CUBE WHITE BOARD ERASER

Inventor: Ned H. Neal, Cape Neddick, ME (US)

Correspondence Address:
Jeffrey D. Washville
Lorusso Loud & Kelly LLP
440 Commercial Street
Boston, MA 02109 (US)

Publication Classification

Int. Cl.7 ..................................................... A47L 13/17
U.S. Cl. ........................................... 134/6; 15/104.94; 15/105;
15/425; 15/209.1; 15/244.1

ABSTRACT

A method and apparatus for removal of dry ink dust and for conditioning of whiteboards, which includes a removable and selectively replaceable core that may optionally be treated with cleaning and anti-static compounds. The core may be a foam cube having six surfaces each individually capable of cleaning a whiteboard. The core being removable and reinsertable in a different orientation to provide a superior cleaning surface.
CUBE WHITE BOARD ERASER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] A claim of benefit is made to U.S. Provisional application No. 60/409,242 filed Sep. 10, 2002, the contents of which are incorporated in their entirety.

BACKGROUND OF THE INVENTION

[0002] This invention relates to an eraser of the type that is designed to remove ink and condition white marker boards.

DESCRIPTION OF THE PRIOR ART

[0003] A white marker board is a writing surface that is written upon with felt-tipped pens having non-permanent ink that “dries” on the board. The writing when “erased” becomes a loose dust removed from the board with an eraser or a cloth.

[0004] A white board can be erased with a traditional felt type eraser or a cloth, which was originally designed for use on black slate boards. The use of such a traditional felt eraser designed for slate blackboards is insufficient for white board use. A felt eraser is intended to remove white chalk dust from the porous surface of a slate board whereas the white board is a non-porous surface. The eraser holds the chalk dust, with the excess dropping to the chalk tray. The chalk dust drops from the board to the chalk tray because relatively little static charges are generated during this procedure. The blackboard while still chalk covered is sufficiently dark to allow further writing. The felt eraser re-fills pores in the slate board with chalk dust during the erasing operation, keeping the board “chalked-in” after cleaning.

[0005] A new white board has a non-porous finish. The white board surface is normally porcelain, melamine, or plastic. Erasing marker dust from a white marker board using a “standard felt eraser” causes static charges to build up, particularly on plastic surfaces. The marker dust does not easily drop off white boards and when static charges are generated it is harder to remove the dust. The felt eraser when dirty redeposits the dry ink onto clean portions of the white board.

[0006] Chemical solvents present in marker pen inks and cleaners attack a white board’s surface during its lifetime. The white boards surface goes from a non-porous surface to a porous surface. This leads to “ghosting” where marker pen ink is trapped in the porous surface and dries leaving writing that is not removed when it is conventionally erased.

[0007] The ideal white board eraser should address the problems of ghosting caused by worn/porous white board surfaces.

[0008] Furthermore, the white board eraser should be easy to use, easy to clean, capable of renewing its dust holding ability; and comfortable to hold.

[0009] Further still it should fit on the small trays provided on most white boards.

[0010] The Green U.S. Pat. No. 1,852,114 discloses a renewable surface dust cloth composed of a plurality of thin, fibrous, loosely compacted layers. While Green addresses the need to increase dust-holding capacity, the structure disclosed is too weak to function as an eraser surface on a white board for any substantial time.

[0011] The Harter U.S. Pat. No. 2,414,872, discloses a blackboard cleaner having a handle with a laminated pad mounted. The pad has a number of plies or sheets of fabric that have been impregnated with a chemical to facilitate cleaning and prevent chalk dust. Harter makes it necessary to clean the plies to obtain any reasonable economic life of the device. The Harter handle would not be satisfactory for white board use as it is awkward and the soiled layers would likely revert to the original configuration.

[0012] The Brouty U.S. Pat. No. 2,465,194, Walkama, U.S. Pat. No. 2,702,913, and Oviatt, U.S. Pat. No. 3,613, 146, disclose various attempts to increase the dust holding or carrying capacity of a hand held device by providing a roll of material in the handle area. The use of a roll of material becomes unsatisfactory for white board eraser use when the bulk of such a device is considered.


[0014] Another commercially available white board eraser holds 25 replacement tissues, and is offered by Schwan Stabilo U.S.A., Inc. This device lacks holding ability, as the spongy foam pad held by the handle fails to keep the fabric layer taut, so that the exposed fabric layer easily becomes loose, develops creases and folds during use. Schwan also requires that it be reloaded with replacement tissues to make it economical for use.

[0015] Other devices are shown in Hardey U.S. Pat. No. 2,739,334; Macular U.S. Pat. No. 2,756,549; Scheur et al. U.S. Pat. No. 2,870,475; George U.S. Pat. No. 3,199,136; and Cole U.S. Pat. No. 3,376,595, but none of them is satisfactory for white boards.

OBJECT OF THE INVENTION

[0016] The ideal white board eraser should address the problems of ghosting caused by worn/porous white board surfaces.

[0017] Furthermore, the white board eraser should be easy to use, easy to clean, capable of renewing its dust holding ability.

[0018] An object of the invention is an eraser that is comfortable to hold.

[0019] Further still it should fit on the small trays provided on most white boards.

[0020] A further object of the invention is to provide a white board eraser that is simple to construct but sturdy and reliable in use.

[0021] A further object of the invention is to provide a white board eraser that removes ink dust and conditions the surface of a white board.

[0022] An additional object is to provide multiple cleaning surfaces for selection by the user.

SUMMARY OF THE INVENTION

[0023] The present invention achieves the above-described objectives by providing an apparatus that has a three
dimensional cleaning surface having multiple surfaces that are preferably identical in dimension, which may be selectively chosen for cleaning of a white board surface by the user, and a holder for the user to manipulate the eraser and hold the selected surface in position for cleaning.

[0024] The holder optionally includes a mechanism for cleaning dust off of the previously used cleaning surfaces that scrapes the dust from the used surface during the selection process of the cleaning surface.

BRIEF DESCRIPTION OF THE DRAWING

[0025] FIG. 1 displays a six-sided embodiment of replaceable insert for the eraser.
[0026] FIG. 2 is a holder designed to accept the six-sided insert of FIG. 1.
[0027] FIG. 3 is a cross sectional view of a holder.
[0028] FIG. 4 is a retaining strip used to retain insert.
[0029] FIG. 5 displays an optional scraper to remove dust from previously used sections.
[0030] FIG. 6 displays a cross-sectional view of the optional scraper.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0031] The instant invention is drawn to an apparatus to clean white boards from unwanted dry ink. As displayed in FIG. 1 one embodiment of apparatus used to remove the ink is a substantially flat surface 10 having a surface material capable of removing dried ink from a white board. Surface materials that would satisfy this purpose are foams both open and closed cell types, felts, cloths, brush hairs, and other similar material having the ability to remove dried ink from the white board surface without causing abrasive damage. The surface 10 after cleaning the whiteboard traps the dry ink particles, after repeated usage 40 efficiency of the surface drops.

[0032] As shown in FIG. 1 the surface is contained on a three dimensional surface having at least four or more three dimensional surfaces. A triangle (pyramid), a five-sided object, a cube, and other shapes are possible. The preferred embodiment is a cube, which gives six identical surfaces with the maximum surface area for cleaning without wasted surfaces. As further displayed in FIG. 1 when the cube embodiment is used starting with surface 10 it can be used to clean with opposing surface 15. The surface 10 when combined form a three dimensional object. The core of the three dimensional surfaces may be of similar material or it may be dissimilar. The core 30 can be a hollow or solid object of any material wherein any of the above mentioned surface materials or a combination thereof of the surfaces 10 are affixed.

[0033] FIG. 2 displays the preferred embodiment of a holder 40 for the three-dimensional eraser in the form of a cube.

[0034] FIG. 3 displays a cutaway view of the holder showing holder base 45 that has the same dimension of that of surface 10. The holder base 45 contacts edge 42 of retaining surface 48 that is similar to that of retaining surfaces 43 and 44.

[0035] Structural adjacent edge 46 joins adjacent retaining surface walls 44 and 48 together. All adjacent edges are joined together to form in the preferred embodiment an open box wherein the core 30 having an eraser surface 10 fits relatively snugly within the cavity formed by the walls in holder 40. As displayed in FIG. 2 the length of structural adjacent edge 46 must be shorter than that of base edge 42. The difference in length of the two edges relative to each other allows for the core 30 having a white board eraser surface 10 to be projected outside of the boundary of the holder 40.

[0036] The core 30 having an eraser surface 10 should be dimensioned so that it may be placed in the holder with relative ease using low force. The core 30 having an eraser surface 10 must be large enough to prevent ejection of the core when the holder 40 when is inverted by gravity or sharp movements of user.

[0037] FIGS. 3 and 4 display an optional core 30 having an eraser surface 10 having a holding apparatus 50 which would allow for less dimensional criticality between the core 30 having an eraser surface 10 and the holder 40. This is accomplished through several means either though creating a partial interference fit or through an interaction between surface materials such as between felt and open celled foam. The holding apparatus 50 may be an integral part of the body of holder 40 or it may be affixed in a secondary operation through mechanical (screws, clips, fasteners, etc) or chemical means (adhesives, etc.). The materials for the holding surface 55 of holding apparatus 50 are selected based upon the material of the surface 10 of the core used to clean the whiteboard.

[0038] FIGS. 5 and 6 displays an optional scraper 70 having a scraper edge 72 that scrapes off dust from the previously used eraser surface 10. The scraper 70 can be open to the atmosphere allowing scraped dust to be ejected into the air or it can be shaped to direct the scraped dust into a chamber 74 to keep the user from become dirty.

[0039] The method of using the white board eraser is a follows: The user grasps the core having a cleaning surface and selects the desired surface for cleaning. The user inserts the core face opposite of that of the desired surface intended for the immediate cleaning into the holder. The user provides force until the core is fully inserted into the holder when the core bottoms out in the holder. The user then proceeds to wipe the board until the surface is ready for use.

[0040] The user can continue using that surface for whiteboard erasing until the surface is filled and erasing capacity diminishes. When the user desires to reposition the cleaning surface of the core, he grasps the edge of the core and pulls with enough force to overcome the resistance holding the core in place. The process of removing the core aids in the cleaning process of the previously used surfaces. Previously used surfaces 10 which do not face the holder base 45 during use (up to four surfaces with a cube) undergo a scraping action when the core is inserted and extracted. This optional feature increases the chances that a surface capable of cleaning the whiteboard will be present when each of the surfaces 10 have all been used at least once before for cleaning the surface of the board of dried ink. This prolongs the necessity of user from extracting the core and manually cleaning or discarding the core and installing a new core into the holder.
[0041] Additionally a white board conditioner can be applied to the surface of the eraser such as oil or similar fluids that will fill in the pores of the board. One type of white board conditioner is an organosilicone fluid that prevents static buildup on the whiteboard during cleaning and thus aids in the removal of the dry ink. Union Carbide produces an excellent antistatic product like Polyalkyleneoxide modified polydimethylsiloxane.

[0042] It will be appreciated that the instant specification and claims are set forth by way of illustration and do not depart from the spirit and scope of the instant invention. It is to be understood that the instant invention is by no means limited to the particular embodiments herein disclosed, but also comprises any modifications or equivalents within the scope of the claims.

[0043] Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

I claim:

1. An eraser for cleaning white boards comprising:
   a core having an exterior; and,
   a plurality of substantially identically dimensioned cleaning surfaces that are substantially flat disposed on said exterior of said core.
2. The eraser of claim 1 further comprising:
   a holder having a receiving portion dimensioned to allow selective removal and reinsertion of said core, wherein said holder exposes at least one cleaning surface of said core.
3. The eraser of claim 1 further comprising:
   a scrapper.
4. The eraser of claim 2 further comprising:
   a collector positioned to accept dust removed by said scrapper.
5. The eraser of claim 1 wherein the core is selected from the group consisting of foam, cork, felt, wood, plastic, cotton, synthetic fabric and a combination thereof.
6. The eraser of claim 4 wherein said core is an open celled foam.
7. The eraser of claim 1 wherein said core is a cube capable of having six cleaning surfaces.
8. The eraser of claim 1 further comprising:
   a holding apparatus.
9. The eraser of claim 6 further comprising:
   a whiteboard conditioning fluid impregnated into said open celled foam.
10. An eraser for cleaning white boards comprising:
    a holder having a receiving portion;
    a removable core having an exterior dimensioned and selectably positionable to fit within said receiving portion of said holder; and,
    a plurality of substantially identically dimensioned cleaning surfaces that are substantially flat disposed on said exterior of said core allowing for said selectable positioning of said removable core to provide a clean surface for ink removal.
11. The eraser of claim 10 further comprising:
    a scrapper.
12. The eraser of claim 11 further comprising:
    a collector positioned to accept dust removed by said scrapper.
13. The eraser of claim 10 wherein the core is selected from the group consisting of foam, cork, felt, wood, plastic, cotton, synthetic fabric and a combination thereof.
14. The eraser of claim 10 wherein said core and said cleaning surfaces is provided by a one piece foam cube.
15. The eraser of claim 14 wherein said foam has an open celled structure.
16. The eraser of claim 9 further comprising:
    a holding apparatus.
17. The eraser of claim 15 wherein said holding apparatus is felt.
18. A method of erasing whiteboards comprising the steps of:
    providing a holder having a receiving portion;
    providing a three dimensional polygonal object having a plurality of sides, each side individually capable of cleaning a white board;
    selecting a clean surface on said three dimensional polygon to clean a white board;
    inserting an opposing face to said clean surface on said polygon into said holder that is dimensioned to accept said polygon while leaving a portion of the adjacent side of said polygon projected beyond said holder perimeter; and,
    cleaning ink from whiteboard.
19. The method of claim 18 further comprising:
    wiping said white board with said clean surface until saturated with dry ink;
    removing said three dimensional polygonal object from said holder;
    reinserting said three dimensional polygonal object having a clean surface exposed from said holder.
20. The method of claim 19 further comprising:
    scraping the dry ink from sides of said polygonal object with a scrapper within said holder.

* * * *