‘L Door’

SA Patent 2008/06587

Manufactured & installed by Concrete Doors and Vaults (Pty) Ltd. Contact details: nicholas@damsforafrica.com.
Tel 011 472 1520 , mobile 082 416 8958
www.concretedooorsandvaults.com


Fig 1


Fig 2

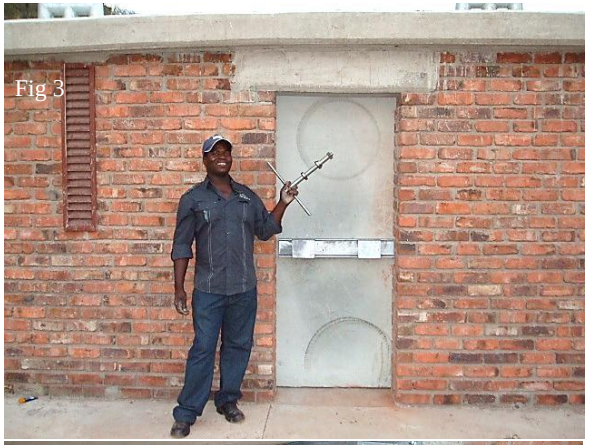
Fig 3

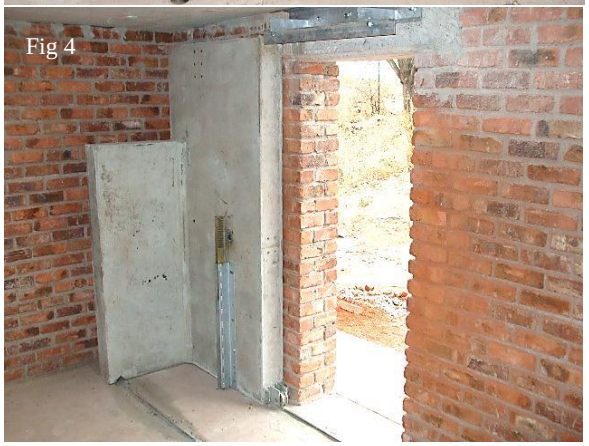
Fig 4


Fig 5

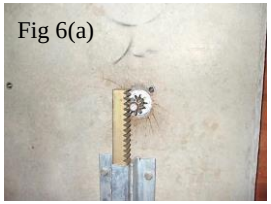
Fig 6(a)

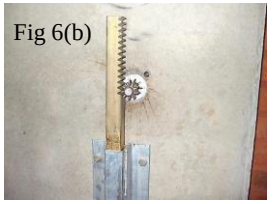
Fig 6(b)


Fig 7

Note that a variety of other door designs are also available, depending on the application. Further products in our range include various concrete lids (for valve chambers), and various vaults with slidable/liftable members (for transformers, borehole installations, stand alone control panels, etc), see www.concretedoorsandvaults.com. Products can be made to any size, all from 60MPa with heavy reinforcing.

Most perfectly good pump houses such as indicated in fig1 have one serious defect – a steel door. Following repeated attacks, several improvements have been made to this door’s locking systems (as is evident from the new paint and the rusted brackets). But even with these ‘improvements’, such doors are easily broken into using an angle grinder or an oxy-acetylene cutting torch. The result is that pumps and valves are stolen and vandalised, and the control panels are routinely stripped of all switches and wiring for their copper – see fig 2.

To combat such theft/vandalism Concrete Doors and Vaults have developed a three dimensional reinforced concrete door (SA Patent 2008/06587) which provides unrivalled levels of protection.

The ‘L door’ has a main panel in front, and a smaller stabilizing panel behind (see fig 4), making it safe against overturning. It is supported by three wheels that run on tracks (see fig 5), making opening and closing a simple sliding operation. The door has two independent locking mechanisms: the first is illustrated in figs 3 and 7, the second in figs 5 & 6.

Fig 3 – The L Door as seen from the outside in its fully locked position – used here to protect a valve chamber. The opening tool is in the operator’s hand. A locking channel is attached to the door (optional).

Fig 4– The L door seen from the inside in its open position. Notice the ‘headgear’ above the opening – this prevents vandals/thieves from progressively lifting the door by means of levers and packings.

Fig 5 – The L door seen from the inside in its closed position. The door has three steel wheels that run on tracks embedded in the floor. Each wheel has two sealed ball bearings, making it easy to slide the door open and closed. The door overlaps the opening by 100mm on the two sides and also on the top.

The primary locking mechanism consists of a 40 x 40 mm square ‘rack-bar’ that slides in and out of a hole in the floor. The bar is guided by a hollow tube that is connected to the back of the door. Currently the rack-bar is in the down/locked position, whereas in fig 4 is in the up/unlocked position.

Fig 6 - The pinion of the opening tool is seen here engaging the teeth of the rack-bar. As the tool is turned by someone on the outside of the door, the rack-bar progressively rises (compare fig 6(a) with fig 6(b)) until it is out of the hole in the floor, after which the door may slide open.

Fig 7 – The auxiliary locking mechanism (optional): it consists of a ‘locking channel’ with two slots that allow the channel to be threaded through the two removable lugs in the door. After this, padlocks are fitted to prevent its removal (see inset). The channel has two functions: (a) it prevents the door from sliding sideways (so supplementing the rack-bar), and (b) it conceals the access hole – in this respect the channel is a useful decoy.