PUBLISHED
JUNE 8, 1943.
BY A. P. C.

H. SARTHOU

HINGED SKI

Filed Nov. 10, 1942

Serial No.
465,641

2 Sheets—Sheet 1

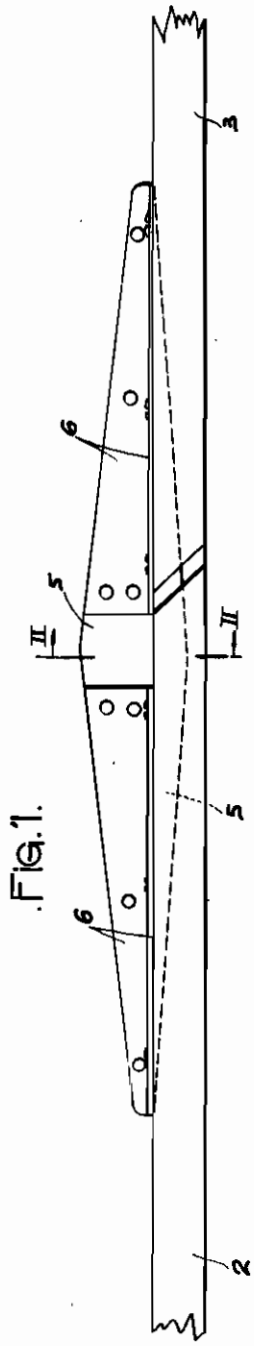

Fig.1.

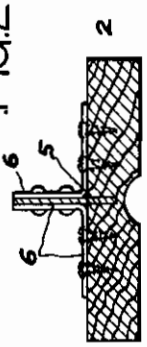

Fig.2.

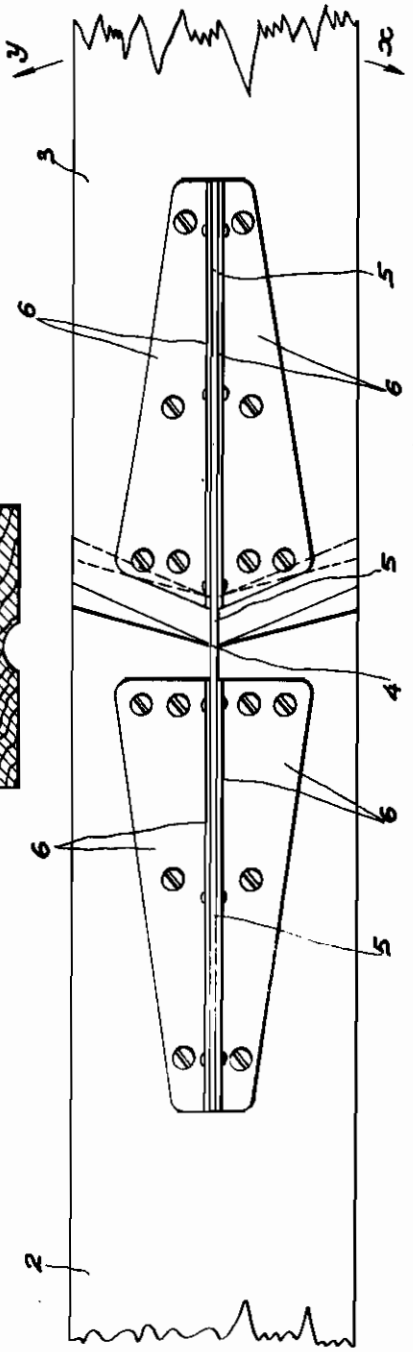

Fig.3.

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Fig. 4.

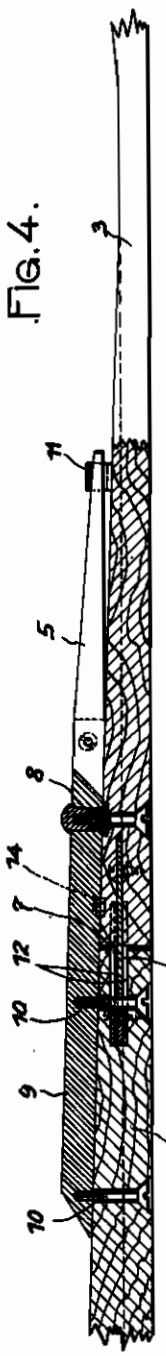


Fig. 5.

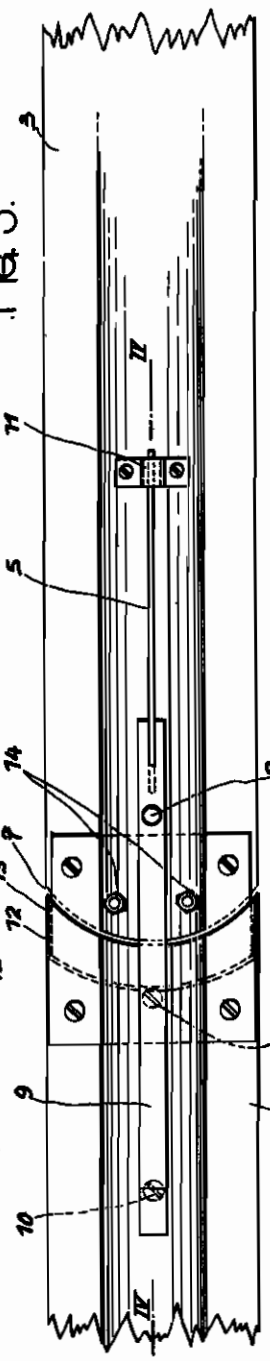
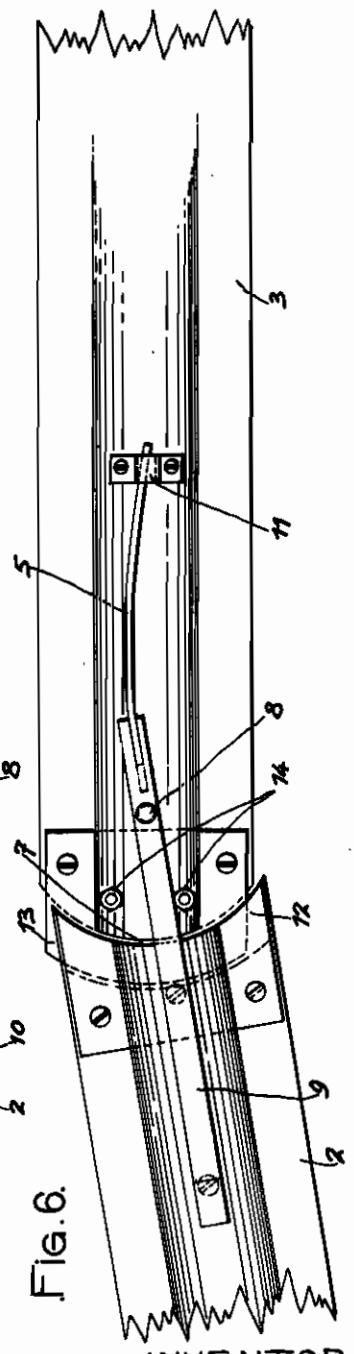


Fig. 6.



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Published June 8, 1943

Serial No. 465,641

ALIEN PROPERTY CUSTODIAN

HINGED SKI

Henri Sarthou, Saint-Gervais-les-Bains, France;
vested in the Alien Property Custodian

Application filed November 10, 1942

The hinged ski forming the subject-matter of the present invention is intended to facilitate turnings and to reduce accidents, in particular in the case of uncompacted, heavy, deep or powdery snows, which are the most dangerous kinds of snow for the average skier.

This ski is characterised by the fact that it is composed of two distinct parts constituting, one the toe and the central part, the other the heel, said two parts being joined end to end in alignment with each other and resiliently assembled in the lateral direction, in the same way as a steering rudder, but rigidly in the vertical direction.

According to a more particularly advantageous embodiment, the assemblage is obtained by means of a thin flexible steel blade placed on edge in the longitudinal axis of the ski and capable of being secured to both sections or parts of the ski in any suitable manner, for instance by means of angle irons riveted to said blade and screwed on both sections of the ski.

The flexible connecting blade might also be embedded in the two parts or sections and according to the longitudinal axis of the ski.

In this first embodiment, the rear of the front section has the shape of a re-entrant angle and the front of the rear section that of a smaller projecting angle, so as to allow a lateral displacement of the rear section or heel by the latter pivoting about the apices of the angles. The angular junction and pivotal surfaces are preferably cut on a bevel.

In a second embodiment, a real axis for the lateral pivoting of the rear part or heel is provided, the surface separating both sections of the ski being co-axial with said axis and devised in such a manner as to provide a sliding fitting or guiding arrangement of said two sections.

The separating surface can be vertical, inclined or broken, with, eventually, one of the sections straddling the other.

The sliding fitting or guiding arrangement of both parts or sections of the ski is obtained, in particular, by means of plane or shaped metal blades embedded midway in the wood in both sections. Said sliding fitting or guiding arrangement can be plane, inclined, shaped at a right angle or of another type.

In said seeond embodiment, the front section is axially extended rearwardly by a metal armature pivoted on the vertical hinge of both sections of the ski and extended beyond said hinge to receive at least one resiliently distortable blade guided at its free end in a fork-piece rigid with the rear section or heel.

The relative angular displacements of both sections of the ski are limited by abutments.

The length of the rear section is preferably comprised between $\frac{1}{6}$ and $\frac{1}{10}$ of the total length of the ski.

In a constructional modification, the rear section of the ski can also be divided into at least two parts hinged as previously indicated for the front section and the rear section of the two first embodiments.

In another modification, the rear end of the rear section can be pivoted on the latter and be kinematically connected to the front section so that it is angularly and automatically displaced relatively to said rear section, but in reverse direction to the angular displacement of said rear section relatively to the front section.

Other particular points, also included in the scope of the present invention, will appear in the following text given with reference to the accompanying drawing, by way of example only, in which:

Fig. 1 is an elevation of a first embodiment of a hinged ski.

Fig. 2 is a section made according to line II—II of the preceding figure.

Fig. 3 is a plan view of the hinged ski illustrated in Fig. 1.

Fig. 4 is an elevation, with axial section, made according to line IV—IV of Fig. 5 and showing a second embodiment of a hinged ski.

Fig. 5 is a plan view corresponding to the preceding figure, the rear section being in alignment with the front section.

Fig. 6 is a view similar to the preceding one, both sections of the ski being angularly displaced relatively to each other.

In the form of construction, more particularly illustrated in Figs. 1, 2 and 3, the hinged ski is composed of two distinct wood members. The first member 2 forms the toe and the central part of the ski, the second member 3 forms the heel.

These two sections considered separately do not differ at all from the corresponding parts of an ordinary ski. By joining them together end to end, the rear of the central part 2 against the front of the heel 3, a complete ski of the design actually used will consequently be obtained, which will have been sectioned in its lower part. The same result can moreover be obtained by taking an ordinary ski and by sectioning it between the heel and the central part.

The length of the heel member 3 is variable

and in relation with the total length of the ski. It can, for instance, be from 1/8 to 1/10 of the total length of the ski.

The rear of the central part 2 has the shape of a re-entrant angle and the front of the heel 3, that of a less obtuse projecting angle in order to allow a lateral displacement of the heel 3 about the apex 4 of the re-entrant angle of member 2 taken as pivotal axis. The male and female parts are both cut on a bevel.

The assemblage of the two sections is effected, in the embodiment illustrated which it seems must be preferred, by means of a thin and flexible steel blade 5, placed on edge or embedded in the longitudinal axis of the ski. Said blade 5 is secured to the ski by angle irons 6 riveted to the blade and screwed on both sections 2 and 3 of the ski, by leaving a slight clearance between them to impart greater freedom to the heel in the lateral direction.

The steel blade 5 can only bend in the lateral direction, but remains rigid in the vertical direction, the ski being assumed to be flat on the ground. The heel of the ski can therefore only move in the lateral direction and retains its entire rigidity in the vertical direction, whilst maintaining the natural flexibility of the ski throughout its length.

Owing to its position in the longitudinal axis of the ski, in position of rest and in straight line declivities, said blade 5 holds the heel straight in the general line of the ski. It is only at the skier's will and by the stresses he exerts for changing his direction that the heel, by the resistance of the snow to the lateral skidding of the entire ski, causes the blade to bend and moves laterally, in one direction or the other according to one of the arrows x or y and imparts a new direction to the toe, like the rudder acts on the front of a boat. The stress exerted by the skier ceasing at the end of the turn, the steel blade comes back by its resiliency into a straight line and straightens the heel in the general line of the ski.

In a second embodiment, more particularly illustrated in Figs. 4, 5 and 6, both sections 2 and 3 are shaped, at their point of junction, in an arc of circle 7 having for centre a spindle 8 about which the rear section 3 can pivot. This spindle is carried by a rigid bar 9 secured by means of screws 10 on the front section 2. Said spindle is therefore displaced rearwardly behind the junction line 7 and the bar 9 is extended by a tail-piece constituted by a spring blade 5 secured with a certain amount of play at its other end, in a fork-piece 11 secured on the section 3.

On the section 2, the profile 7 of which is concave, is embedded midway in the wood, the female part 12 of a fitting arrangement the male part 13 of which is embedded in the section 3 of convex profile 7.

When the skier exerts a stress to change his direction, the section or heel 3, by the resistance offered by the snow to lateral skidding, causes the flexible blade 5 to bend (Fig. 3) by pivoting about the spindle 8 carried by the front section 2. Abutments 14 limit the amplitude of these movements in both directions.

In said second embodiment, the surface 7 separating both sections is cylindrical but it might be conical or broken with one of the sections straddling the other.

Likewise, the fitting or guiding arrangement 12, 13 which is located in a horizontal plane, can be devised in various manners; in particular, it can be inclined or shaped in the form of a right angle.

In a constructional modification, not shown, the rear section can in its turn be divided into at least two parts connected and hinged as previously indicated concerning the front and rear sections.

In another constructional modification, not shown, the rear part of the rear section or heel can be hinged on said rear section and kinematically connected to the front section so that any relative angular displacement of the rear section with respect to the front section, causes a relative angular displacement, but in reverse direction, of the rear part relatively to the rear section.

It is obvious that the embodiments described and illustrated are only given herein by way of indication and not in a limiting sense. In a general manner, all modifications or changes which do not alter in any way the main features above set forth or the desired result, remain included in the scope of the present invention.

HENRI SARTHOU.