

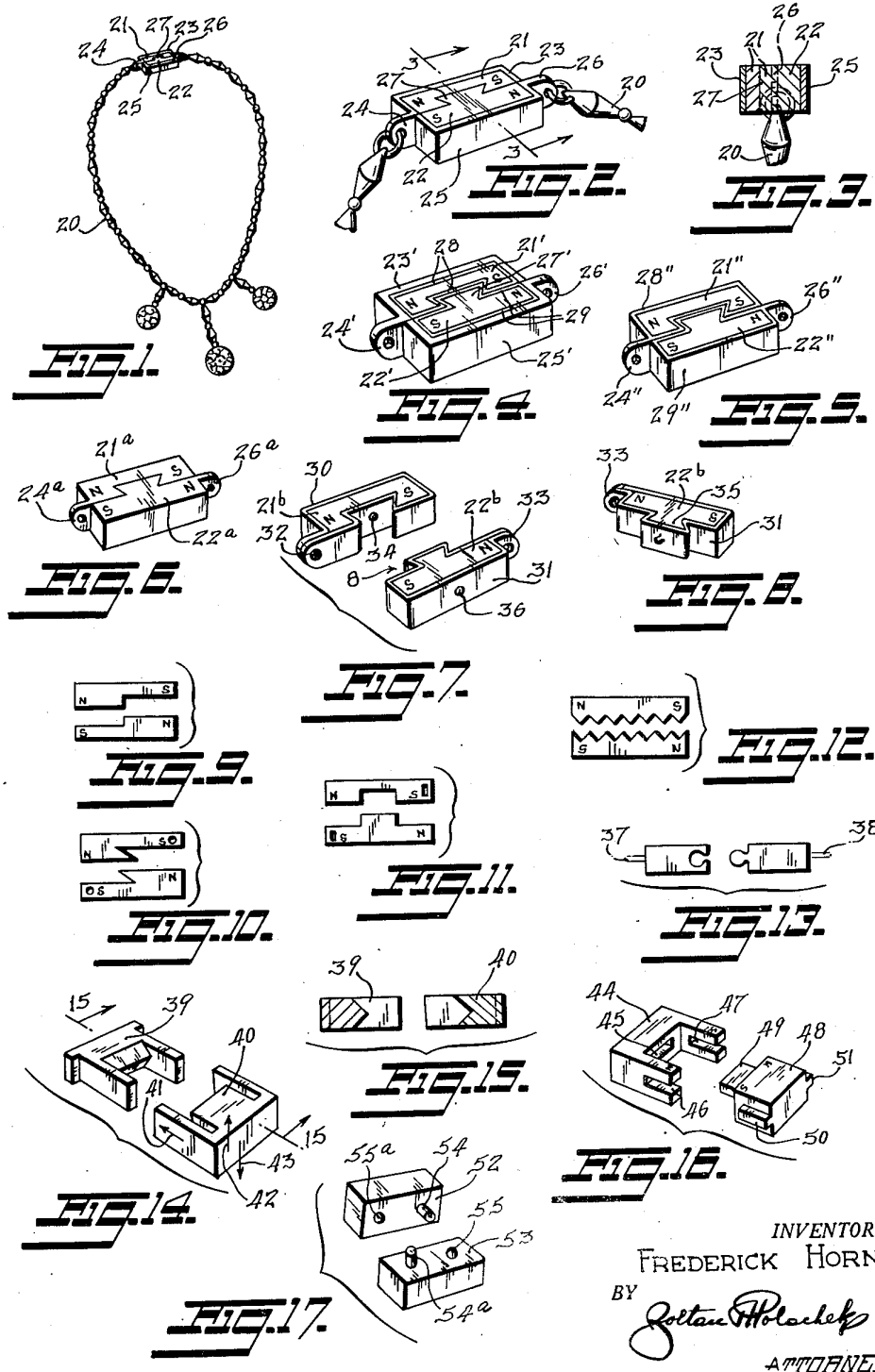
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MAGNETIC CLASP COUPLING FOR JEWELRY

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MAGNETIC CLASP COUPLING FOR JEWELRY

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1 Claim. (Cl. 24—230)

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This invention relates to new and useful improvements in magnetic-clasp coupling means, for such articles of jewelry as, for example, necklaces, bracelets, etc., and for such other articles of personal wear as, for example, wrist-watch bands or straps, tie clasps, key chains and the like; and, more particularly, the aim is to provide a novel and valuable such coupling means, characterized by an arrangement of the parts such that when the coupling means is "clasped" a secure and dependable interlock, both magnetic and mechanical, is afforded, to combat accidental opening of the coupling, yet a closing of the coupling is facile and quick, as also is a deliberately intended opening thereof.

The magnetically behaving elements employed, each to constitute the entirety of or a part of a different one of two interfitting structures to be coupled, may be comprised either of a pair of permanent magnets with their polarities relatively so established that when the coupling means is clasped, that is, closed, the law of attraction of opposite poles on two coadjacent magnets operates; or said magnetically behaving elements may be comprised of a permanent magnet, and a keeper or armature therefor. In either case, a feature of the invention is a shaping of one of said structures, or of one of the magnetic elements, and a complementary shaping of the other of said structures, or of the other of said magnetic elements, such that, when the coupling means is clasped, there is established, supplementary to the magnetic-seizure effected as between the magnetic elements, a physical interfitting between one or more recesses of one of the magnetic elements and one or more projections on the other of the magnetic elements.

A further feature of the invention is that, where desired, a coupling means pursuant to the invention as above may be practicably provided which is of tiny size; which may be variously readily decoratively embellished, and which may be fabricated, as to all parts of said means except precious-metal components or additions where these last are included, at relatively low cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view showing one now

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5 favored of the many possible and apparently widely different embodiments of the invention, and one illustrated as included in, and to constitute the openable clasp for, such an article of jewelry as a necklace.

Fig. 2 is a similar view, but a fragmentary one, on an enlarged scale, for more clearly showing the details of the clasp of Fig. 1.

Fig. 3 is a transverse vertical section, taken on the line 3—3 of Fig. 2.

Fig. 4 is a view in perspective of a modification.

Fig. 5, also a view in perspective, illustrates another modification.

Fig. 6 shows in perspective still another modification.

Fig. 7 is an exploded perspective view, showing another modification.

Fig. 8 is a perspective view of the clasp component at the near side in Fig. 7, looking at the latter substantially in the direction of the arrow 8 of Fig. 7.

Figs. 9, 10, 11, 12 and 13 are all top plan collective views, each illustrative of a different possible variation, pursuant to the invention, in regard to the recessing of one magnetic element and a corresponding projectional shaping of the other magnetic element; all according to further modifications.

Fig. 14 is a collective view showing in perspective a further possible modification, pursuant to the invention, in regard to the recessing of one magnetic element and a corresponding projectional shaping of the other magnetic element.

Fig. 15 is a section taken on the line 15—15 of Fig. 14.

Figs. 16 and 17 are views similar to Fig. 14, but illustrative of further possible variations, pursuant to the invention, in regard to such recessing and corresponding projectional or protuberant shaping.

According to the first form of the invention shown in Figs. 1 to 3, the improved coupling means is shown applied to a necklace 20. Permanently connected to one end of the necklace 20 is one of two separable structures of the new coupling means, and permanently connected to the other end of said necklace is the other of said two structures.

Here, and in all the other embodiments of the invention selected for illustration herein, the two magnetic elements are shown, by way of example only, and not necessarily by way of limitation, as each constituting a permanent magnet, with their pole characteristics indicated by the letters N and S respectively.

In Figs. 1-3, one of said magnets is designated 21 and the other 22.

The magnet 21 is suitably fixedly anchored within a casing 23 formed from a strip of a suitable metal, as gold, and bent into substantially a C-shape. As will be noted such resemblance follows from the fact that three immediately adjoining and angularly relatively offset portions of the length of said strip provide plate-portions for enclosing the outer wall and the two end walls of the magnet 21. One of the terminal portions of the length of said strip is offset to provide an apertured ear 24 to which may be secured one end of the necklace 20 as illustrated.

The magnet 22 is suitably fixedly anchored within a casing 25, made of the same material as the casing 23, and constructed exactly like the latter except that whereas the casing 23 is made according to one hand the casing 25 is made according to the opposite hand. Thus, here also, the casing 25 has three immediately adjoining and angularly relatively offset portions of the length of the strip of material of which said casing is made, these three strip portions for enclosing the outer wall and the two end walls of the magnet 22. One of the terminal portions of the strip is offset, to provide an apertured ear 26 similar to the ear 24. When the two structures of the coupling means are connected as shown, the ear 26 is parallel relative to, but slightly although negligibly out of line with, the ear 24.

In the construction now being described, the aforesaid complementary male and female shapings of the two magnets is such as to provide a dovetail inter-engagement between the two magnets. As will be understood, the coupling of the two clasp components 21-23 and 22-25, and their deliberate uncoupling, is effected by relative movement between the rib 21 of the dovetail instrumentality and the groove for said rib, with the direction of such movement lengthwise of said rib and groove.

In Fig. 4, wherein the parts to which are applied reference numerals with primes added correspond, respectively, to the parts to which have been applied the same reference numerals but without primes, the dovetail interfitted means of Figs. 1-3 is shown as also employed; but the two magnets 21' and 22' are illustrated as encased, respectively, in tubular plastic sheaths 28 and 29. These encasements may be such as also to cover the tops and/or the bottoms of the magnets.

In Fig. 5, wherein the two magnets are respectively designated 21'' and 22'', with here also the dovetail interfitted means of Figs. 1-3 shown as employed, an arrangement is illustrated according to which the magnet 21'' is encased in a tubular plastic sheath 28'' and the magnet 22'' is encased in a similar sheath 29''. Here, however, each such encasement, also if desired extended to cover the tops and/or the bottoms of the magnets, is illustrated as constituting the entirety of the casing for a magnet; with the last-named casings, for example, and as shown, having integrally projected therefrom apertured ears. The ear carried by the sheath 28'' is designated 24'', and the ear carried by the sheath 29'' is designated 26''.

In Fig. 6, wherein the two magnets are respectively designated 21^a and 22^a, with here also the dovetail interfitted means of Figs. 1-3 illustrated as employed, there is shown a variation wherein the entirety of one of the two separable struc-

tures of the coupling means consists solely of the magnet 21^a and the entirety of the other of said structures consists solely of the magnet 22^a. One of these magnets, at its end corresponding to one end of the coupling means, may carry a suitable formation to facilitate attachment of said magnet to one end of the necklace 20; and the other of said magnets, at its end corresponding to the opposite end of the coupling means, may carry a suitable formation to facilitate attachment of the last-named magnet to the other end of the necklace 20. As here shown, by way of example, the magnet 21^a has an apertured ear 24^a offset integrally therefrom, and the magnet 22^a has an apertured ear 26^a offset integrally therefrom.

Referring to Figs. 7 and 8, wherein the two magnets are respectively designated 21^b and 22^b, with here, once more, the dovetail interfitted means of Figs. 1-3 illustrated as employed, an arrangement is shown wherein the two separable structures of the coupling means are not only held together by the law of magnetic attraction when coupled, but also wherein, additional to the interfitted made possible by said dovetail means, a further and relatively positive yet readily releasable latching means is provided, automatically becoming effective when the dovetail interfitted is established; said latching means, nevertheless, being readily rendered effective, and also readily, but only deliberately, capable of being disabled, to permit opening of the coupling means. To these ends, an arrangement is shown, again by way of example only and not necessarily by way of limitation, such that a casing is provided for each magnet, with each such casing, made of any suitable metal or other suitable sheet material, characterized by the fact that the material of its casing is a very thin one having somewhat of an elastic property.

One such casing, this for having anchored therein the magnet 21^b, is designated 30; and the other, for having anchored therein the magnet 22^b, is designated 31. Each of these casings is formed as illustrated from an endless ring or band of the material last above referred to, and bent at intervals along its length so as to enclose the contained magnet all around the vertically extended superficies of the latter, while also bent on itself so as to present as illustrated one of a pair of double-ply extensions each adapted when apertured as shown to constitute an attaching ear. Said ear of the casing 30 is marked 32, and said ear of the casing 31 is marked 33.

For providing the relatively positive yet readily releasable latching means aforesaid, the casing 30 may be so formed as to carry a depression 34 (with a recess not shown being also sunk in the magnet 21^b for reception in said recess of the convex side of said depression), and the casing 31 may be so formed as to carry a teat 35 outwardly directed away from enclosed magnet 22^b and for latch coaction with the depression 34.

Further, the coaction of said depression 34 with the recess sunk in the magnet 21^b just above parenthetically referred to, may be the sole yet a fully adequate means to be relied on to clamp the magnet 21^b immovably within the casing 30; while for similarly clamping the magnet 22^b immovably within the casing 31, the last-named casing may carry a depression 36 to establish in rear thereof a teat extended inwardly toward the said magnet 22^b, for locking coaction with a recess not shown sunk in the last-named magnet.

Referring to Figs. 9 through 12, the brief de-

scriptions of these views hereinabove are fully explanatory of the modifications for the disclosures of which these views are included in the drawings. Any of such modifications may be equipped and/or encased according to any of the principles explained in connection with Figs. 4, 5, 6, 7 and 8 or otherwise within the scope of the invention.

Fig. 13, in regard to which (and also in regard to the structures exemplifying illustrated in Figs. 9 and 14-16) the comment contained in the sentence last preceding applies, will likewise be fully understood, when it is pointed out that the dot and dash delineations 37 and 38 are intended to make plain the locations of the apertured attaching ears or equivalents.

In Figs. 14 and 15 an arrangement is illustrated whereby the two magnets, these respectively designated 39 and 40, carry, each of them, a plurality of interfitting formations, such that when an interfitting of the two separable structures of the coupling means is effected, a separation of the two magnets is prevented either in the direction indicated by the arrow 41 or in either of the directions indicated by the arrows 42 and 43. Also, and particularly by virtue of the multiple interfittings, friction between the two magnets when interfitted may be provided for and to serve as a strongly acting agent for cooperating with the magnetic action in preventing accidental separation of the two magnets in any direction.

In Fig. 16 there is illustrated one of the many possible variations within the invention of the multiple interfitting formations to be carried by the two magnets as typified in Figs. 14 and 15. As will be noted, one of said magnets, this designated 44, has three slots 45, 46 and 47, while the other magnet, this marked 48, carries three rib-like projections 49, 50 and 51, these projections for entering, respectively, the slots 45, 46 and 47. Here, also, a separation of the two magnets, after they have been coupled, is prevented in all the directions indicated by said arrows 41, 42 and 43 of Fig. 14.

In Fig. 17 another modified form of the invention is illustrated. In this form of the invention the two magnets 52 and 53 are shown to be provided with projecting pins 54 and 54^a respectively, adapted to engage into complementary socket openings 55 and 55^a to facilitate the coupling of the magnets.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

A magnetic-clasp coupling means for necklaces and the like, comprising a pair of dove-tailed magnetically coacting elements, each of said elements being included in a different one of two separable casings, each of said casings carrying apertured ears for facilitating permanent attachment thereto of one of two to be joined terminal sections of the necklace.

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