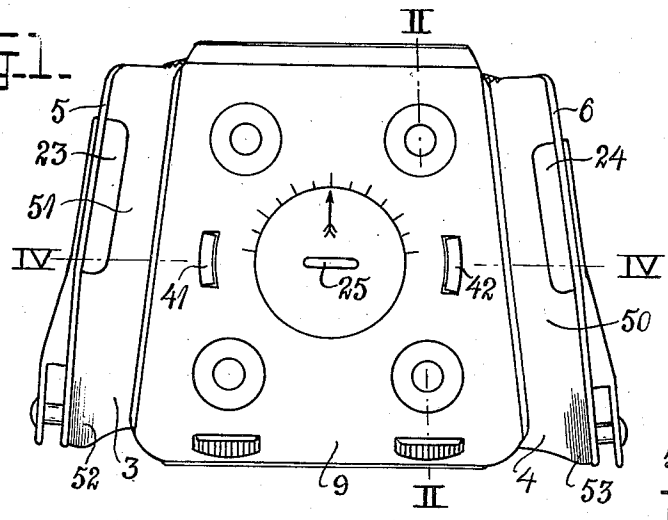
March 4, 1941. F. G. TAPPÉ 2,233,856

SIDEWAYS ADJUSTABLE SHOE FASTENING MEANS FOR SPORTING APPLIANCES AS SKIS, SKATES, OR THE LIKE

Filed July 17, 1939 2 Sheets-Sheet 1

Fig. 1.



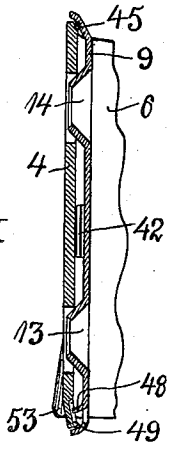


Fig. 2.

Fig. 3.

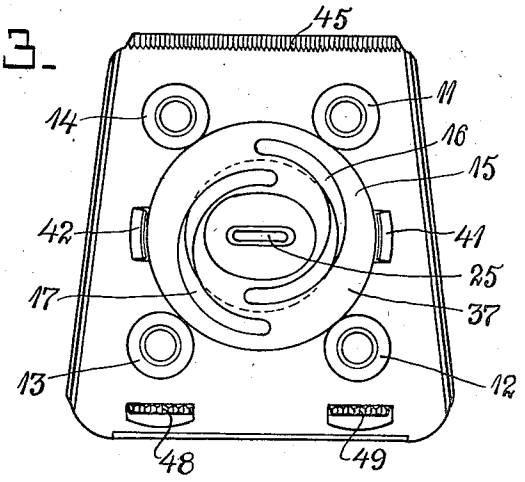
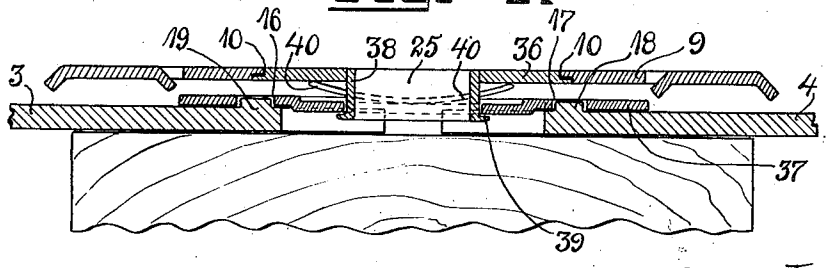


Fig. 4.



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Fig. 5.

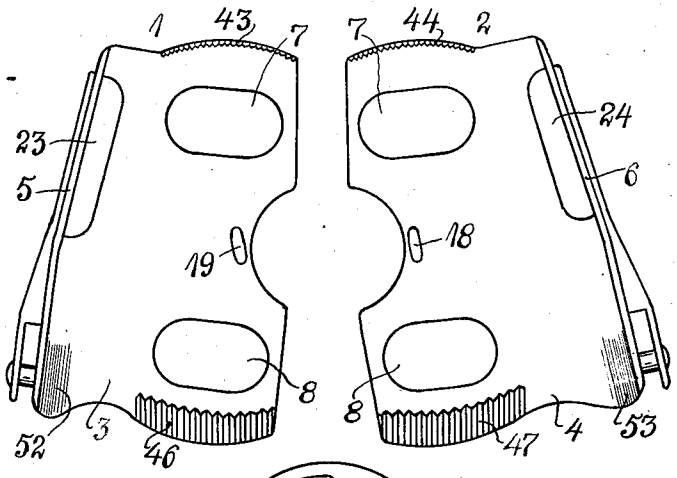


Fig. 6.

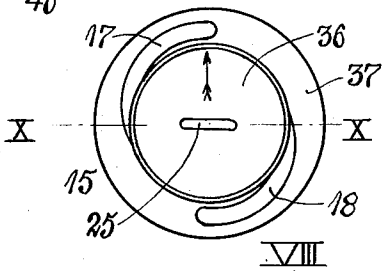
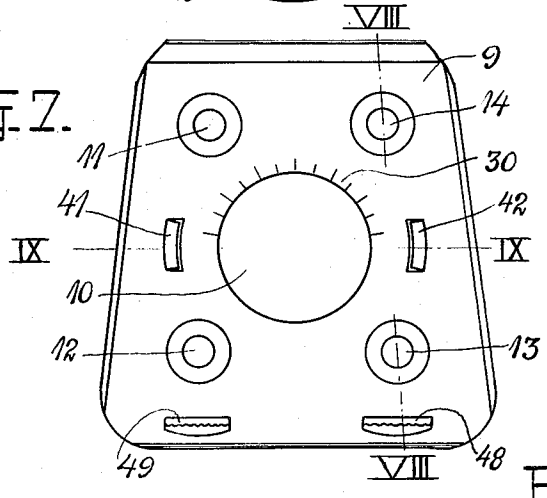


Fig. 7.



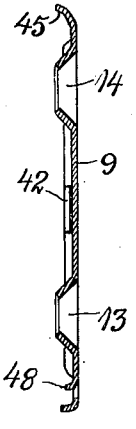


Fig. 8.

Fig. 9.

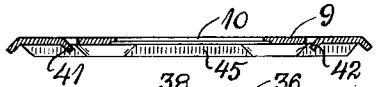
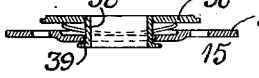


Fig. 10.



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Patented Mar. 4, 1941 2,233,856

UNITED STATES PATENT OFFICE

2,233,856

SIDEWAYS ADJUSTABLE SHOE FASTENING MEANS FOR SPORTING APPLIANCES AS SKIS, SKATES, OR THE LIKE

Frank Georg Tappé, Snaroen, near Oslo, Norway

Application July 17, 1939, Serial No. 284,946
In Norway January 25, 1939

6 Claims. (Cl. 280—11.35)

The present invention relates to fastening means for the shoe on sporting appliances, such as skis, skates or the like and is of that type where the fastening means consists in longitudinally divided foot plates with substantially normally extending side guides for the front end of the sole of the shoe and where means are provided for adjusting these two parts of the fastening means sideways in order to adapt the same for shoes of different sizes.

In the usual construction of such fastening means as they commonly are seen in combination with skis, it is necessary when mounting the same on the skis, to take proper care that the shoes which are to be used in connection with the fastening means will fit into the same; and as the dimensions of the shoes when a person purchases new ones, and also the dimensions of the shoes if different persons are to use the same sporting appliances, differ, it is of great importance to provide easily accessible and easily handled adjusting means for varying the transverse distance between the side members of the supporting means.

Several different types of such adjusting means have been proposed. None of these has, however, fulfilled all the requirements which are necessary for producing such articles on a commercial scale and at the same time for producing an article which will fulfill all requirements.

According to the present invention the fastening means for sporting appliances as above described are provided with adjusting means which at any time can be used for adjustments in transverse direction by means of a simple hand movement.

One object of this invention is thus to provide fastening means for the shoe on sporting appliances, where these fastening means comprise two halves, each generally formed in an angle, having one plate adapted as a foot plate, and one side plate arranged in substantially normal direction to the same and adapted to extend upwards on the sides of the shoe sole, adjusting means being turnably arranged about an axis normal to the foot plates between and overlapping the two halves of the same, and cam means on the said two halves of the foot plates and on the said adjusting means, adapted to mesh with each other and adapted to provide for a sideways movement in opposite direction of the two halves of the fastening means, when the adjusting means is operated.

A permanent attachment of the fastening means to the top of the sporting appliances may, of course, be established in different ways. This may be done directly by means of screws arranged to pass through suitable slots in the said foot plates, or it may be arranged to act through the means of a cover plate which again is provided with holes, adapted to receive screws which can be used for pressing the said cover plate in frictional engagement against the said foot plate.

The fastening means according to this invention may, of course, be given different embodiments, and some preferred embodiments for the invention will be described in the appended description with reference to the drawings. In this description several details of novel character and of importance for the working of the invention will be fully described.

In the drawings,

Fig. 1 shows a horizontal view of a ski binding according to the invention.

Fig. 2 is a cross-sectional view at the line II—II of Fig. 1.

Fig. 3 is the coverplate with the adjusting means.

Fig. 4 is a cross section at the line IV—IV in Fig. 1.

Fig. 5 is a view from above of the two foot plates.

Fig. 6 shows the adjusting means seen from above.

Fig. 7 shows the cover plate seen from above.

Fig. 8 is a cross section of the plate at the line VIII—VIII in Fig. 7.

Fig. 9 is a section through Fig. 7 at the line IX—IX.

Fig. 10 is a section through the adjusting means at the line X—X in Fig. 6.

In the above figures, corresponding reference numerals refer to corresponding parts.

When considering the embodiment shown in Fig. 1, this consists in fastening means 1 and 2 with foot plates 3 and 4 and side guides 5 and 6. The foot plates 3 and 4 have two substantially oval-shaped apertures 7, 8 (see Fig. 5) through which the screws to provide for permanent attachment may pass freely. On top of the foot plate there is arranged a cover plate 9 with a central aperture 10 (see Fig. 7) and with bevelled screw holes 11, 12, 13, 14. Below the foot plate there is arranged an adjustment member 15 shaped as a disk, comprising spirally formed slots 16 and 17, into which projections, fingers or the like 18 and 19—which may be a component part of the material in the foot plates 3 and 4—may pass.

In order to prevent that the two foot plates 3

and 4 and the cover plate 9 may move in relation to each other after the parts have been tightened down by the screws, there may be arranged corrugations 43 and 44 at the front end of the foot plates. These corrugations or teeth may be arranged on curved surfaces and may be inclined downwards and forwards. Corresponding corrugations or teeth may be arranged on the cover plate 9 at 45 in such a way that when the cover plate is tightened down against the foot plates, the two corrugated inclined surfaces will mesh and tend to pull the cover plate in the inwards direction. As a modified embodiment such corrugations may be arranged on the sides of the cover plate.

At the back edge of the foot plates 3 and 4 there are also arranged groups of teeth 46 and 47 inclined forwardly in the foot plate, and in the cover plate there are arranged teeth 48 and 49 which are intended to co-operate with the said teeth 46 and 47 on the foot plates, when the cover plate is tightened down. The fastening means are provided with flanges 23, 24, adapted to engage with the top side of the sole of the shoe.

When the above mentioned parts have been primarily mounted on top of each other on the ski and primarily attached thereto by loosely arranging the screws through the holes 11 and 12, 13 and 14, one may by means of a screw driver engage the slot 25 in the adjusting member 15 and provide for a turning of the same about an axis which is substantially normal to the plane of the foot plates. The co-operation between the notches 18 and 19 and the slots 16 and 17 in the adjusting member will by this turning provide for the movement of the two halves of the fastening means transversely and in opposite directions.

By such adjustment one may easily find the desired dimension and angle between the two side guides 5 and 6, and when this dimension has been found to correspond to the dimension of the shoe which is to be used with the fastening means, the screws in the holes 11, 12, 13 and 14 may be tightened, whereby all the parts will be locked in position.

In the embodiment of the invention which is shown in the drawings, the adjusting member 15 has been made up of several parts in order to insure that the adjusting member under all circumstances shall adapt itself as well as possible for the purpose.

The adjusting member 15 is here constructed of separate circular plates 36 and 37, see Figures 4, 6 and 10. The plate 36 is attached to a hollow shaftlike member 38 which has a groove 25, adapted to receive the working edge of the screw driver for the purpose of adjustment. The plate 37 is movably carried on the shaft 38 and is prevented from falling off the shaft 38 by means of a shoulder 39 on the shaft. The plate 37 may thus move in the direction towards or away from the plate 36 within a certain distance. A spring plate 40 is arranged between these two plates in such a way that under normal circumstances the plate 37 will tend to adopt a position as far as possible away from the plate 36 and in such a way that the plate 36, when the cover plate 9 is tightened down, will be forced up into the circular aperture 10 in this plate, while the plate 37, which is provided with spirally formed slots will be forced down against the foot plates 3 and 4 and thus insure the engagement between these slots 16 and 17 and the projections 18 and 19 on the said foot plates.

The different holes 11, 12, 13 and 14 in the cover plate 9 are further shaped in such a way that the side edges of these holes are bent down and form conically shaped guiding members on the under side of the plate, which clearly can be seen from the Figures 2, 3 and 8. The plate 37 is now dimensioned in such a way in relation to the location of these holes that it will be guided at its circumference at four points by coming into contact with these depressions. One may further, if this is found advisable, arrange notches 41 and 42 in the cover plate at such location that these will serve as guides in the sideways direction for the plate 37.

It is finally to be stated that the fastening means, which is the object of this invention, is not intended to operate alone to attach the shoe to the sporting appliances. It is necessary in connection with this to provide suitable means for also attaching the heel of the shoe. This means may, however, be varied to a great extent and commonly well known means for this purpose may be used; as this means further is no part of this invention, no description has been given of such means.

I claim:

1. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two halves of the footplate and on the said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, said adjusting means being formed as a plate with a centrally located slot, and said cam means comprising two spirally formed slots in the said plate and a projection on each half of said footplate, said projections being received in the said spiral slots in the said adjusting member, and means to lock the said footplate to the top of the sporting appliance.

2. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two alves of the footplate and on the said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, a cover plate resting on the said footplate so as to cover the same and to engage the adjusting means, cooperating means in the said cover plate and footplate, respectively, to guide edgewise movements of the said halves of the footplate, said guide means comprising transversely arranged slots in one of the adjacent parts and projections in the other part, adapted to be received in said slots, and means to lock the said cover plate and the said footplate to the top of the said sporting appliance.

3. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the

shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two halves of the footplate and on said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, a cover plate resting on the said foot plate so as to cover the same and to engage the adjusting means, cooperating means in the said cover plate and footplate, respectively, to guide the sidewise movements of the said halves of the footplate, and means to lock the said cover plate and the said footplate to the top of the said sporting appliance, said locking means including transversely arranged corrugations on the upper sides of the footplate halves and corresponding corrugations on the lower side of the cover plate.

4. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two halves of the foot plate and on the said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, said adjusting means being formed as a plate with a centrally located slot, a cover plate resting on the said footplate so as to cover the same and to engage the adjusting means, cooperating means in the said cover plate and footplate, respectively, to guide the sidewise movements of the said halves of the footplate, and means adapted to lock the said cover plate and the said footplate to the top of the said sporting appliance, said cover plate being provided with a centrally located aperture exposing the central part of the said adjusting means and said central slot.

5. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two halves of the footplate and on the said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, a cover plate resting on the said footplate so as to cover the same and to engage the adjusting means, cooperating means in the said cover plate and footplate, respectively, to guide the sidewise movements of the said halves of the footplate, means to lock the said cover plate and the said footplate to the top of the said sporting appliance, a centrally located aperture in the said cover plate, exposing the central part of the said adjusting means, a scale arranged on the cover plate around the said aperture, and a mark on the exposed part of the adjusting means for cooperation with said scale to determine the definite position of the adjusting means.

6. Sidewise adjustable shoe fastening means for sporting appliances as skis, skates or the like, comprising a longitudinally divided footplate with substantially normally extending side guides for the front end sides of the sole of the shoe, adjusting means turnable about an axis normal to the said footplate between and overlapping the two halves of the same, cam means on the said two halves of the footplate and on the said adjusting means arranged to mesh with each other and to provide for sidewise movements in opposite directions of the two halves of the footplate when the adjusting means is turned, said adjusting means including two plates, one fixed to a shaftlike member and the other axially slidably mounted on the same, and a spring member between the two plates to hold them apart, and the said cam means comprising two spirally formed slots in the said latter plate and a projection on each half of said footplate, said projections being received in the said spiral slots, and means to lock the said footplate to the top of the said sporting appliance.

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