

AN APPARATUS FOR SECURING MAILBOXES

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The present invention relates to an apparatus for securing mailboxes against unwanted or junk mail and theft of proper mail. In particular, the present invention pertains to a matrix rod assembly which can be retrofitted to existing mailboxes or installed anew for not only minimising the amount of unwanted mail but also providing for a failsafe construction should the invention be tampered with.

- 10 Unwanted or junk mail poses social and environmental problems to any community which is served by a postal delivery system which relies on mailboxes. Although junk mail provides useful information about products or services which the advertisers often ignore, it is also a favorite means of delivering anti-social materials such as pornographic tapes. Furthermore,
- 15 the indiscriminate approach of distributing junk mail also contribute to littering of our streets because the amount of leaflets that are put into mailboxes bear little relationship to how likely the recipient is to respond to the message in the leaflets.
- 20 A feasible apparatus for minimising the distribution of junk mail should feature the following characteristics: (1) ease of retrofit; (2) ease of repair; (3) economical; (4) tamper proof; and (5) theft proof.

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The preferred embodiment of the present invention is a matrix of orthogonal bars, and is placed in the interior and directly behind the postman's trap doors of any mailbox system. The vertical members of the matrix is substantially parallel to the side wall of the individual mailbox while the horizontal members of the matrix is parallel with the longitudinal axis of the trap door supporting bars. The horizontal members of the matrix traverses the width of the mailbox system such that the postman's trap doors can be released or closed simultaneously. A trap door stopper between the postman's trap door and the user's trap door not only prevents the user from opening the postman's trap door but also prevents unauthorized users from tampering with the horizontal member of the matrix.

In the preferred embodiment of the present invention, an universal biasing bar connects the top ends of the vertical members of the matrix. By gravity force, the horizontal members of the matrix is wedged against the inner and lower edge of the postman's trap door. Therefore, no unwanted mail shall be inserted through the postman's trap door. The cam of the master lock raises the universal biasing bar and also all the horizontal members coupled thereto. When this occurs, all the postman's trap door is released simultaneously. As such, an economical apparatus is described for retrofitting any mailbox system for minimising the distribution of unwanted or junk mail. In the event vandals tamper with the present invention and render the spring loaded matrix ineffective, an internal master lock located behind the master lock allows the postman to manually release the postman's trap door by raising the universal biasing bar in the same manner. Therefore, the present invention incorporates a failsafe feature which is both economical and versatile.



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FIG. 1 is a perspective, front, left side, elevational view of a multiple slot mailbox system incorporating the present invention. The side supporting bars are exposed in partially cut away views.

- 5 FIG. 2 is a perspective, front, left side, elevational view of an individual mailboxes showing in partially cut away view the preferred embodiment of the present invention.

- 10 FIG. 3 is a perspective, rear, right side cut away, elevational view of the preferred embodiment of the present invention according to the individual mailboxes as shown in FIG. 2.

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An apparatus for securing mailboxes against unwanted or junk mail is described. In the following description, numerous specific details are set forth such as trap door, spring, and bars etc. in order to provide a thorough understanding of the present invention. It will be obvious to one skilled in the art that the present invention may be practised without these specific details. In other instances, well-known parts such as those involved with the foundation and central structure of a mailbox system are not shown in order not to obscure the present invention.

FIG. 1 is a perspective, front, left side, elevational view of a multiple slot mailbox system incorporating the preferred embodiment of the present invention. The multiple slot mailbox system 5 comprises a top cover 10, a side cover 15, another side cover 20, a front panel 25, an optional base 28, and a plurality of individual mailboxes 30. The front panel 25 features a master lock permitting the postman to open and close each of the individual mailbox. Each of the mailbox has a postman's trap door 35, a trap door stopper 40, and an user's trap door 45. It should be understood by one skilled in the art that the postman's trap door 35 allows the postman to drop mail into the mailbox. The trap door stopper 40 is located between the postman's trap door 35 and the user's trap door 45 for not only preventing the user from opening the postman's trap door but also stopping unauthorized users from tampering with the horizontal member of the matrix, preventing others from opening the postman's trap door. The structure and function of the trap door stopper 40 shall be elaborated in connection with the description of FIGS 1 and 2 below. Each of the individual user's trap door 45 is fitted with a lock 50 to permits the user from opening the mailbox. Where necessary, the postman's master key may also access the user's lock 50.



Referring again to FIG. 1, a cut away view on each side cover of the system 5 exposes two C-channels 16 and 22 (not shown in FIG. 1). The C-channel or equivalent protective device is used to enclose and shield a side supporting bars 18 and 24 of the matrix bar system of the present invention. The side supporting bars are vertical members of the matrix assembly of the present invention. Other vertical members are centre bars which shall be elaborated in connection with the description of FIGS 2 and 3. An universal biasing bar 60 is shown in the cut away views. The universal biasing bar 60 spans the width of the multiple slot mailbox 5 and is coupled to the upper ends of the vertical members of the matrix assembly of the present invention with nuts 64. The horizontal members of the matrix assembly comprises a plurality of anti-junk mail biasing bars 58 which are either coupled interlockingly with the vertical members or threaded through openings in the vertical members. The anti-junk mail biasing bars 58 span the width of the multiple slot mailbox. The design of the anti-junk mail biasing bars permits the rapid replacement or repair of the matrix assembly.

FIG. 2 is a perspective, front, left side, elevational view of two individual mailboxes showing in partially cut away view the preferred embodiment of the present invention. The individual mailboxes 30 comprises a top panel 10, front panels 25 and 25', at least two side panels 32 and 32", postman's trap doors 35 and 35', and user's trap doors 45 and 45'. That FIGS 2 and 3 illustrate only two individual mailboxes do not in any way imply that the present invention is limited to the depicted structure. On the contrary, it should be understood by one skilled in the art that the present invention is applicable to any multiple slot mailbox. Referring again to FIG. 2, the front panel 25 has a master lock 26 fitted to the centre portion thereof.



The postman's trap door 35 is rotably coupled with a supporting bar 36 along the top horizontal edge thereof. When both ends of the supporting bar 36 are coupled to the side panels 32, the postman's trap door swings open at an angle Ω around the longitudinal axis of the supporting bar 36.

5 Similarly, the user's trap door 45 has a supporting bar 46 coupled to top horizontal edge of the user's trap door. When both ends of the supporting bar 46 are coupled to the side panels 32, the user's trap door swings at an angle β around the longitudinal axis of the supporting bar 46. In FIG. 2, the user's trap door 45 is fitted with a lock for closing the user's trap door. The
10 above components of the individual mail box 30 are prior art.

Referring again to FIG. 2, the present invention comprises the universal biasing bar 60; a plurality of vertical members the representative of which is a centre bar 58; a plurality of horizontal members the
15 representatives of which are the anti-junk mail bars 38 and 38'; and a plurality of trap door stopper. In the preferred embodiment of the present invention, the vertical members has horizontal bores 63 and 65 spaced equally to allow the the horizontal members to be inserted therethrough to form a matrix assembly. It should be understood by one skilled in the art that
20 the horizontal members can be fitted with vertical bores to allow the vertical members to be inserted therethrough to form a similar matrix assembly. The matrix assembly of orthogonal bars is preferably fitted in the interior of any mailbox system and behind the postman's trap door. Although FIGS 2 and 3 shows a multiple slot mailbox having the postman's trap door and the user's
25 trap door on the same side, no such limitation on the present invention is suggested nor implied. The present invention is applicable for mailbox system where the postman's trap doors are on the rear panel of the system.



For such, system, the matrix assembly of the present invention shall be fitted to the interior of the system and behind the rear panel of the system.

5 In FIG. 2 the matrix assembly of orthogonal bars is fitted behind the postman's trap doors and parallel with the interior surface of the front panels 25 and 25'. By the force of gravity, the matrix assembly is lowered and rests on the tampering proof portion 43 of the trap door stopper. Optionally, the anti-junk mail bar 38 is fitted with a cylindrical shaped roller for facilitating the return of the postman's trap door 35 to the close position. As such the
10 anti-junk mail bar 38 is wedged against the lower inner edge of the postman's trap door. The lower outer edge of the postman's trap door is flushed against the stopper portion 41 of the trap door stopper. It follows that the postman's trap door is shut tightly. Furthermore, tampering with the postman's trap door is minimised.

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On the other hand, the postman's trap door is open and allowed to swing inwards when the anti-junk mail bar 38 is raised. The details of this aspect of the invention shall be elaborated further below.

20 FIG. 3 is a perspective, rear, right side cut away, elevational view of the present invention being retrofitted to an individual mailbox as shown in FIG. 2. The Individual mailboxes 30 having two identical slots comprises top panel 10; master lock 26; front panel 25; postman's trap doors 35 and 35', user's trap doors 45 and 45' side walls 32, 32', 33, and 33'; rear walls 48
25 and 48'; and common wall 49. The matrix assembly of the present invention comprises the universal biasing bar 61; centre bars 58 and 59; anti-junk mail bars 36 and 36'; roller 39; and over-riding master lock 66. The universal biasing bar 61 is cut away to illustrate that the master lock 26 is fitted below



the universal biasing bar 60. Furthermore, the cam 27 attached to the master lock 26 raises the matrix assembly when the postman turns it upwards. As mentioned in the description of FIG. 2, the matrix assembly is fitted behind the postman's trap door. The anti-junk mail bar 38 traverse the width of the multiple mailbox system 5 through vertical side wall slots 34 and 34' in the side wall 32 and 32'. The supporting bar 36 is optionally fitted with a spring 62 for urging the postman's trap door to return to the close position. Likewise, the roller 39 on the anti-junk mail bar wedges the postman's trap door against the stopper portion 41 of the trap door stopper 40. When the postman opens the master lock 26 by turning the lock cam 27 upwards, the universal biasing bar 61 and the centre bars 58 and 59 attached thereto are raised simultaneously. As the anti-junk mail bar 36 and 36' are moved away from the stopper portion 41, all the postman's trap door 35 and 35' are released. It follows that the postman can insert mail through the trap doors.

Referring again to FIG. 3, the over-riding master lock 66 is fitted on an upper channel 68 opposite the master lock 26. The upper channel is preferably a hollow tube with a rectangle cross section wherein the universal biasing bar 60 is disposed. The over-riding also has a cam 67 which can raise the underside of the universal biasing bar 61. The function of the over-riding master lock 66 is to allow the postman to open the user's trap door and insert the master key to raise the universal trap door even if vandals damage the master lock 26. Therefore, the present invention incorporates a failsafe feature which is both economical and versatile. It should be understood by one skilled in the art that the master lock 26 and the over-riding lock 66 can be coupled to reversible motor for raising and lowering the universal biasing bar automatically and mechanically.

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While the present invention has been described particularly with reference to FIGS. 1 to 3 with emphasis on an apparatus for securing mailboxes against unwanted or junk mail, it should be understood that the figures are for illustration only and should not be taken a limitation on the invention. In addition, it is clear that the apparatus of the present invention has utility in many applications where enhanced security is required. It is contemplated that many changes and modifications may be made by one of ordinary skill in the art without departing from the spirit and the scope of the invention as described.

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Claims

1 1. In a multiple slot mailbox having a plurality of individual
2 mailboxes, said individual mailboxes each having at least one postman's
3 trap door on at least one open panel, said individual mailboxes each further
4 having at least one user's trap door on at least one open panel, an
5 apparatus for preventing the unauthorized access of the postman's trap
6 doors, said apparatus comprising:

7 a trap door stopper along the lower edge of each said
8 postman's trap doors for minimising the gap between the trap door stopper
9 and the lower edge of said postman's trap door, said trap door stopper
10 further having a stopper portion for wedging the lower and outer edge of
11 said trap door;

12 a matrix of orthogonal bars being placed in the interior of said
13 mailbox and directly behind the postman's trap door for wedging the lower
14 and inner edge of said postman's trap door against the inner surface of said
15 stopper portion when said matrix of orthogonal bars is lowered, said matrix
16 of orthogonal bars having as its top member at least one universal biasing
17 bar running along the width of said multiple slot mailbox, said matrix of
18 orthogonal bars further having as its horizontal members a plurality of
19 parallel anti-junk mail bars, said matrix of orthogonal bars further having at
20 its vertical members a plurality of parallel bars, said vertical bars having its
21 upper end coupled to said universal biasing bar; and

22 at least one master lock being disposed on the upper front
23 panel and below said universal biasing bar for raising and lowering said
24 matrix of orthogonal bars,

25 whereby the postman's trap doors can be released or closed
26 simultaneously.



1 2. The apparatus in claim 1 wherein said stopper further having a
2 tamper-proof portion perpendicular to said stopper portion for shielding said
3 anti-junk mail bar, the stopper portion has a top surface upon which the anti-
4 junk mail bar rests when the matrix of orthogonal bars is lowered.

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1 3. The apparatus in claim 1 wherein said vertical members of said
2 matrix of orthogonal bars have equally spaced horizontal bores for allowing
3 said anti-junk mail bars to be coupled in substantially right angle with said
4 vertical members of said matrix of orthogonal bars.

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1 4. The apparatus in claim 1 wherein said horizontal members of
2 said orthogonal bars have a roller on said bars for urging said postman's
3 trap doors towards the stopper portion.

4
1 5. The apparatus in claim 1 wherein said postman's trap doors
2 have a spring on the upper edge of said door for biasing the lower edge of
3 said trap doors towards said stopper portion.

4
1 6. The apparatus in claim 1 wherein said master lock has at least
2 one cam for raising the underside of universal biasing bar when said master
3 lock is opened.

4
1 7. The apparatus in claim 6 wherein said master lock is
2 complimented with an over-riding master lock disposed opposite said
3 master lock for raising said universal biasing bar when said master lock is
4 disable.

1 8. An apparatus for securing mailboxes substantially as
2 hereinbefore described with reference to or as shown in the accompanying
3 drawings.

