May 14, 1940. G. W. MORTON 2,200,964

SKI PASSENGER CARRIAGE AND INCLINED SERVICING WAY FOR THE SAME

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Fig. 1

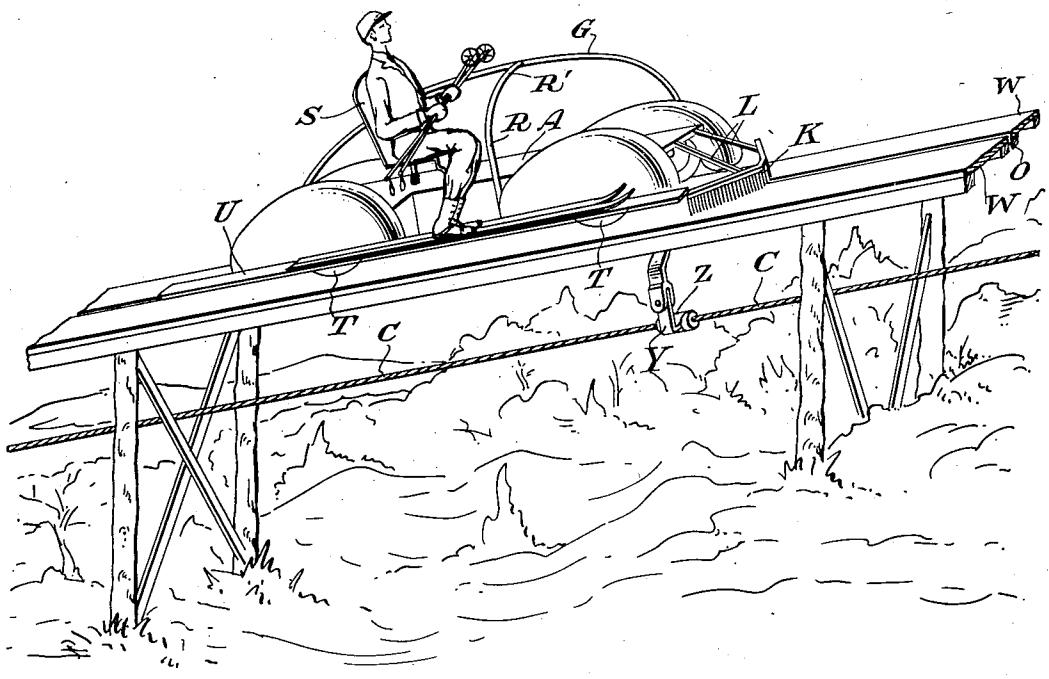


Fig. 2

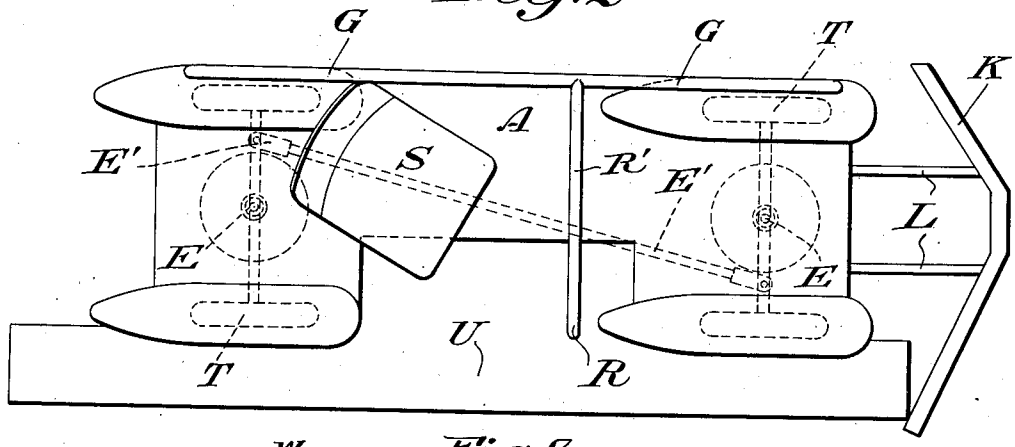
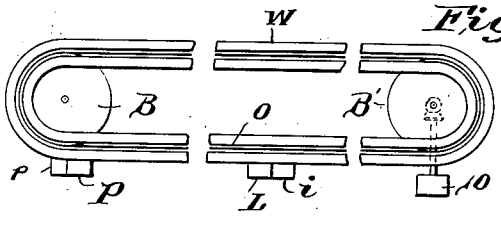


Fig. 7



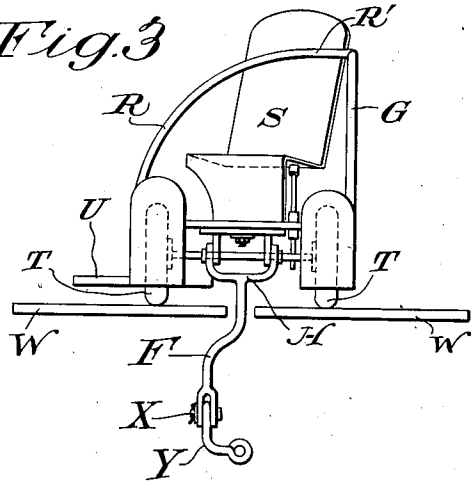
INVENTOR.
George W. Morton
BY Spear Rawlings & Spear
ATTORNEYS.

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Fig. 3



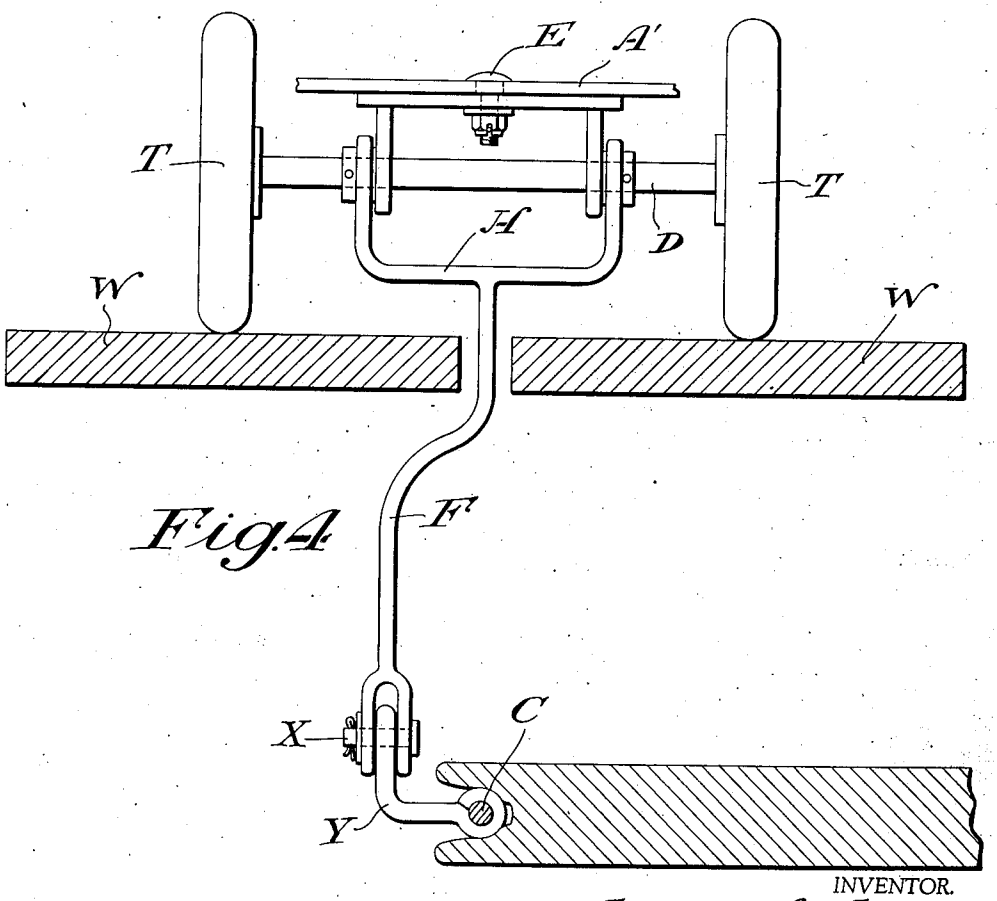


Fig. 4

INVENTOR.
George W. Morton
BY Spear Rawlings & Spear
ATTORNEYS.

May 14, 1940. G. W. MORTON 2,200,964

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Fig. 5

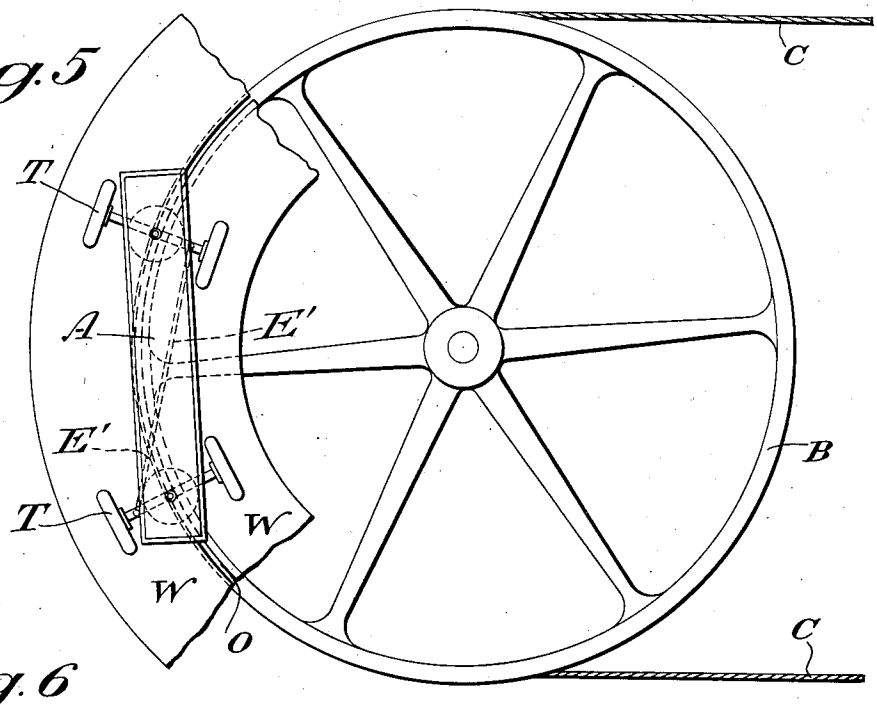
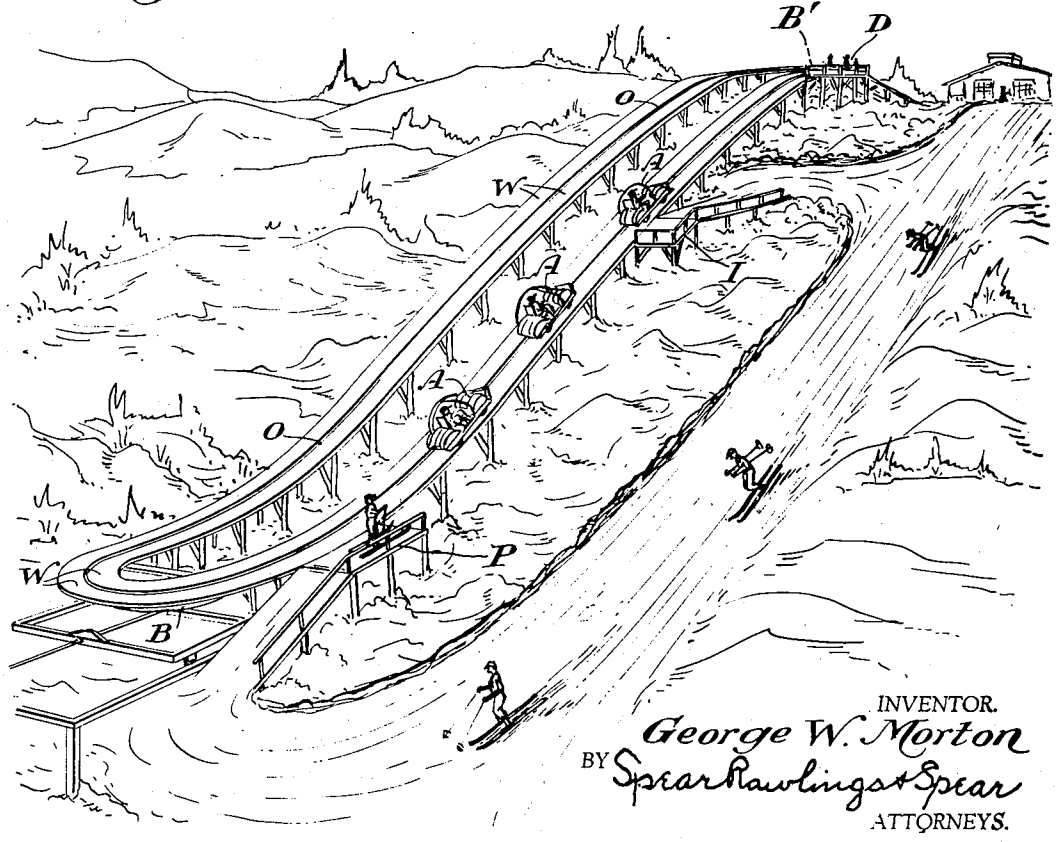


Fig. 6



INVENTOR.
George W. Morton
BY Spear Rawlings & Spear
ATTORNEYS.

Patented May 14, 1940 2,200,964

UNITED STATES PATENT OFFICE

2,200,964

SKI PASSENGER CARRIAGE AND INCLINED SERVICING WAY FOR THE SAME

George W. Morton, Bartlett, N. H.

Application September 9, 1938, Serial No. 229,107

4 Claims. (Cl. 104—173)

This invention relates to improvements in apparatus for servicing the practice of skiing, mountaineering, or like sports. It has particularly to do with skier or like passenger transportation, and more especially their transport to higher levels from which they may descent according to individual skill or fancy. For such descent, the passenger often desires to be assisted up hill, not only fully equipped, but preferably in actual moving preparedness for immediate participation in anticipated events. Such preparedness goes to facilitate the enjoyment of the sport by the greatest numbers and with a minimum rick from delays, spills or collisions.

The demand for uphill assistance to facilitate the sport and its practice has produced certain tow and tram types by which the skier may be assisted to some new untried level or may be returned for further trying-out of levels of previous taking off.

This is urgently important to those who have perhaps but a short weekend at a time to devote to their favorite recreation.

While the tow type is useful and helpful, it has serious limitations. Some skiers who are quick on their feet are found to have difficulty in even the simple technique of taking hold of or, conversely, letting go of a moving tow line without loss of balance with its resultant liability to confusion on the tow path.

Some tows have body engagements by which the skier is relieved of the immediate strain of holding on. These latter devices are found by many to take considerable practice due to personal inaptitude in mastering their technique or nervousness as sometimes occurs with beginners or those suffering from some temporary form of altaphobia if suddenly finding themselves suspended in space above some ravine or like unscreened depression in the line of tow ascent.

The concept of the present invention includes general relief for the prospective beneficiary from embarrassing manoeuvres in getting started up grade and in getting clear of assistance when at the top. It also provides for freedom from physical strains during ascent. This allows for relaxation or for adjustment of clothing or ski equipment in preparation for the down hill trip by the actual use of the skis which may be worn by the user during his passage up grade, so that, at the top or some intermediate dismounting station as contemplated by my invention, he may be ready for immediate action and the fullest enjoyment of his next event.

The concept of the present invention also provides for novel advantages in the support of a tractive or towing cable making possible a long cable without the need of intermediate support other than by the carriage system which it operates.

As illustrative of the invention involved, I have shown certain embodiments suggestive of various adaptations by those skilled in the engineering of such projects, and showing structural features well adapted for use in meeting urgent demands for a present practical basis of assistance adapted generally to locations or sites identified as having skiing possibilities.

In the drawings:

Fig. 1 is a general view of a ski passenger carriage and fragmentary suggestive indication of a section of its immediately related cooperating installation factors.

Fig. 2 is a plan view of such a carriage.

Fig. 3 is a front end view as from the right of Fig. 1.

Fig. 4 is an indication of pivoted wheel axle and towing arm connection for a carriage.

Fig. 5 is a fragmentary plan view illustrative of carriage movement in passing around the curve at a sheave location.

Fig. 6 is a suggestive view drawn from a model of an installation in accordance with my invention.

Fig. 7 is a small, diagrammatic plan view of the way, partly broken away.

To those familiar with ski runs or like out-of-door developments for the convenience or the practice of such sports, my invention will need no introduction except to place it in the art as at first suggested.

My concept includes as its basis that of individual passenger transportation, although it will be understood that for different locations and for different sport specialities, the embodiments may and ought to be varied.

Considered in its simplest aspects my concept provides for a carriage or system of carriages such as I have indicated generally in Fig. 1. In this view I have indicated generally as A a wheeled unit later to be described in one of its preferred forms, but generally to be understood as a part of a system as illustrated from a miniature or model set-up from which Fig. 6 is taken. In this, I have suggested in fragment with the carriage A a pair of supporting ways W spaced slightly apart to leave an intermediate opening O.

Referring to the carriage A as the basis of consideration, I may at the outset call attention to the fact that the passenger seat S is askew of

the cable or towing axis. It preferably is on the angle of seating incidence when considered from the axis of the boarding rail R by which the passenger swings aboard, having first stepped upon the running board U which extends the full length of the side of the carriage.

This rail (see Fig. 1) includes the main vertical stanchion portion R and the bracing cross rail portion R'. As indicated in the suggestion of the immediate installation, such a stanchion rail may be backed or braced on like guard rails G which may be advisable for guarding passenger carelessness when in transit.

Assuming the carriage as the immediate or personal factor, I have indicated in Fig. 2, which may be considered as a plan view, a characteristic wheeled unit which may be termed a carriage.

In order to consider the carriage basis of the system or installation involved, I refer to the suggestive showing of Fig. 6. An actual embodiment may be several thousand feet in ascent and up any geographically favorable location, one such as might be indicated, as for example, by a straight line on a contoured survey-map, showing the location, but it will be understood that any actual view is impossible except on a miniature or model basis. Only a few cars are indicated in the view but in practice they are continuously spaced along the cable.

That the showing of Fig. 6 be better understood and appreciated, it may be indicated that an actual present project involved an incline way some three thousand feet in ascent. It is pitched to a 15° or 20% incline. Including its return way, the so-called ways or walks W involve a length of some six thousand feet of elevated surface. This may be and preferably is in typical installations of plank and supported on posts, trestles, or other convenient and inexpensive understructure.

Taking such an installation as illustrative, it will be seen that my invention provides for the support of the cable C intermediate the bottom sheave B and the top or driving sheave B'. This driving sheave B' may be powered in any convenient and economical manner, as by a gasoline engine or by an electric motor, where electric power is available. Fig. 7 illustrates diagrammatically a power plant 10 operatively connected with the sheave B' for rotating same, and further illustrates that the ends of the way W are curved or rounded about centers coincident, or substantially coincident with the axes of the sheaves B, B', respectively; also, that the slot O of said way W at the ends of the latter is curved or rounded and has radii substantially corresponding to the radii of said sheaves so that the said rounded ends of said slot are substantially vertically alined with the peripheries of said sheaves B, B'.

A powerful brake of any desired type may be provided for the top sheave B', so that the operator at the top station can hold the cable in case of any emergency.

The bottom sheave B is preferably mounted on a car movable on tracks and counterweighted in the usual manner in cable ways of such types for taking up the slack due to varying loads.

Referring to Fig. 4, it will be seen that my carriage A can be in the form of simple wheeled trucks in which the passenger platform as at A' (Fig. 4) is utilized as the longitudinal frame.

The axles D are pivoted as at E and are connected across as by the tie rod E' so that the wheels at front and rear turn at predetermined angles as suggested in Fig. 5 as the carriage is drawn around its curved path above the periphery of the sheave.

As will be seen from Fig. 4, the carriages are towed by arms F which are hung on a pivoting fork H on the front or leading axle of each carriage. At its lower end a yoke Y is pivoted as at X.

The yokes Y encircle members Z secured to the cable at regular intervals, as for example, every 100 feet. This permits a free swiveling bearing for the yoke which forms an offset pivoted foot for the bar F in passing around the groove sheaves as suggested in Fig. 4.

The wheels T are preferably rubber tired and thus have a firm bearing on the top of the walks W which go to make up the way.

According to my concept this top surface is simply kept brushed free of loose snow by angularly disposed brushes K braced to the carriage front as at L, and slanted to move the snow laterally away from the slot O. The wheels have suitable guards of any desired contour for nonresistance to wind or for comfort and safety of passengers.

In operation such an installation offers various novel advantages, particularly for the ski-minded public. It may be said to provide a novel method of upgrade assistanced progression of ski or like equipped passengers in which the procedure consists in mounting an upgrade moving conveyance while standing beside its way, including the preliminary stage of assuming a mounting stance parallel to the movement of the conveyance, in making pivotal manual engagement with the conveyance laterally thereof, in shifting the mounting stance laterally to the conveyance and in assuming a seated posture upon the conveyance.

Referring to the illustrative model indicated in Fig. 6, each prospective passenger takes a position in his turn at the base or lower station P alongside of the way above the sheave B about which the carriages A come at intervals of say 100 feet apart. The station P may comprise, as shown in Fig. 7, an elevated platform disposed approximately at the level of the way W and having leading thereto a ramp p to facilitate mounting of said platform by the skiers.

As the ski passenger so stands he or she faces uphill or in the direction in which the carriages move in making the ascent. As the carriage comes abreast of the waiting passenger, the stanchion R or its rail R' is grasped while the left foot with its ski is slipped aboard the low plane of the running board U. As soon as weight can be transferred to the foot so positioned the other foot and its ski can be lifted to a place beside it when the passenger steadied by the stanchion R and rail R' swings diagonally into the seat S which is skewed or angled comfortably to receive him.

When it is desired to dismount at the top or at some optional intermediate level, the passenger simply rises from the seat S and holding the stanchion R and rail R' assumes a standing posture until first his right (or outside) foot takes the snow at the station side of the way. Then when weight is put upon it, the other foot is taken from the running board U and its ski launched in running contact with the snow at the side of the way. The dismounted passenger thus arrives in balanced standing posture and under the slight momentum of the carriage speed which is about four miles per hour.

The passenger may board a car or dismount from a car at any point along the way W where the latter is not at too high an elevation above the ground level. In this connection and to enable dismounting at a selected point, or points, along the way W where said way is at too high an elevation above the ground level to permit dismounting directly upon the ground, there may be provided at the outer side of the way W a dismounting station, or stations, I, similar to the boarding station P, the said station I, or each such station, as the case may be, comprising, for example, a platform disposed approximately at the level of the way W and a ramp *i* leading from the upper end of said platform to the ground level.

In this way a miscellaneous passenger personnel without previous experience can handle itself without delay or mishap. As installations according to applicant's invention increase on standardized bases of control, the public will have a chance increasingly to become educated even when using an installation at a wholly new site, so that the service to such importantly interested may become as it were institutionalized for the common good of all.

In my foregoing discussion, I have referred to my elevated structure as a way or ways. Preferably it is built as a pair of parallel plank walks W spaced slightly apart to leave an intervening slot O beneath which the endless towing cable C runs being supported at intervals along its length by the towing arms F of the carriages themselves.

Adjacent the way at the lower and upper levels are mounting or dismounting platforms P, D. Also as above suggested, it is desirable to provide intermediate sidings or take offs I leading from the main way or ways along which the carriages A are being towed according to the terrain of the location selected for the site of any particular installation.

Such installations and modifications may, and probably will, develop various nomenclatures but their structure and mode of operation are to be understood as within the purview of my invention if within the scope of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. A ski passenger carriage comprising a wheeled seat-supporting platform, a running board at one side of said platform extending from end to end of the carriage past the wheels thereof, guards enclosing the wheels above said running board, said platform being stepped downwardly between the adjacent ends of said wheel guards at the running board side of the carriage to substantially the level of the running board, and a passenger seat supported on said platform at the side thereof remote from said downwardly-stepped portion of the platform and disposed at an angle to said running board, said downwardly-stepped portion of the platform providing a recess extending inwardly of the running board below the top surface of the platform and said recess being bounded by the adjacent side wall of the platform and the adjacent portions of the inner surfaces of the wheel guards and constituting an inward continuation of the running board within which a portion at least of the passenger's legs are accommodated when the passenger is seated on said seat while his feet with attached skis rest on the running board parallel to and extending longitudinally thereof.

2. The structure of claim 1 and a hand grip rail in front of said seat for assisting a skier to swing himself freely into and out of said seat, said hand grip rail having a substantially horizontal portion disposed transversely of the carriage in front of the seat and terminating in a substantially vertical portion disposed adjacent the open side of said carriage.

3. The structure of claim 1 and a hand grip rail in front of said seat for assisting a skier to swing himself freely into and out of said seat, said hand grip rail having a substantially horizontal portion disposed transversely of the carriage in front of the seat and terminating in a substantially vertical portion disposed adjacent the open side of said carriage, and a guard rail extending longitudinally of the carriage at the side thereof remote from its open side and connecting at its forward end with said substantially horizontal portion of the hand grip rail and having its rearward end extended rearwardly of the seat.

4. A ski passenger carriage open at one side and including a wheeled seat-supporting platform, a wheel axle beneath each end of said platform, a running board at the open side of the carriage, guards enclosing the wheels of said carriage, said platform being stepped downwardly between the adjacent ends of the wheel guards at the running board side of the carriage to substantially the level of the running board, a passenger seat supported on said platform adjacent the side thereof remote from said downwardly-stepped portion of the platform, and disposed at an angle to said running board, said downwardly-stepped portion of the platform providing a recess extending inwardly of the running board below the top surface of the platform and said recess being bounded by the adjacent side wall of the platform and the adjacent portions of the inner surfaces of the wheel guards and constituting an inward continuation of the running board within which a portion at least of the passenger's legs are accommodated when the passenger is seated on said seat while his feet with attached skis rest on the running board parallel to and extending longitudinally thereof.

GEORGE W. MORTON.