LOCK AND MAGNETIC RELEASE DEVICE

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Our invention relates to lock construction and more particularly to an improved magnetic lock device adapted to secure and release relatively movable members in a given relative position. While our invention is adapted for many uses, it is particularly designed for use with a hand bag as used by women, or other portable bags, suitcases and the like.

One of the aspects of our invention is to provide a lock device and releasing means of improved construction and comprising a part or parts which, when the members to be secured together are in a given relative position, are adapted upon movement thereof to a certain position to lock with another part or magnet to release the same.

Another object of our invention is to provide a magnetic lock device of such construction that when the same is in operative or locked condition, it is adapted to be readily released or unlocked by a magnet embedded in a flexible bag handle which can be moved relative to and adjacent the locking device.

Still further objects of our invention are to provide a locking device and magnetic releasing means which are simple in construction, effective in operation and economical to manufacture.

Other objects and features of our invention will hereinafter more specifically described and claimed.

In order that our invention may be more clearly understood, attention is directed to the drawings accompanying and forming a part of this specification, and in which:

FIGURE 1 is a fragmentary top plan view of a suitcase with the locking device in closed position, parts in section;

FIGURE 2 is an enlarged fragmentary sectional view of the suitcase and locking devices shown in FIG. 1 with the carrying handle arranged therewith;

FIGURE 3 is a perspective view of the locking plate sometimes referred to as the keeper;

FIGURE 4 is a sectional view taken substantially on line 4—4 of FIG. 1;

FIGURE 5 is a fragmentary top view of a bag and a modified type of keeper with parts in section;

FIGURE 6 is a fragmentary perspective view of a bag, or suitcase, embodying a flexible carrying handle with a magnet arranged thereon, parts in section; and

FIGURE 7 is a side fragmentary elevational view of the bag shown by FIG. 6, having the flexible handle depressed and magnet above and adjacent the keeper, parts in section.

Referring to the drawings, reference character 10 designates a substantially rectangular bag, or suitcase, in which two sections 11 and 12 are hingedly connected along their bottoms disposed in the same plane, providing side walls 14 and 15, top walls 16 and 17, and end walls 18, 19, 20 and 21. The top wall 16 of the supporting section is provided with a flexible handle 30 by which the bag 10 can be carried, and a suitable fastener is provided for fastening together the meeting edges 32 and 33 of the top walls 16 and 17, shown by FIGS. 2 and 4.

The ends of the handle 30 are arranged about the pivotal links 34 and 35 mounted in journals 36 and 37 secured to the central top portion of top wall 16. Midway between the ends of said flexible handle 30 is arranged therein a magnet 40. Midway between the end walls 19 and 21 of section 12 and upon the top surface of top wall 17 is mounted a locking member 50 and secured thereto by pin fasteners 51.

The locking member 50 is formed, or drawn, from a substantially rectangular plate into an inverted cup-shaped member; said locking member 50 having a top wall 52, depending side walls 53, side flanges 54, rear flange 55 and a front flange 56. Said side flanges 54 and rear flange 55 are rigidly secured to said wall 17, while front flange 56 rests in juxtaposition with said top wall 16 when the bag is closed. Said top wall 52 is provided with a central, longitudinal slot 58. A latch plate 59 is embedded within the top surface of top wall 16, the plate 59 is formed of metal and secured to the wall 16 adjacent the meeting edge 32 thereof by screws 61, said plate having an opening 62, or slot, extending parallel with said meeting edge 32, said slot 62 for receiving the depending portion of the keeper 66, later to be described.

The keeper 66 is formed from a substantially rectangular plate. The corners are formed with holes 67 therein to receive rivets 68 which are arranged within holes formed in the corners of the top wall 52 and in vertical alignment with said holes 67 in keeper 66. The keeper 66 is perforated with a "U-shaped" slot 70 forming a longitudinal tongue 71 with an outer depending free end 72. The depending free end 72 is positioned in vertical alignment with opening 62 in said latch plate 59, and due to the transverse roll portion 74 formed at the rear of said tongue 71, the tongue 71 extends outwardly and downwardly in a resilient manner, forcing the depending free end 72 normally into said slot 62 of plate 59.

A modified type of keeper 80 is shown by FIG. 5, it being triangular in configuration, pivotally secured at its rear end and having a locking pin 81 arranged in its apex, the plate 80 resting upon the latch plate thereof by force of gravity.

For use in effecting the opening of the bag 10, is the magnet 40 with depending north and south pole portions 41 and 42, shown by FIG. 7.

The present invention may be applied in a wide number of ways, to suit different uses thereof, including numerous adaptations as makeup boxes or hand cases used by moving picture people for carrying the toilet articles and make-up materials for convenient use on location, or dressing rooms; also for various types of bags where flexible carrying handles can be employed.

It is not intended that the invention be limited to this specific embodiment or this specific use, but rather that this form be considered merely as illustrative.

The construction and operation of the improved bag, or suitcase, is as follows:

Considering first the form shown in FIGURES 1 to 4 and 6 to 7 inclusive, the device would be mounted by securing it on the movable lid side of the suitcase by suitable rivets or fasteners 51 inserted through aligned holes in the locking device and adjacent surface.

Considering the parts to be in the position shown by FIGURES 4 and 6, which correspond to the closed or locked position of the suitcase, in which position the depending end portion 72 of the keeper 71 is held above the slot 62 in the latch plate 59 rigidly secured to the supporting section or handle carrying section of the suitcase, the movable section of the suitcase is locked with the other section thereof. Since the top wall surface 52 is rigidly secured above the keeper 71, there is not any suitable means of lifting the keeper by a tool. However, the magnet 40 in the flexible handle of non-magnetic material can be brought into juxtaposition above the keeper 71, the top surface 52 having a slot 58 thereby assisting in effecting the magnetic attraction of
the magnet for the keeper 71; the magnet will attract and hold the keeper in raised position, in which position it is clear of the slot in the latch plate carried by the supporting section or handle portion of the suitcase, and thus the suitcase can be easily opened.

In opening the suitcase, or bag, the authorized person who knows of the magnet being embedded within the flexible handle, simply presses it downwardly over the top of the locking device without attracting the attention of any unauthorized person; the bag is opened upon release of the keeper from the slot in the latch plate so that the contents thereof may be removed.

After removal of the desired contents of the bag, it is again locked by simply raising the handle so as to support the bag therewith, pushing the two sections of the bag together until the keeper engages the slot in the latch plate due to the resiliency and downward action of the keeper relative to the rest of the locking device. The magnet in the handle being at a distance from the keeper it will have no effect upon the keeper.

An important feature of the locking device is that the magnet is only operative when accurately positioned with respect to the keeper; and if the handle is pressed, or positioned, either too far to one side or the other, out of alignment with the slot in the top surface of the locking device, it will not operate to maintain the keeper to be raised, in order to open the bag. The flexible strap type handle tends to accurately position the magnet in its proper location, the strap being rectangular in cross-section.

The construction shown by FIG. 5 is similar; however, the keeper 80 is not resiliently held into locking position but is pivotally mounted and operates by force of gravity. The keeper 80 is raised by the same type of magnet in the same type of handle as described above.

The procedure, therefore, in opening the suitcase, bag or container, consists merely of pressing the flexible handle, embodying the magnet downwardly into its proper position; this raises the keeper within the locking device and the movable section of the bag falls open.

The closing of the movable section is accomplished by simply raising the handle with the magnet therein, then pushing the sections of the bag toward each other; the keeper will fall and be retained in its locked position out of any range of the magnetic force of the magnet.

The mechanism is such that there is provided gravity, or resiliently controlled means for normally locking the two sections of the bag and magnetically controlled keeper means for rendering the locking means inoperative to permit opening of the free section of the bag.

From the foregoing it will be apparent that the invention may be used for a bag, suitcase or other bag, having a flexible handle carrying means of the type described whereby the objects set forth have been attained.

Various modifications may be made in this invention without departing from the spirit thereof or the scope of the claims, and therefore the exact forms shown are to be taken as illustrative only and not in a limiting sense, and it is desired that only such limitations shall be placed thereon as are disclosed in the prior art.

What we claim as our invention is:

1. Locking mechanism for containers having a supporting section and a pivotal section for locking the pivotal section in stationary position with the supporting section of the container, said supporting section having a flexible carrying type handle secured to the top surface thereof, a magnet member embodied within said handle intermediate its ends, a latch plate with a latch opening mounted upon the upper surface of said supporting section, locking frame means rigidly mounted upon the upper surface of said pivotal section, said locking frame means embodying a resilient keeper with a depending portion, said depending portion of said keeper adapted to fit within said latch opening in said latch plate when said pivotal section is in closed position relative to said supporting section, said magnet member for releasing said depending portion of said keeper from said opening in said latch plate, and said handle coating with said supporting section for accurately positioning said magnet member in keeper-releasing position.

2. Locking mechanism for containers having a supporting section and a hinged section hingedly secured together, said supporting section having a latch plate mounted thereon, said hinged section having latch means for locking the hinged section in closed juxtaposition with said supporting section, said latch means having at least a movable keeper associated therewith from magnetic material, a magnetic member for releasing said movable keeper from said latch plate, a flexible strap type carrying handle mounted upon said supporting section of said container, said magnetic member mounted with and carried by said carrying handle intermediate its ends, said handle coating with said supporting section of said container for accurately positioning said magnetic member in latch-releasing position above said latch means mounted upon said hinged section of said container.

3. The locking mechanism as claimed in claim 2 wherein said flexible strap is rectangular in cross-section and the ends thereof are pivotally mounted upon ring type members which are journaled in suitable means arranged upon said supporting section.

4. Locking mechanism for bags having a supporting section, carrying handle pivotally mounted at both ends thereof with said supporting section, a movable section hingedly secured at its bottom portion with the bottom portion of said supporting section, latch means for securing said supporting section and said movable section in closed position relative to each other, said latch means having a latch plate mounted upon said supporting section and a latch frame member mounted upon said movable section, said latch plate having an opening therein, said latch frame member having a keeper secured therewith, said keeper member embodying a resilient type keeper tongue with a depending end portion, said depending end portion adapted to fit into said opening in said latch plate when said bag sections are in closed juxtaposition, a flexible strap type handle having end portions secured to the top of said supporting section and arranged above a portion of said latch frame attached to said movable section, a magnetic member for releasing said keeper tongue from said opening in said latch plate, said magnetic member secured with the lower surface portion of said flexible strap and midway between its ends, the ends of said strap being pivotally mounted and rotatable means secured to said supporting section cooperating with said strap for accurately positioning said magnetic member in keeper tongue releasing position.

5. A locking device for a ladies' hand bag having two sections hingedly connected together and separable at the top portion thereof, one section being a supporting section and the second a movable section, a flexible strap of rectangular cross-section mounted upon the upper portion of said supporting section and movable up and down relative to the top surface of said supporting section, a magnetic member secured to the lower surface portion of said strap and intermediate its ends, a latch plate having an opening therein mounted upon said upper portion of said supporting section below said strap, a latch frame secured upon the upper portion of said movable section of said hand bag and having a free end portion adapted to extend over said latch plate when said sections are in closed position, said latch frame having a latch type member with a depending portion adapted to fit within the opening in said latch plate, said magnetic member for releasing said latch type member from said opening in said latch plate, said strap being flexible in a vertical position with said supporting section for accurately positioning said magnetic member in latch-releasing position.

6. A magnetic locking device for a container, said
container having a supporting section and a movable section hinged together and separable from each other at the top, a flexible handle mounted on said supporting section, a latch plate mounted on said supporting section and beneath said handle, a locking frame mounted on said movable section and adapted to have an end portion thereof extend over said latch plate, a locking member attached to said locking frame and adapted to enter an opening in said latch plate, and a permanent magnet concealed and embedded within said handle intermediate its ends for releasing said locking member from said opening in said latch plate, and said handle coacting with said supporting section for positioning said magnet in latch member releasing position.

7. The magnetic locking device as claimed in claim 6 wherein said handle is formed of a strap rectangular in cross-section and flexible in a vertical plane to carry said permanent magnet in a vertical plane to and from said locking frame.

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