Oct. 29, 1963 A. K. BEY 3,108,346

MAGNETIC KEY CHAIN

Filed April 23, 1962

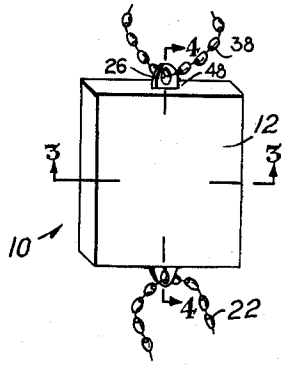


Fig. 1

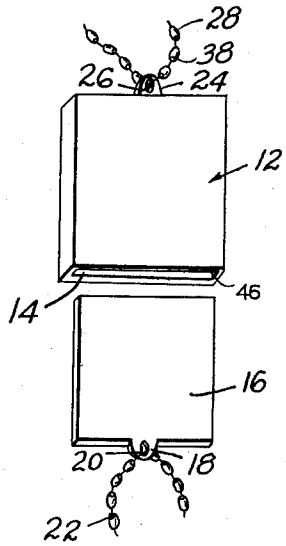


Fig. 2

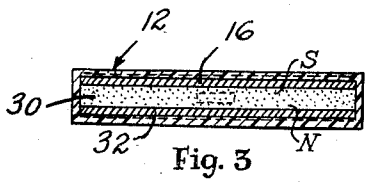


Fig. 3

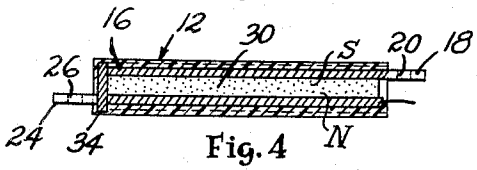


Fig. 4

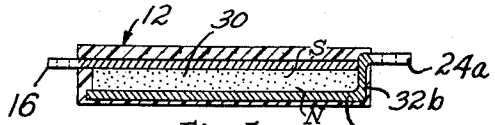


Fig. 5

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MAGNETIC KEY CHAIN

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This invention relates to a magnetic lock and more particularly to a separable two-part magnetic connector. Heretofore, magnetic locks or connectors have been devised which comprised a ceramic magnetic disk arranged in a cup of magnetic material, the side walls of the cup being of less dimension than the thickness of the magnetic disk, and a cup of corresponding diameter adapted to be magnetically secured to the confronting edges of the first cup. A disadvantage of this arrangement is the relatively high cost of forming the cups.

A principal object of the invention is to provide a two-piece magnetic connector which comprises a minimum of simple parts arranged in such a way as to obtain the maximum of flux efficiency.

In the drawings:

FIGURE 1 is a view in perspective of a magnetic connector made in accordance with the present invention;

FIGURE 2 is a view in perspective of the connector of FIGURE 1 showing the constituent elements in disassembled relation;

FIGURE 3 is a sectional elevational view taken substantially on line 3—3 of FIGURE 1;

FIGURE 4 is a vertical sectional view taken substantially on line 4—4 of FIGURE 1; and

FIGURE 5 is a sectional view showing a modified form of the present invention.

Referring now to the drawings and more particularly to FIGURES 1 and 2, the magnetic connector of the present invention is represented generally by reference numeral 10 and includes an outer casing 12 of non-magnetic material having formed therein an elongated slot 14 for reception of a slide 16 in the form of an armature of magnetic material as will be more fully hereafter apparent. The slide 16 is formed with a tongue 18 having an opening 20 through which passes a key chain 22 for a particular key, such as an automobile key or the like. The casing 12 has a tongue 24 formed with an opening 26 through which passes a key chain 28 for a plurality of keys, such as an office key, home door key and the like. The slide 16, when inserted in the slot 14, is magnetically secured therein and can only be removed by exerting a predetermined degree of force. The casing 12 is preferably integrally formed of a suitable plastic and is adapted to receive appropriate advertising indicia or other printed legend.

Referring now to FIGURES 3 and 4, the slide 16, when inserted, lies in abutting relation to one face of a ceramic magnet 30, preferably of the barium-ferrite type. Disposed in contact with the opposite face of the magnet 30 is a pole piece 32 of magnetic material which is integrally formed with the tongue 24. A plate 34 is disposed within the housing 12 in abutting relation to the adjacent end of the pole piece 32. It will be noted that the pole piece 32 and the plate 34 are secured to the housing 12 and remain in the relation shown when the casing 12 is grasped with one hand and the chain 22 is pulled. Pole piece 32 and plate 34 may be cemented to the magnet 30, if desired. The plate 34 is formed with a recess 35 through which the tongue 24 projects.

The magnet 30 is constructed and arranged so that the upper portion thereof, as viewed in FIGURES 3 and 4, is the south pole while the lower portion thereof is the north pole.

In FIGURE 5 is shown a modified form of the present invention in which like reference numerals refer to like parts. In this modified form of the invention, a pole piece 32*a* of magnetic material and which is formed with a laterally turned end portion 32*b* which serves the function of the plate 34. In this modified form of the invention a tongue 24*a* is formed integrally with the end portion 32*b* and perpendicular thereto.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as modifications will be obvious to those skilled in the art.

I claim:

1. A separable magnetic connector comprising, in combination, a magnet part and an armature part, said magnet part including a generally rectangular, flat, box-like casing of non-magnetic material and including top and bottom walls, interconnecting side walls, and an interconnecting rear end wall, the front end of said casing being open and defining a slot for reception of the armature part, a pole piece of magnetic material disposed within said slot and substantially coextensive with the inside face of said bottom wall, a plate of magnetic material disposed within said slot and in substantially coextensive contact with the inside face of said rear end wall, the lower edge region of said plate abutting the rear edge of said pole piece and, in combination therewith, constituting a pole piece assembly, a substantially flat rectangular magnet of the barium-ferrite type overlying said pole piece and in substantially coextensive contact with the upper face thereof, the combined thickness of the pole piece and magnet being slightly less than the vertical extent of said slot, thus establishing a guideway within the slot above the magnet for sliding reception therein of the armature part, the upper edge region of the plate projecting a slight distance above the level of the upper face of the magnet and defining the rear end of said guideway, said pole piece, magnet and plate being disposed wholly within the confines of said slot, said armature part comprising a flat slide of magnetic material shaped conformably to the shape of said guideway and designed for sliding movement in the guideway into and out of said slot, said slide, when in position within the slot substantially filling the guideway and, for the most part, being wholly contained therein with its lower face in substantially coextensive contact with the upper face of the magnet, and with its rear edge abutting against the projecting edge region of said plate, the front end edge of said slide being formed with a small tongue thereon projecting outwardly of the slot and constituting attachment means for a key chain part or the like, the rear end wall of the casing being formed with a laterally extending tongue which constitutes attachment means for a cooperating key chain part or the like.

2. A separable magnetic connector as set forth in claim 1 and wherein said magnet, pole piece and plate are bonded together to provide an assembly of parts which, in turn, is bonded to an inside face of one of said casing walls.

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