



A.W.PAR RY LIFTS LIMITED

THE SAFEST FORM OF TRANSPORTATION IN THE WORLD

The History of the Lift & Lift Safety

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THE SAFEST FORM OF TRANSPORTATION IN THE WORLD

The History of the Lift & Lift Safety.

Many people harbour fears about travelling in lifts:-

- *What if they fall from the top to the bottom of the lift shaft?*
- *What if they become trapped in a lift and can never be released?*

This presentation is designed to dispel those fears by explaining the workings of vertical transportation, from the invention of the first safety device in 1853, through to the innovations of the present time.

Content

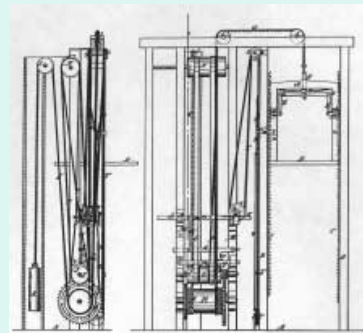
- Otis & First Safety Elevator
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- Hydraulic Lift Safety
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Elisha Graves Otis (1811 - 1861)

Otis did not invent the lift. Origins of primitive lifts can be traced back as far as the third century BC.

What Otis did was pioneer the Safety Elevator. In 1854 in front of a large audience at the prestigious Crystal Palace Exposition in New York he carried out a daring demonstration.

He ascended in an open elevator up to half of its travel and then had the rope cut with an axe. The Lift fell a short distance before his safety mechanism operated successfully and the platform held fast. His immortal words at that time (*You see Gentlemen*) "All Safe" are used as the safety slogan for Otis Elevators to this date.



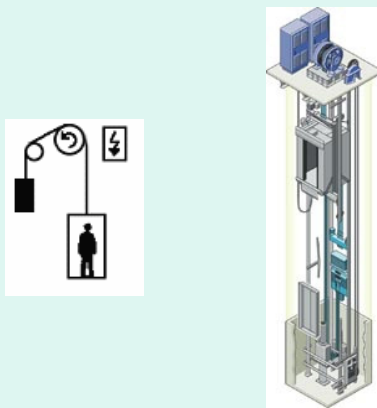
Elisha Otis's Elevator Patent Drawing, 15/01/1861

Types of Lift

There are two types of lift commonly used:

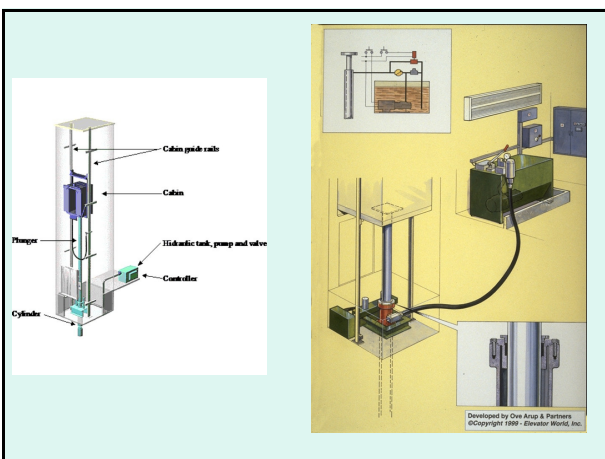
The Traction Lift

Lift car is suspended over a winding machine by wire ropes. A counterbalance is attached to the opposite end of the wire ropes to assist the lift machine and provide traction.



The Hydraulic lift

The lift car is directly or indirectly attached to a hydraulic cylinder in which its piston is raised and lowered by pressurised hydraulic fluid.



Lift Speeds

Hydraulic lifts tend to be slower and used for low rise buildings (now MRL motor roomless lift).

Common speed for low rise Hydraulic Lift - 0.63 metres per second.

Common speed for medium rise office block - 1.6 metres per second.

Common speed for high rise office block - 2.5 metres per second upwards.

The fastest lifts in the world are in the world's tallest building – the 508m TFC Tower in Taipei, Taiwan.

These travel the tower from bottom to top in 30 seconds at a speed of :-

17 Metres per second (38 mph / 61 kph).



Traction Lift Safety

Safety Gears

- Operated by an overspeed Governor (originally just an idler rope).
- Overspeed Governor (safety device) as it rotates a roller rises & falls in a groove. If speed exceeds preset parameters gravity throws the roller out of its groove & it strikes a triggering mechanism which pulls in the safety gear. This in turn arrests the lift by the safety gear jamming the lift car to its guides.

2 Forms Commonly Used

Instantaneous – speeds up to 0.63 m/s.

Progressive – speeds above 0.63 m/s.

Hydraulic Lift Safety

Safety gear (as traction lift) although not required on Direct Acting Lifts as head of fluid supports the lift car.

Pipe Rupture Valve which is situated at the base of the ram. Should pipe to the lift cylinder fracture then the rupture valve would detect the increased flow & additional pressure from the lift overspeeding and operate. This would stem the flow of fluid and arrest the lift and is used mainly for Direct Acting Lifts, it is also often incorporated in Indirect Acting Lifts as an additional safety precaution.

Further Lift Safety Features

Mechanical / Electrical Interlocks:-

- *Mounted on each landing door and on each lift car, they electrically prevent the lift running with the doors open as contacts must be made to allow lift to electrically start.*
- *Mechanical lock on each door prevents the lift door being opened when lift not at level.*

Both of the above features are incorporated into one device.

Further Lift Safety Features

Electronic non contact infra red door edge protection systems:-

- Prevent passengers being hit by the lift doors when entering & leaving the lift car.
- They can sense obstructions & re-open lift doors before making contact.

Lift Accidents & Incidents

What Can Go Wrong?

- It is uncommon for lift users to be involved in serious accidents. The main cause of accidents to the public is contact with the lift doors.
- Many accidents involve lift installation personnel as they are working on partially installed lifts, these often have sections of the electrical safety circuit shorted out.
- They also you have all the hazards associated with construction sites.

Southampton Flats - 6 figure fine

Leading Hotel Group - £400,000 fine

Bristol near miss - HSE

The Safest Form of Transportation in the World

Despite all the fears and mis-information surrounding Lifts, industry experts remind us that they are still the safest form of transportation in the world.

Most of what you see in the movies – only happens in the movies!

National Elevator Industry Incorporated

- 210 Billion times a year people in U.S. & Canada ride an estimated 700,000 elevators.
- Moving 325 Million elevator passengers everyday.
- This is, excluding cars, more than the sum total of riders of all other forms of transport put together.

Ride your lift with confidence !!!

Knowing that you are experiencing the safest form of Transportation in the World.