(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 455 348 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **91302875.9**

(51) Int. Cl.[5]: **A41D 13/06**, A63B 71/12

(22) Date of filing: **02.04.91**

(30) Priority: **03.04.90 GB 9007460**

(43) Date of publication of application:
06.11.91 Bulletin 91/45

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

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(54) Motor-cyclist's knee slider.

(57) A motor cyclist's knee-slider comprises sector-shaped wear pad portions (32) flexibly connected together by integrally formed webs (34), so as to be capable of assuming a variety of orientations, each providing a different ground engaging surface. The knee-slider pad portions (32), or a pad of other shape, can be connected to fastener sheet material (36) by stitching (40) at the outer edge to provide better adaptation to the shape of a co-operating fastener sheet material (41).

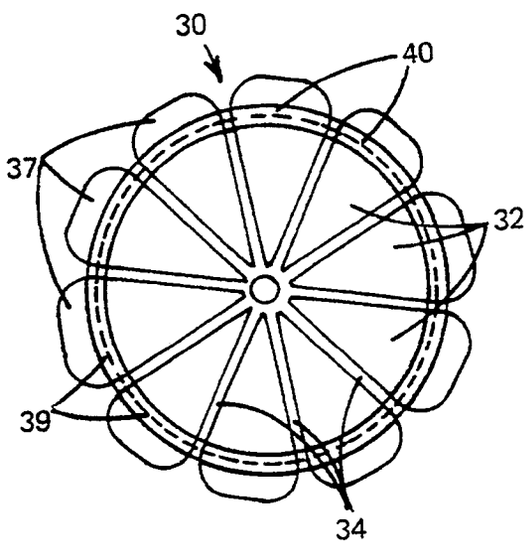

FIG. 6

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The invention relates to a knee slider for use by motor-cyclists.

Racing motor-cyclists are necessarily concerned to effect cornering at the highest possible speeds, and a cornering style has been developed to achieve this which involves contact between the ground or road surface and the rider's knee on the inner side of the cornering curve. This ground contact has a stabilising effect permitting better control of the motor cycle during the cornering operation. It is necessary to provide protection for the rider's knee during such a cornering manoeuvre, and a knee slider, in the form of a pad of abrasion resistant material, has been secured externally to the rider's clothing at the knee position. Whatever the material of such knee sliders, they are necessarily subjected to very considerable wear. They can be shaped so as to be worn in two positions, in which they conform with the rider's knee, the positions being turned through 180° relative to each other, to expose two regions to ground contact successively, or they can be arranged to mount replaceable studs which however provide more limited support areas.

The invention is accordingly concerned with the provision of a knee slider having an improved life without sacrifice of performance or convenience of use.

The invention thus provides a motor-cyclists knee slider having a plurality of relatively articulated parts such that the slider can be worn in a plurality of orientations each providing a substantial ground contact surface area.

A knee slider of the invention can thus comprise a plurality of pad portions connected together in a generally ring shaped configuration by flexible or pivotable connections between them. The pad portions can together have a generally circular or polygonal periphery, with the connections, which can be formed integrally with the pad portions, extending outwardly from the central point or form the central region. The construction of the knee slider in accordance with the invention affords sufficient flexibility for the knee slider to be conformed to the rider's knee in a large number of different positions, in particular, different angular positions around a centre of the slider, so that different regions of the slider can be brought into a position of use and wear can be distributed accordingly over a substantial area.

It is conventional to effect releasable securement of a knee slider to the users clothing by means of a releasable fastener of the kind sold under the registered Trade Mark "Velcro", which comprises two backing sheets having respectively upstanding filamentary hook and loop fastener elements which can be releasably interengaged. The fastener element with the loops is stitched to the clothing and the other element, with the hooks, is secured to the knee slider, by heat lamination or by adhesive with a peripheral portion extending beyond it.

The invention also provides a knee slider, preferably but not necessarily of the articulated kind described above, comprising a slider member, the slider member having an outer surface for ground-engagement and an inner surface, and a releasable fastener, the releasable fastener comprising a backing sheet with upstanding filamentary fastener elements secured to the inner surface of the slider member by stitching. The use of stitching to secure together the slider member and the fastener element avoids possible damage to the latter due to the heat employed in lamination and can provide a flexibility permitting better conformity to other fastener element. Thus, the stitching can be confined to the outer region of the slider member, the outer edge of which can advantageously be formed as a lip at which the stitching can be located. Such a lip can be flexible so as to support the fastener element. The lip also can be shaped to function as a guide to correct location of the stitches.

The invention is further described below with reference to the accompanying drawings, in which:

Figure 1 is a perspective front view of a motor cycle and rider in a cornering position in which a knee slider is in active use;

Figures 2 and 3 are respectively a plan and a cross-sectional side view of a first prior art knee slider;

Figures 4 and 5 are respectively views similar to those of Figures 2 and 3 of a second prior art knee slider;

Figures 6 and 7 are respectively views similar to those of Figures 2 and 3 of an exemplary knee slider in accordance with the present invention; and

Figure 8 is a perspective underneath view of a slider member of the knee slider of Figures 6 and 7.

As illustrated in Figure 1, a cornering style employed by racing motor-cyclists requires the machine 1 and the rider 2 to adopt inclinations to the horizontal road or track surface 4 such that the rider's knee 5 comes into contact with the road surface to provide, together with the motor-cycle wheels, three-point support. To protect the rider and his clothing from damage, a knee slider 6 is secured to the clothing at the knee position. The knee slider 6 presents an outer surface for engagement with the surface 4, of a material capable of accommodating the abrasive impact involved.

The knee slider 10 of the prior art shown in Figures 2 and 3, comprises a slider member 11 in the form of a pad of generally uniform thickness. The member 71 may be an injection moulded, cast or machined, slider member 11 of plastics material in the form of a pad of generally uniform thickness. The member 11 is generally rectangular, with rounded corners, and has a convex outer surface and a concave inner surface shaped to approximate to the body of the user. Secured to the inner surface of the slider

member by heat lamination or by adhesive is a fabric fastener member 12 constituted by the hook element of a releasable hook-and-loop fastener of the kind sold under the registered Trade Mark "Velcro". The fabric backing sheet of the fastener member 12 is secured with the hooks facing away from the outer surface and has an outer portion extending outwardly all around the periphery of the slider member 11. To promote flexibility, the outer portion of the member 12 is divided into a plurality of separate petals or tongues 14. In use, the slider 10 is applied to the user's knee with its longer sides extending lengthwise of the user's leg, and the tongues 14 are flexed away from the member 11 to be releasably engaged with a cooperating fastener member, constituted by the loop element of the hook-and-loop fastener, sewn onto the outside of the user's racing suit.

It is a disadvantage of this kind of knee slider that ground contact occurs in use at one region only of the outer surface of the slider member 11, indicated by reference numeral 15, which is quickly worn away.

The life of the slider can be enlarged by turning the slider through 180°, so that the corresponding region 15 on its other side receives the wear, but the slider member 11 is necessarily rigid so it cannot be accommodated to the shape of the user's knee in any intermediate angular position.

The second form of prior art knee slider 20 shown in Figures 4 and 5 comprises a rigid stud holder 21 of elongate cruciform shape having a replaceable slider stud 22 secured at its outer surface in each of its four limbs. A touch-and-close fastener member 24 corresponding in essentials to the fastener member 12 is secured beneath it by heat lamination or adhesive. The replaceability of the studs 22 enlarges the life of this kind of knee slider, but it is less satisfactory in performance, because of the limited engagement areas 25 of the studs with the ground surface affords a less stable support position. The slider 20 can be turned through 180°, but not through a lesser angle, because of the necessary rigidity of the stud holder 21.

The disadvantages of the prior art sliders of Figures 2-5 are overcome in accordance with the invention in the knee slider 30 illustrated in Figures 6-8. The knee slider 30 comprises a slider member comprising ten generally sector-shaped wear pad portions 32 of approximately uniform thickness connected together to form a generally circular disc by web portions 34 formed by radially extending grooves. The web portions 34 provide flexibility between adjacent wear pad portions 32. The slider member is preferably integrally formed or moulded, as by injection moulding, and the grooves forming the web portions 34 are preferably of V-shaped cross-section with sides diverging outwardly from the inner surface of the member as appears from Figure 7.

The division of the slider member into the plurality of adjacent wear pad portions 32 capable of relative articulation, because of the thin webs 34 connecting them, permits the slider member to take a variety of shapes, including convex and/or concave shapes, as indicated in Figure 8. The slider member can thus be mounted on the user's knee in a variety of positions, specifically at any angular position around its centre. The knee slider 30 can thus be positioned in any desired way, taking into account the wear it has already experienced, so that it has a very much longer useful life than the prior art knee sliders of Figures 2-5.

A hook fastener member 36 is secured to the back or inner side of the slider member for releasable connection to a loop fastener member stitched onto the users's clothing. As with the prior art fastener members 12 and 14, with which it functionally corresponds, the fastener member 36 is of greater area than the slide member to which it is secured. The member 36 is of generally circular shape and is concentric with the slider member; its outer portion is divided into tongues or petals 37 by radially extending cuts aligned with the webs 34.

Unlike the prior art fastener members 12 and 14, the member 36 is secured to the slider member, not by heat lamination or by adhesive, but by stitching. To facilitate this, the portions 32 are provided with integrally formed thin flat lips 39 projecting from their outer edges at the inner side. The fastener member projects beyond the lips 39 by a radial distance about equal to the radial extent of the lips and is secured to them by stitching 40. The lips 39 function as a sewing guide. The lips 39 can have a thickness at least approximately equal to that of the webs 34 so as to provide a flexible support for the fastener member. Because of the location of the stitching 40 on the slider member, it is capable of a degree of movement relative to the fastener member 36, which can flex independently so as to conform to the contours of a cooperating piece of loop fastener member 41 as indicated in Figure 7.

The slider member of the slider 30 is preferably manufactured from polypropylene which has a plastics memory capability, so that once the slider has been deformed to a shape appropriate to the user's knee it can be returned to this condition very readily without damage.

The invention can be embodied in a variety of ways other than as specifically described and illustrated.

Claims

1. A knee slider for use by motor cyclists comprising a plurality of pad portions (32) each providing a surface for ground engagement, and means (36) for mounting the knee-slider on motor cyclists clothing in a selected one of a plurality of orientations corresponding to the presentation of different ground engagement surfaces for use.

2. A knee-slider as claimed in claim 1 wherein each of the pad portions (32) can pivot relative to the or each adjacent pad portion.

3. A knee-slider as claimed in claim 1 or 2, wherein the pad portions (32) are integrally formed.

4. A knee-slider as claimed in claim 1, wherein the pad portions (32) are pivotably connected together by integrally formed webs (34) of reduced thickness.

5. A knee-slider as claimed in claim 1, 2, 3 or 4, wherein the pad portions (32) have adjacent sides converging to a common centre.

6. A knee-slider as claimed in any preceding claim wherein the pad portions (32) are secured by stitching (40) at the outer region of the knee-slider to flexible sheet material (36) having fastener elements extending from the surface thereof remote from the pad portions for releasable engagement with cooperating fastener elements.

7. A knee-slider for use by motor cyclists comprising at least one pad portion (32) providing a surface for ground engagement the pad portion being secured to sheet material (36) having fastener elements extending from a surface thereof remote from the pad portion for releasable engagement with co-operating fastener elements, the pad portion and the sheet material being secured together by stitching (40).

8. A knee-slider as claimed in claim 6 or 7, wherein the or each pad portion (32) has a thin integrally formed lip (39) at its outer edge through which the stitching (40) extends.

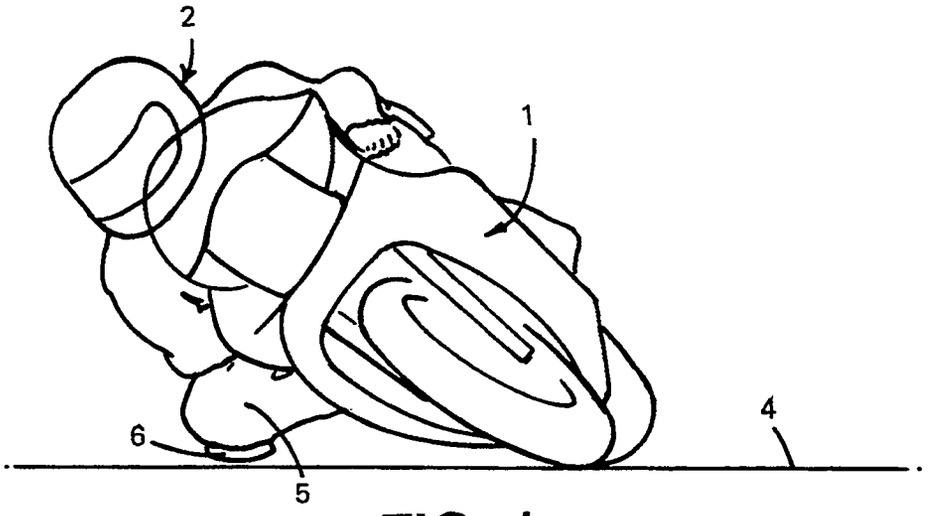

FIG. 1

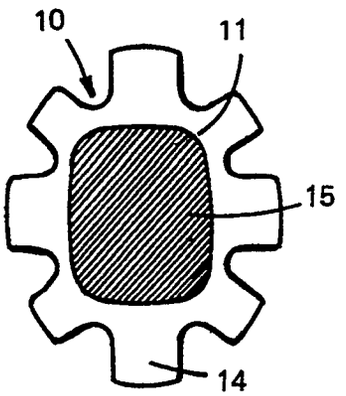

FIG. 2

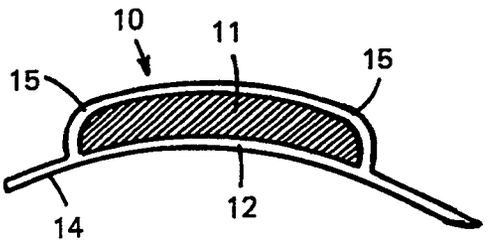

FIG. 3

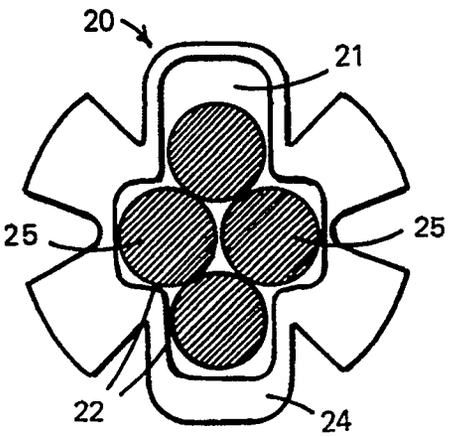

FIG. 4

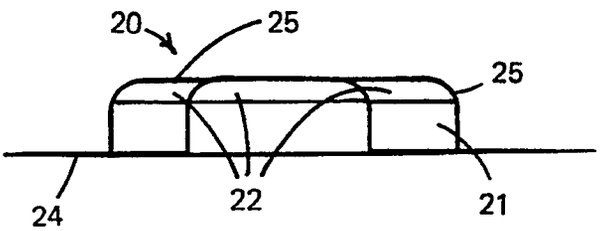

FIG. 5

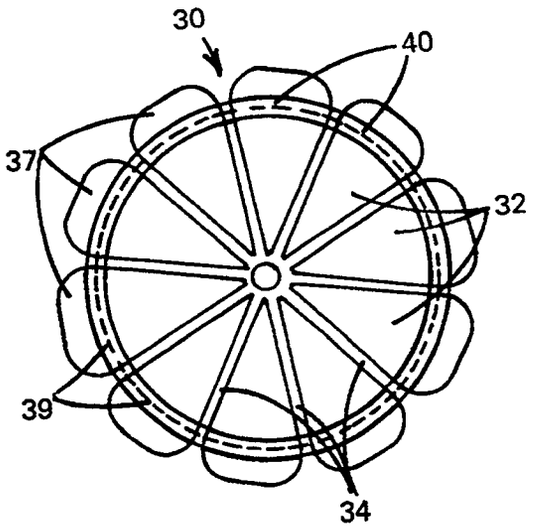

FIG. 6

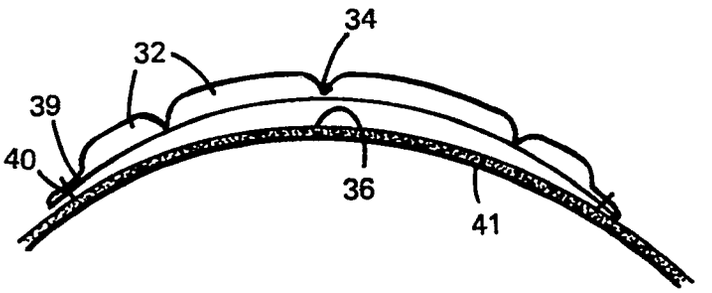

FIG. 7

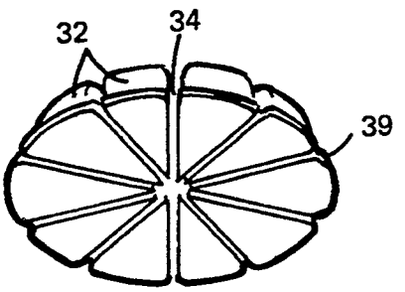

FIG. 8

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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 2875

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	FR-A-2 431 837 (BEFIEUX) * claims; figures *	1-8	A41D13/06 A63B71/12
A	GB-A-664 623 (J.H.BEAN & CO LTD) * claims; figures *	1-8	
A	DE-U-8 908 970 (ENGLER) * claims; figures *	1-8	
A	US-A-3 991 420 (SAVARINO) * figures *	1	
A	DE-C-943 282 (KRAENZLE) * figures *	1	
A	DE-A-3 719 895 (FILMER ET AL)		
A	US-A-3 125 762 (F.W.GLAHE)		
A	US-A-1 777 878 (R.D.EVANS)		
A	DE-U-83 236 623 (MUEHLENBERG)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A41D
A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	05 JULY 1991	KARIPIDOU CHRISTINA

CATEGORY OF CITED DOCUMENTS

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