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MAGNETIC SPOON FOR REMOVING FERROMAGNETIC PARTICLES FROM A MEDIUM

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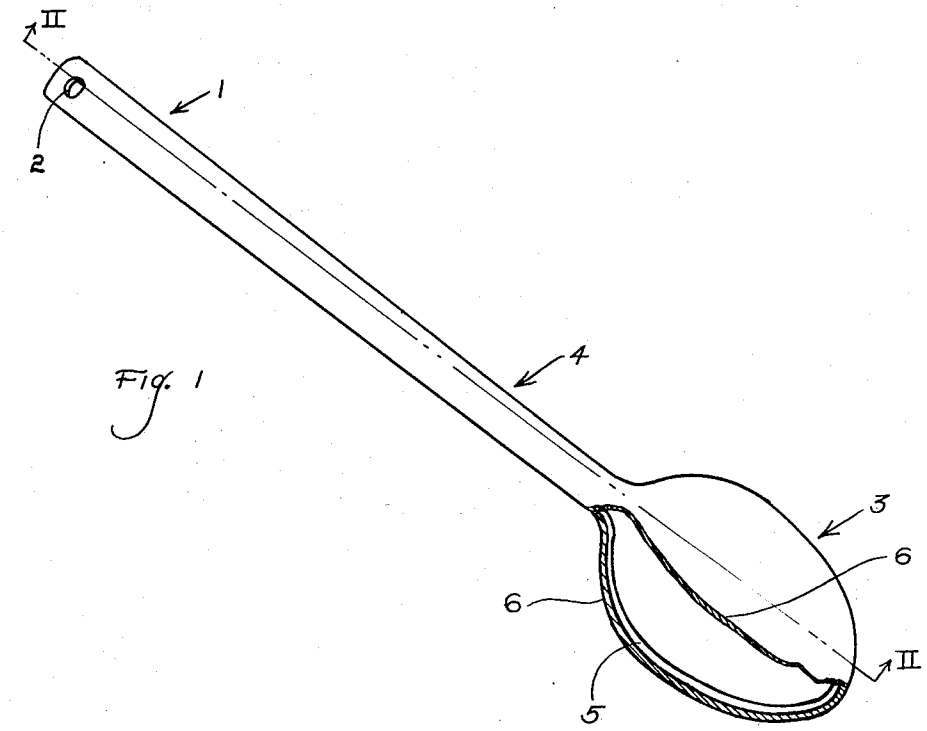


Fig. 1

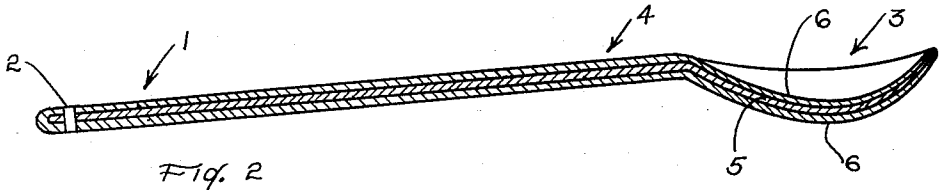


Fig. 2

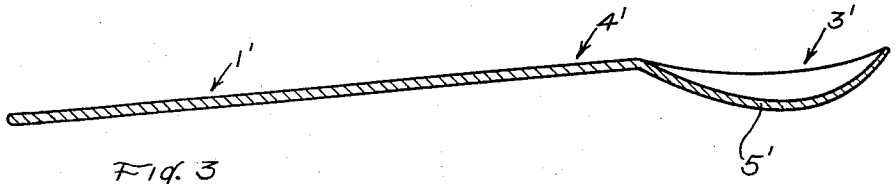


Fig. 3

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MAGNETIC SPOON FOR REMOVING FERROMAGNETIC PARTICLES FROM A MEDIUM

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2 Claims. (Cl. 210—222)

Generally speaking, the present invention relates to the magnetic tool art, and, more particularly, it relates to a tool having a handle portion, an operative portion, and a shank portion connecting said handle portion and said operative portion, so designed as to be used as a tool for removing ferromagnetic material from a medium.

While applicant is aware of the fact that a very considerable number of magnetic tools have been developed in the past, few of these are adaptable for removing ferromagnetic materials from a medium (solid, semi-solid, partially liquid or liquid) and which also might be intended for oral ingesting or swallowing, such as in the case of a food medium, or the like, although not limited to food media.

It is further true that most prior art devices in the magnetic tool field relate primarily to the removal of ferromagnetic particles from machines, other tools, and the like and are not intended for the removal of ferromagnetic particles from within the medium.

Generally speaking, the magnetic spoon for removing particles from a medium of the present invention may include: a handle portion; an operative portion; and a shank portion connecting said handle portion and said operative portion; said operative portion comprising magnet means movably positionably cooperable with respect to a medium from which ferromagnetic material is to be removed and magnetically attractively retainingly cooperable with respect to said ferromagnetic material associated with said medium.

One preferred form of the present invention may comprise a stirring tool for removing ferromagnetic material from an at least partially liquid medium, said tool having a longitudinal handle portion, an operative portion (usually spoon-bowl-shaped), and a (usually longitudinal) shank portion connecting said handle portion and said operative portion. In a preferred form of the present invention, said operative portion may comprise permanent magnet means stirringly cooperable with respect to an at least partially liquid medium from which ferromagnetic material is to be removed and magnetically attractively retainingly cooperable with respect to said ferromagnetic material associated with said medium. In one preferred form of the invention, protective coating means may be carried by the exterior of said operative portion and said shank portion protecting same from chemical action (of the medium). In some forms, said protective coating means may be ferromagnetic and in some other forms it may also be magnetized.

With the above points in mind, it is an object of the present invention to provide a magnetic spoon for removing ferromagnetic particles from a medium, said spoon being of cheap, simple, novel, easy-to-operate and easy-to-maintain construction capable of removing ferromagnetic materials from a solid, semi-solid, partially liquid or liquid medium, and which may also be intended for oral ingesting or swallowing, such as in the case of a food medium, or the like, although not limited to food media.

It is a further object of the present invention to provide a stirring tool (although not so limited), usually to be used in connection with food media, to attract and subsequently withdraw ferromagnetic particles from within said media.

Other and allied objects will become apparent to those skilled in the art after a careful perusal, examination and study of the accompanying illustrations, the present specification and the appended claims.

To facilitate understanding, reference will be made to the hereinbelow described drawings, in which:

Fig. 1 is a perspective view showing one embodiment of the present invention with a portion of the protective coating broken away from the spoon-bowl;

Fig. 2 is a longitudinal vertical sectional view of the device shown in Fig. 1, taken in the direction of the arrows II—II in Fig. 1; and

Fig. 3 is a longitudinal vertical sectional view, of aspect similar to Fig. 2, but illustrating a slight modification of the invention wherein the magnetized metal of the spoon-bowl, the shank and the handle acts as its own protective coating in effect—also in this version, the fastening hole has been eliminated.

One preferred form of the present invention is a stirring tool for removing particles of ferromagnetic material from at least partially liquid (usually food) medium adapted to be orally ingested, comprising: a longitudinal handle portion **1** usually provided with fastenable means **2** cooperable for mounting the tool with respect to an auxiliary fastening element (not shown) carried by an auxiliary support means (not shown, since it comprises no part of the present invention). In a preferred form of the present invention, the operative portion **3** is usually spoon-bowl-shaped, and is connected to said handle portion **1** by a longitudinal shank portion **4**. Said operative portion **3** comprises (usually permanent) magnet means **5** stirringly cooperable with respect to an at least partially liquid food medium (not shown) adapted to be orally swallowed and from which ferromagnetic material is to be removed, and magnetically attractively retainingly cooperable with respect to said ferromagnetic material associated with said food medium. Usually included in the present invention, as illustrated in Figs. 1–2, is a protective coating means **6** carried by the exterior of said operative portion **3** (and in some forms, by the exterior of said shank portions **4** and said handle portion **1**) protecting same from chemical action or corrosion—such as the action of food acids or the like—on the operative portion and/or the shank portion, or such as oxidation of said portions. Said protective coating may be ferromagnetic, or may be magnetized. Said shank means **4** and/or said handle means **1** may also be magnetized and, in one preferred form of the present invention, the entire device may be magnetized. This is illustrated in Fig. 3, and indicated by primed reference numerals.

It should be noted that the protective coating means **6** may take a variety of forms. One form might be a suitable plastic coating, or the like, applied to the exterior of the operative portion and/or the shank and handle portions, or it might comprise baked enamel (vitreous) fused to the exterior of the protected portions. This would be extremely effective for anti-corrosion purpose and as such baked enamel is usually white in color, it would also be effective for rendering visible any particles of ferromagnetic material attracted to the operative portion (and/or the shank and handle portions, if they are magnetized), because of the visual contrast between the particles of said ferromagnetic material and the white finish.

Applicant is aware that the process of baking the enamel onto the exterior of the magnetic spoon (with the operative portion at least, and in some cases the shank

and/or handle portions being composed of "Alnico," or the like) would require temperatures in excess of the Curie point which would therefore cause the magnetism of the "Alnico" to be attenuated; so, in this form, the enamel may be first fused onto the exterior of the "Alnico" and then the "Alnico" material under the baked enamel finish may be magnetized.

It should also be noted that the protective coating may comprise an exterior coating of stainless steel or nickel, both of which are ferromagnetic and capable of being magnetized, and both of which are relatively resistant to corrosion.

However, the exterior protective coating may also be a ferromagnetic material, but not permanently magnetized. This would allow the transmission of magnetic flux from the permanent magnet core 5 through said material to the exterior of the device.

Numerous modifications and variations of the present invention will occur to those skilled in the art after a careful study hereof. All such, properly within the basic spirit and scope of the present invention are intended to be included and comprehended herein as fully as is specifically described, illustrated and claimed herein.

The exact compositions, configurations, constructions, relative positionings, and cooperative relationships of the various component parts of the present invention are not critical, and can be modified substantially within the spirit of the present invention.

The embodiments of the present invention specifically described and illustrated herein are exemplary only, and are not intended to limit the scope of the present invention, which is to be interpreted in the light of the prior art and the appended claims only, with due consideration for the doctrine of equivalents.

I claim:

1. A stirring spoon comprising a longitudinal handle portion, a shank portion, and a bowl portion, said bowl portion comprising magnetic means for retaining and removing ferromagnetic particles from the material being stirred.

2. A stirring spoon comprising a longitudinal handle portion, a shank portion, and a bowl portion, said bowl portion comprising magnetic means for retaining and removing ferromagnetic particles from the material being stirred, and a magnetic protective coating carried by the exterior of said bowl portion for protecting same from chemical action.

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