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(54) PAPER ROLL KIT

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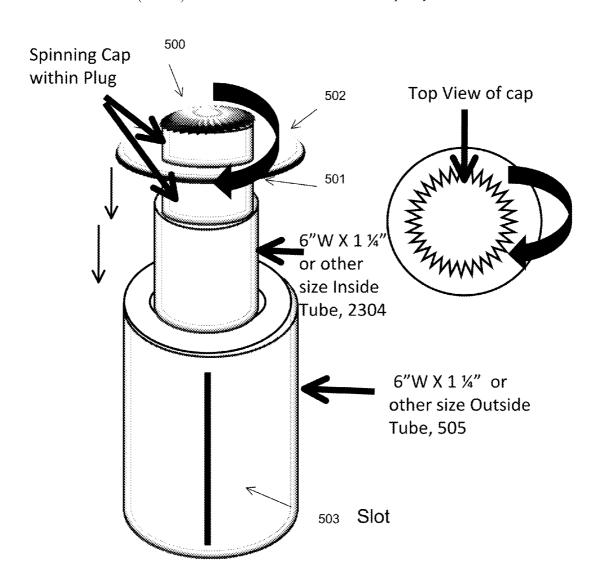
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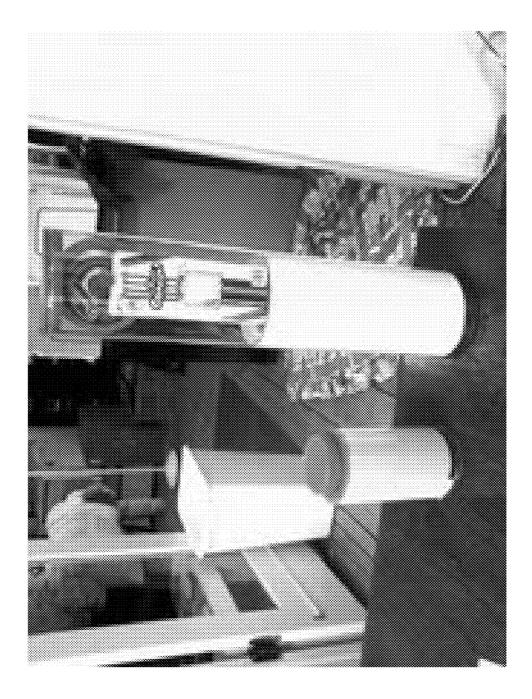
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(57) ABSTRACT

System and apparatus of the present invention provides a paper roll kit that includes a core adapted to receive utility elements. The core is rotatable along an axis of rotation, which may be coincident with the axis of the core. A length of paper may be wrapped around the outside of or inside the core about the axis of rotation. Likewise, a paper roll may be placed in an outside tube with or without a slot so as a portion of the length of paper may be dispensed by rotating the core about the axis of rotation. The hollow space inside the core may facilitate storage of utility elements in it. Further, one or more caps may be provided for storing the utility elements; the one or more caps may also act as a cover to the core.



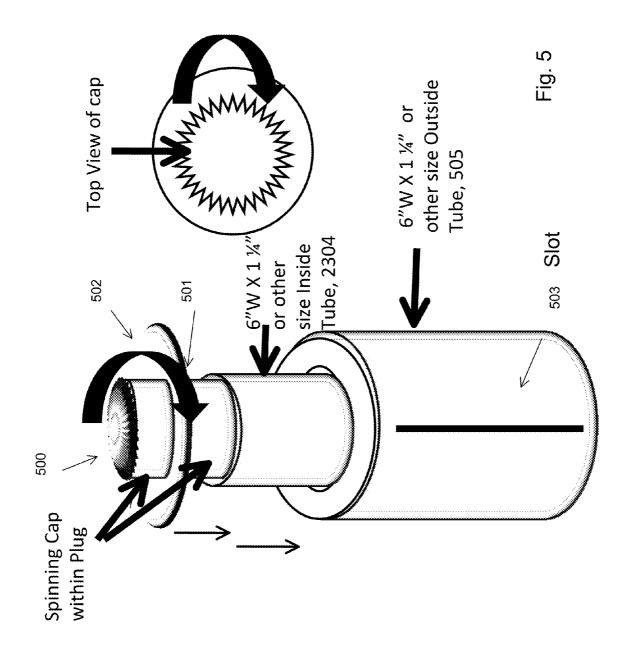


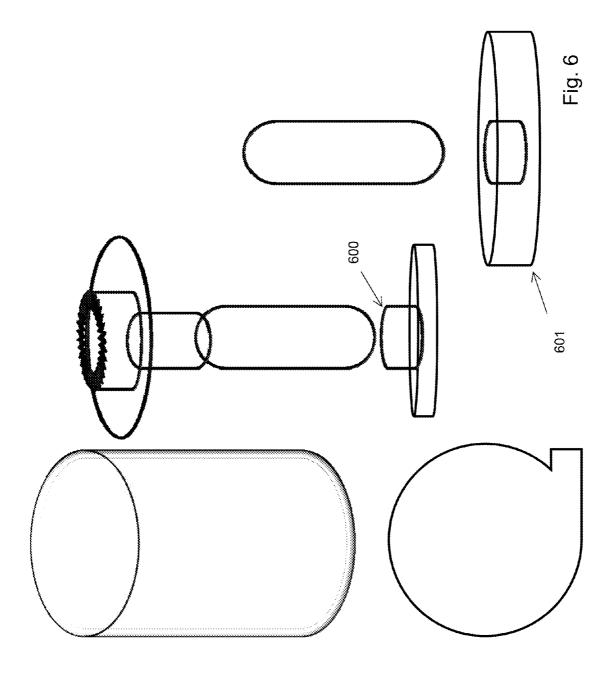




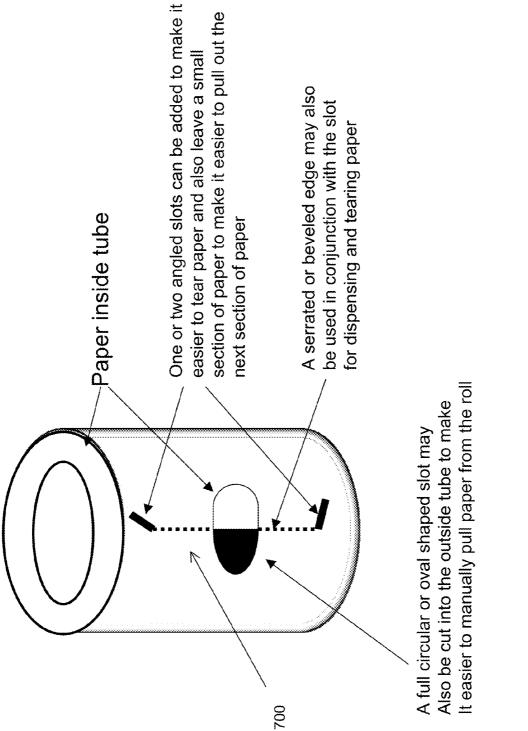


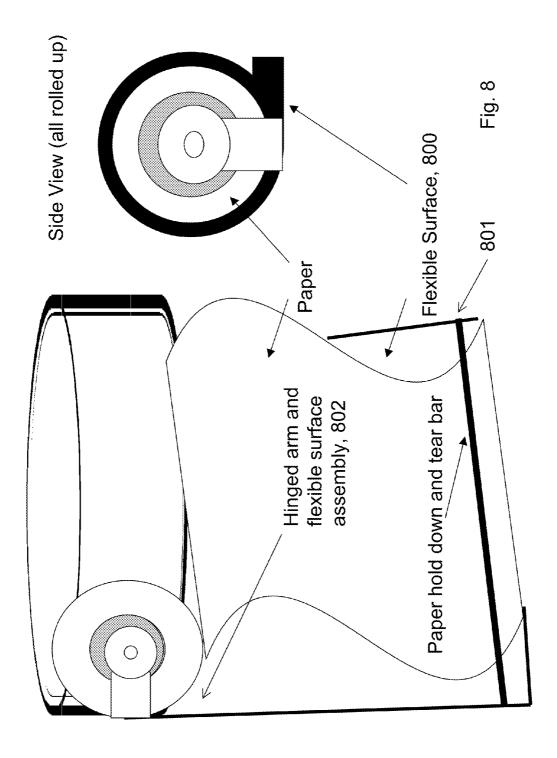




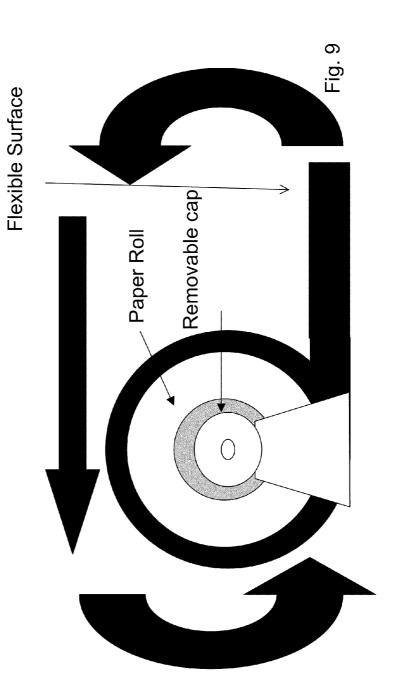


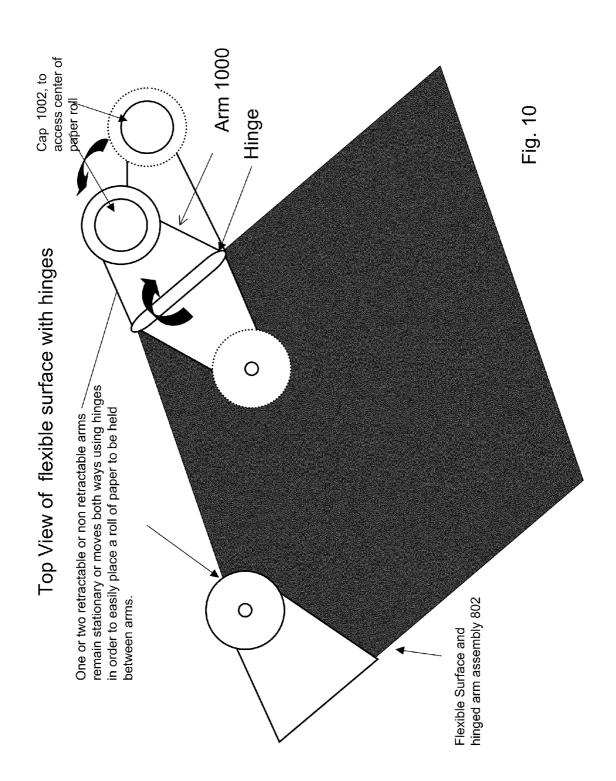




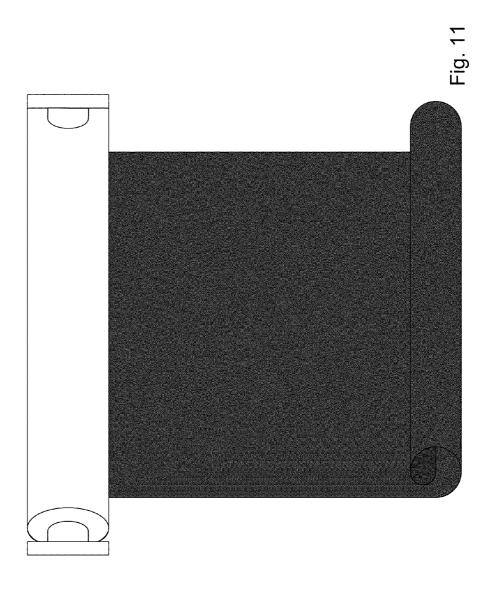


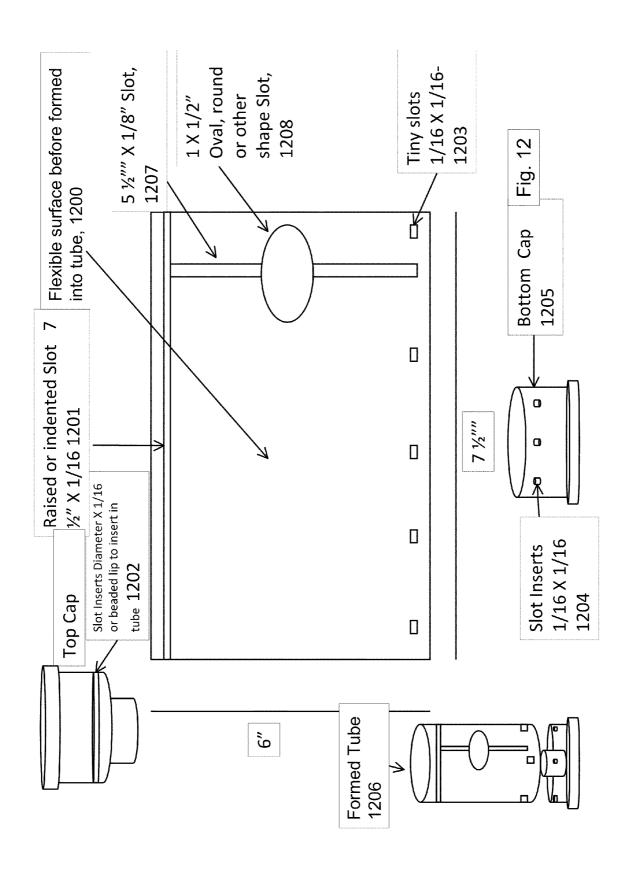
Flexible surface wraps around the entire paper roll and than rolls up around paper roll for easy storage and acts as an outside storage tube or protector. Utility items can still be accessed via removable cap or other means when writing board is fully extended or wrapped around the paper roll

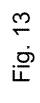




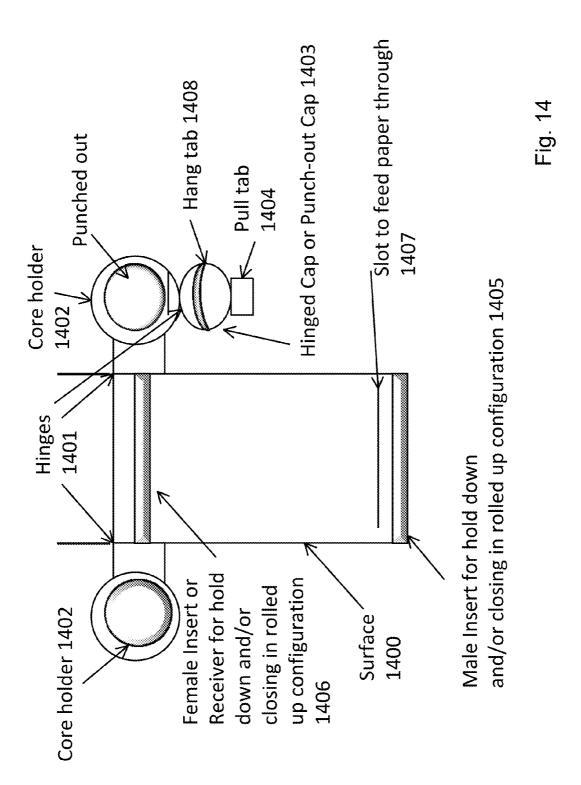
Top view of out stretched Flexible Surface/ writing board



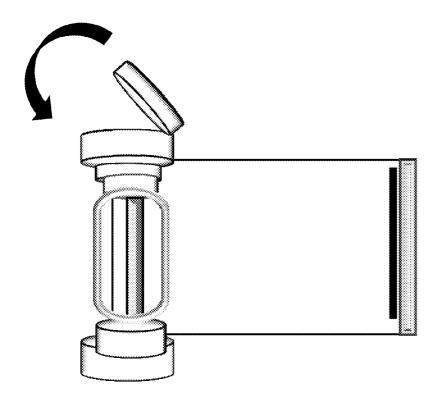


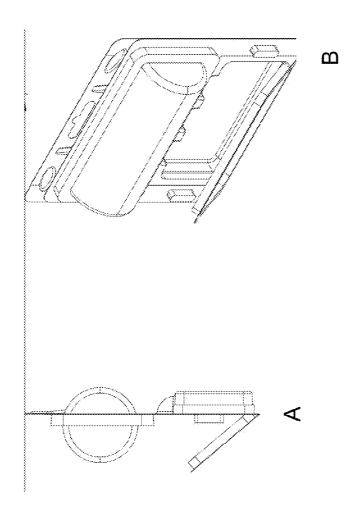












PAPER ROLL KIT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/293,383 filed Jan. 8, 2010, the entirety of which is hereby incorporated by reference.

BACKGROUND

[0002] 1. Field

[0003] The present invention relates to the field of paper rolls and more particularly to paper roll kits that include a storage facility that is integrated into the package and product design itself.

[0004] 2. Description of the Related Art

[0005] Paper rolls are widely used for various domestic and stationery purposes such as toilet rolls, kitchen rolls, adding rolls, easel rolls, banner rolls, drawing rolls and the like. The market for paper rolls has moderately increased with the growth of the paper, POS, and packaging industry. Consequently, new solutions have been designed to provide customized and packaged paper rolls for consumers.

[0006] Multiple existing designs of paper rolls are provided that are suitable for various purposes as stated above and many others. One of the existing designs of paper rolls includes a hollow base or core made of material such as cardboard or plastic. Paper of a defined length, type, and size is wound around the hollow base. The end of the wound roll thus formed is finally sealed and or packaged to be opened whenever required for use. Consumers remove the seal and use the paper roll for the desired purposes. When all of the paper wound around the core is consumed, the cardboard or plastic core can be discarded, reused or recycled. However, according to the technologies of existing paper rolls, the hollow space inside the base material have not been used for any reason than as a means of wrapping the paper around and to add extra stability or certain functionality to the product itself. Further, paper rolls available in the market are merely a simple source of paper for an intended purpose and a custom designed kit whereby the core itself is used as a storage compartment while the paper is still wrapped around a core or a hollow space is not available in the existing art.

[0007] An unmet need and opportunity, therefore, exists for the improved design of paper rolls along with kits that also utilize the hollow space inside the core in order to maximize space, avoid wastage of paper and packaging, reduce the need for extra carry containers to hold the same writing utensils and other objects which may be custom designed for various applications and may act as a source of various elements of daily use.

SUMMARY

[0008] System and apparatus of the present invention provide a paper roll kit that includes a core adapted to receive utility elements. The core is rotatable along an axis of rotation, which may be coincident with the axis of the core. A length of paper may be wrapped around the core about the axis of rotation. Likewise, a length of paper either wrapped or not wrapped around a core, may placed inside and be dispensed through a slot in the outside core or dispenser by rotating the inside core about the axis of rotation. The hollow space inside the core may facilitate storage of utility elements in it regardless of whether or not it is wound around a core.

Further, one or more caps or plugs may be provided for storing the utility elements in the outer tube or dispenser; the one or more caps or plugs may also act as a cover to the outside tube or dispenser. One end of the core may also be sealed permanently while the other end contains a removable cap or plug. The plug or cap may be designed such that the center of the cap may be inserted into the center of the roll to be used not only as a way to secure the end of the inside or outside tube but also as a means to turn or spin the paper roll thus causing the paper to be dispensed or retracted as desired. In addition, the center cap may or may not have a turning mechanism or attached flip top protruding from the top of the cap. The mechanism may enable the center cap to be easily removed or opened in order to access the contents stored inside the center tube as well as act as a means of turning the inside core thus dispensing or retracting the paper. The cap may be designed so that it is taught with the outside edge of the core yet spins the inside core. The cap may also spin about the outside of the core as well as the inside core concurrently. The cap designed to turn the central core may be situated on the top or the bottom of the core. In all configurations the Center most tube may be used as a storage facility for utility

[0009] The utility elements may be writing utensils, stationery elements, eatables, toys and the like depending on the kit and requirements and use of the paper. Some examples of the utility elements are markers, crayons, pencils, chalk, poster paints, ink stamps, scissors, completed drawings, stickers, glue items, watercolors, sponge, water container, brush, stapler, knife, rubber, pen; candies and candy dispensers, snacks, beverages, water, juice; wipes, cleaning supplies; puzzles, digital ink pen, palette, templates; drawing tools such as ruler, protractor, compass, shape templates, eraser; toys such as characters, LEGOS®; games such as video games, map games, drawing games, PICTIONARY®; stickers, decorative supplies, rolled zip log bag; rubber bands, strings, ribbons, bracelets; cutting mechanisms, tape measure, pencil sharpeners, crayon sharpeners, paper rolled on inside; travel supplies such as toothpaste, comb, first aid case, casing, cover, notes and the like.

[0010] In embodiments, various types of papers may be used in the paper roll kit such as arts and crafts, tracing, sketching, painting, writing, coloring, drawing, doodling, scratching and sniffing, cardstock, construction paper, poster, digital paper with or without embedded sensors, art work, magic paper, adhesive paper, adhesive note paper, gift wraps, colored paper, perforated or non-perforated, gift wrap, lined paper, recyclable paper, paper with printed content, and the like.

[0011] In embodiments, the paper roll kit may be customized for various applications such as but not limited to medical applications, painting, water coloring, note taking, coloring, travel/transportation, decoration, wrapping, entertainment, home usage, advertising, tracing, sketching, writing, office use, business use, corporate brainstorming, digital paper applications, placements/covering, restaurants and the like.

[0012] The kit may further include an integrated cutting facility, an external packaging facility, a roll securing facility, and the like. The kit may be integrated with another system.

BRIEF DESCRIPTION OF THE FIGURES

[0013] The features of the present invention, which are believed to be novel, are set forth with particularity in the

appended claims. The invention may best be understood by reference to the following description, taken in conjunction with the accompanying drawings, wherein:

[0014] FIG. 1 illustrates a paper roll kit in accordance with an embodiment of the present invention;

[0015] FIG. 2 illustrates an embodiment of a paper roll kit wherein the hollow space inside the core is divided into two separate compartments by inserting a barrier in the hollow tube perpendicular to the axis of the core and each compartment is used for storing paper or elements.

[0016] FIG. 3 illustrates an embodiment of a paper roll kit containing an element for tearing paper;

[0017] FIG. 4 illustrates an embodiment of a hollow tube that may be inserted into a compartment of the hollow space of the core of a paper roll kit for the purpose of holding elements

[0018] FIG. 5 illustrates an embodiment of a paper roll kit with entire cap assembly;

[0019] FIG. 6 illustrates an embodiment of a paper roll kit. [0020] FIG. 7 illustrates an embodiment of a paper roll kit

[0020] FIG. 7 illustrates an embodiment of a paper roll ki with angled slot, serrated slot, and opening.

[0021] FIG. 8 illustrates an embodiment of a roll up paper roll kit.

[0022] FIG. 9 illustrates an alternate view of the paper roll kit described in FIG. 8.

[0023] FIG. 10 illustrates a writing surface and arm assembly of a roll up paper roll kit.

[0024] FIG. 11 illustrates an alternate view of the roll up paper roll kit as described in FIG. $\pmb{8}$.

[0025] FIG. 12 illustrates an embodiment of a roll up paper roll kit.

[0026] FIG. 13 illustrates an embodiment of a roll up paper roll kit.

[0027] FIG. 14 illustrates an embodiment of a paper roll kit.

[0028] FIG. 15 illustrates an alternate view of the paper roll kit as described in FIG. 14 in the rolled up position and with a Cap in an open position.

[0029] FIG. 16 illustrates an alternate view of the paper roll kit as described in FIG. 14.

[0030] FIG. 17 depicts an alternate view of the paper roll kit. Those with ordinary skill in the art will appreciate that the elements in the figures are illustrated for simplicity and clarity and are not necessarily drawn to scale. For example, the dimensions of some of the elements in the figures may be exaggerated, relative to other elements, in order to improve the understanding of the present invention.

DETAILED DESCRIPTION

[0031] While the specification concludes with the claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the following description in conjunction with the drawings and figures, in which like reference numerals are carried forward.

[0032] As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention, which can be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the present invention in virtually any appropriately detailed structure. Further, the

terms and phrases used herein are not intended to be limiting but rather to provide an understandable description of the present invention.

[0033] The terms "a" or "an" as used herein, are defined as one or more than one. The term "another," as used herein, is defined as at least a second or more. The terms "including" and/or "having" as used herein, are defined as comprising (open transition).

[0034] The present disclosure relates to improved designs of paper rolls along with kits that also utilize the hollow space inside the paper roll core in order to maximize space and avoid wastage of paper and packaging. The paper roll may come in many embodiments, such as with or without a core at the center and with or without a surrounding sleeve, wherein the sleeve may have one or more of a slot for dispensing, an angled cutting edge, and a serrated cutting edge, the sleeve may enclose the ends, and the sleeve and any associated cap may have any ornamental design. The paper roll may come with a rip strip for cutting the paper, or an associated flat surface that is rolled around the paper. In some embodiments, a flexible display may roll up to create a tube inside which utility elements may be stored as described herein with or without the use of caps or any combination of caps described herein. The paper roll may be dispensed from a clamshellshaped packaging that may also house utility items. The paper roll may have caps to close off the ends and contain utility elements included in the paper roll kit. The cap may fit inside the core or may fit over the paper roll and they may be flat or have a protrusion. The cap may have an internal space for storing items that may be accessed by opening the cap or simply removing the cap from the paper roll. The cap may also have a rotary tool such that the cap can be used to rotate the paper roll when affixed to a substantially stationary object.

[0035] FIG. 1 illustrates a paper roll kit 100 in accordance with an embodiment of the present invention. The paper roll kit 100 may include a core, a paper wrapped around the core and one or more caps attached to the core.

[0036] The core may form a base to wind a length of paper. The length of paper may vary as per the needs and requirements. The shape of the core is usually hollow and cylindrical. However, it should be understood that the shape of the core does not limit the present invention and other possible shapes of the outside core or dispenser may also be used. The core may be made of cardboard, plastic, wood, metal, bio-degradable material, a wire mesh, or some other type of material. The core may be rotatable around an axis of rotation. The axis of rotation may coincide with the axis of the core. In embodiments, the orientation of the axis of rotation may be horizontal, vertical or inclined at an angle to the horizontal or vertical side.

[0037] In embodiments, the paper may be wrapped around the outside of the core. In yet another embodiment, as shown in FIG. 5, a wound paper roll may be inserted inside the core and dispensed from a slot, 503, in the core or the entire roll may be removed and used without using the slot. The slot, 503, may be configured in the best way to insure the paper can be easily dispensed and rerolled if needed. To insure the dispensed paper will tear easily, any angle such as a 45 degree angle may be cut at the top and or bottom of the slot as seen in FIG. 7. In embodiments, such an angle will cause a remaining protruding piece of paper to be left after the sheet is torn from the roll. This remaining piece of paper provides a means for the user to access the paper to manually dispense additional paper from the roll. The length of paper unwound may be

manually or mechanically determined based on an extent of rotation. Further, a portion of the length of the paper may be dispensed or unrolled by rotating or spinning the center core around the axis of rotation or the paper may be retracted through the slit, 503, when turned in the reverse direction. Likewise, the length of the paper dispensed or unrolled may depend on the extent of the rotation. In embodiments, a circular, oval or other shape, 700, may be cut into the outside tube on both sides of the slot to provide a means of access to the paper in the tube. In other embodiments a circular, oval or other shape, 700, may be cut into the outside tube on one side of the slot to provide a means of access to the paper in the tube. In embodiments, the circular, oval or other shape may be located on the right side of the slot while in other embodiments it may be located on the left side of the slot. In embodiments, a serrated slot, 700, may be used to provide a means of tearing a length of paper. In embodiments, the serrated edge may contain a circular, oval or other shape on one side of the slot to provide a means of access to the paper. In embodiments, the circular, oval or other shape may be located on the right side of the serrated slot while in other embodiments it may be located on the left side of the serrated slot. It should be clearly understood that the terms dispensing and unrolling of the paper are interchangeably used throughout the description without any change in meaning. When the paper roll is wound around the core it may be secured to maintain tautness by using strings, taut bars, bands such as hair bands, bracelets, elasticized band watches, stickers and the like. Further, the end caps may also be used for securing purposes, and or applications whereby the cap or plug is made in such a way to serve as a tube and a plug at the same time. In addition, the plug or exterior tube may be customized in a variety of ways and in the form of an eraser, sharpener, crayon, caricature, action figure, hanging tab, clip, and the like.

[0038] The paper wound around the core may be used for various purposes and accordingly size, shape and design aspects of the paper may vary. For example, the paper wound around the paper roll may be used as for arts and crafts, stationery and the like. The paper may be utilized for tracing, sketching, painting, writing, coloring, scratching, sniffing, artwork, or as a cardstock, construction paper, poster, magic/ chemically active paper and the like. Hence, the paper type may accordingly vary depending on the purpose. The wound paper may be white or colored, coated or uncoated; plain to write on or may be provided with artwork on one side, or with pictures of celebrities, sceneries, themes, scenes, printed with defined texts, quotes or ideas. The paper may also be used by children as a coloring book and accordingly pictures may be provided on the paper to color. In case the paper is used as a magic/chemically active paper, it may be treated with certain chemicals. The magic paper may include invisible coloring pictures with a combination of water or any other fluid. The invisibly colored pictures may act as a 'magical' element while they react with the disposed chemicals. In an embodiment, the paper may be a digital paper or an interactive paper which may be employed for writing with the help of a digital

[0039] In embodiments, the paper may be used for sticking or pasting purposes. In such a case, the paper may be provided with an adhesive material either on the whole area, a predetermined area or edge(s) of the paper only. The adhesive paper wound around a core, or inserted into the core may create a vertical or horizontal dispensing system determined by the orientation of the paper roll kit. In embodiments, the kit may

be placed, attached or adhered to any surface in a vertical orientation creating a vertical dispensing system or in a horizontal orientation creating a horizontal dispensing system. The adhesive paper may be configured in a roll wound around the core or inserted into the core, or the adhesive paper may be configured in multiple pre-cut or perforated sheets wound around the core or inserted into the core. In embodiments where a single sheet is wound around the core or inserted into the core, the user may manually or mechanically dispense any length of sheet in vertical or horizontal orientation. In embodiments where precut sheets are wound around the core or inserted into the core, the user may manually or mechanically dispense a single sheet at a time in vertical or horizontal orientation.

[0040] The paper may be used for gift wrapping purposes and accordingly it may be provided with aesthetic features. Proper color schemes and themes such as birthday, marriage and the like may be depicted on the paper. The paper used may be rough, smooth, colored, perforated, thick, and thin or the like. In an embodiment the paper roll kit may be made of a recyclable material so as to conserve trees by reusing and or recycling the paper, the tube and its' contents. It should be understood by a person ordinarily skilled in the art that the word paper does not limit to the term of paper only as is conventionally used. However, other similar items may also fall within the scope of the term paper without limiting the spirit and scope of the present invention, such as lamination plastic and the like.

[0041] In embodiments, the paper may be written with content as suitable for various purposes. The content may be written on either front side or both sides of the paper. Some examples of the content are creative ideas, quotes, thoughts, jokes, instructions, wishes and the like. The paper may be used for branding, advertisement or promotional purposes. In such an embodiment, the paper may be provided with ideas that may help in building a brand or adding to an advertisement of a company. For example, the company may advertise its goals and achievements on the paper. The paper may then be cut and distributed as and when required thereby aiding in branding and advertisement. In another embodiment, a manufacturer may provide its contact numbers and address on the back side of the paper, the cap, or the plug. This helps in advertising of the manufacturer. It should be understood by a person ordinarily skilled in the art that several branding and advertising methods of this kind may be employed with the content provided on the paper. Licensed characters or comic articles may be written on the paper. The paper may also be used as coupons such as a meal coupon and the like or as a template for a desired purpose.

[0042] In embodiments, the paper may have printed instructions for guiding tourists, for navigating routes; time tables for transportation means such as for trains, buses, airlines; may be sold in a travel-oriented environment, and the like. Likewise, the paper may include printed drawings to form a coloring book, drawing sheet, and the like that may be utilized in various art and other similar competitions. Alternatively, a continuous or perforated roll of paper may be blank to allow the user to use it for multiple purposes.

[0043] In embodiments, the size of the paper such as width, length and other dimensional parameters may also vary in accordance with various embodiments of the present invention depending on requirements. For example, large sized paper may be required for posters, family games, large drawings, pictorial games and the like; and small sized paper may

be required for a kid's roll to be used for coloring, portability purposes and the like. In this scenario, marking may be provided in the paper to allow the large sized paper to be foldable or rewound after retrieving it from the paper roll kit to form it as a book or other similar item. The folded or rewound paper may be inserted inside the hollow core for storage and or protection from damage or future use. (The hollow space of the wound paper roll may also vary and accordingly the core may be required to be compatible to the required hollow space of the paper roll.) The diameter of the core may also be fixed based on selection of utility elements to be stored inside the core as will be described herein.

[0044] In embodiments, the core may be extendible and may be resized according to the dimensions of the paper which is wound around the core. For example, if the width of the paper is 15 centimeters while the width of the core is 25 centimeters, the extra 10 centimeters of length may be overlapped around the outside core. Conversely the overlapped section may be unwound and used as a writing surface for paper dispensed from the paper roll. Conventional folding or rolling arrangements may be employed to achieve this objective such as through foldable substrate that is flexible enough to wrap around the roll yet rigid enough to extend and serve as a writing surface. It should be understood that at several instances the core may be permanently or temporarily mounted to the rigid substrate. It should be further understood that this is done merely for descriptive purposes without limiting the spirit and scope of the present invention. In this configuration the center core may also be used as a means of securing the center tube in place so it may spin on axis without moving around within the outside core and be used as a storage facility for writing instruments and the like. Like other configurations the paper roll may be replaced in order to continue use of the core and roll up mechanism.

[0045] In embodiments, the core may be extended or retracted telescopically to adjust to and securely hold various widths of the paper. In other embodiments, the core may be any fixed length to accommodate various paper widths. For example a paper roll kit with a core of three inches may be used for holding paper suitable for recording note reminders, a paper roll kit with a core of 6 inches may be suitable for holding even wider paper for more detailed note taking and convenient travel, and a twelve inch core may be used in a paper roll kit for holding larger width paper suited for attachment to and display on an easel or any other use. It should be understood that this is done merely for descriptive purposes without limiting the spirit and scope of the present invention. The length of the core may be configured in an infinite number of lengths for various purposes including but not limited to all described herein.

[0046] In embodiments, the inner core may be inserted into a preformed base as a means of holding various widths of paper in place. The element may be made out of cardboard, plastic, wood, metal, or some other type of material. It may lock into place through a mechanism including an interlocking, clipping or any other mechanism. In other embodiments, as a means to hold the paper roll in a particular orientation within the paper roll kit, the paper alone or the paper around the inner core may be received in the receiving element, 600, of the bottom cap. In embodiments, an adjustable ridge attached to the inner core may positioned along the axis of the core perpendicular to the axis and set at a specified distance suitable for holding a particular width of paper on the core. The ridge may be locked into place, may rest at the base of the

receiving element, 600, or may be fastened or adhered to the core through a mechanism including an interlocking, clipping or any other mechanism. The ridge may be made of cardboard, plastic, wood, metal, or some other type of material. In embodiments it may be fixed to the core or formed as a protrusion of the core, and in other embodiments it may be movable and separate from the core.

[0047] In embodiments, the core may be made of cardboard, plastic, wood, metal, bio-degradable material, or some other type of material. The material of the mounting does not limit the spirit and scope of the present invention. Further, in accordance to other embodiments, the paper may be self wound without any requirement of the core or mounting.

[0048] In embodiments, the assembly of the core and the wound paper may be closed using the caps. The caps are fitted on the sides of the core thereby closing the whole assembly. The assembly hereinafter may refer to the core along with the wound paper roll. It should be understood that only one cap may be used in accordance with an embodiment of the present invention while the other side remains closed and the closing forms a part of the core. The caps may also be referred to as end caps in this disclosure for descriptive purposes without limiting the spirit and scope of the present invention. The end caps may preferably be removable and attached to the core by threading arrangements, close fitting or any other similar arrangements. In addition to keeping the contents of the tube inside, the end caps help in protecting the inside paper rolls and core at the sides and corners. Therefore, the corners, ends or sides of the papers which are usually torn and damaged in unprotected conventional paper rolls may be protected with the help of the present invention.

[0049] In embodiments, the diameter of the end caps may range in such a way that the end caps completely fit the core diameter. However, in other embodiments, the diameter of the end caps may be increased to an extent that the end caps fit the core diameter as well as the wound paper roll diameter. Further, the diameter of the end caps may also vary depending on the requirement of protection of the paper. For, example, in an embodiment, the diameter of one of the end caps may fit half the assembly. Therefore, the two end caps together protect the whole end or the paper and contents thereby avoiding any scratches or damage to the paper or the possibility of the contents falling out of the inside core. Further, the paper roll kit may be used as an easel or convenient dispenser by mounting the outside tube or container to a wall, door, refrigerator door, window or glass, (as in FIG. 27) or the like using an attachable magnet, repositionable or other type of glue or adhesive, permanent adhesive, reusable adhesive, hook and rope assembly or by suction on a mounted surface, to perform various drawing and coloring operation. As such the tube may be used as a portable easel for coloring, presentations, large easel for games, home schooling and the like. The core itself could serve at the dispenser by simply affixing a magnetic or self sealing strip to the back of the roll. In an embodiment, the paper roll may be mounted on a desktop dispenser.

[0050] In an embodiment, the paper roll kit may be further stored in a packaging, such as a box, a bag, a sleeve, and the like.

[0051] In embodiments, the hollow space inside the core may act as a storage facility to store utility elements depending on the requirements. The utility elements may for example be selected out of stationery elements, toys, plastic figures, army men, writing instruments, paint set, eatables

like candy and the like, or any other element depending on the requirements and use of the paper.

[0052] The tubes used in embodiments described herein may be made from paper and plastics. In embodiments, the tubes may be injection molded tubes. In other embodiments, the tubes may be constructed from a plastic sheet to which printing is applied, die cut and folded and secured into the desired shape. In other embodiments the tubes described herein may be substrate formed into the desired shape.

[0053] In embodiments, the shape of the paper roll kit may be made to look like other objects, such as using a colored conical cap to make the combination of paper roll and cap look like a crayon.

[0054] In embodiments, some examples of stationery elements that may be stored in the hollow space of the core may include, without limitation, crayons, pencils, pens, markers, chalk, poster paints, ink stamps, digital pen, finished drawings, stickers, glue, stapler, measuring tape, ruler, compass, protractor, eraser, sharpeners, shape templates, stickers, tapes, adhesives, written notes, sticky notes, decorating supplies, rolled zipper bag, sponges, water container and the like. Further, a complete water coloring system may also be stored inside the hollow space. In such cases, the hollow space may be portioned in accordance to the requirements. For example, the hollow space may be partitioned into several parts in which there may be sections to keep water colors, paint brush, water containers, sponges and other such accessories. Similarly, other such customized hollow spaces may be designed based on the nature of use of the paper. The stationery elements as stated above may be used in cases when the paper is designed to be used for stationery purposes such as by school going children, teachers or the like. Caps and or plugs may be used in the ends of each embodiment. The different sections of the tube may be built as one contiguous tube with multiple compartments or in an alternative embodiment two or more individual tubes may be connected using a snap, twist or other means of attaching the individual sections or using a replaceable divider between two or more sections within the outside dispenser or tube.

[0055] In embodiments, some examples of food and eatables that may be stored inside the core are but not limited to candies, snacks, beverages, water, juice and the like.

[0056] In embodiments, few examples of make-up accessories may include but are not limited to jewelry, bangles, bracelets, comb, hair band, rubber band, ribbon, strings, skin moisturizers, creams, powders, and the like.

[0057] It may be understood by a person ordinarily skilled in the art that several other utility elements may also be stored inside the core without limiting the spirit and scope of the present invention. Some more such examples are but not limited to toys, tearing or cutting accessories, first aid kit, travel supplies, games including video games, map games, drawing games, a watch, a calculator, toothpaste, cases, casings, waterproof carrying cases, covering cloth and the like. [0058] In embodiments, the end caps inserted into the center of the outside and or inside tubes may also serve as a storage facility in which the utility elements as described above may be stored for various purposes. The utility elements and the various purposes have already been described above. However, it should be understood that since the storage capacity of the end caps is relatively smaller than the storage capacity of the outside core, therefore all the utility elements as stated above should fit in the inside core and or

end caps. The utility items stored inside the center tube may

be accessed by removing the entire outside end cap and or an attached or inserted center plug or cap. The cap may be a flip top, screw cap or removable cap. The paper roll stored inside the tube may be removed by taking off the entire end cap The inner diameter cap, 500, may be plugged, screwed, interlocked or otherwise secured into the entire cap assembly, 501, as seen in FIG. 5. The inner diameter cap, 500, may be rotated to turn the inside tube, 504, and unwind a length of paper to protrude from a slot in the outside tube. In embodiments, the entire cap assembly, 501, may rotate as a means of dispensing paper. In other embodiments, only the inner diameter cap, 500, may rotate as a means of dispensing paper. The lip, 502, of the entire cap assembly may act as a barrier to prevent the paper roll from falling out of the tube. In embodiments, the lip, 502, of the entire cap assembly may be extended to project perpendicular to the plane of the lip in order to secure the cap to the outside tube. In embodiments, the inner diameter cap, 500, may be a screw cap flip top cap, interlocking, clip on or other cap that allows access to the inside core and utility elements while the lip of the cap, 502, remains in place and acts to keep the paper roll in place. While specific dimensions are listed in this FIG. 5, these are for illustrative purposes. In embodiments various dimensions may be used.

[0059] In embodiments, the inside core may be inserted into or around a receiving element, 600, in the top or bottom cap as a means of holding the core in place as seen in FIG. 6. In embodiments, the cap, 502, may be inserted around the inside tube or plugged, screwed or otherwise fastened in or around the inside tube. In embodiments, the caps on both ends may be identical to the entire cap assembly, 501. In other embodiments, one cap may be a screw cap without an inner diameter cap, 601, as seen in FIG. 6. In other embodiments, one cap may be identical to 501 while the other is a permanent cap. In addition a built in or secondary hang tab affixed to the end cap may be used in order to provide an additional way of hanging or displaying the entire roll from its hang tab.

[0060] In embodiments, the end caps may have built-in recesses and customized designs to store specific utility elements. For example, the end caps may have built-in sharpeners, built-in erasers, toys, and the like all of which may be customized and or molded into a specific design or configuration. A cutting mechanism may also be provided in the end caps which may directly be employed for tearing or cutting purposes.

[0061] In embodiments, the kits such as paper roll FIG. 13 and any display platforms may be provided with hanging arrangements such as clamps, magnets, clips, pins, permanent or removable tape and the like that may cause the kits and the display platforms to be deployable on walls, doors, trees and other similar structures.

[0062] In embodiments, the paper roll kits may be used in, purchased or distributed from grocery stores, drug stores, toy stores, art stores, office supply stores, fundraising organizations, restaurants, doctor's office, hotels, and the like. Several marketing and business strategies may be employed for selling kits such as FIG. 2. One such strategy that may be adapted is to provide free gifts and puzzles to win a prize along with customized end caps. The paper roll kits may also be purchased online through websites. The prizes with the end caps may be a good source of attraction to customers.

[0063] In embodiments, flexible displays designed for input and output, games coloring, drawing by means of using a limb, finger, pen, crayon, pencil, stylus, or any other instrument may replace the paper in the paper roll kit. In embodi-

ments, the flexible display may roll up to create a tube inside which utility elements may be stored as described herein with or without the use of caps or any combination of caps described herein, such as in FIG. 35. In other embodiments flexible materials may be included in the roll kit, such as with embedded sensors or electronics enabling the tracking of movement of writing instrument (either conventional or a digital or "smart pen" that is capable of tracking movement), such as used in digital whiteboard applications. Thus, whether on a flexible display or other flexible material, user actions of writing may be tracked and captured, such as by an associated processor and memory. References to the paper roll kit throughout this disclosure should be understood to possibly include substitution or addition of such flexible displays or other flexible materials for paper in the paper roll kits described herein. Thus, in embodiments, the paper roll kit may be provided with a controlling unit that has a processor and a memory. The controlling unit may be connected to a network. In embodiments, the network may be a LAN, WAN, MAN, Internet and the like. A security facility associated with paper roll kit may facilitate authentication of communication between the external network and the paper roll kit. For example, a user using the paper roll kit as a doodle roll kit may perform certain tasks and submit the tasks in some prize winning competition available on various online portals directly from the platform. The user may then receive a response regarding the competition or any prizes if won directly from the competition organizing authority. An example of websites that may receive such tasks or work may be DOODLEROLL.COM. This embodiment would be built using a known technology of a paper thin, bendable computer screen resembling paper. The purpose is to replicate the physical experience of coloring using utility items such as crayons, markers and the like by using a stylus or fingers and coloring on the interactive computer screen. Options to select predetermined colors, designs, themes, games or other activities would all be loaded in the micro chip processor used to operate the device. All of these features could be down loaded or uploaded from a home page.

[0064] In embodiments, the paper roll kit may be integrated with other devices such as with a home printer, a fax machine, a telephonic device and the like. The integration may be performed by the user or the user may also get a customized integrated device according to the needs. The communication with other devices may be performed either through a wired medium or wireless. Accordingly various protocols such as WAP, Bluetooth, RFID and the like may be employed for facilitating the communication.

[0065] In embodiments, paper roll kits as described in detail above may find several applications. Some examples of such applications are given below. However, a person ordinarily skilled in the art may understand that various other applications are also possible without limiting the spirit and scope of the present invention.

[0066] In embodiments, the paper roll kits may be used for purposes such as painting, drawing, note taking, coloring, wrapping, doodling, tracing, sketching, banners, brainstorming, digital paper applications, decoration applications, placements such as table covering and the like.

[0067] In embodiments, the paper roll kits may be used for entertainment purposes, gifts, party favors, promotions, fund raisers and advertising.

[0068] In embodiments, the paper roll kits may be employed in restaurants, planes, day care facilities, schools, doctor's offices, homes, toilets, kitchens and the like places. [0069] In embodiments, the paper roll kit as described by the present invention has several advantages. The paper roll kit saves paper which may be a very costly resource. For example, the user may cut a specific amount of required paper and use it for printing purposes rather than using a predetermined size sheet which is most commercially readily available in virtually all configurations, sizes and retail locations selling paper related products. This process can only be achieved when dispensing paper in roll form which makes the current invention unlike any known means of dispensing paper. However, in conventional modes the user uses only the standard sheets for printing irrespective of the data that needs to be printed. Therefore, wastage of the paper may be avoided. Further, the user may purchase customized kits for various purposes such as for arts and crafts, doodling, kitchen and the like. The user may also get related accessories along with the kits, most of which are readily available at many stationary, office supply, department stores, toy stores and the like. Another advantage is the utilization of the space inside the core which otherwise may remain unused in the conventional applications. The space inside the end caps may also be utilized thereby making more use of the available space in addition to or in lieu of the inside tube.

[0070] In embodiments, the paper roll kits may be purchased in the market for various applications by their specific names that reflect the nature of use. For example, a paper roll kit for doodling may be termed as doodle roll kit and a paper roll kit for painting may be termed as painting roll kit. However, the term of a particular paper roll kit does not limit the area of its applications and it may be used for any desired purposes as seems fit to the user.

[0071] In embodiments, the hollow space inside the core may be divided into two separate compartments equal or unequal in size by inserting a barrier in the hollow tube perpendicular to the axis of the core. The addition of the barrier will result in two separate, compartments for storage of various elements. Separate compartments can also be made by inserting a cylindrical object into the tube, thus providing the option to choose the desired space in each side(s) of the tube. This option allows for storage of different size utility items. For example, the hollow space inside a paper roll kit for doodling may be divided into two separate compartments where elements such as crayons, markers, and scissors or toys such as army men and a slinky are stored in one side of the kit and dispensable or non-dispensable paper is stored in the other side as described further in FIG. 2. The paper in the paper compartment or the cap on one side of the roll may extend to shield the compartment such that the elements in the compartment are not visible, thereby creating a "secret compartment" to prevent the identification of elements if desired [0072] In embodiments, an element suitable for tearing paper may be attached or fastened to the paper roll kit for the purpose of tearing any length of paper from the roll as described in FIG. 3. The tearing element may be constructed as part of the paper roll kit or fastened, attached or adhered to the paper roll kit with an adhesive including glue, tape or any other adhesive or it may be fastened or attached to the paper roll kit through a mechanism including an interlocking, clipping, or any other mechanism. The tearing element may be made of cardboard, plastic, wood, metal, or some other type of material. In embodiments, the element suitable for tearing

paper will create friction or resistance against the paper to prevent an over abundance of paper from being removed from the paper roll kit at one time as well as make it easier for the user to tear off paper.

[0073] In embodiments, the dispensable or non-dispensable paper used with the paper roll kit may be used for sticking or pasting purposes. In such a case, the paper may be provided with an adhesive material either on the whole area or on the corners or edges of the paper only. The paper may be used for the purpose of taking short notes and adhering the note to another object for the purposes of creating a reminder or the paper may be used in any other setting including a business meeting where a larger piece of paper is removed and adhered to an object such as an easel, wall, board or door for use in recording notes, images or ideas. In embodiments, the hollow space inside the core may contain elements such as highlighters, markers, pens, pencils, paper clips, binder clips, a stapler, staples, rubber bands or any other element. In embodiments, the paper roll kit may be equipped with an element suitable for tearing various lengths of adhesive paper. In embodiments, the hollow space inside the core may be divided into two separate compartments equal or unequal in size by inserting a barrier in the hollow tube perpendicular to the axis of the core and one compartment may contain dispensable or non-dispensable adhesive paper used for sticking or pasting purposes or any other paper and the other compartment may contain elements such as highlighters, markers, pens, pencils, paper clips, binder clips, a stapler, staples, rubber bands or any other element and the paper roll kit may or may not be equipped with an element suitable for tearing various lengths of adhesive or non adhesive paper.

[0074] In embodiments, a hollow tube, as described in FIG. 4, may be inserted into the hollow space inside the core for holding elements including crayons, pencils, markers, erasers, ink or paints, or other elements of appropriate size. The hollow tube may be made of cardboard, plastic, wood, metal, bio-degradable material, a wire mesh, or some other type of material. In embodiments, the hollow tube for holding elements inserted into the hollow space inside the core may be made out of transparent material for ease of viewing the elements contained therein.

[0075] In embodiments, a box may be inserted into the hollow tube for holding crayons configured in two rows of four crayons or two rows of two crayons. The box may be made of cardboard, plastic, wood, metal, or some other type of material.

[0076] In embodiments, elements including pencil sharpeners, crayon sharpeners or other elements may be fastened, attached or adhered to the outside of the paper roll kit to provide ease of access to the element. The element may be fastened, attached or adhered to the paper roll kit with an adhesive including, glue, tape or any adhesive, or it may be fastened or attached to the paper roll kit through a mechanism including an interlocking, clipping or any other mechanism. [0077] In embodiments, the core wound with any type of paper may be attached to a hinged arm and flexible surface assembly, 802, as seen in FIG. 8. The hinged arms and flexible surface assembly, 800, may be attached to the core or core wound with any type of paper via the arms, 1000, clipping, interlocking, sliding, screwing, snapping or adhering to, into, on, around, between, or with the core or core wound with any type of paper, by pinching the core or core wound with any type of paper or by some other mechanism allowing the flexible surface to roll up around the core or core wound with any type of paper. In embodiments, the arm or arms, 1000, may function as an end cap that attaches to the core wound with any type of paper. The arm or arms in such an embodiment may contain a center cap, 1002, that unscrews, pulls off, unhinges, flips up or opens by any other means to provide access to utility elements stored inside the core. In other embodiments, the flexible surface and hinged arm assembly, 802, may attach to a fully formed doodle roll kit or fully formed paper roll kit via the arms, 1000, clipping, interlocking, sliding, screwing, snapping or adhering to, into, on, around, between, or with the fully formed doodle roll or paper roll kit or via any other mechanism allowing the flexible surface to roll up around the doodle roll or paper roll kit in a secured position. In embodiments, the flexible surface may be made out of any material suitable for being rolled up such as cardboard, plastic, wood, metal, bio-degradable material, a wire mesh, fabric, fabric and wood, flexible display, a combination of materials or some other type of material or combination of materials. The flexible surface and hinged arms assembly, 802, provides a convenient, portable, attachable surface for use with the core wound with any type of paper or with a fully formed doodle roll kit or fully formed paper roll kit. The flexible surface may be rolled up around a fully formed doodle roll kit or paper roll kit, core or core wound with any type of paper, as described in FIG. 9 and may be unrolled as in FIG. 11. The flexible surface may be secured around the doodle roll kit, paper roll kit, core or core wound with any type of paper when in the rolled up position via a button, snap, clip, rubber band, any other band, string, rope hair tie or any other means. The flexible surface may act as a protective surface for the paper, core, core wound with any type of paper, paper roll kit, or doodle roll kit when in the rolled up position. The flexible surface assembly coupled with the core, core wound with any type of paper, paper roll kit or doodle roll kit provides the user with a protected and portable device when in the rolled up position. Unrolling the flexible surface will allow the user to dispense paper onto a ready to use surface for writing, coloring, drawing, painting, finger painting and the like. The flexible surface, 800, may be used as a writing surface, game board, tray, cutting surface, coloring surface, easel, finger painting surface or any other type of surface. In embodiments, the arms, 1000, attached to the flexible surface may be retractable or non-retractable, remain stationary, or fold onto the flexible surface or away from the flexible surface, as described in FIG. 10. In all embodiments, any paper including adhesive paper may be used. In embodiments, a utility bar, 801, may be attached to the flexible surface for a means of holding the paper to the board as it is slid, rolled, placed or fastened under the bar and for a means of tearing the paper from the paper roll as seen in FIG. 8. The core, core wound with paper, paper roll kit, doodle roll kit, and hinged arm and flexible surface assembly may be sold together, bundled in any manner, or may be sold separately. The flexible surface and hinged arm assembly may be sold with the doodle roll kit, paper roll kit, the core, the core wound with any type of paper, or sold separately. In embodiments, the flexible surface, 800 or hinged arm and flexible surface, 802, may be plain with no markings or it may have printing or ornamentation of any type including decorative beads, cartoon characters, caricatures, drawings, advertisements and logos.

[0078] In embodiments, the flexible surface, 1200, may contain a raised or indented slot, 1201, for interlocking, adhering, attaching, or otherwise connecting with a slot insert

or beaded lip, 1202, that spans the circumference of the top cap as described in FIG. 12. In embodiments, small slots, 1203, may be located along the edge opposite the raised or indented slot, 1201, and small slots, 1203, may receive slot inserts, 1204, located in the bottom cap, 1205, as described in FIG. 12. The interlocking, adhering, attaching, or otherwise connecting of the raised or indented slot, 1201, to the slot insert or beaded lip, 1202, and the interlocking, adhering, attaching, or otherwise connecting of the slot inserts, 1204, to the small slots, 1203, will create a formed tube, 1206, as described in FIG. 12. In embodiments, a slot, 1207, may be cut in the flexible sheet such that the formed tube, 1206, contains a slot for dispensing paper, as described in FIG. 12. In embodiments, a round, oval or other shape slot, 1208, may be cut on the right or the left, or both sides of slot, 1207, as described in FIG. 12, in order to form a point of access for manual dispensing of paper from formed tube, 1206. In embodiments, slot, 1207, may be straight or serrated and may or may not contain slot, 1208, on one or both sides. In embodiments, a utility bar may be attached to the flexible surface, 1200. While specific dimensions are listed in this FIG. 12, this is for illustrative purposes. In all embodiments, any paper including adhesive paper may be used. In embodiments various dimensions may be used. In embodiments, a utility bar may be attached to the flexible surface, 1200, at various positions for a means of holding the paper to the board as it is slid, rolled, placed or fastened under the bar and for a means of tearing the paper from the paper roll. In embodiments, the flexible surface, 1200, may be plain with no markings or it may have printing or ornamentation of any type including decorative beads, cartoon characters, caricatures, drawings, advertisements and logos.

[0079] In embodiments, a fully formed doodle roll kit or other paper roll kit may be attached to a flexible surface that may roll up around the doodle roll kit or paper roll kit and unroll from the doodle roll kit or paper roll kit in a flat sheet as described in FIG. 13. In embodiments, the doodle roll kit or paper roll kit may be attached to the flexible surface via suction cups, adhesive tape, repositionable tape, magnets, glue or any other means. Openings through which an adapter may be inserted may be formed in the doodle roll kit or paper roll kit prior to or during the manufacturing process, or the openings may be formed in the doodle roll kit or paper roll kit by the customer. The one or more adapter(s) may receive a suction cup and provide a means of attaching the suction cup to the doodle roll kit or paper roll kit. The suction cup may be inserted through the opening in the outside of the doodle roll kit or paper roll kit and be received by the adapter on the inside of the doodle roll or paper roll kit thereby providing a means of attaching to the doodle roll kit or paper roll kit. One or more suction cups may be attached to the doodle roll kit or paper roll kit in this manner for securing the doodle roll kit or paper roll kit to a flexible surface as described in FIG. 13. In embodiments, the suction cup(s) may be attached to the doodle roll kit or paper roll kit with adhesive tape, repositionable tape, one or more magnets, one or more adapters, hooks, clasps, clips or any other means so that an opening is not inserted into the doodle roll kit or paper roll kit. In embodiments, holes may be inserted into the doodle roll kit or paper roll kit such that suction cups may be received directly into the hole and fastened to the kit through friction, adhesion, clipping or other means. The suction cups may be of varying sizes. In embodiments, the flexible surface may be plain with no markings or it may have printing or ornamentation of any type including decorative beads, cartoon characters, caricatures, drawings, advertisements and logos.

[0080] In embodiments, a length of plastic, paper, vinyl, cloth, wood, metal or any other material or combination of materials may be used alone or attached to a piece or pieces of any rigid material to form a Surface, 1400, that may be laid flat for writing, drawing or the like and may wind up around, be wrapped around or rolled up around a paper roll or other type of roll as described further in FIG. 16. In embodiments, the Surface, 1400, may be constructed from a single piece of flexible material that may wrap, roll, wind up around, or encapsulate the paper roll, or it may be made from more than one piece or a combination of pieces of material that may wrap, roll, wind up around, or encapsulate the paper roll, as described further in FIG. 15, and that may roll flat into a rigid writing surface as described further in FIGS. 14 and 16. Hinges, 1401, may attach to Surface, 1400, and to Core Holders, 1402 to form an assembly that provides a means to hold a paper roll and the surface to lay flat for writing, drawing or the like and to wind up around, wrap around or roll up around the paper roll as described in FIGS. 14 and 16. In embodiments, one or more of the Core Holders, 1402, may have a Hinged Cap or Punch-out Cap, 1403, to provide access to the inner core of the paper roll as described in FIG. 14 and further in FIG. 16. Access to the inner core of the paper roll may also provide access to utility elements stored therein as described further in FIG. 42. In embodiments, the Hinged Cap or Punch-out Cap, 1403, may have a Pull tab, 1404, for ease of opening and closing the Cap as described in FIG. 14. In embodiments, a Male Insert, 1405, may be fastened to Surface, 1400, to provide a means for holding the Surface, 1400, and/or paper flat when in the unrolled position as described in FIG. 14. Similarly, a Female Insert or Receiver, 1406, may also be attached to Surface, 1400, to provide a means for holding the Surface and/or paper flat when in the unrolled position. In embodiments, Male Insert, 1405, may be inserted into, hooked to or locked into Female Receiver, 1406, to secure the Doodle roll or Paper roll kit in a rolled up position. In embodiments, the kit may be rolled up and secured closed by a magnet, clip, fabric hook-and-loop fasteners, hood, slot, tie string, ribbon, rubber band, or the like. In embodiments, Surface, 1400, may also contain a Slot, 1407, for dispensing or feeding paper through. In embodiments, a Hang tab 1408, may be attached to the Core holder, 1402, and/or Cap, 1403, and/or Surface, 1400, to provide a means of hanging, suspending, or attaching the kit to any object for use and/or

[0081] In embodiments, and referring to FIG. 17 A (side view) and B (face view), the paper roll kit may be packaged in a container where additional items for use with or without the paper roll kit may be included in the packaging. In FIG. 17, the packaging for the paper roll kit includes an area for the placement of crayons, however, this space could just as easily house a snack or some other item. In embodiments, a core holder may be disposed in the packaging so that the paper roll may be held in place and unwound from the packaging.

[0082] While the invention has been disclosed in connection with the preferred embodiments shown and described in detail, various modifications and improvements thereon will become readily apparent to those skilled in the art. Accordingly, the spirit and scope of the present invention is not to be limited by the foregoing examples, but is to be understood in the broadest sense allowable by law.

What is claimed is:

- 1. A paper roll kit comprising;
- a core adapted to receive a plurality of utility elements, wherein the core is rotatable along an axis of rotation;
- a length of paper wrapped around the core about the axis of rotation, wherein rotation of the core about the axis of rotation causes a portion of the length of the paper to be dispensed; and
- one or more caps inserted into the core, wherein the one or more caps are used to enclose the ends of the core or are adapted to store at least one of the plurality of utility elements.
- 2. The kit of claim 1, wherein the kit is adapted to be used in at least one of a painting, water coloring, note taking, coloring, game playing, travel/transportation, decoration, wrapping, entertainment, home usage, advertising, tracing, sketching, writing, office use, business use, corporate brainstorming, digital paper applications, placements/covering, a restaurant.
- 3. The kit of claim 1, further comprising an integrated cutting or tearing facility.
- **4**. The kit of claim **1**, further comprising an external packaging facility, wherein the facility is optionally a dispenser.
- **5**. The kit of claim **1**, further comprising a roll securing facility to prevent the roll from unraveling.
- 6. The kit of claim 1, further comprising integration with another system.
- 7. The kit of claim 1, wherein the core is divided into two or more separate compartments of equal or unequal size.
- 8. The kit of claim 1, wherein the kit includes at least one utility element adapted to perform a painting task.
- **9**. The kit of claim **1**, wherein the kit includes at least one utility element adapted to perform a drawing task.
- 10. The kit of claim 1, wherein the kit includes at least one utility element adapted to perform a cutting task.
- 11. The kit of claim 1 wherein the kit is adapted to integrate a flexible sheet that rolls up around the kit in a fastened position for storage and portability and unrolls from around the kit into a flat sheet to provide a writing surface.

- 12. A paper roll kit comprising;
- a core adapted to receive a plurality of utility elements, wherein the core is rotatable along an axis of rotation;
- a length of paper wrapped around the core about the axis of rotation, wherein rotation of the core about the axis of rotation causes a portion of the length of the paper to be dispensed; and
- a hinged arm and flexible sheet attached to the core wherein the flexible sheet is capable of being wound up around the core and fastened in the wound up position and wherein the flexible sheet is capable of being unwound from the core into a flat sheet.
- 13. The kit of claim 12, further comprising an integrated cutting facility.
- 14. The kit of claim 12, further comprising an external packaging facility.
- 15. The kit of claim 12, further comprising a roll securing facility.
- 16. The kit of claim 12, further comprising integration with another system.
- 17. The kit of claim 12, wherein the core is divided into two separate compartments of equal or unequal size.
 - 18. A paper roll kit comprising;
 - a core adapted to receive a plurality of utility elements, wherein the core is rotatable along an axis of rotation;
 - a length of paper wrapped around the core about the axis of rotation, wherein rotation of the core about the axis of rotation causes a portion of the length of the paper to be dispensed;
 - an external packaging facility to contain at least the paper wrapped around the core; and
 - one or more caps inserted into the core, wherein the one or more caps extends beyond the top of the inside core and outside packaging facility and is used in such a way as to spin inside roll in order to dispense or retract paper through a slot in the external packaging facility.

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