25 and 26, as the top moves to closed position. Thus, when the lever 19 is thrown open to permit reseating of the dowels 15 in the front roof rail 9, the flaps will swing as a unit to open position. When the front rail is then seated on the windshield header 13, the clutch plate 52 of the drive unit is displaced upwardly, restoring the positive bi-directional drive between the drive plate 50 and the drive link 63. Consequently, subsequent closing of the locking lever will swing the flaps down, causing them in process to ride against the under-surface of the top fabric and ultimately reseal themselves in the pockets 31 in the side valances 22. Locking of the top, therefore, automatically secures the side valances by clamping the stiffeners 30 between the flaps and the side rails 6. The front flap sections 25 are stopped in down position by the drive unit 47. For stopping the rear flap sections 26 and ensuring alignment of the flaps, use may be made of the side rail hinges 35 or, as in the illustrated embodiment, of separate bumpers or stops 73, one mounted on each rear side rail 8 and positioned to engage one of the inner flanges 43 of the associated rear flap section. This stop also serves to prevent rattling of the flaps when closed.

The modification of Figures 19 through 21 differs from the first embodiment, heretofore described, mainly in utilizing the breaking of the side rails 6 to raise the flaps 24 and in having no provision for automatic reengagement of the flaps with the side valances 22, being the same in the latter respect as the self-releasing snap fasteners, now commonly employed. As in the first embodiment, the flaps are designed to be locked as a unit in closed position, this being accomplished by a spring catch or latch 74, here mounted on the rear side rail 8, and engaging the ball-carrying stem 41 of the universal connection 36 between the flaps, the catch normally being urged into stem-engaging position. For releasing the catch as the top is collapsed, a cam element 75 is carried by the forward side rail 7 adjacent the joint, the cam underlying the shank 76 of the catch and being of such

configuration that it will dislodge the catch from locking position almost at the start of collapse of the top. As soon as the catch is disengaged, the flap sections of each flap are forced outwardly by a pair of spring-pressed plungers 77, one engaging a rear flange 78 of either flap section, the plungers being mounted, in the illustrated embodiment, on the side rails 6 back of the inner faces of their upstanding flanges 27. The plungers 77 are of sufficient force to move the flaps out of their normal vertical position, such that they thereafter can be swung readily to open position by the force exerted by the top fabric 2 as it moves away from the side rails. Once the flaps have been substantially freed of the fabric, they are moved out of jamming position by the hinge springs 72, as in the first embodiment. However, the flaps are stopped, in this embodiment, by the spring-pressed plungers 77, which hold the stem 41 beyond and out of engagement with the catch 74.

The plungers 77, by limiting the downward movement of the side flaps 24 under force of the hinge springs, also ensure alignment and reconnection of the flaps by the universal connection 36 when the top is raised to closed position, so that the flap sections are thereafter movable as a unit. Once the top is locked in closed position, the flaps are pulled out manually and inserted in the pockets 31 in the side valances 22. The flaps are then swung downwardly to reengage the stem 41 with the latch or catch 74, the outer face of the latter being bevelled to enable the latch to be displaced by the stem as it swings closed. Here, the spring-pressed plungers 77, by yieldably acting against the flaps 24 when the flaps are closed, serve also as bumpers to prevent rattling.

From the above detailed description, it will be apparent that there has been provided an improved attachment for the side valances of the top fabric of a convertible top which not only resists shrinkage of the fabric, thereby eliminating looping of the valances intermediate points of support, as with snap fasteners, but is automatically released when the top is raised to collapsed position and is also enabled automatically to reengage the valances when the top is restored to closed position. It should be understood that the described and disclosed embodiments are merely exemplary of the invention and that all modifications are intended to be included which do not depart either from the spirit of the invention or the scope of the appended claims.

Having described my invention, I claim:

1. In a let-down top having a frame normally covered by top fabric, a device for attaching sides of said fabric to said frame, comprising means movably mounted on and extending longitudinally of the sides of said frame, said means normally engaging and securing said fabric to said sides, and means carried by said frame for moving said securing means relative to said frame and disengaging said securing means from said fabric on collapse of said top.

2. A device for attaching a side of the top fabric of a let-down top to the supporting frame, comprising means movably attached to and disposed longitudinally of said frame, said means normally securing said side of said top fabric to said frame, means for locking said securing means in fabric-securing position, and means carried by said frame for unlocking said securing means and moving said securing means rela-

tive to said frame side to release said fabric side from said frame.

3. A device for attaching a side of the top fabric of a let-down top to the supporting frame, comprising fabric-securing means movably attached to a side of said frame, said means normally being downwardly disposed and engaging an upstanding portion of said fabric side, and means carried by said frame for moving said means upwardly relative to said frame side and disengaging said fabric-securing means from said portion.

4. A device for attaching a side of the top fabric of a let-down top to the supporting frame, comprising fabric-securing means movably attached to a side of said frame, said means normally being spaced from said side and forming therewith a downwardly opening seat for receiving an upstanding portion of said fabric side, and means carried by said frame for moving said means relative to said frame side and disengaging said fabric-securing means from said portion.

5. In a let-down top having a supporting frame including spaced side rails and a top fabric normally covering said frame, a device for attaching confronting sides of said fabric to said side rails, comprising means extending longitudinally of and hingedly attached to said side rails, said means normally engaging portions of said fabric sides for securing said sides to said rails, and means carried by said frame for swinging said securing means about said rails and releasing said portions from said securing means on collapse of said top.

6. In a let-down top having a supporting frame including spaced side rails, and a top fabric normally covering said frame, a device for attaching sides of said fabric to said side rails, comprising means extending longitudinally of and hingedly attached to said side rails, said means normally engaging portions of said fabric sides for securing said sides to said rails, means for swinging said securing means about said rails and releasing said portions on collapse of said top to open position, and means for reengaging said securing means with said portions on return of said top to closed position.

7. In a let-down top having a frame including spaced side rails and a top fabric normally covering said frame, a device for attaching sides of said fabric to said side rails, comprising a member hinged to and disposed longitudinally of each of said rails, each of said members normally disposed outwardly of and confronting an outer face of the associated rail, means for locking said members in said normal position, and means for releasing said members and swinging said members upwardly about said rails on collapse of said top.

8. In a let-down top having a frame including spaced side rails and a top fabric normally covering said frame, a device for attaching sides of said fabric to said side rails, comprising a member hinged to each of said rails, each of said members having a portion normally projecting below its hinging axis outwardly of the associated rail, means for locking said member in said normal position, and means for releasing said member and swinging said portion upwardly about said rail on collapse of said top.

9. In a let-down top having a frame including spaced side rails and a top fabric normally covering said frame, a device for attaching sides of said fabric to said side rails, comprising a flap

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hinged to and disposed longitudinally of each of said rails, said flap having a lip normally confronting and spaced outwardly of an outer face of said rail for receiving a part of said fabric side therebetween; means for locking said flap in said normal position, and means for releasing said flap and swinging said lip upwardly about said rail to disengage said fabric part on collapse of said top.

10. In a let-down top having a supporting frame including spaced side rails, a front rail, locking means associated with said front rail for locking said top in closed position, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to a side rail, comprising a flap hinged to said side rail and in normal position having a downwardly disposed portion for engaging a part of said fabric, and means associated with said front rail and drivably connected to said locking means for alternately locking said flap in said normal position and swinging said flap about said side rail.

11. In a let-down top having a supporting frame including spaced side rails, a front rail, locking means associated with said front rail for locking said top in closed position, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to a side rail, comprising a flap hinged to said side rail and normally having a downwardly disposed portion for engaging a part of said fabric, drive means actuated by said locking means for swinging said flap about said side rail, and clutch means operative on movement of said top from closed position for converting said drive means to a one-way drive.

12. In a let-down top having a supporting frame including spaced side rails, a front rail, locking means associated with said front rail for locking said top in closed position, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to a side rail, comprising a flap hinged to said side rail and normally having a downwardly disposed portion for engaging a part of said fabric, drive means actuated by said locking means and having a pin and slot connection with said flap, and clutch means for maintaining a positive drive between said drive means and said flap when said top is in closed position and operative on movement of said top from closed position for shifting said connection and limiting said drive to a one-way drive.

13. In a let-down top having a supporting frame including spaced side rails, a front rail, locking means associated with said front rail for locking said top in closed position, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to a side rail, comprising a flap hinged to said side rail and normally having a downwardly disposed portion for engaging a part of said fabric, drive means actuated by said locking means for swinging said flap about said side rail, and clutch means maintaining a positive drive between said drive means and said flap for swinging said flap in either direction when said top is closed, and operative on movement of said top from said closed position for disengaging said flap from drive in one direction by said drive means.

14. In a let-down top having a supporting frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching confronting sides of said frame and fabric, comprising a plurality

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of flaps each hinged to and extending along a section of each of said rails, and means positively connecting adjacent flaps of each side rail on opening and closing of said top for enabling said flaps to be swung in unison about the associated side rail.

15. In a let-down top having a supporting frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching confronting sides of said frame and fabric, comprising a plurality of flaps each hinged to and extending along a section of each said rails, and a yieldable universal joint connecting adjacent flaps of each of said side rails for enabling said flaps to be swung in unison about the associated side rail when said top is opened and closed.

16. In a let-down top having a supporting frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to one of said rails, comprising a plurality of flaps each hinged to and disposed longitudinally of each section of said rail for normally securing a portion of said fabric thereto, means carried by one of said sections for locking said flaps in normal position, and means carried by another of said sections for releasing said locking means on relative movement of said sections.

17. In a let-down top having a frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to one of said rails, comprising a plurality of flaps each hinged to and disposed longitudinally of a section of said rail for normally securing a portion of said fabric thereto, a universal joint connecting adjoining of said flaps, latch means carried by one of said sections and engageable with said joint for securing said flaps in normal position, and cam means carried by another of said sections and engageable with said latch means for releasing said flaps on relative movement of said sections.

18. In a let-down top having a frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to one of said rails, comprising a plurality of flaps each hinged to and disposed longitudinally of a section of said rail for normally securing a portion of said fabric thereto, a universal joint connecting adjoining of said flaps, latch means carried by one of said sections and engageable with said joint for securing said flaps in normal position, cam means carried by another of said sections and engageable with said latch means for releasing said flaps on relative movement of said sections, and yieldable means carried by said rail for urging said flaps outwardly of said rail on release thereof.

19. In a let-down top having a frame including spaced jointed-section side rails, and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to one of said rails, comprising a plurality of flaps each hinged to and disposed longitudinally of a section of said rail for normally securing a portion of said fabric thereto, a universal joint connecting adjoining of said flaps, latch means carried by one of said sections and associated with said joint for securing said flaps in normal position, cam means carried by another of said sections and engageable with said latch means for releasing said flaps on relative movement of said

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sections, yieldable means carried by said rail for urging said flaps outwardly of said rail on release thereof, and spring means urging said flaps into engagement with said yieldable means when disengaged from said fabric.

20. In a let-down top having a frame and top fabric normally covering said frame, a device for releasably attaching a side of said fabric to a side of said frame, comprising a flap hinged to and disposed longitudinally of a side of said frame for normally securing said fabric thereto, drive means associated with said frame for swinging said flap about said frame side, clutch means maintaining a positive drive between said drive means and said flap for swinging said flap in either direction about said side when said top

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is closed and disengaging said flap from drive in one direction by said drive means on movement of said top from said closed position, and means yieldably urging said flap in said one direction.

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