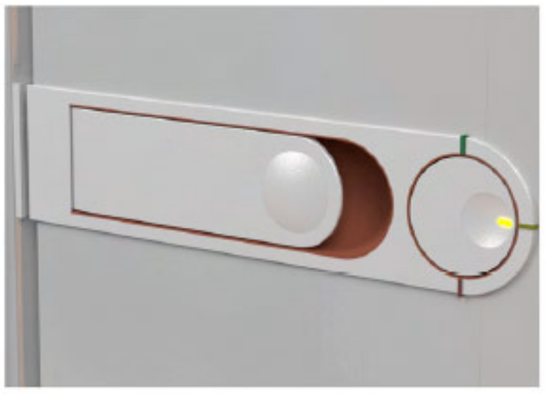
Integrated single action door opening system



This design of this door opening system is based on 5 main ideas. These were developed after an analysis of exesting handle / knob systems:

1. A door opening system which is contained within the door space.

Current door handles and knobs project out perpendicularly from the door surface, invading the room space. They are visually obtrusive and can catch on clothing etc or even cause injury.

My design is flush with the door, producing a slick, minimal and unobtrusive appearance. It is also easier to keep clean. Even the latching mechanism is completely contained within the door space.

2. Push or pull??

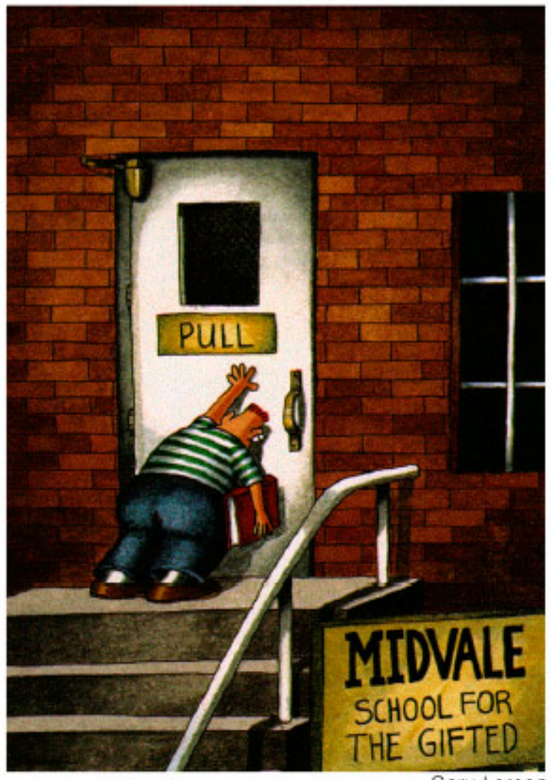
Most current door handles and knobs are so inept at describing how they are to be used that it is often neccesary to write "push" or pull" in large lettering beside them. Often, the push side looks exactly the same as the pull side.

My design only allows the user to push on the push side, and pull on the pull side. It is clear what the user must do because there is no other action available to them. I have also incorporated subtle semantic devices to reinforce the suggestion of push or pull.

3. A single action and a single finger to open

Current handles and knobs require the user to turn, and then either push or pull.

My design requires a single push or pull action to unlatch and open the door in one motion. The user only needs one finger as opposed to the whole hand in conventional handles / knobs.



Gary Larson

4. Relevance to Lockwood Product Range

The design I have come up with utilises manufacturing processes which are currently being used within the Lockwood range. Materials and processes take advantage of existing expertese. The positioning of the product is that of a premium quality system, consistent with Lockwoods own positioning within the market palce.

I have adopted the red / orange / green multi mode system. This is updated by the use of LED indicators and would be further updated with finger scanning / recognition devices (finger print scan, proximity sensor) which can be used to replace the current key lock system. The positioning of the LED indicator serves the additional purpose of illuminatijng the keyhole in low light conditions.

5. Sustainable Design

Sustainability should be part of any good design. It has been considered here by producing a quality product which strives for a long life-cycle through durability (quality manufacture, durable materials) and a "non-fad" approach to the design aesthetics and functionality. The number of components have been reduces through a process of refinement and simplification. No parts require gluing and hence the product is able to be fitted with replacement parts when required or disassembled and recycled after its useful life. Coloured options are achieved through a powder coating process which, through electro-static attraction, reduces wastage.

PUSH

These images show the door from the "push" side. When unlocked, the user simply pushes on the lever to unlatch and open the door. Unlike conventional handles or knobs, where you must first turn and then push, this design requires only a single pushing action. It can also be done using a single finger or thumb, as opposed to a whole hand.

The locking system uses the same concept as the Lockwood multifunctional LockAlert lockset. At the moment a conventional key hole is shown, however, this can be updated by finger scanning or other recognition devises as appropriate.

Green - unlocked both sides
Yellow - locked from outside, free to exit from inside
Red - locked both sides

LEDs which can change colour are in the process of being developed and the LockAlert Mode will be indicated one of these. The positioning of the LED illuminates the keyhole in low light conditions.

PULL

The "pull" side of the door takes some inspiration from car door handles. To open the door, the user inserts their finger into the recess behind the lever and pulls. As with the push side, only a single action is needed to open the door. Pull fuctionality is suggested by the visual connection to the familiar car door handle and the through the absence of other available options.

The LockAlert system is configured using the circular dial on the right. The steps are:

(1) push on the dimple shown here at the right side of the dial - it clicks down and the dial is then free to rotate.
(2) turn the dial to the desired mode.
(3) push on the side of the dial opposite the dimple to return it to a the orginal flush plane and arm the lock.
(4) visual confirmation is recieved through a flash of the dial LED which changes colour to indicate the current LockAlert mode.

Notice that, unlike conventional doors, the latching mechanism where the door meets the frame is hidden entirely in the door recess. There is no lip projecting out.

1 casing

2 handle

3 dial

4 Lock Alert indicator

5 latch

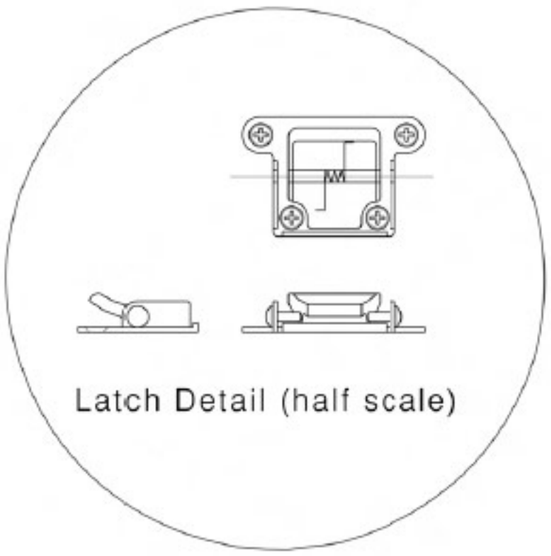
6 latch housing

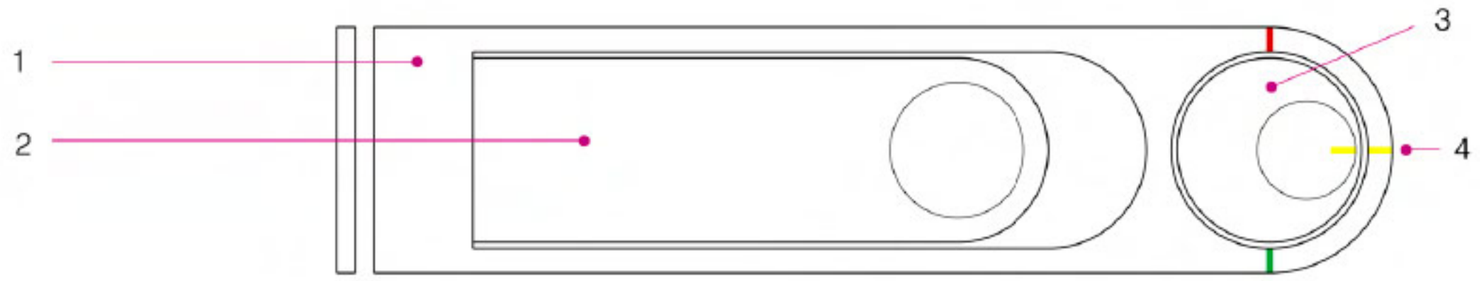
7 grub screw

8 spring

9 locking mechanism

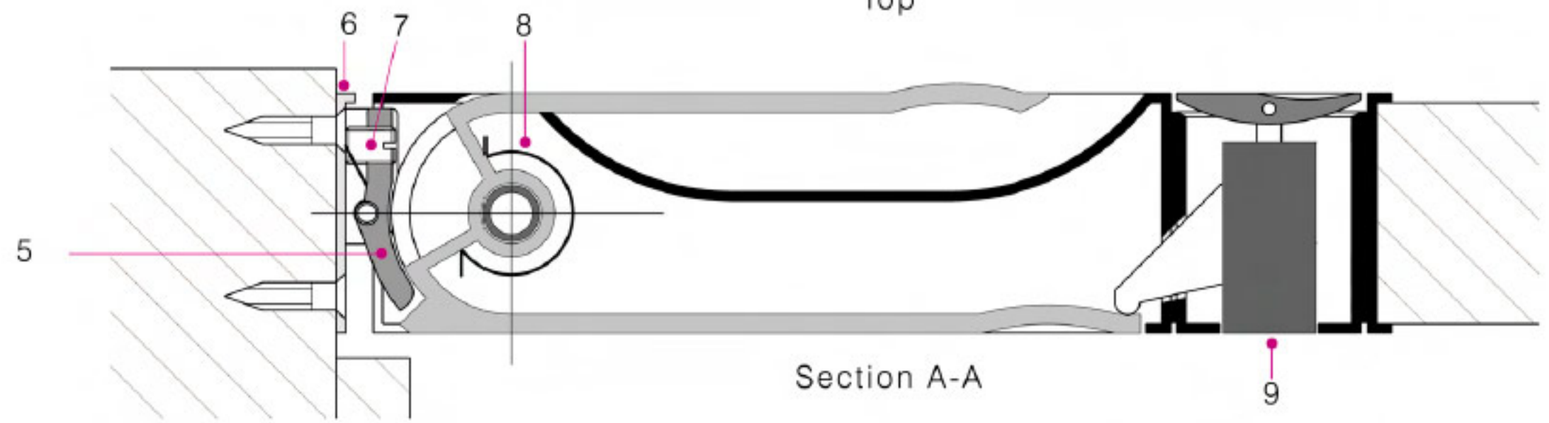
10 key / recognition device





Pull Side

Top



Section A-A

Push Side