F. A. DUNHAM.

FOLDING CURTAIN FOR AUTOMOBILES.

APPLICATION FILED APR. 15, 1921.

1,426,969.

Patented Aug. 22, 1922.

2 SHEETS—SHEET 1.

Fig. 1

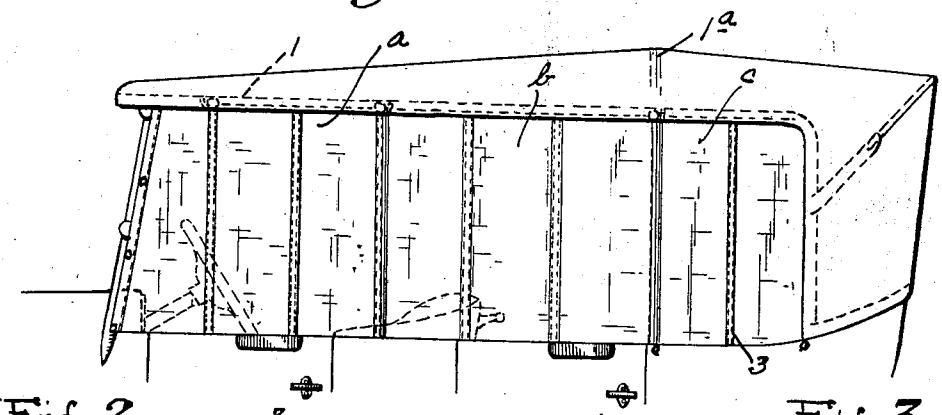


Fig. 2

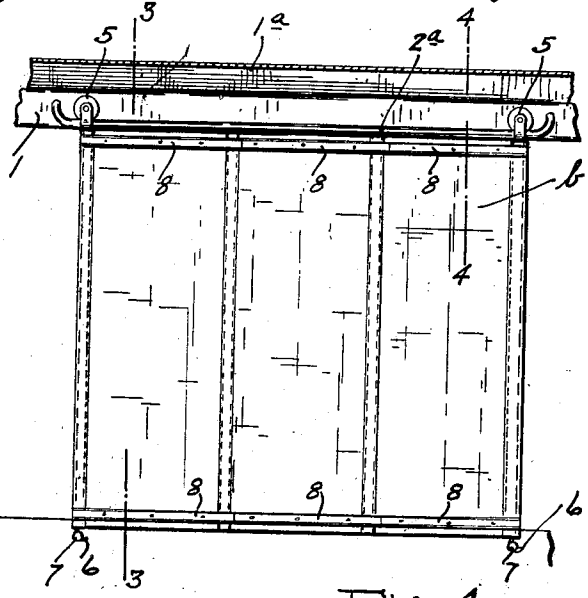


Fig. 3

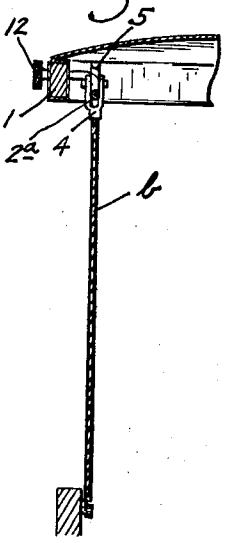


Fig. 4

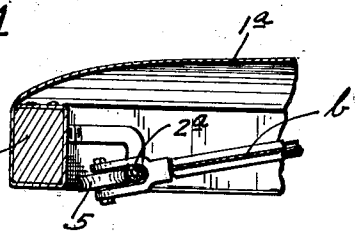
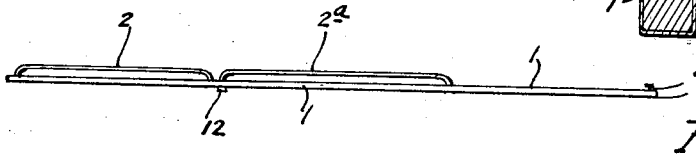


Fig. 7



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2 SHEETS—SHEET 2.

Fig. 5

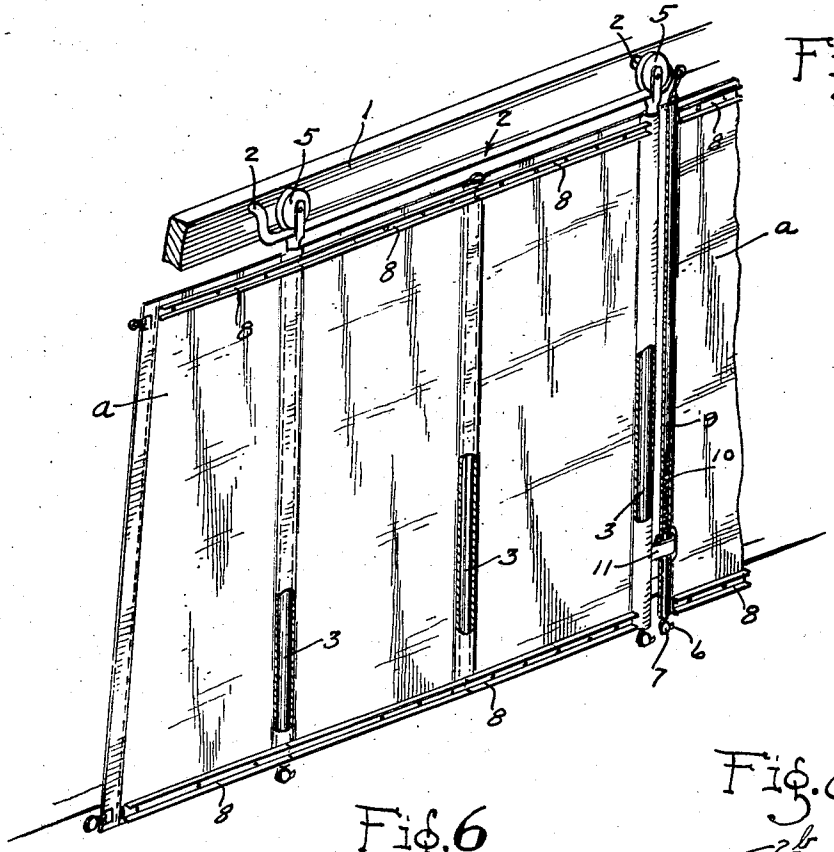


Fig. 6

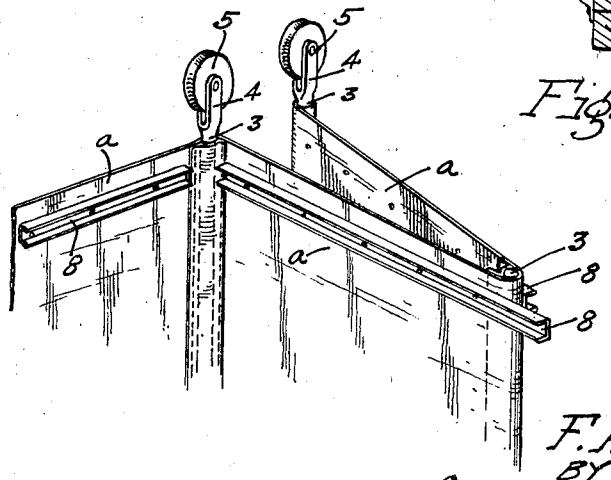


Fig. 8

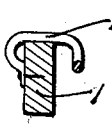
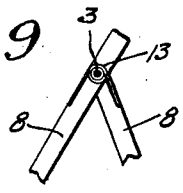


Fig. 9



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UNITED STATES PATENT OFFICE.

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FOLDING CURTAIN FOR AUTOMOBILES.

1,426,969. Specification of Letters Patent. Patented Aug. 22, 1922.

Application filed April 15, 1921. Serial No. 461,521.

To all whom it may concern:

Be it known that I, FRANK A. DUNHAM, a citizen of the United States, residing at Owatonna, in the county of Steele and State of Minnesota, have invented certain new and useful Improvements in Folding Curtains for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a vehicle curtain and particularly to such a curtain designed for use on an automobile. With the type of curtains heretofore used, considerable trouble and inconvenience is experienced in getting the curtains from the storage position into operative position on the vehicle and such curtains are usually inconvenient in entering and leaving the vehicle through the doors thereof.

It is an object of this invention therefore, to provide a vehicle curtain made in sections, which sections are permanently supported from the sides of the vehicle top and are thus always in convenient position for operative placement.

It is another object of the invention to provide the sections of curtain and so support the same that the curtains can be folded laterally into comparatively small space and can then be swung upwardly to be supported out of the way in the vehicle top.

It is still another object of the invention to provide the sections of the curtain with stiffening means and means by which they will be properly held in operative position on the vehicle body.

These and other objects and advantages of the invention will be apparent from the following description made in connection with the accompanying drawings, in which like reference characters refer to the same parts throughout the different views, and in which

Fig. 1 is a view in side elevation of the upper part of an automobile, showing the curtains applied thereto;

Fig. 2 is an inside view in elevation of the center section of the curtain;

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

Fig. 4 is a horizontal section, on an enlarged scale, taken on the line 4—4 of Fig. 2;

Fig. 5 is a perspective view of the inside of the end section of the curtain;

Fig. 6 is a perspective view of the upper portion of a section of the curtain in folded position;

Fig. 7 is a plan view of the supporting means for the curtain sections;

Fig. 8 is a section of a modification; and

Fig. 9 is likewise a view of a modification.

Referring to the drawings, in Fig. 1 is shown the upper portion of an automobile body and top having at one side thereof three curtain sections *a*, *b* and *c*. The top of the automobile is customarily provided with a frame member or bow 1 and the front section of curtain, as shown in Fig. 5, is supported upon a rod or track member 2, which is secured at its ends in the bow member 1. The section *a* of the curtain is divided by vertical members 3 extending in spaced relation from top to bottom of the same, which members can be entirely enclosed in the curtain, as shown, or may be secured only at spaced points thereto. Certain of the members 3 have swiveled thereto, at their upper portion, a bifurcated pulley bracket 4 in which is journaled a grooved pulley 5 adapted to be supported by and run on the member 2. As shown in Fig. 4, the track portion of the member 2 is spaced sufficiently from the bow 1 to enable the pulley to be swung laterally about the member 2 between the same and the bow. The center section *b* of the curtain is similarly supported upon a track member 2^a and this section is also provided with vertical members 3, certain ones of which, as shown in Figs. 1 and 2, are equipped with the brackets 4 and pulleys 5. The lower ends of certain of the members 3 are also equipped with hook members 6 adapted to engage over suitable button or staple members 7 secured to the automobile doors or body.

The sections of curtain have fastened thereto at the top and bottom of their inner sides small channel-shaped members 8. These members are in sections extending between the members 3, and when the curtains are extended in flat position, one end of the members 8 engages in a somewhat enlarged adjacent end of the other member 8, as shown in Figs. 2 and 5, and these members thus act to hold the curtain firmly in extended or flat position. The front section of curtain *a* is provided with a suitable type of fastening member, preferably of loop shape, as shown in Fig. 5, at its top and bottom edges to engage button or other fas-

tening members on the vehicle top and wind shield frame. The front edges of the central section *b* and rear section *c* of the curtain are formed to contain a stiffening member 9 comprising separated sections connected by a small coiled tension spring 10. The member 9 is also provided at its lower end with a hook 6 to engage one of the fastening members 7. The rear member 3 of the front section *a* and of the center section *b* are provided with hook catch members 11 adapted to hook into suitable openings in the adjacent sections and to engage around the members 9 to hold the sections snugly in close relation.

As shown in Fig. 3, the front end of the member 2^a is fastened to the bow 1 by a thumb nut 12 that screws onto the end of the said member and thus forms a detachable connection for said end. The upper front edge of the rear section *c* is permanently and swivelly secured to the bow 1 by a hook and staple member, and this section of the curtain is provided with a vertically extending member 3 substantially in the center thereof, and is removably fastened at the top of this member and at its upper rear corner to the bow member 1. This section will also be fastened at its lower corners by hook members 6 to the inside of the vehicle body.

The sections of curtain are adapted to fold inwardly, as indicated in Fig. 6. The members 3, which are not equipped with the pulleys 5, move inwardly to form the points or edges of the fold. When the curtains are so folded, the same can be swung laterally and upwardly, as indicated in Fig. 4, and the curtains can then be suitably secured to the vehicle top and thus be contained in the same. It will be noted that the center section *b* will fold rearwardly, and rear section *c* will fold forwardly, and these sections can then be swung upwardly and be supported from the transverse bow member 1^a, which customarily extends across the top of an automobile directly over the rear seat. The front end of the track member 2^a is detachably secured to the bow 1, so that the same can be detached and swung inwardly or downwardly when it is desired to fold or let down the top of the vehicle. This member will thus not interfere with the folding of the top. The members 9 and 10 in the front edges of the center and rear sections insure that the curtains will be held under proper tension and will be prevented from rattling. If desired, small rods or wire members may be used for the channel members 8, which members can be provided with flat overlapping ends. The curtains can, of course, be made of rubber, fabric, celluloid or other transparent material, and, as stated, the vertical members 3 can be secured thereto in any desired manner.

From the above description, it is seen that applicant has provided a simple structure of curtain which enables the curtains to be carried in the top of a vehicle where they will normally be out of sight from the exterior of the same, but from which position they can be quickly dropped and arranged in operative position along the sides of the vehicle. The lower edges of the curtains can also be conveniently and quickly detached from the doors and will swing inwardly to allow a person to enter or leave the vehicle.

In Fig. 8 a form of the track 2^b is shown which can be made of spring material. By having said track pass over the top of said bow member 1, as shown, and then bent downwardly, the same will have added resiliency. With this form of track the same can be placed under tension when the curtains are down and any tendency of the parts to rattle avoided.

In Fig. 9 the members 8 are shown as having connected thereto the ends of coil springs 13, the coils of which are disposed about the members 3. The springs can be so arranged as to be placed under tension when the curtain is folded so that the latter tends to open up into flat position as soon as it is released, or so that the curtain will tend to fold up when released. If wires or rods are used for the members 8, the springs could be formed integrally therewith, a coil merely being formed at the folding line of the curtain.

The fastening of the curtain to the door of the automobile might also be connected to the usual door latch, so that when the latch is operated, the curtain will be released from the door.

It will also be understood that various changes may be made in the form, details and arrangement of the device without departing from the scope of applicant's invention, which, generally stated, consists in the matter shown and described and set forth in the appended claims.

What is claimed is:—

1. A vehicle curtain structure having in combination a member rigidly secured to the vehicle top and extending longitudinally thereof adjacent to the lower edge thereof, a curtain having spaced vertical members secured thereto with a pulley swivelly mounted on the upper end of said members and adapted to be supported by and run on the first mentioned member.

2. A vehicle structure having in combination a rod secured to the vehicle top extending longitudinally along the lower edge thereof and spaced inwardly therefrom, vertical spaced rods secured to said curtain and extending vertically across the same, certain ones of said rods having pulleys swivelly mounted thereto at their upper ends, said

pulleys being movable on and supported by the first mentioned member.

3. A vehicle curtain structure having in combination a longitudinally rigid but transversely resilient track member secured to the vehicle top, spaced curtain supporting means mounted for movement thereon, and fastening means at one end of said curtain supporting means adapted to place said spring track under tension.

4. A vehicle curtain structure comprising a curtain arranged in vertically extending zones, and adapted to fold on vertical lines defining said zones, stiffening means extending along the horizontal edges of said curtains, and spring means connected to said stiffening means acting to maintain the curtain in flat or unfolded position.

5. A vehicle curtain structure comprising a curtain constructed with vertically extending divisions and adapted to fold on vertical lines defining said divisions, reinforcing means extending along the borders of said divisions, and spring means at the folding points of said divisions placing the same under a tension to move about their folding axes.

6. A vehicle curtain structure having in combination, a curtain constructed with a plurality of divisions, vertical stiffening means between and defining the divisions, a horizontal member adjacent to and secured to the vehicle top, supporting means for the curtain secured to the top of certain of said stiffening members and engaging said horizontal member, the intermediate stiffeners being free at their upper ends, whereby the curtain can be folded inwardly about the latter stiffening members and the supporting means brought together on the horizontal member.

7. The structure set forth in claim 6, and horizontal engaging stiffening members at the top and bottom of said divisions.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK A. DUNHAM.

Witnesses:

E. I. CASEY,

MARY C. ANNETT.