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(54) **MAGNETIC CUTLERY RACK**

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(76) Inventor: **Alan L. Johnson**, Pine River, MN (US)

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Correspondence Address:

ALAN L. JOHNSON
2626 24TH AVE. SW
PINE RIVER, MN 56474 (US)

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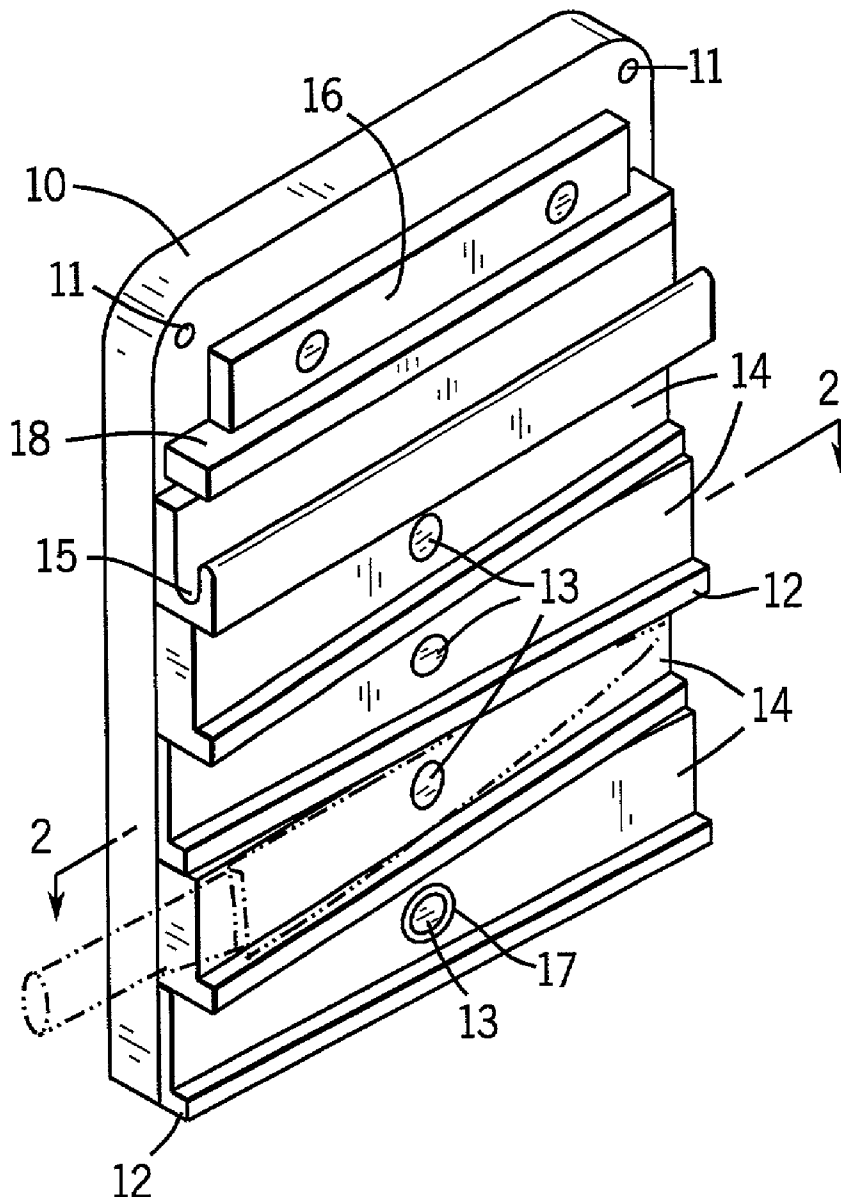
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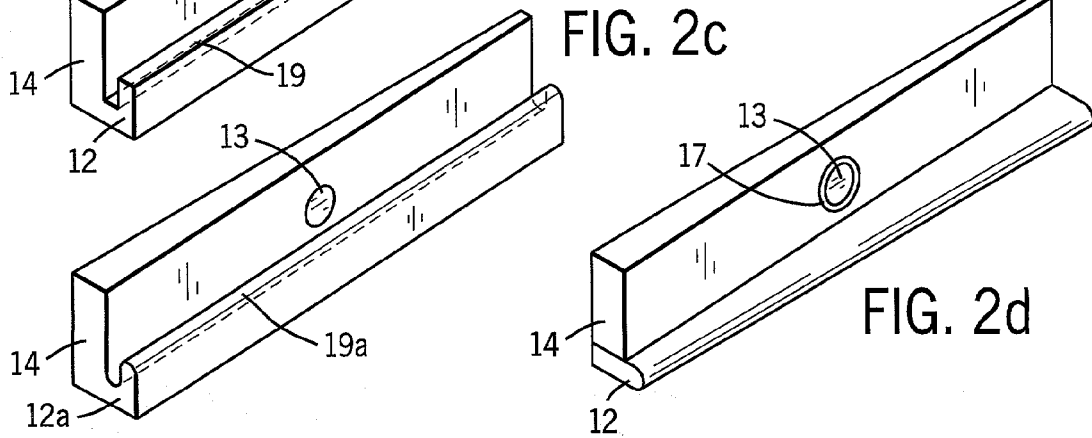
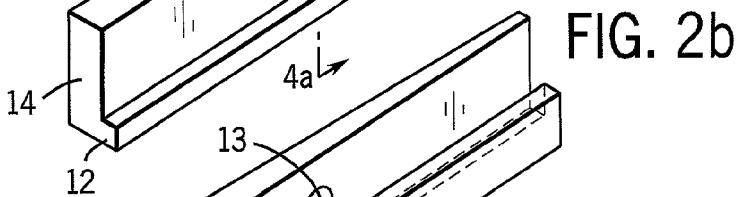
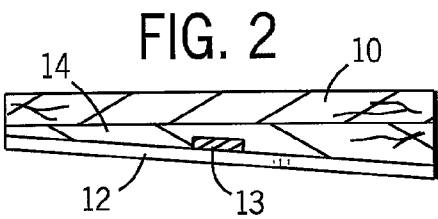
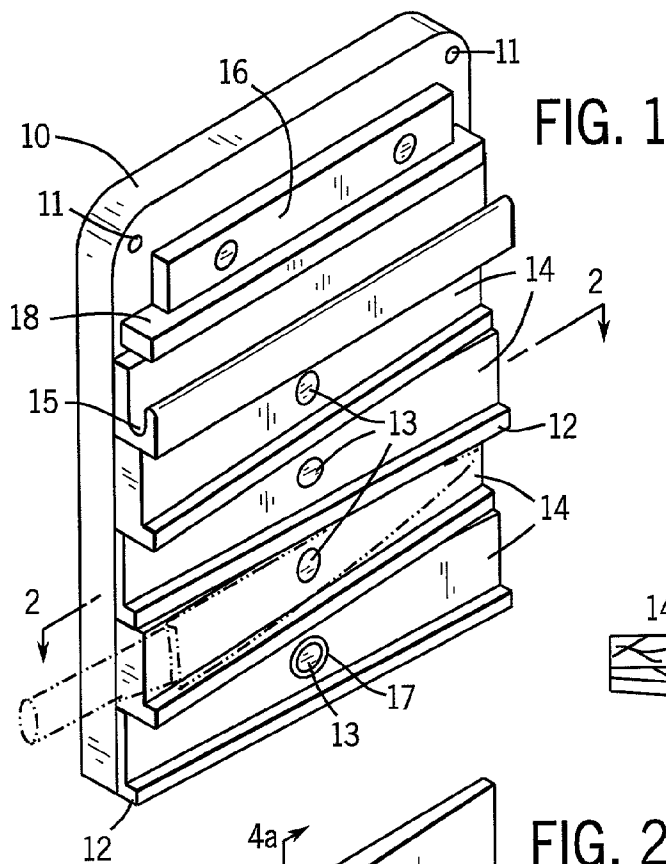
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(57) **ABSTRACT**

A rack for the storage of cutlery. Cutlery is attached for storage by means of magnets (13) and stop ledgers (12), which work in combination to hold the cutlery securely. The cutlery is held to the face of wedge-shaped protuberances (14) which, in the preferred embodiment, are aligned horizontally, one above the other, with their wide ends facing alternate directions. This positions the handles so they are easily accessible. A rectangular protuberance (16), which also has magnets and stop ledger, is provided for the storage of paring knives and small cutlery such as vegetable peelers.





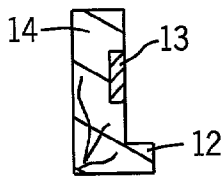


FIG. 4a

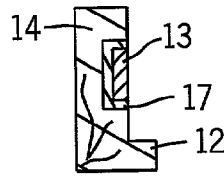


FIG. 4b

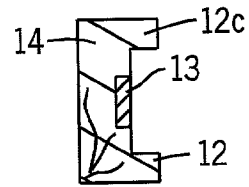


FIG. 5

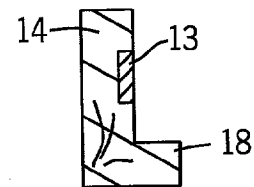


FIG. 6

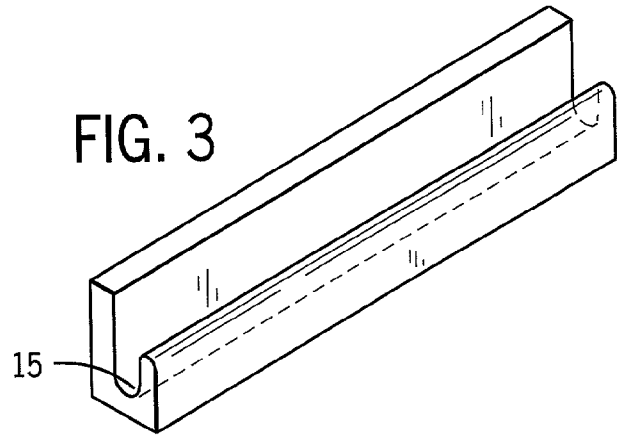


FIG. 3

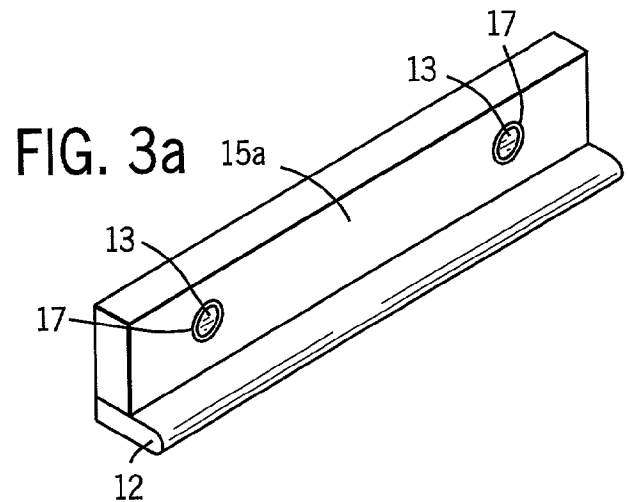


FIG. 3a

FIG. 7

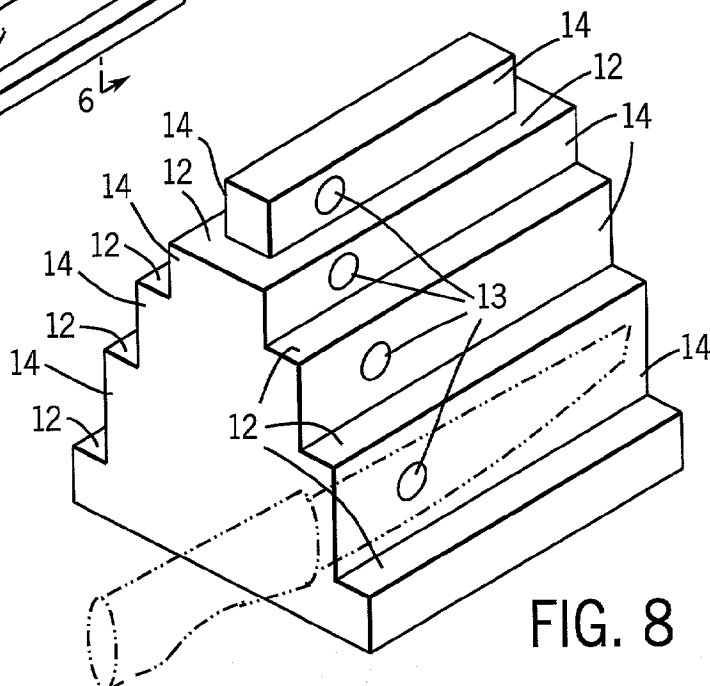
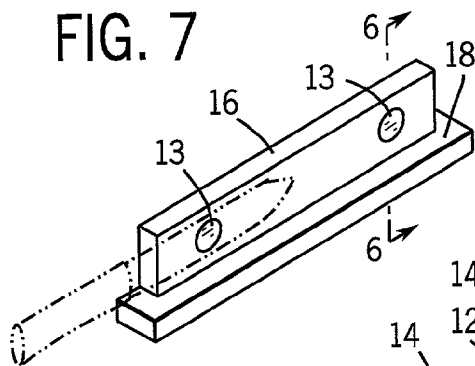


FIG. 8

MAGNETIC CUTLERY RACK**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] Not applicable.

BACKGROUND

[0002] 1. Field of Invention

[0003] This invention relates to cutlery storage racks, specifically to a unit with magnetic means to attach cutlery.

[0004] 2. Description of Prior Art

[0005] Cutlery racks have been a popular kitchen accessory for many years. Historically, cutlery racks have been configured with slots into which cutlery is inserted for storage. While these racks provide a convenient alternative to the storage of cutlery in a drawer, they have several disadvantages. Typical cutlery racks sit on the kitchen countertop, taking up valuable counter space. U.S. Pat. Des. No. 247,735 to Gangelhoff et al. (1978) is typical of this type. Knives or other cutlery are substantially hidden from view when inserted in the rack. This prevents easy identification of the specific knife needed, since the blade is hidden from view. Repeated insertion and withdrawal of a blade from a slotted cutlery rack can dull the cutting edge. Further, the slots used for knife storage cannot be easily cleaned of debris which collects in them over time, leading to unsanitary conditions. This debris can also cause increased abrasion of the cutting edge of the utensil as it is repeatedly inserted and extracted from the slot in the cutlery rack. U.S. Pat. No. 5,490,607 to Hsieh et al. (1996) has many of the disadvantages of the slotted storage device mentioned above.

[0006] Prior art shows other magnetic attachment mechanisms—for example, U.S. Pat. No. 5,011,102 to Kiefer (1991). Kiefer's device appears to provide secure retention of the cutlery stored therein, but disengagement is awkward and requires considerable clearance rearward of the handle to allow room for extraction of the cutlery. Also, debris which accumulates between the cowlings would be very difficult to remove. U.S. Pat. No. 4,492,028 to Bourgein (1985) addresses the problem of extraction clearance by providing a hinged tilt-out mechanism, but this design has many of the disadvantages previously discussed in the Gangelhoff patent—i.e. cutlery shape and size is hidden from view and debris can accumulate in the slots.

[0007] U.S. Pat. No. 4,071,212 to Burrows et al. (1978) overcomes many of the disadvantages of the patents discussed above. However, knives stored perpendicular to the mounting surface present an increased danger of injury to the operator or others in the vicinity. The points of the knives can easily be contacted and the blade can be inserted so that the entire cutting edge is exposed. The operation of Burrows's invention is not intuitive and the untrained operator may have trouble discerning the correct method of attaching and detaching cutlery stored thereon. The cutting edge of cutlery stored on this device will come into contact with the members and surfaces of the device. If these members and surfaces are composed of plastic, the plastic will soon become marred by the cutting action of the blade as the cutlery is attached and detached. If these members and

surfaces are composed of metal, the cutting edges of the blade will be dulled by the attachment and detachment process.

[0008] Prior art does not teach the combination of a magnet and ledger stop which allows a lateral rather than longitudinal movement for cutlery detachment, as described in my invention. A 0.25" diameter×0.10" thick rare earth magnet, rated at 30,000 gauss per cubic inch, contained in a steel cup provides adequate attraction force to prevent the cutlery from disengaging by an outward tilting motion, but does not prevent the cutlery from turning (pitching) around its lateral axis. A magnet that was strong enough to hold cutlery securely without the benefit of a ledger stop would make the removal of the cutlery difficult and hazardous. The sudden release as a blade disengages from a very strong magnetic force could cause the blade to "jump" loose in an uncontrollable fashion. The ledger stop prevents the cutlery from pitching (rotating) on its lateral axis while allowing easy disengagement without the space-robbing sliding action required with the common cutlery rack. The ledger stop also acts as a guard to prevent accidental contact with the cutting edge of the blade stored thereon.

[0009] My cutlery rack also teaches the use of alternating wedge-shaped protuberances which present the handles of the cutlery in easy-to-access positions, a feature not found in prior art for cutlery storage.

[0010] In addition, my cutlery rack provides more versatility by allowing secure storage of many sizes and shapes of cutlery, such as grapefruit knives and vegetable peelers.

SUMMARY

[0011] In accordance with the present invention, a cutlery rack comprises horizontal wedges having opposed orientation, each wedge having an imbedded magnet to hold a cutlery blade to said wedge surface and a stop ledger to prevent the blade from rotational movement around its lateral axis and to shield the cutting edge from accidental contact with the operator.

OBJECTS AND ADVANTAGES

[0012] Accordingly, besides the objects and advantages of the cutlery storage rack described above, several objects and advantages of the present invention are:

- [0013] (a) to provide a cutlery storage device which offers the convenience of immediate access for rapid and easy removal and attachment of cutlery;
- [0014] (b) to provide a storage device which provides immediate visual identification of each item of cutlery stored thereon;
- [0015] (c) to provide a storage device for cutlery which provides full access to all surfaces on the device which are subject to soiling or collection of debris;
- [0016] (d) to provide a storage device which allows the direct attachment of cutlery without a sliding action across a retention surface, which can dull the cutting edges of a blade;
- [0017] (e) a storage device which stores cutlery in a generally horizontal orientation and in a generally flat plane against a wall surface to conserve counter space;

[0018] (f) a storage device which provides easy access to the handles of cutlery stored thereon by orienting the cutlery handles with sufficient clearance from adjoining wall surfaces and from adjacent cutlery handles;

[0019] (g) to provide a storage device which allows the storage of cutlery with widely diverse shapes and sizes, including knives, vegetable peelers, pizza cutters, sharpening steels, grapefruit knives, and other cutlery items. This diversity of storage capability is accomplished without the requirement of a particular size or shape of knife being assigned to a particular slot or storage location, giving great flexibility in the type and place for the cutlery stored thereon.

[0020] Further objects and advantages are to provide a storage device which can be used easily and conveniently; which is easy to clean without disassembly; which does not require counter space; which can be manufactured in a variety of economical configurations and materials, including multiple small pieces of wood which allows the utilization of poor grade lumber or lumber scraps, or manufactured by vacuum forming plastic or other plastic forming methods,

[0025] FIG. 3a shows 15a, a large rectangular protuberance, as an alternate construction for Channel 15. Part 15a provides attachment means for either two small knives or one cutlery sharpening steel.

[0026] FIGS. 4a and 4b show cross section views illustrating placement of magnets, 4a without a steel cup and 4b with steel cup 17 which causes the magnetic force field to be directed and intensified.

[0027] FIG. 5 shows a cross section view illustrating a wedge-shaped protuberance with a top ledger stop in addition to a bottom ledger stop.

[0028] FIG. 6 shows a cross section view of a rectangular protuberance at the mid-line of the inserted magnet.

[0029] FIG. 7 shows a perspective view of a rectangular protuberance that has stop ledgers protruding forward and laterally from the rectangular protuberance.

[0030] FIG. 2d shows a rectangular stop ledger made of a separate piece of material.

[0031] FIG. 8 shows an alternate embodiment of this invention made for counter-top use.

[0032]

Reference Numerals in Drawings			
10	backboard	11	attachment hole
12	stop ledger	12a	stop ledger, alternative shape
12c	upper stop ledger	13	magnet
14	wedge shaped protuberance	15	channel
15a	large rectangular protuberance	16	rectangular protuberance
17	steel cup	18	rectangular protuberance stop ledger
19	stop ledger fence	19a	stop ledger fence, alternative shape

including rotational molding or injection molding; which provides quick and easy access to the stored items; which provides safe and secure storage of cutlery by inhibiting access to cutting edges and reducing the risk of accidental disengagement of stored items or upset of the cutlery rack; which allows ample air circulation around cutlery while in stored position, thereby reducing moisture buildup or retention and inhibiting corrosion and mildew or mold formation; which is attractive in appearance; wherein its operation is intuitive in nature and requires minimal instruction for proper utilization. Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

DRAWING FIGURES AND PHOTOS

[0021] In the drawings, closely related figures have the same number but different alphabetic suffixes.

[0022] FIG. 1 shows one embodiment of the magnetic cutlery rack of this invention.

[0023] FIGS. 2a, 2b, 2c, and 2d show various configurations for wedge-shaped protuberances, the attached stop ledgers, and optional stop ledger fence.

[0024] FIG. 3 shows a horizontal channel designed primarily for a cutlery sharpening steel or ceramic sharpening rod.

DESCRIPTION

[0033] FIGS. 1, 2a, 7, and 4b—Preferred Embodiment

[0034] A preferred embodiment of the cutlery rack of the present invention is illustrated in FIG. 1 (perspective view), FIG. 2a (perspective from the wide end of a wedge-shaped protuberance), FIG. 7 (rectangular protuberance perspective) and FIG. 4b (cross section of wedge-shaped protuberance showing inset magnet and steel cup) The storage rack has a backboard (10) with a series of wedge-shaped protuberances (14) attached so that the wide end of one protuberance is vertically adjacent to the narrow end of the next protuberance. The wedge-shaped protuberances can be constructed from S4S wood stock by planing opposing sides to form ledger stops that are diagonally opposed to each other. The stock is then cut into blocks approximately 9 inches long. Sawing these blocks diagonally will produce a pair of wedge-shaped protuberances with a stop ledger on the bottom of each when the wide ends of the wedges are opposed to each other. An alternative method of manufacturing from wood is to form the stop ledgers from separate pieces of wood, as shown in FIG. 2d. These could be rectangular in shape, or a wedge shape that conforms to the shape of the protuberances. Each protuberance has a steel cup (17) inserted into it approximately two inches from the centerpoint of the face of the protuberance, toward the wide end and about one-half inch above the stop ledger. A rare earth magnet (13) is inserted within the steel cup so that it is flush with the face of the protuberance. Each wedge-

shaped protuberance has a stop ledger (12) located near the bottom of its face. Attachment holes (11) are located near the top corners of the backboard. A channel (15) is located above the wedge-shaped protuberances for the storage of a sharpening steel. Rectangular protuberance (16) with attached stop ledger (18) is attached above the channel onto which small cutlery such as paring knives and vegetable peelers can be attached, as shown in FIG. 7.

[0035] FIGS. 2c Additional Embodiments

[0036] Stop ledger fence 19 and 19a shown in FIGS. 2b and 2c, respectively, could be added to the stop ledger to provide additional protection against disengagement of the stored cutlery.

[0037] FIGS. 5, 2c, and 8—Alternative Embodiments

[0038] There are various possibilities with regard to the stop ledgers. An upper stop ledger 12 could be added as shown in FIG. 5. The stop ledger 12 and stop ledger fence 19 could be contoured into various shapes as shown in FIG. 2c., i.e. stop ledger 12a and stop ledger fence 19a. In place of the round magnets illustrated, rectangular magnetic strips could be used or magnets of other shapes or sizes. A counter-top version of this invention could be configured as shown in FIG. 8. In this configuration, the protuberances are paired in staggered rows. The stop ledgers could be formed by placing wider protuberances in each succeeding lower row, as shown in FIG. 8.

[0039] An alternative to part number 15 is shown as 15a in FIG. 3a. The magnets and stop ledger in 15a would hold a sharpening steel. This embodiment would not hold a ceramic sharpening rod, but has the capability of holding two small knives in lieu of a sharpening steel.

ADVANTAGES

[0040] From the description above, a number of advantages of my magnetic cutlery rack become evident:

[0041] (a) Cutlery attached to this rack can be removed easily, yet they are held securely by virtue of the combination of small magnets to prevent the cutlery from “tipping” off the rack and stop ledgers to prevent the cutlery from sliding down or rotating on the magnet.

[0042] (b) Without the stop ledgers, much stronger magnets would be required to provide secure attachment. Disengaging cutlery from a strong magnet usually results in a sudden jerking motion as it breaks away from the magnet, which can be disconcerting and dangerous. Strong magnets would require a very solid attachment of the rack to the wall to withstand the forces required to detach the cutlery from the magnet.

[0043] (c) The contours of this rack are ideally suited to economical vacuum thermoforming from plastic stock. It can also be manufactured from wood economically by utilizing small pieces of wood and using common wood shaping equipment and processes such as planing, routing, and sawing. It could be routed from a solid block of wood with CNC equipment.

[0044] (d) A cutlery rack of this configuration is ideally suited to wall mounting between counter top

and upper kitchen cabinets. This facilitates counter clean-up procedures and conserves counter space for food preparation.

[0045] (e) Most cutlery storage devices require a sliding action to effect engagement or disengagement of the cutlery stored thereon. A sliding action is not required in the operation of my invention. This reduces wear on the cutting edge of cutlery blades. This also allows my invention to be located in a more confined space, since it does not require the clearance normally needed for a piece of cutlery to slide rearward the entire length of the blade as it is extracted from storage.

[0046] (f) The handles of cutlery stored on this rack have more separation from adjacent handles than is commonly found on other cutlery storage racks. Likewise, the angle of the wedge-shaped protuberances of my invention provides clearance between the wall and the handle of the stored cutlery. These features allow very easy access to the cutlery handles.

[0047] (g) The cutlery on this rack is in full view when in the stored position, which allows easy identification of the correct tool for the task at hand.

OPERATION

[0048] FIGS. 1, 3, and 7

[0049] The manner of using the magnetic cutlery rack of this invention is quite simple. A knife is attached for storage by positioning the blade directly above the stop ledger (12) of an unoccupied wedge-shaped protuberance (14). As the blade comes into near proximity to the protuberance, magnet (13) provides a magnetic force which attracts the blade to the face of the protuberance and thereby attaches the knife. To remove the knife, one grasps the handle and applies an upward and outward force which disengages the blade from the magnetic attraction. Removal can be facilitated in a very smooth fashion, with only light force, by applying a twisting motion which tilts the upper part of the blade away from the face of the protuberance. The lower edge of the blade acts as a fulcrum in this procedure which leverages the upper portion away from the magnetic attraction in smooth, controlled motion. The principles of attachment and detachment are similar for rectangular protuberance (16) and large rectangular protuberance (15a) and with other types of cutlery such as grapefruit knives and vegetable peelers. A channel (15) is provided for sharpening steels or other elongated tools such as ceramic sharpening rods (which are non-magnetic). In utilizing the channel, one simply lifts the tool to be stored over the front lip of the channel and drops it into the channel. A sliding action is not required, which has practical advantages previously described.

[0050] The rack in FIG. 1 is attached to a wall surface using screws through attachment holes 11, although several other attachment methods could be utilized, such as described below.

CONCLUSION, RAMIFICATIONS, AND SCOPE

[0051] Accordingly, the reader will see that the magnetic cutlery rack of this invention can be used to store a wide variety of cutlery items in a safe manner; cutlery can be

attached and removed from it quickly and easily; it can mount to the wall surface between the upper cabinets and the counter space below, thereby conserving counter space; cutlery can be repeatedly attached and detached from it without dulling their cutting edges; it does not contain slots or crevices which are difficult to clean and would be prone to moisture retention and the resulting problems of corrosion, mildew, and mold; it allows the attached cutlery to be easily identified as to size and shape; its proper use will be intuitive even to an untrained operator; and it can be manufactured at reasonable cost from a variety of materials and processes.

[0052] Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. For example, the magnets could be hidden from view by a thin veneer or over-covering of material, steel cups which are used to direct and intensify the force field of the magnets could be eliminated if larger magnets are used, the shape and alignment of the protuberances could be changed from those illustrated, magnetic attachment means could be used to attach this invention to a metal surface such as a refrigerator or it could be attached to a wall or other surface by means of adhesive, screws, double-stick adhesive pads, or loop and hook fabric, etc. Thus the scope of the invention should be determined by the appended claims and their legal equivalents, rather than by the examples given.

I claim:

1. In a storage rack of the type comprising a body of material having magnetic attraction means, the improvement wherein said rack has a generally horizontal stop ledger under said magnetic attraction means.

2. The storage rack of claim 1 wherein said body of material has a plurality of alternating, diametrically opposed wedge-shaped protuberances lying in a generally horizontal orientation.

3. The storage rack of claim 2 wherein said protuberances are each made of separate pieces of material and attached to a backboard in generally horizontal alignment, contiguous to one another.

4. The storage rack of claim 1 wherein said protuberance with stop ledger or a plurality of protuberances with stop ledgers are formed by a molding process from a material such as plastic.

5. The storage rack of claim 1 wherein said magnetic attraction is proportionally greater in a selected plane by focusing the force field of a magnet by means of a steel cup into which said magnet is inserted.

6. The storage rack of claim 1 wherein the body of said rack is demountably attached to a vertical surface by adhesive, magnetic attraction, or mechanical fastening device.

7. The storage rack of claim 1 wherein a channel lies horizontally, providing a means to receive and store tools of elongated shape.

8. The storage rack of claim 1 wherein the protuberances have a stop ledger protruding forward from the lower portion of each protuberance.

9. The storage rack of claim 1 wherein the protuberances have a stop ledger protruding forward and to the side or sides of said protuberances.

10. The storage rack of claim 1 wherein the protuberances have stop ledgers protruding forward from both the upper portion and the lower portion of each protuberance.

11. The storage rack of claim 1, wherein the stop ledgers have a stop ledger fence extending upward from said stop ledgers.

12. The storage rack of claim 1, wherein the stop ledger of one protuberance is formed by the substantially flat, horizontal, top surface of a projecting protuberance lying directly below the first protuberance, in a staggered configuration.

* * * * *