Feb. 13, 1945. P. J. MOCHEL 2,369,169

FAIRLEAD

Filed March 22, 1944

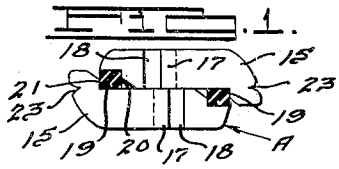


FIG. 1.

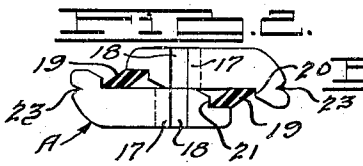


FIG. 2.

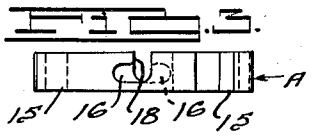


FIG. 3.

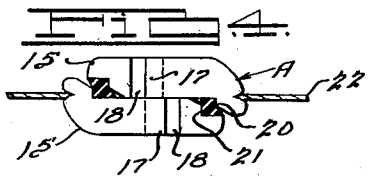


FIG. 4.

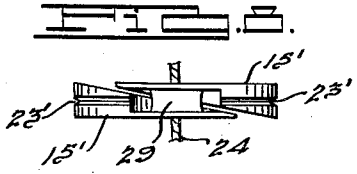


FIG. 8.

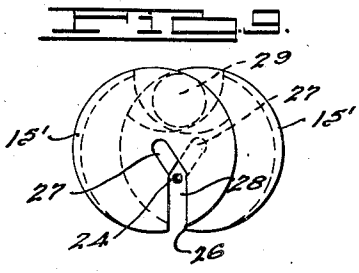


FIG. 9.

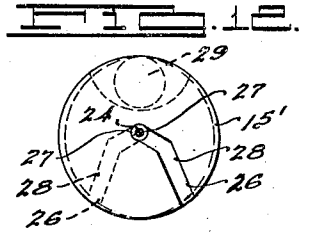


FIG. 12.

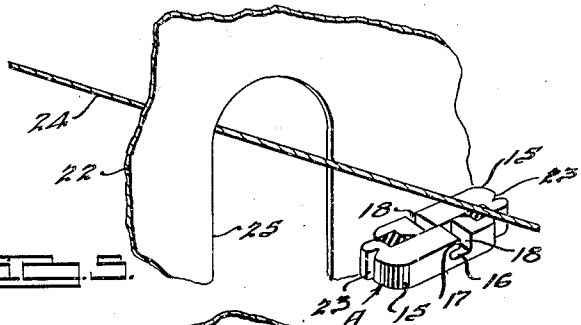


FIG. 5.

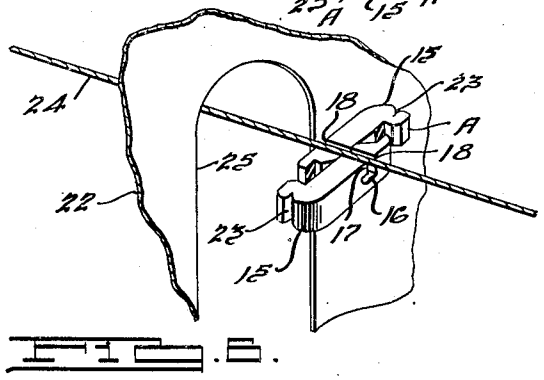


FIG. 6.

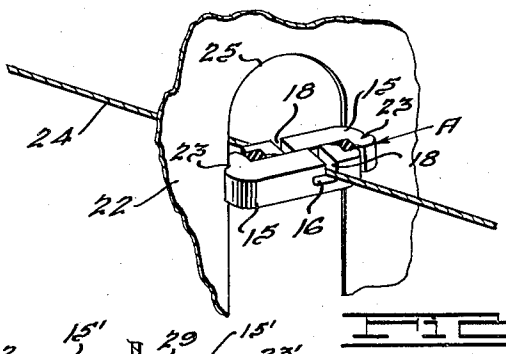


FIG. 7.

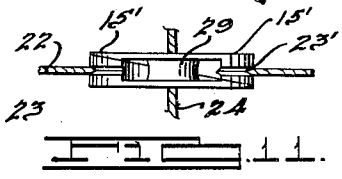


FIG. 11.

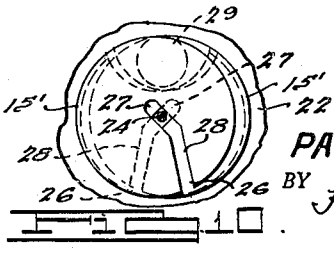


FIG. 10.

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UNITED STATES PATENT OFFICE

2,369,169

FAIR-LEAD

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Application March 22, 1944, Serial No. 527,651

11 Claims. (Cl. 254—190)

This invention relates to a fairlead or the like, although the invention in its broader aspects may be embodied in other devices.

An object of the invention is the provision of an improved fairlead including cooperating parts constructed and arranged to facilitate convenient relative assembly and disassembly of the fairlead and cable or like element to be supported or guided thereby and to facilitate detachable connection of the fairlead to a support.

Another object of the invention is to provide an improved fairlead which is adapted to be directly assembled on and disassembled from a cable, wire or the like, at a location intermediate the ends thereof.

A further object of the invention is to provide a resiliently yieldable connection between the respective parts of a fairlead of this character which serves to retain the parts thereof permanently united together and so oriented with respect to each other as to obstruct displacement thereof from a cable, wire or the like, and which in addition serves to accommodate snap-on attachment of the fairlead to a supporting structure and to resiliently urge the respective parts of the fairlead into interlocked engagement with the supporting structure.

A still further object of the invention is to provide a connection between the parts of a fairlead of this kind which comprises rubber-like material surface bonded to such parts.

More particularly, an object of the invention is the provision of a fairlead having a passage therethrough for receiving an element to be guided or supported and including parts having a resiliently yieldable connection therebetween which permits relative movement thereof between positions respectively accommodating insertion of the element into the fairlead passage and obstructing removal therefrom, and which also permits such relative movement of the parts for connection of the fairlead to a support therefor.

Another object of the invention is the provision of a simple and economical unitary construction having a minimum number of parts and so connected together as to readily permit attachment of the fairlead to a support.

Other objects and advantages of the invention will be more apparent from the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a plan view showing the fairlead in repose.

Fig. 2 is a plan view showing the fairlead extended.

Fig. 3 is a side view of the fairlead in its Fig. 2 position.

Fig. 4 is a view similar to Fig. 1 showing the fairlead engaged with a support.

Figs. 5, 6, and 7 are fragmentary perspective views illustrating the assembly of the fairlead with respect to a cable and support.

Fig. 8 is a side elevation of a modified form of the invention, the fairlead being shown in repose and with a cable therein.

Fig. 9 is a plan view of the Fig. 8 showing.

Fig. 10 is a view similar to Fig. 9 but showing the relative position of the parts when the fairlead is attached to a support.

Fig. 11 is a side elevation showing the fairlead attached to a support.

Fig. 12 is a plan view showing the fairlead compressed to its smallest size preparatory to attachment to a support.

The invention is illustrated and described in a fairlead A which, in the embodiment illustrated in Figs. 1 to 7, inclusive, includes a pair of block-like members 15 each of which may be of any suitable material but preferably one having good abrasion resistant properties. Each member has an opening 16 therethrough cooperating one with the other to form a passage through the fairlead, each such opening being somewhat elongated in the direction of the length of its member. A lip 17 formed by elongation of the opening extends over a portion of the latter and is spaced from the opposed wall of its associated opening 16 to provide an access slot 18 communicating with the latter. The members 15 are connected and retained in assembled relation by two bodies 19 of rubber-like material bonded to adjacent surfaces, each such body 19 being disposed between adjacent shoulders 20 and 21 respectively formed on the members 15.

The fairlead A is illustrated in Fig. 1 in its reposed position with the access slots 18 thereof misaligned and the lip 17 of each member aligned with the access slot 18 of the other. In this position the rubber-like material is substantially free from stress and insertion of an element into or displacement from the passage is prevented. By relatively moving the members 15 lengthwise and in a direction to elongate the fairlead against the resistance of the rubber-like material, the members 15 are brought to a position wherein the access slots 18 are in registry as shown in Fig. 2 and insertion of an element into or displacement from the passage is accommodated. Any tend-

ency of the members 15 to bind or crimp the element in the passage-forming openings 16 incident to the aforesaid relative movement is obviated by the elongation of these openings.

Referring to Fig. 4, the members 15 have been relatively moved lengthwise from their Fig. 1 position, in a direction opposite from the direction of movement to the Fig. 2 position, which movement is yieldably opposed by the rubber-like material acting both in shear and compression. Movement to the Fig. 4 position thus reduces the length of the fairlead and permits snapping the same into engagement with a support 22 therefor, as more particularly shown and described in connection with Figs. 5, 6, and 7. Each member 15 has a groove 23 at one end thereof for receiving an edge of the support.

Referring to Figs. 5, 6, and 7, the fairlead A is shown in process of assembly with respect to the support 22 with respect to which a cable 24 is guided and supported thereby. The support 22 may be a bulkhead or the like and has an opening 25 through which the cable 24 passes. In Fig. 5, the fairlead is shown in repose, as in Fig. 1, and in Fig. 6 the fairlead has been disposed in a position corresponding to that of Fig. 2 for reception of the cable 24, as seen in Fig. 7 wherein an edge of the support bounding the opening has been disposed in a groove 23 preparatory to compressing the fairlead in order to snap the opposite edge of the support into the other groove 23. This snap action is facilitated by the arcuate-like taper of the end of the member 15 adjacent the groove 23. Thus, by pressing the free end of the fairlead shown in Fig. 7, the members 15 are relatively shifted against the opposition of the rubber-like material sufficiently to engage the free groove with the adjacent edge of the opening 25 with the material of the bodies 19 under load as set forth in connection with Fig. 4.

Referring to the embodiment of Figs. 8 to 12, inclusive, the fairlead A' includes two generally annular wedge-shaped members 15' each having a groove 23' in the enlarged portion thereof and a slot 26 extending inwardly from the periphery thereof. The inner end portion 27 of each slot is angled from the main portion 28 and in the assembly the angled portions extend in opposite directions as shown in Figs. 9 and 10. The portions 27 constitute a passage receiving the cable 24 while the main bodies 28 constitute an access slot. A body of rubber-like material 29 is bonded to and connects the members 15' for relative movement as will hereinafter appear.

In Figs. 8 and 9 the fairlead is shown in repose, in which position the members 15' are relatively offset, the material 29 is substantially free of stress, and the access slots, constituted by the portions 28, are in registry one with the other to accommodate insertion of the cable 24 into the passage provided by the slot portions 27. In order to secure the fairlead A' to the support 22, the members 15' are relatively rotated against the resistance of the material to the Fig. 12 position wherein the access slot portions are out of registry and the members 15' are in substantial registry. In this position the fairlead is compressed to its smallest size for insertion in the opening 25 with the bounding edges thereof engaged in the grooves 23' as shown in Fig. 11. The fairlead expands from the Fig. 12 position to the Fig. 10 position when so engaged with the support, it being understood that the material 29 is under load and tends to urge the members 15' to their Fig. 9 position thus urging the members 15' into engagement with the support.

In this embodiment the fairlead is in repose conditioned to receive the cable as the slots 28 are in registry and but a single operation or movement is necessary in order to assemble the fairlead relative to the cable and support. The wedge shape of the members 15' makes possible alignment of the grooves 23 for respectively receiving oppositely aligned edges of the support.

Where the cable or other element is adapted to slide or rotate relative to the fairlead the members 15, 15' preferably comprise a good abrasive resistant material.

Although but several specific embodiments of the invention are herein shown and described, it will be understood that various changes in the sequence of operations, steps and materials employed may be made without departing from the spirit of the invention.

I claim:

1. A fairlead including a pair of members adapted for relative movement between first and second positions each having an opening cooperating with the opening of the other to form a passage adapted to receive an element to be guided, and resiliently yieldable means connecting said members and yieldably accommodating relative movement thereof between said positions, each of said members having an access slot communicating with its passage-forming opening and disposed in registering relation one with the other when said members are in one of said positions to thereby accommodate insertion of the element into said passage and being disposed out of said registering relation when said members are in the other of said positions, the slot of one of said members registering with a surface of the other member to thereby obstruct displacement of the element from said passage when said members are in said other position.

2. A fairlead including a pair of members having registering passages therethrough for receiving an element to be guided and each having an access slot communicating with the passage, said members being relatively shiftable for bringing said slots into alignment and misalignment with respect to each other for accommodating insertion of the element into said fairlead and obstructing displacement of the element from the fairlead respectively, and resiliently yieldable means connecting said members normally positioning the same with the slots thereof relatively misaligned and yieldable to accommodate relative shifting of said members to bring said slots into relative alignment.

3. A fairlead including members each having an opening cooperating with the opening of the other to form a passage adapted to receive an element to be guided, each of said members having an access slot communicating with its passage-forming opening, said slots being adapted when aligned one with the other to accommodate movement of an element to be guided therethrough into said passage, each of said members including a part thereof operable to obstruct displacement of the element from said passage when said slots are misaligned one with the other, and rubber-like material connecting said members normally positioning the same with the slots thereof relatively misaligned and yieldable to accommodate relative shifting of said members to bring said slots into relative alignment.

4. A fairlead including members each having an opening cooperating with the opening of the

other to form a passage adapted to receive an element to be guided, each of said members having an access slot communicating with its passage-forming opening, said slots being adapted when aligned one with the other to accommodate movement of an element to be guided therethrough into said passage, each of said members including a part thereof operable to obstruct displacement of the element from said passage when said slots are misaligned one with the other, and rubber-like material connecting said members normally positioning the same with the slots thereof relatively misaligned and yieldable to accommodate relative shifting of said members to bring said slots into relative alignment, each of said members having a support engaging portion and being relatively shiftable against opposition thereto by said rubber-like material for engaging said portions with a support with said material under load.

5. A fairlead including members each having an opening cooperating with the opening of the other to form a passage adapted to receive an element to be guided, each of said members having an access slot communicating with its passage-forming opening, said slots being adapted when aligned one with the other to accommodate movement of an element to be guided therethrough into said passage, each of said members including a part thereof operable to obstruct displacement of the element from said passage when said slots are misaligned one with the other, and a rubber-like material interposed between and having surfaces respectively adhered to said members and yieldably restraining relative shifting thereof from a first position wherein said slots are misaligned to a second position wherein said slots are aligned.

6. In a device for suspending an element from a support, a pair of members adapted to frictionally engage the support and having a passage therethrough for receiving the element to be suspended, each of said members having a slot extending from a peripheral surface thereof to said passage and adapted to so register one with the other as to accommodate movement of the element between said surface and passage, and rubber-like material securing said members together with the slot of each member so registering with the body of the other member as to obstruct said movement of said element and yieldable to accommodate relative shifting of said members in a first direction to bring said slots into registry and in a second direction to engage said members with said support with said material under load.

7. A fairlead including a pair of members each having an opening cooperating with the opening of the other to form a passage through the fairlead for receiving an element to be guided thereby, each of said members having a lip overlapping a portion of its said opening and being adapted to be disposed in registering and non-registering relation with respect to a portion of the opening of the other of said members to respectively prevent and accommodate relative separation of the fairlead and element supported thereby, and rubber-like material connecting said members normally positioning the same with said lips disposed in said registering relation and yieldable to accommodate relative shifting of said members to a second position wherein said lips are disposed in said non-registering relation.

8. A fairlead for suspending a cable or the like relative to a support including a pair of members each having an opening cooperating with the opening of the other to define a cable-receiving passage, each of said members having an access slot communicating with the passage and adapted when in registry to accommodate movement of the cable into and out of the passage, and a rubber-like material connecting said members normally positioning the same with the slots thereof in registry one with the other and yieldable under load for relative shifting of said members to thereby engage the same with the support and move said slots out of registry.

9. A fairlead including a pair of members adapted for relative movement between first and second positions each having an opening cooperating with the opening of the other to form a passage adapted to receive an element to be guided, and resiliently yieldable means connecting said members and yieldably accommodating relative movement thereof between said positions, each of said members having an access slot communicating with its passage-forming opening and disposed in registering relation one with the other when said members are in one of said positions to thereby accommodate insertion of the element into said passage and being disposed out of said registering relation when said members are in the other of said positions.

10. A device for positioning an element with respect to another structure, including a pair of relatively movable members having openings cooperating to define an element-receiving passage in the device, each of said members having an edge portion thereof cooperating with an edge portion of the other to form an access slot communicating with said passage for accommodating insertion of the element therein and removal of the same therefrom, and resiliently yieldable means connecting said members and accommodating relative movement thereof between a first position wherein said edge portions are disposed in slot-forming relation and a second position wherein said edge portions are disposed out of said relation in order to obstruct removal of the element therefrom.

11. A device for positioning an element with respect to another structure, a pair of relatively movable members having cooperating openings defining an element-receiving passage through the device, each of said members having an edge portion extending between a periphery thereof and its passage-forming opening, and a rubber-like material connecting said members for relative movement thereof between a first position wherein said edge portions are so spaced apart as to accommodate movement of the element therebetween into the passage and a second position wherein said members are engaged with the structure and said edge portions are so brought together as to obstruct removal of the element from the passage.

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