ABSTRACT
A sheet of transparent flexible plastic resin has one end attached to a roller rotatably mounted to the support structure of a ski-lift chair above the seat. The other end of the sheet is secured to an elongated rigid member adapted to be quickly connected to the chair safety bar in front of the seat. The roll is spring-biased to wind the sheet thereon and when the safety bar is raised the sheet is rolled up out of the way in loading and unloading the chair.

2 Claims, 7 Drawing Figures
WINDSHIELD FOR SKI-LIFT CHAIR

This application is a continuation-in-part of application Ser. No. 158,689 by the same inventor, filed July 1, 1971 now abandoned.

BACKGROUND OF THE INVENTION

This invention relates generally to windshields for ski-lift chairs and more particularly to a transparent flexible plastic resin sheet carried on a spring-biased roller above the chair and having one end secured to the safety bar in front of the chair.

Windshields for such chairs have heretofore comprised door-like screens in front of the chair having window portions, or rigid plastic sheets adapted to swing up out of the way for loading and unloading.

Such shields are cumbersome to operate and it is difficult to install them when needed or to remove them when they are not needed.

The principle object is to provide a windshield which will protect passengers on the ski-lift from wind and snow in inclement weather but which can be easily and quickly stored out-of-the-way when the weather is good.

SUMMARY OF THE INVENTION

The present invention contemplates a flexible screen of transparent sheet material which may be stored on a spring-biased roller above the ski-lift chair when not in use and which has an end secured to a rigid bar which may be pulled down and quickly secured to the chair safety bar extending in front of the passengers. The windshield is held taut by the spring of the roller. For embarking and disembarking the safety bar is swung upward and the screen is wound up on the roller.

The bar to which the end of the flexible screen is secured is channel-shaped and the lower edge of the flexible shield is clamped to one leg of the channel by a strip which has a rounded upper edge. Another strip with a rounded edge is secured to the other leg of the channel. When the safety bar is raised it passes under the roller and swings back beyond the roller. As the safety bar is raised the roller springs rolls the shield on the roller and then, when the safety bar passes beyond the roller, the shield is partially unrolled, passing over the rounded edges of the two strips so that the shield is not sharply creased at any time.

A pair of screws fixed to, and projecting down from the base of the channel are adapted to pass through drilled holes in the safety bar and wing-nuts are provided for the screws for quick attachment and separation from the safety bar.

A modified form of windshield is adapted to extend down below and in front of the safety bar over the knees and upper legs of the occupants of the chair. The lower end of the flexible transparent sheet is secured to a rigid rod extending the full width of the windshield. Tubular extensions welded to the safety bar extend downwardly and forwardly and terminate in short, troughlike members secured to the extensions and opening downward when the safety bar is lowered. Cut out portions of the transparent sheet along the rod allow the rod to be inserted in the trough of the extensions when the windshield is pulled down. When the safety bar is raised the open portion of the trough members are thereby turned to face upward and to release the rod. The windshield is thereby released to roll upon the roller. When the safety bar is pulled down again the windshield must also be manually pulled down and again secured.

Handles and pendant flexible cords for children are provided secured to the rod for easily grasping the windshield for pulling it down.

Where the safety bar is provided with a pendant footrest or footstools, the roller is secured behind a cross bar above the seat but when there is no footrest the roller may be in front of the cross bar.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of a ski-lift chair with a windshield according to the invention in operative position thereon, a portion of the windshield assembly being broken away and it being understood that the windshield screen is transparent, it being shown as opaque for it of illustration;

FIG. 2 is a fragmentary side elevational view thereof, the windshield roller being shown diagrammatically;

FIG. 3 is an enlarged end elevational view, partly in section, of the quick-connect means for the lower end of the windshield shown in FIG. 2;

FIG. 4 is an enlarged sectional view of the roller on the line 4—4 of FIG. 1.

FIG. 5 is a fragmentary side elevational view of a ski-lift chair and a modified form of windshield in operative position thereon;

FIG. 6 is a front elevational view of the chair and windshield of FIG. 5, portions of the windshield being cut away for clarity, it being understood that the windshield screen is transparent although shown as opaque for convenience of illustration; and

FIG. 7 is a fragmentary sectional view on the line 7—7 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 and 2, a ski-lift chair 10 comprises a suspension beam 11, adapted at its top for attachment to a device securing it to the cable of the lift, is joined to the generally inverted U-shape support 12 for the seat 13.

As best seen in FIG. 2, the seat 13 is provided with a safety bar 14 which normally extends along in front of the passengers on the seat and continues on either side of the seat to a point 15, back of the seat, where it is pivotally fastened to a suitable bracket secured to the back of the seat. Back of pivot point 15 the side bars continue to a counterbalance 16 which extends between the side bars back of the seat. For loading and unloading the safety bar may be swung up out of the way to the position indicated at 14’ in FIG. 2. The safety bar is usually provided with a pendant footrest, not shown, for the passengers on the seat which is secured to the center of the safety bar and swings up with it for loading and unloading.

L-shaped brackets 17 are secured to each leg of the support 12 near its top and an inverted trough-shaped member 18, extending across the support, is secured to these brackets as indicated diagrammatically in FIG. 2. Just below member 18 and spaced therefrom, a roller 20, having its shaft 21 secured in suitable brackets or end plates 22 secured to the member 18, extends across the support.
Roller 20 is closed at each end, the shaft 21 projecting from each end and, as shown in FIG. 4, is hollow, having a coil spring 23 extending substantially from end to end therein around shaft 21. One end 24 of spring 23 is secured to roller 20 and the other end 25 is secured to shaft 21 so that roller 20 may be biased to rotate in one direction.

A transparent, flexible sheet 26 of plastic resin material has one end secured to roller 20 and its other end secured to one leg of a channel member 27. Plastic sheet material about 0.015 inches thick made of "Mylar" has been found to be particularly suitable for the sheet 26. A strip 28 of wood, or other suitable material, with a plurality of rivets 29 therethrough and through the rearward leg of member 27, is used to clamp this end of sheet 26 against member 27, and the top of strip 28 is rounded, as shown.

A pair of screws 30 project downward through the bottom of channel member 27 and are secured in place by locknuts 31. Safety bar 14 has appropriate holes therethrough and when it is desired the sheet 26 may be unrolled, thereby tensioning spring 23, by pulling down on the member 27 and the screws 30 may be passed through the holes in the safety bar. Wing nuts 32 are provided for quickly and easily fastening member 27 to the safety bar 14 in front of passengers on seat 13.

The forward leg of member 27 is provided with another strip 33 which is also rounded at the top. When the safety bar 14 is raised, as shown by the arrow 34 in FIG. 2, the sheet is rolled onto the roller 20 by its spring 23. Channel 27 passes beneath roller 20 until the safety bar comes to rest determined by suitably stops, substantially vertically above the back of seat 13, the sheet being partially unrolled again as indicated at 26' in FIG. 2. Strip 33, along with the rounded edge of strip 28, prevents the sheet 26 from being creased, or sharply bent in this raised position.

When the chair is again loaded the safety bar 14 may be again lowered, drawing the sheet 26 down in front of the passengers in the chair. Spring 23 keeps the sheet 26 taut so that the passengers are protected from the wind. When "Mylar" is used for sheet 26 it has the property of remaining wrinkless, although flexible, so that the view of the passengers is not interfered with.

When the windshield is no longer needed, wing nuts 32 may be quickly removed and the sheet 26 may be allowed to roll up on roller 20.

Referring to FIGS. 5-7, a modified form of windshield affords protection against wind and snow but also extends down below the knees of occupants of the chair to protect them from rain.

The chair 10' has a cross member 35 extending transversely above the seat 13' and a roller 20' is rotatably secured in a downwardly opening receptacle member 18' secured to the cross member 35. A transparent sheet 26' of plastic material is secured and rolled up around roller 20' and the roller 20' is spring-biased to roll up the sheet 26' similarly to the roller 20 of FIG. 4.

The lower edge of sheet 26' is secured, by means not shown, to a rod 36 best seen in FIG. 7. Rod 36 is provided with a plurality of handles 37 for pulling the sheet down and one or more pendant cords 38 of flexible material for the use of smaller children using the chair.

The chair 10' has a safety bar 40, like the bar 14 of FIGS. 1 and 2 but provided with pendant footrests 41, as shown. Two tubular extensions 42 are welded to the safety bar 40 projecting downward and forward from the bar when it is in its lowered position, the extensions being located to project forward of the space between the knees of each chair occupant. Each extension 42 terminates in a troughlike member 43, welded thereto, best seen in FIG. 7, the trough opening downward when the bar is lowered.

Rod 36 may be inserted in the hollows of the trough members 43, semi circular openings 44 being provided therefor adjacent rod 36 in the sheet 26', as best seen in FIG. 6.

A bumper pad 45, FIG. 6, is provided on cross member 35 for the support for the footrest 41 when is is swung up as shown in broken lines in FIG. 5. The roller 20' and its support receptacle 18' are secured to the rear of cross member 35 when the chair has a footrest.

In operation, the occupants of the chair, after loading, pull down the safety bar 40 in the usual manner, then reach up and grasp the handles 37, if the windscreen is desired, and pull it down and insert rod 36 in the trough of members 43. Spring pressure on the sheet 26' maintains the windscreen in place until the passengers unload.

Bar 40 is then swung up until the footrests 40 rest against the pad 45, clearing the way for unloading. Extensions 42 and their terminal members 43 swing up with the bar and clear the roller 20' as indicated by the broken line arc 46 in FIG. 5. As the members 43 are swung upward their trough openings face upward releasing the rod 36 and sheet 26' is rolled up on roller 20'.

When the next passengers load they pull down safety bar 40 and, if they desire the windscreen, they must pull it down again.

I claim:

1. A windshield for a ski-lift chair having pendant side supports for its seat and a safety bar normally passing in front of the seat, the bar being swingable upward to a raised position, comprising: a roller rotatably secured at either end to the side supports above the seat, a thin sheet of transparent flexible plastic resin material having one end secured to the roller, a rigid strip adapted to extend across the chair in front of the chair seat, the other end of the sheet being secured to the strip, the sheet being adapted to be rolled up on the roller, the roller being spring biased to roll the sheet up, and means for releasably securing the rigid strip to the safety bar in front of the seat, whereby, when the safety bar is swung up, the sheet is wound onto the roller and, when the windshield is not needed, it may be released from the safety bar and wound up on the roller.

2. In combination, a windshield and a ski-lift chair having an upwardly swingable safety bar normally in front of the chair passengers, comprising: a flexible sheet of transparent plastic resin, the chair having a cross member above its seat, a roller rotatably secured to the cross member, the sheet having one end secured to the roller and adapted to be rolled up thereon, spring means for biasing the roller for rolling the sheet up on the roller, the other end of the sheet being secured to a rod adapted to extend across the front of the chair seat, at least one extension secured to the safety bar, the extension projecting from the bar downward and forward when the bar is in normal posi-
tion, the extension terminating in a trough-shaped member secured thereto, the trough of the latter member extending transversely and opening downward when in normal position and adapted to receive therein the rod secured to the lower end of the sheet, the sheet having an opening therein contiguous to the rod adapted to admit the trough-shaped member around the rod, the roller being spaced above the arc of swing of the trough-shaped member, whereby the trough of the member faces upward for releasing the rod when the safety bar is swung upward.

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