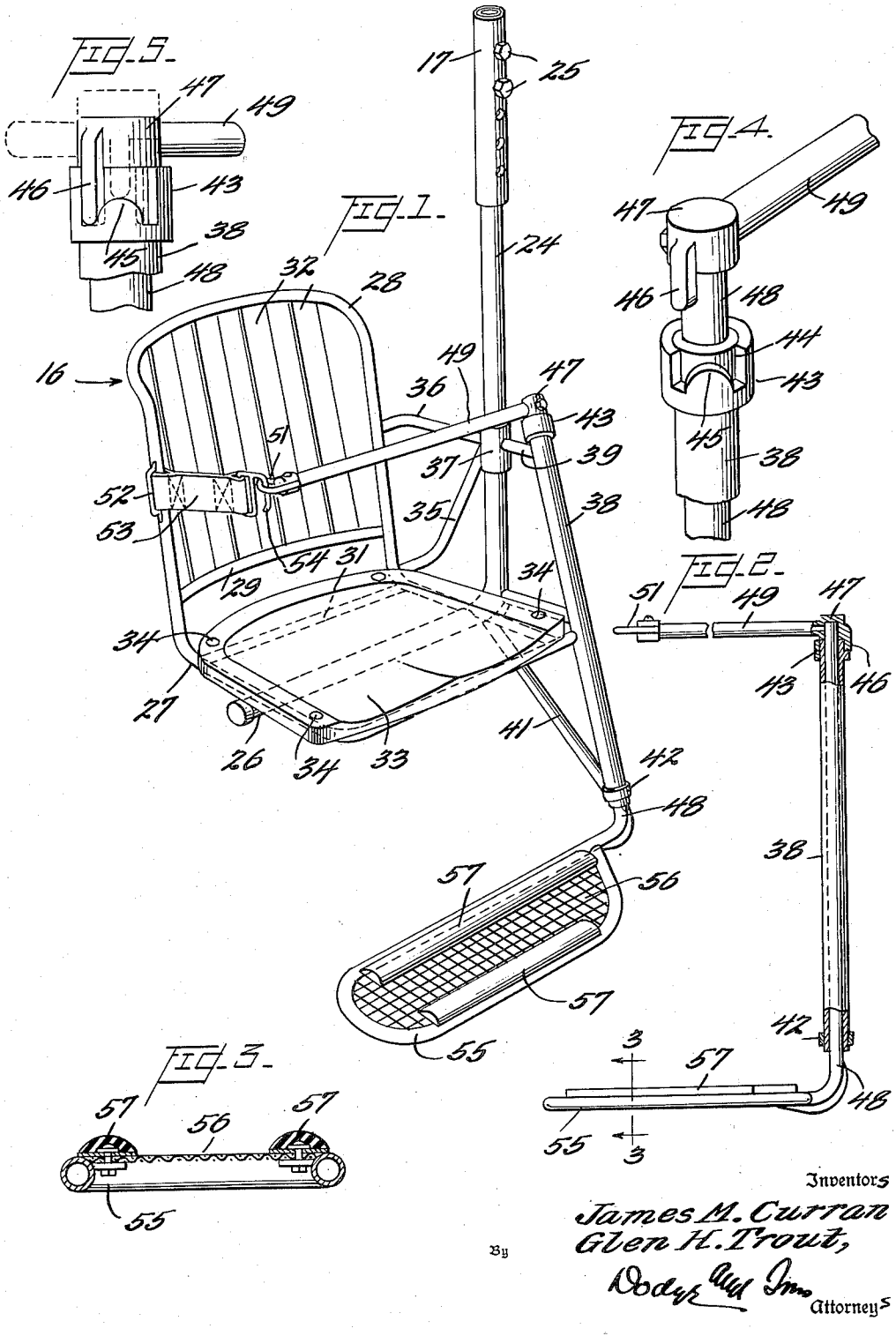
June 3, 1941. J. M. CURRAN ET AL 2,244,650

CHAIR FOR AERIAL TRAMWAYS

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FIG. 6.

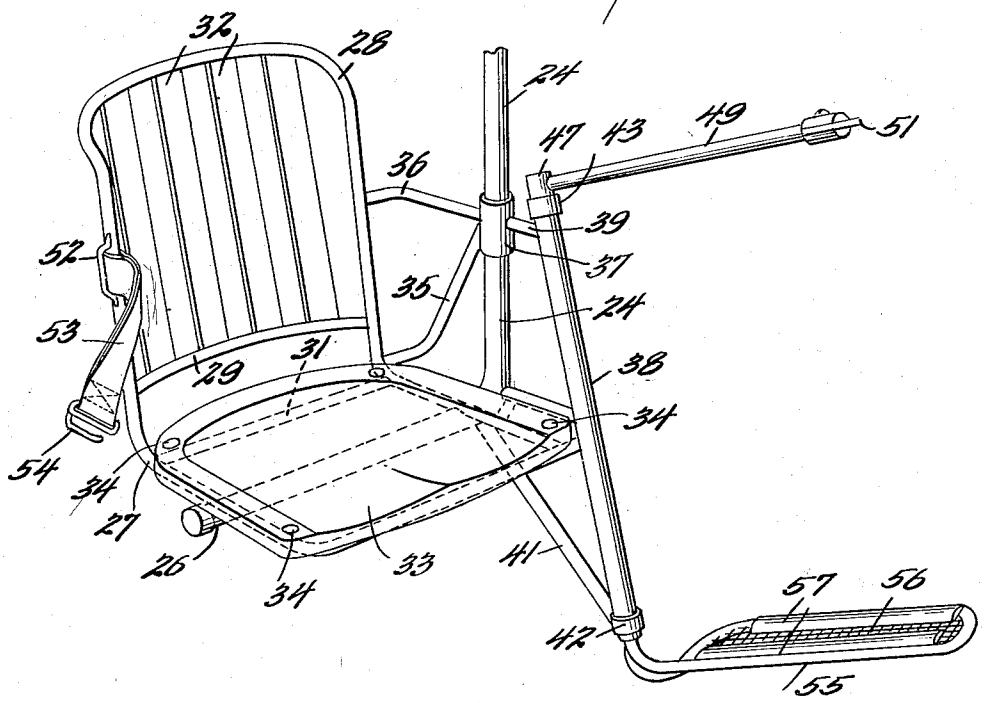


FIG. 7.

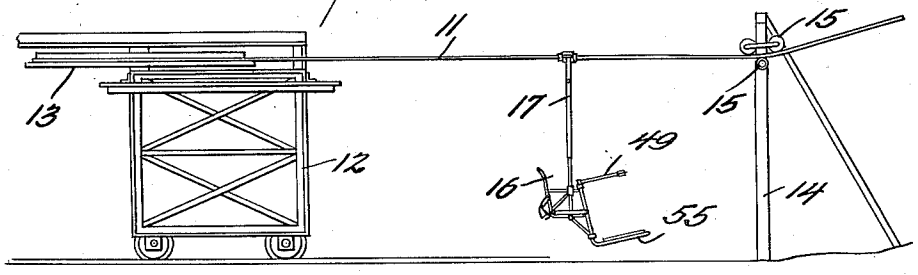


FIG. 8.

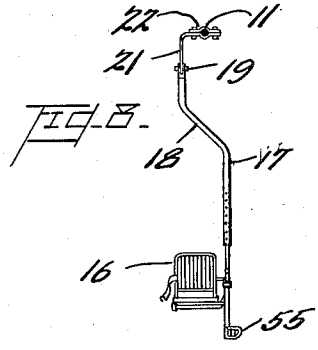


FIG. 10.

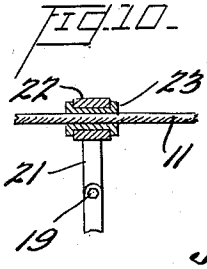
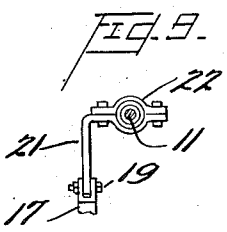


FIG. 9.



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CHAIR FOR AERIAL TRAMWAYS

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Omaha, Nebr.

Application August 2, 1940, Serial No. 349,506

8 Claims. (Cl. 155—2)

This invention relates to aerial tramways or cableways intended for use by persons wearing skis, and is designed to guard against accidents which might otherwise be occasioned by the skis.

An aerial ski tramway of the type herein contemplated is disclosed in the patent to Bannerman et al. 2,152,235, issued March 28, 1939. The present invention resides in an improvement upon the chair elements used with such tramways. In the Bannerman et al. patent a chair was suspended from the cable in such a way that it could swing freely in any direction but could not rotate about a vertical axis. The chair hung directly beneath its point of support on the cable, and hence whether loaded or empty was in stable equilibrium. This permitted a person wearing skis to seat himself in the chair and to dismount from the chair while the cable was in motion.

To guard against accidents the chair had an inclined leg rest which projected obliquely forward and downward from the forward edge of the seat element of the chair. The effect of this was to raise the occupant's feet as he seated himself in the chair, and thus make sure that the forward ends of the skis could not engage or catch the snow. If the ski harness allowed the skis to trail, only the rear ends could touch the ground, and this would not be dangerous.

Experience with devices of this character has demonstrated the desirability of a footrest. The purpose of the present invention is to provide an improved chair having a footrest which swings on an axis slightly inclined to the vertical between an active position in front of the seat and an inactive position to one side thereof. Hence, it can be swung beneath the skis worn by a person occupying the seat.

An actuator for the footrest is provided and is manually operable by the occupant of the seat. This actuator takes the form of a horizontal bar which swings in unison with the footrest and which extends across the lap of the occupant of the chair when the footrest is in its active or foot-supporting position.

Associated with this actuator and footrest is an impositive detent of the cam notch type, the engagement being produced by downward motion of the footrest. The detent cam is so constructed that while it affords an impositive lock when the footrest is not loaded, it affords virtually a positive lock when the footrest is subjected to a moderate load, such as that imposed when the user's feet are placed on the footrest. This is a safety feature assuring the retention of the footrest in its active position as a result merely of the act of placing the feet upon the footrest.

The chair is so constructed that it is open at one side. This is the outer side of the tramway, i. e., the side away from the cable supporting structure, and facilitates dismounting.

As a further safety feature a strap is connected to the side of the back of the seat and may be hooked to the end of the actuator bar to serve not only as a closure for the open side of the seat, but also as a retainer for the actuator bar and footrest.

Other minor features of the invention will be readily understood as the description proceeds.

Reference should now be made to the accompanying drawings which show a commercial embodiment of the invention.

In the drawings:

Fig. 1 is a perspective view of the chair with the footrest in its active position, and the side guard strap hooked to the combined actuator bar and front seat guard.

Fig. 2 is an elevation partly in section of the tube which serves as a bearing for the shaft on which the footrest and the actuator bar are rigidly mounted. Parts are broken away to show the construction.

Fig. 3 is an enlarged section through the footrest on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the impositive detent showing the shaft drawn upward to a position higher than that which it reaches in use, to the end that the internal construction may be observed.

Fig. 5 is an elevation of the detent shown in Fig. 4, indicating the latched position in full lines and indicating in dotted lines the mid-position assumed as the finger rides over the crest of the cam.

Fig. 6 is a perspective view similar to Fig. 1 but showing the footrest swung to its inactive position, and illustrating how the entire front of the chair is then left clear.

Fig. 7 is a small elevation of the tramway showing the suspended chair in side elevation.

Fig. 8 is a front elevation of the chair of Fig. 7 showing how the supporting hanger is offset to clear the cable guides and still bring the point of support immediately above the center of the chair.

Figs. 9 and 10 are details of the swivel connection between the hanger and the cable.

Referring first to Figs. 7 to 10, the cable 11 is the moving cable of the tramway. 12 is the movable carriage which carries the lower bull-wheel

13 of the tramway. It will be understood that the carriage 12 is drawn to the left, for example by a weight (not shown) to maintain the desired tension in the cable 11. The column 14 is one of the supporting columns of the tramway, provided with cable rollers 15.

In Figs. 7 and 8 the chair as a unit is indicated by the numeral 16. It is suspended by a hanger 17. This hanger 17 has an offset 18, and above this offset is hinged on a horizontal axis 19 transverse to the cable, to a carrier head 21. Head 21 terminates in a divided clip 22 clamped freely around the reduced middle portion of a spool-like sleeve 23 fixed on the cable 11. Since clip 22 is swiveled on the spool 23, the cable is free to rotate, and the hanger 17 assumes a pendant position without restraint by the cable, partly through the swiveling action and partly through the hinging action at 19.

An examination of Fig. 8 will indicate that the center of the chair 16 is immediately below its point of support, that is, the cable 11. Thus the chair is in a state of stable equilibrium whether it be empty or occupied.

The details so far described conform to the showing in Figs. 3, 5 and 6 of the Bannerman et al. patent and the above explanation is given merely to relate the invention to the environment in which it is intended to be used.

Referring now to Figs. 1 to 6, the hanger 17 is constructed of tubular stock, and its lower end receives the upper end of the tubular member 24 and serves as the sole support for the chair 16. The tube 24 telescopes into the lower end of the tube 17, and a pair of bolts 25 connect the tubes and hold them against relative rotation. A series of bolt holes are provided to afford vertical adjustment of the chair 16. The lower end of the member 24 is bent at right angles to provide a horizontal portion 26 to which is welded the chair frame 27. This is bent upward and arched at the back, as indicated at 28, and is provided with cross members 29 and 31 which are welded in place.

Vertical metal strips 32 welded to the arched back frame 28 and the member 29 form a strong and light filling for the seat back. The seat proper indicated at 33 is preferably formed of wood and is connected by bolts indicated at 34 to the frame 27. There are braces 35 and 36 which connect portions of the chair frame with a reinforcing sleeve 37 carried by the member 24. Thus a light and very rigid chair structure is provided.

Suspending member 24 is close to that side of the seat which is toward the sustaining structure of the cableway. The opposite or right-hand side of the seat, as viewed in Figs. 1 and 6, is completely open. On the left-hand or closed side of the seat is a bearing tube 38. This is supported from the member 37 by a connection 39, and is supported at its lower end from a portion of the member 24 by a diagonal brace 41.

The ends of the tube 38 are reinforced by collars, there being a lower plain collar 42 and an upper collar 43 which is specially formed and which is illustrated in greater detail in Figs. 4 and 5.

The collar 43 has an arcuate recess 44 whose angular extent somewhat exceeds 90°. Projecting upward in the lower portion of this recess is a rounded cam 45 designed to coact with a finger 46 formed on the head 47 which is pinned to the tubular shaft 48. Shaft 48 turns in the tube 38 and projects beyond the lower end thereof. The head 47 also carries a combined actuating bar and seat guard 49, and this has at its outer end a fitting 51 formed with a loop. A clip 52 welded to a portion of the back frame 28 of the seat carries a safety strap 53 with hook 54, which at times may be engaged with the loop 51, as indicated in Fig. 1.

A short distance below the collar 42 the shaft 48 is bent at right angles, as best shown in Fig. 2, and is formed into a looped frame 55 to serve as a footrest. Space within the looped frame 55 is closed by a heavy wire mesh 56 which is welded in place. Rubber guards 57 are provided on the upper surface to protect the occupant's skis from damage which might be occasioned by direct contact with the metal footrest.

The shaft 48 projects far enough beyond the lower end of the tube 38 to permit the shaft 48 to move upward a distance sufficient to allow the follower 46 to ride over the cam 45. Thus the cam and the follower form an impositive detent if the footrest is not loaded. The inclination of the sides of the cam 45 is so steep that if the footrest is loaded it is practically impossible to rotate the shaft 48, even with the leverage afforded by the arm 49.

With the chair empty the arm 49 and the footrest are in the inactive position, i. e., swung to one side, and the strap 53 hangs down, all as shown in Fig. 6.

To mount the chair, a person wearing skis stands under the cable facing in the direction of its travel until the seat 16 strikes him. When this happens he slumps into the seat, lifts his feet, grasps the lever 49, and swings it over his lap, thus also swinging the footrest beneath his skis. He then lowers his feet upon the footrest. This effectively locks the footrest structure in the position of Fig. 1, but as an extra precaution the hook 54 is engaged in the eye 51.

The chair is mounted by the skier at the lower end of the incline. Upon arrival at the upper end thereof the occupant of the chair disengages the hook 54, raises his feet slightly, pushes the lever 49 forward and to the left, and slides to the ground over the outer side of the seat. Thus the acts necessarily incident to dismounting condition the footrest, so that the chair may be again mounted without readjustment when it reaches the foot of the slope.

The seat is simple to construct, is strong and light, and obviously has desirable safety characteristics.

While one embodiment has been described in great detail, it should be understood that this is intended to be illustrative and not limiting, and that modifications within the scope of the claims are possible and are contemplated.

What is claimed is:

1. A seat structure for use by persons wearing skis and suited for suspension from aerial cableways, said structure comprising in combination, a seat element; a suspending element connected with said seat element and arranged to leave the front and one side of the seat element free from obstruction; footrest sustaining means at the other side of said seat and sustained by said suspending element; a footrest hingedly mounted on said sustaining means to swing laterally between an active position in front of and lower than the seat, and an inactive position remote from the open side of the seat and clear of the front thereof; means for retaining said footrest in each of said positions; and means manually operable by an occupant of the seat to shift said footrest between said positions.

2. The combination defined in claim 1 in which the axis on which the footrest is hinged is inclined upwardly and toward the rear of the seat at a small angle from the vertical, whereby the footrest is caused to move upward and to the side as it moves from said active position.

3. A seat structure for use by persons wearing skis and suited for suspension from aerial cableways, said structure comprising in combination, a seat element; a suspending element connected with said seat element and arranged to leave the front and one side of the seat element free from obstruction; an approximately vertical elongated bearing element sustained by said suspending element at the other side of said seat element; a shaft supported by said bearing element and rotatable relatively thereto; a footrest fixed to the lower end of said shaft and a guard fixed to the upper end of the shaft, so arranged that the footrest and guard may swing simultaneously between active positions in which the footrest is in front of and lower than the seat element and the guard is over the forward portion of the seat element, and inactive positions in which both footrest and guard clear the front of the seat element.

4. A seat structure for use by persons wearing skis and suited for suspension from aerial cableways, said structure comprising in combination, a seat element; a suspending element connected with said seat element and arranged to leave the front and one side of the seat element free from obstruction; an approximately vertical elongated bearing element sustained by said suspending element at the other side of said seat element; a shaft supported by said bearing element and rotatable relatively thereto; a footrest fixed to the lower end of said shaft and a guard fixed to the upper end of the shaft, so arranged that the footrest and guard may swing simultaneously between active position in which the footrest is in front of and lower than the seat element and the guard is over the forward portion of the seat element, and inactive positions in which both footrest and guard clear the front of the seat element; an impositive detent for retaining said shaft in the last named position; and means for positively retaining the shaft with the guard and footrest in said active positions.

5. A seat structure for use by persons wearing skis and suited for suspension from aerial cableways, said structure comprising in combination, a seat element; a suspending element connected with said seat element and arranged to leave the front and one side of the seat element free from obstruction; an approximately vertical elongated bearing element sustained by said suspending element at the other side of said seat element; a shaft supported by said bearing element and capable of rotating and of moving axially relatively thereto; a footrest and a guard both fixed to said shaft and so arranged as to swing between simultaneous active positions in which the footrest is in front of and lower than the seat element and the guard is over the forward portion of the seat, and simultaneous inactive positions in which both footrest and guard clear the front of the seat; and means associated with said shaft and bearing and serving to constrain said shaft to move axially in an upward direction as the footrest and guard start to move from said active position.

6. A seat structure for use by persons wearing skis and suited for suspension from aerial cableways, said structure comprising in combination, a seat element; a suspending element connected with said seat element and arranged to leave the front and one side of the seat element free from obstruction; an approximately vertical elongated bearing element sustained by said suspending element at the other side of said seat element; a shaft supported by said bearing element and capable of rotating and of moving axially relatively thereto; a footrest and a guard both fixed to said shaft and so arranged as to swing between simultaneous active positions in which the footrest is in front of and lower than the seat element and the guard is over the forward portion of the seat, and simultaneous inactive positions in which both footrest and guard clear the front of the seat; and means associated with said shaft and bearing and serving to constrain said shaft to move axially in an upward direction as the footrest and guard start to move from both said active and said inactive positions.

7. The combination of a seat member having a back and means closing one side; suspending means connected with the seat member and arranged to leave the front and other side free of obstruction; guiding means also sustained by said suspending means; and a combined guard and footrest movably carried by said guiding means and guided thereby in motion between an active position in which the footrest is at the front of and lower than the seat element and the guard overhangs the seat element, and an inactive position in which both are displaced to the closed side of the seat element and away from the front and open side thereof.

8. The combination of a seat member having a back and means closing one side; suspending means connected with the seat member and arranged to leave the front and other side free of obstruction; guiding means also sustained by said suspending means; a combined guard and footrest movably carried by said guiding means and guided thereby in motion between an active position in which the footrest is at the front of and lower than the seat element and the guard overhangs the seat element, and an inactive position in which both are displaced to the closed side of the seat element and away from the front and open side thereof; and a detent for retaining the combined guard and footrest in active position, said detent being so arranged that the weight of an occupant's feet on the footrest serves to urge the detent toward its detaining position.

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