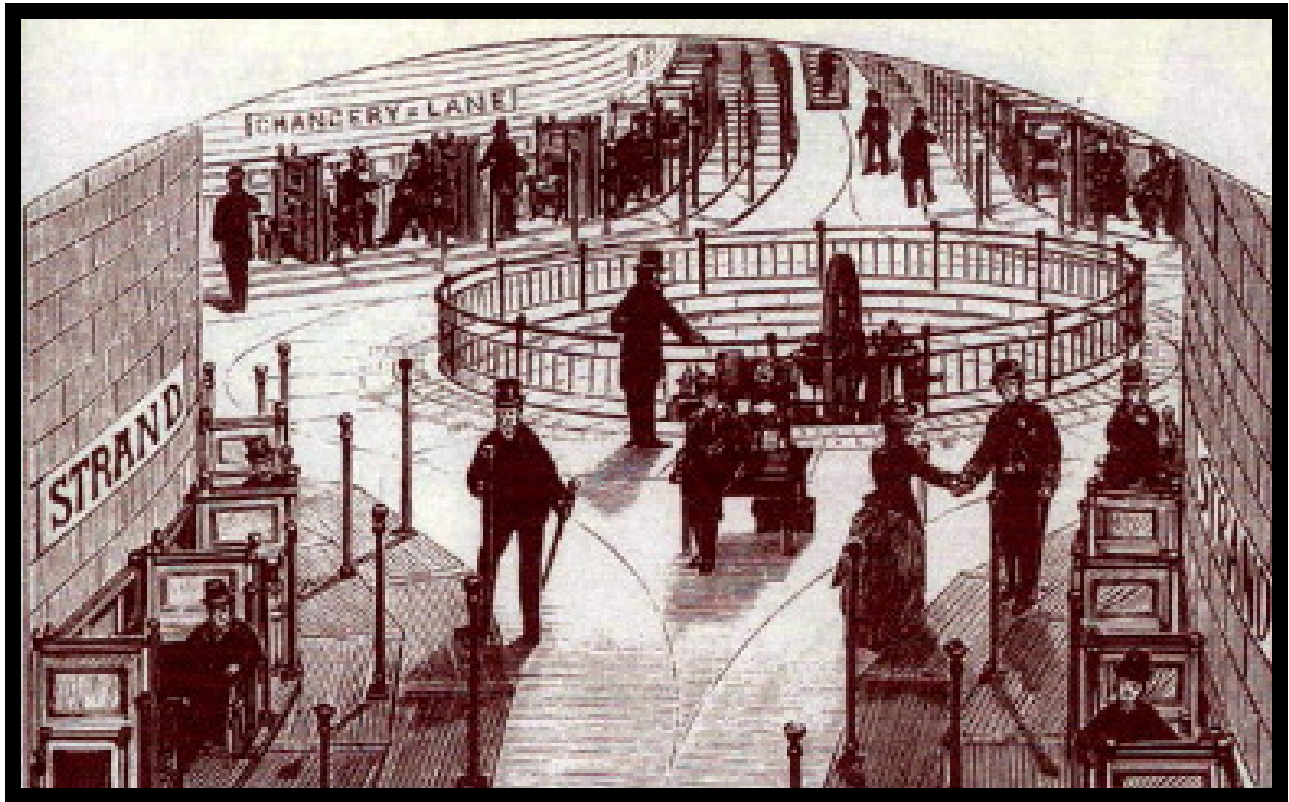


## PEOPLE MOVING PAVEMENTS



Proposal for a Stepped-Platform Railway in London in 1890.

In theory, with three separate adjacent moving platforms, each having a different speed from the adjacent one ( 3, 6 & 9 mph) the passenger might, by stepping from one platform to another, increase or diminish their rate of transit at will.

# ELEVATORS AND ESCALATORS

AND MOVING PAVEMENTS

**BRIAN ROBERTS**

CIBSE HERITAGE GROUP

# LONDON COLOSSEUM ASCENDING ROOM



The Colosseum was built in 1829 to exhibit the giant painting "Panoramic View of London." A lift or "Ascending Room" for twelve persons was said to be raised by secret machinery.

# PATERNOSTER LIFT SYSTEM



A *paternoster* lift is a passenger elevator which consists of a chain of open compartments (each usually designed for two persons) that move slowly in a loop up and down inside a building without stopping. Passengers can step on or off at any floor they like.

## ELEVATORS, ESCALATORS AND MOVING PAVEMENTS

### BUILDINGS

London Colosseum 2, Bradbury Los Angeles 4, Flatiron New York 5, Metropolitan Life Tower New York 6, Hotel Meurice Paris 7, RCA New York 8, Singer New York 9, Woolworth New York 10-13, Chrysler New York 14-15, Empire State New York 16-17,

### ELEVATORS

Paternoster 3, Edoux 18,19, Amiot 19,  
Otis: pioneers 20-21, steam 22-24, rope 25, hydraulic 26, electric 27,

### ESCALATORS AND MOVING PAVEMENTS

Harrods 28, Reno 29, Wheeler 29, Earl's Court 30, Paddington 34, Paris 31, 33-35,

### EIFFEL TOWER PARIS

Elevator Systems 36-37, Exposition 38,44, Construction 39-41,  
Double Deck Car Otis 42, Low Level Car Roux & others 43,

## BRADBURY BUILDING, LOS ANGELES



Caged elevators 1893 (featured in many Hollywood films).

<5>

## FLATIRON BUILDING, NEW YORK



20 floors, 285 ft tall, 1902. Six Otis rope-gear hydraulic elevators.

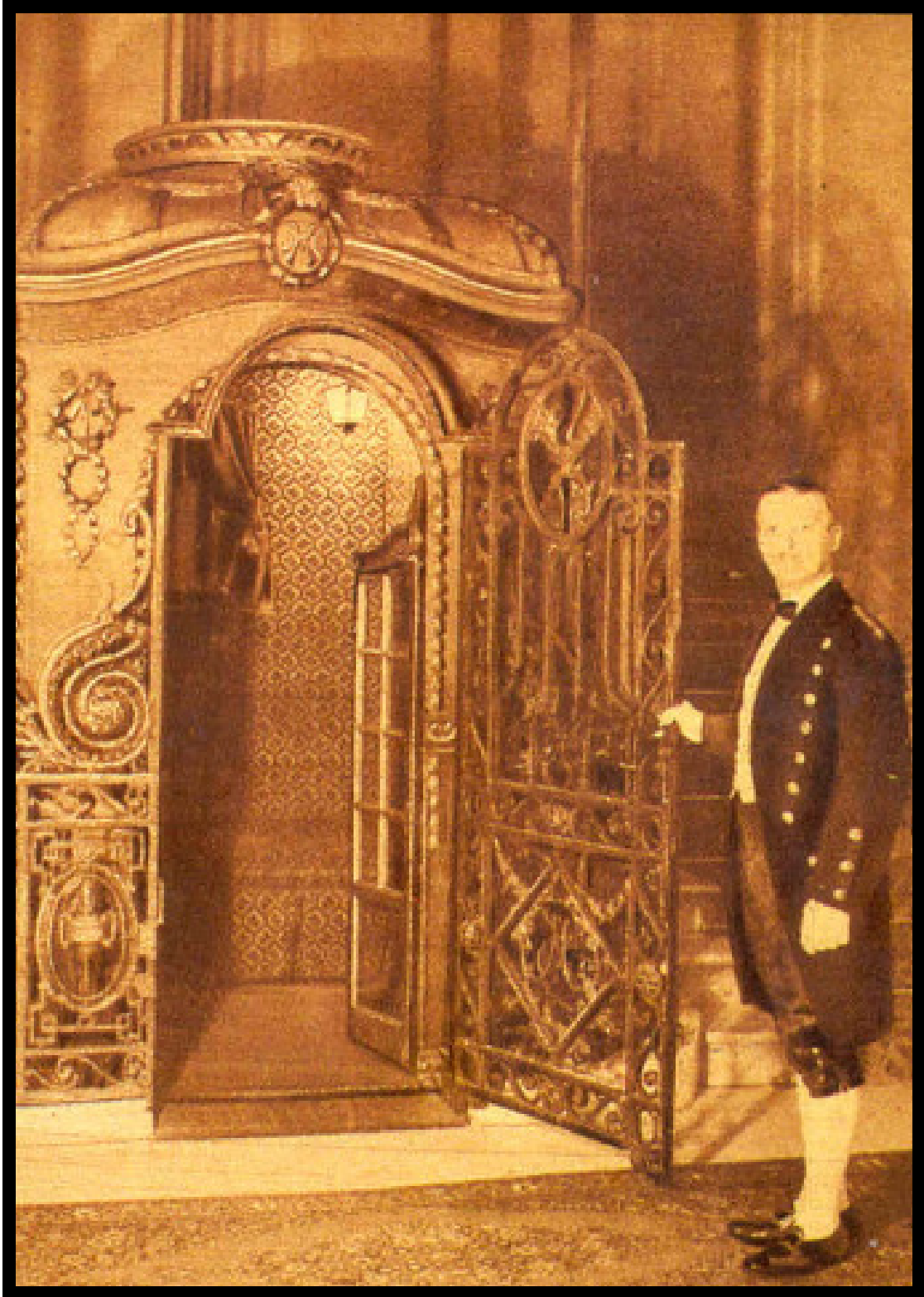
# METROPOLITAN LIFE TOWER, NEW YORK



700 ft high, 50 floors. Elevators being installed 1910.

<7>

## HOTEL MEURICE, PARIS



Passenger elevator with attendant c.1907.

<8>

## RCA BUILDING, NEW YORK

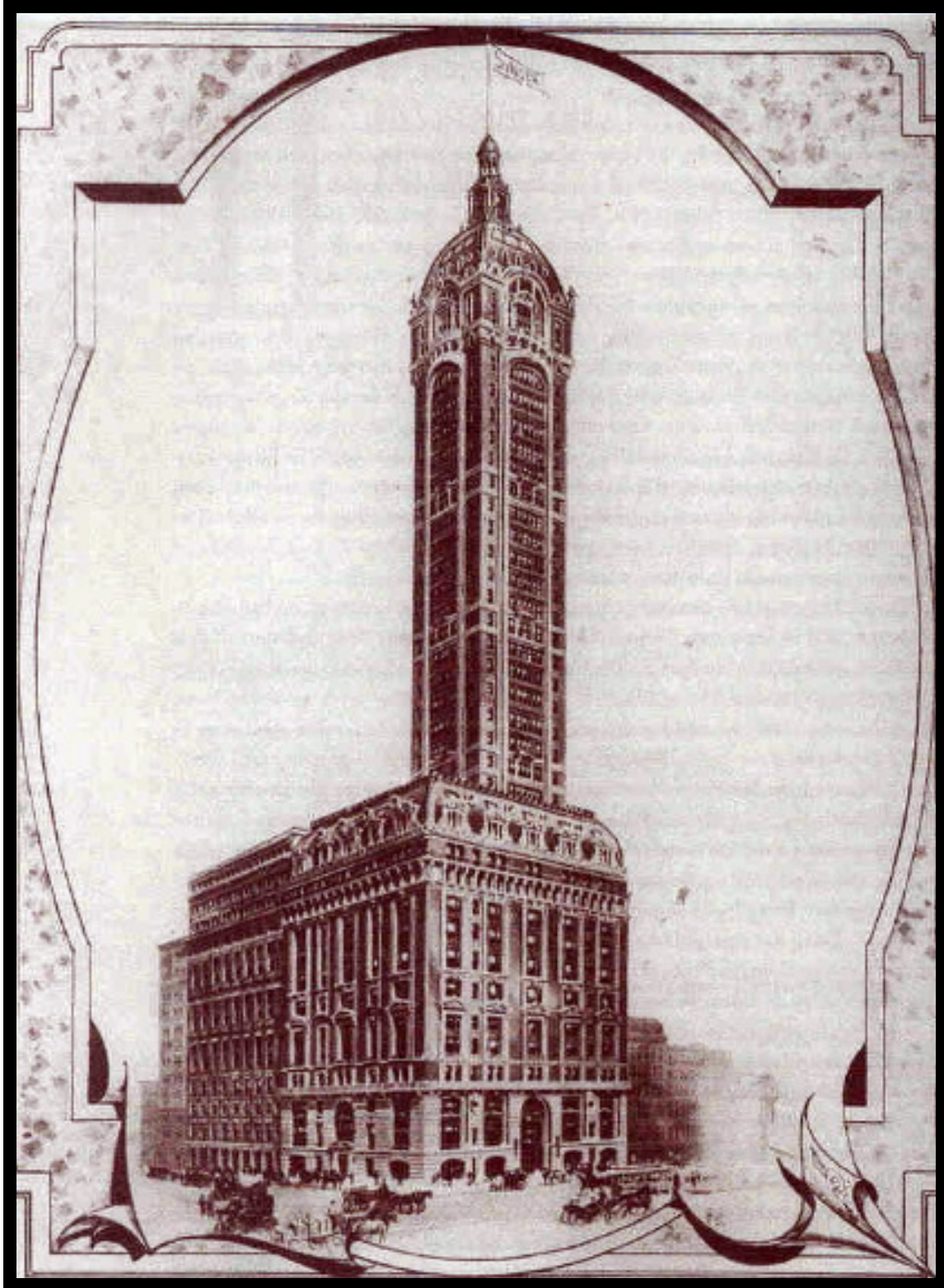


Lift lobby. Building opened 1933, 850 ft tall, 66 floors with 60 elevators.



<9>

## SINGER BUILDING, NEW YORK



612 ft high, 1908. 16 Otis electric elevators (building demolished).

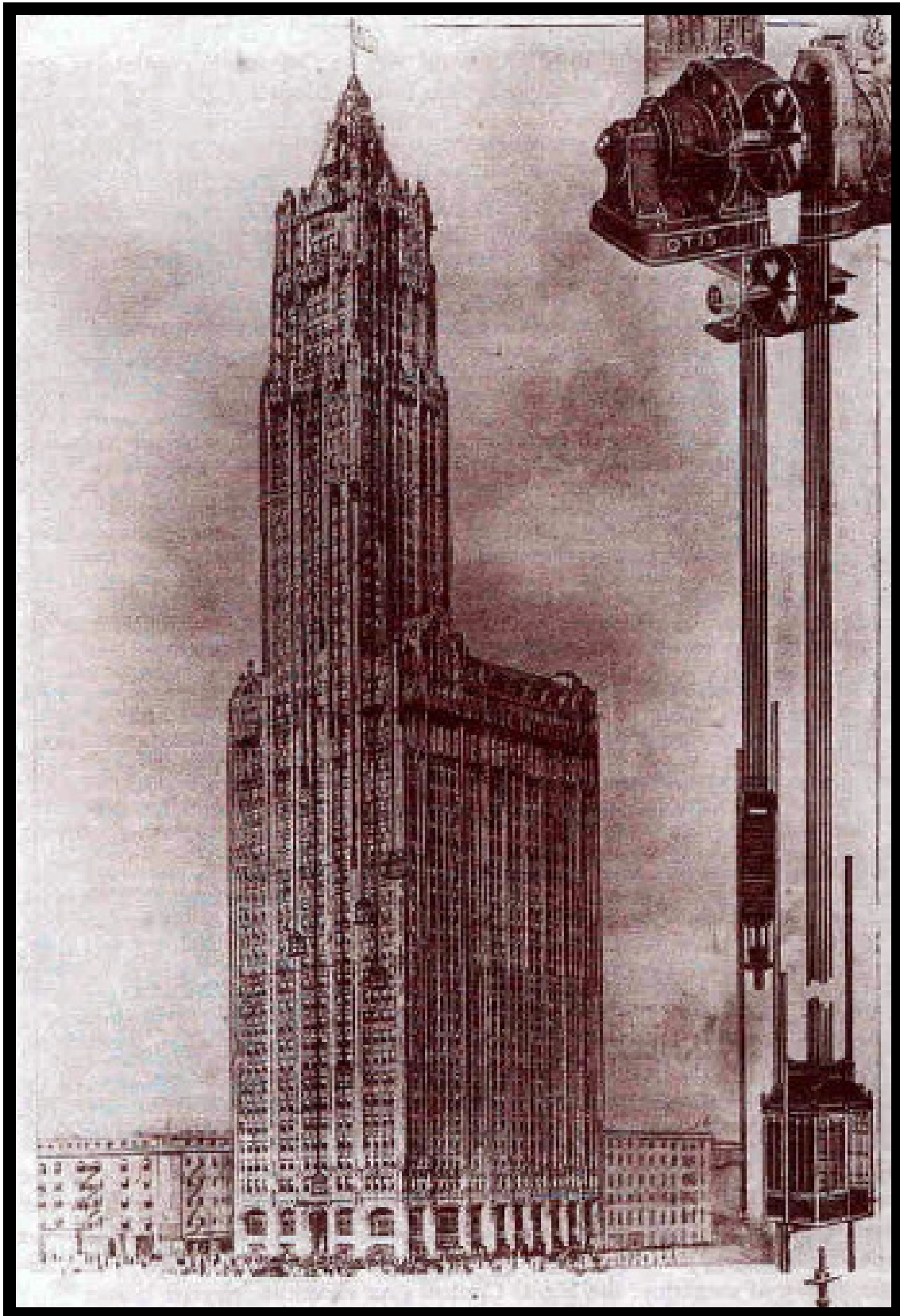
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## WOOLWORTH BUILDING, NEW YORK



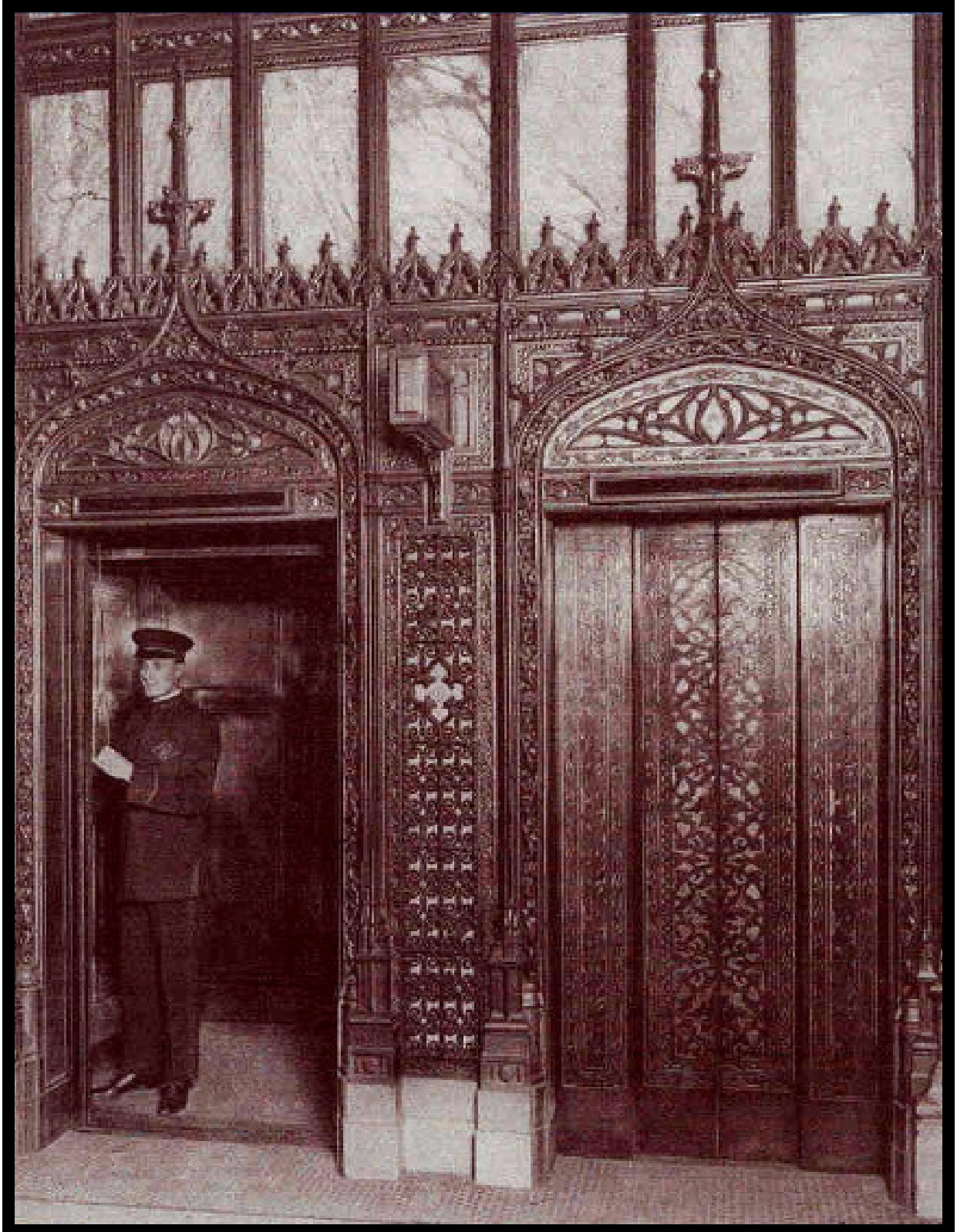
62 floors, 792 ft tall, 1913 (The Cathedral of Commerce) Then the tallest building in the World).

# WOOLWORTH BUILDING, NEW YORK



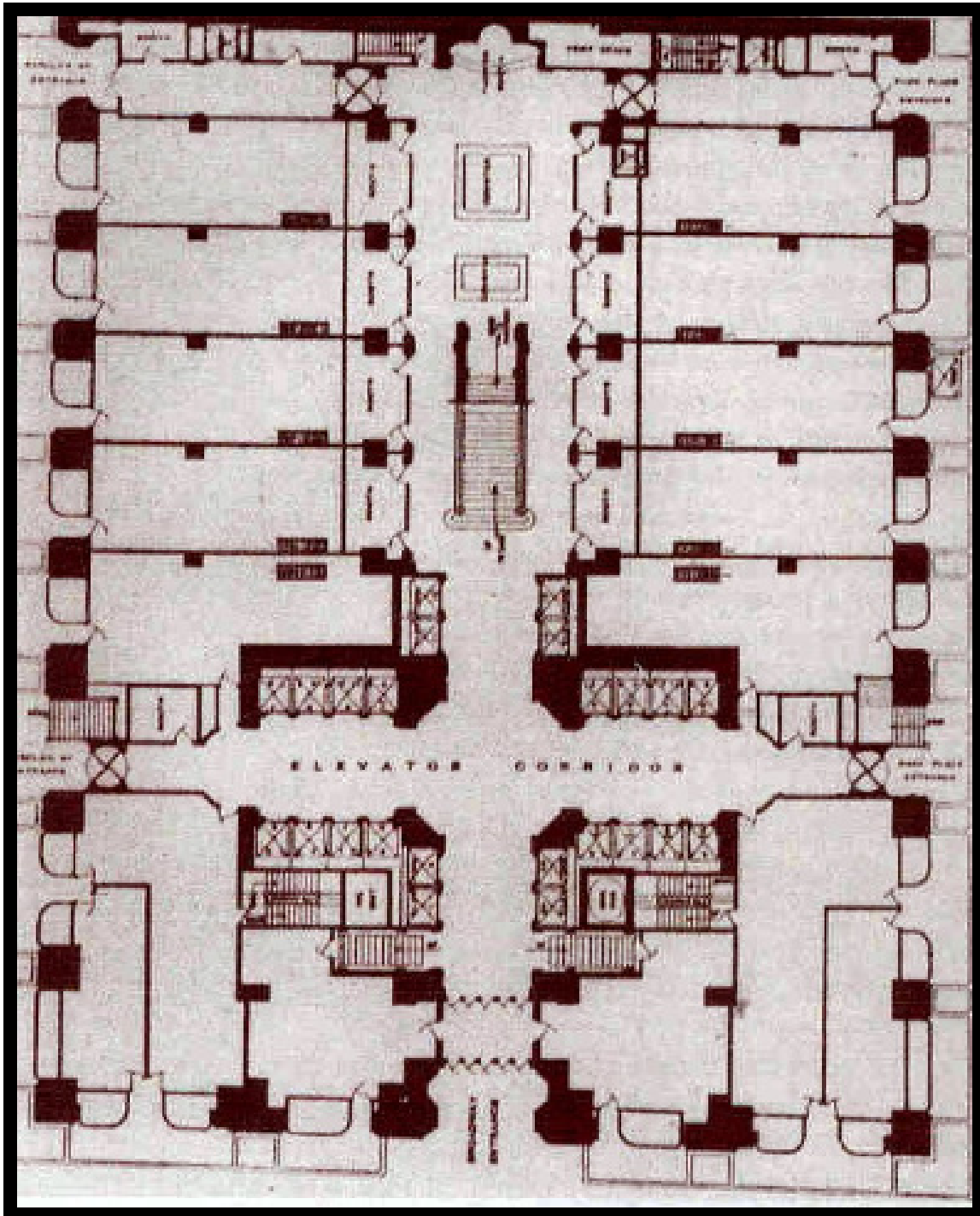
26 Otis traction elevators for passengers and freight.

# WOOLWORTH BUILDING, NEW YORK



Lift lobby in 1929.

# WOOLWORTH BUILDING, NEW YORK



Layout of elevators at Ground Floor.

<14>

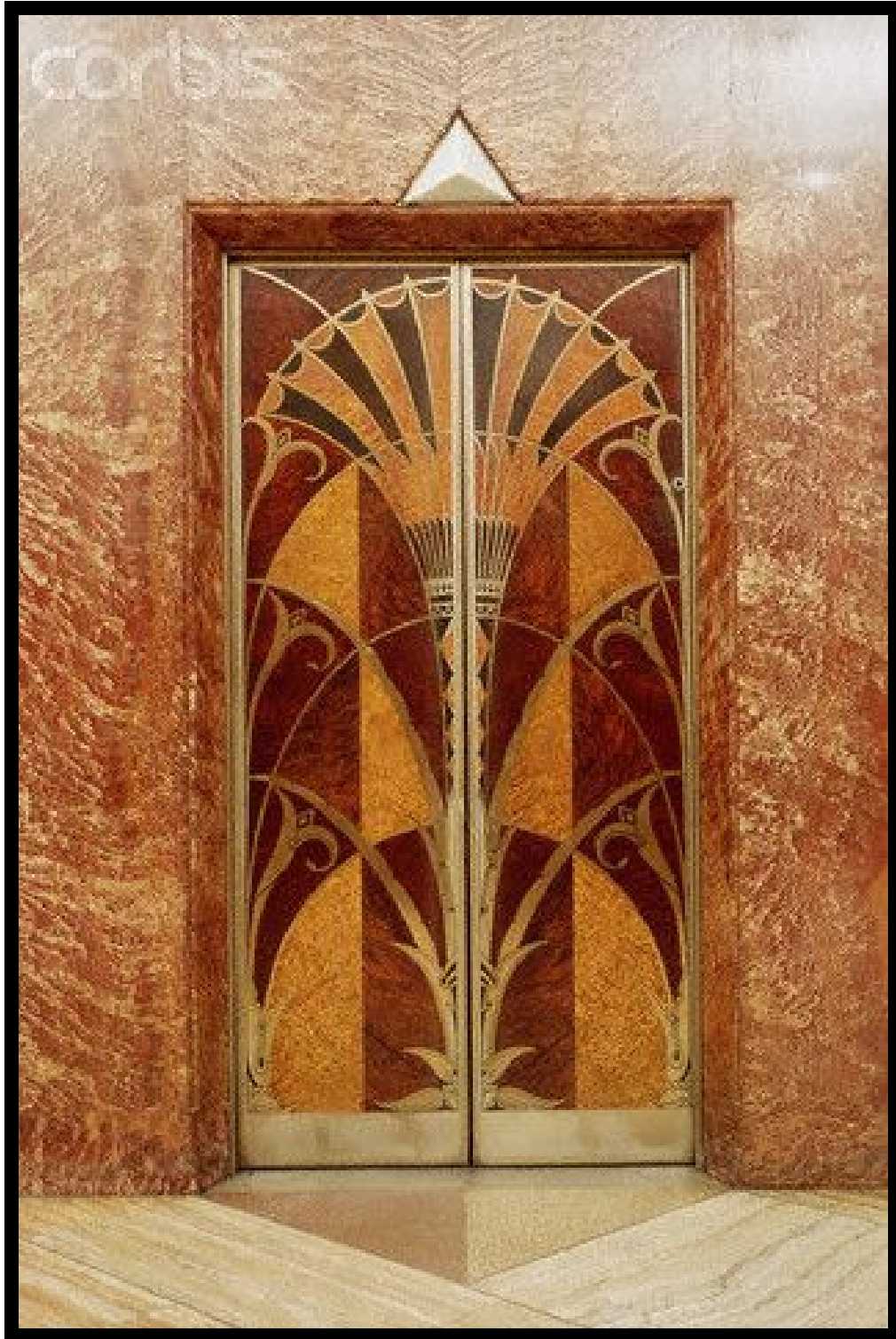
# CHRYSLER BUILDING, NEW YORK



Built 1930, 899 ft tall, 77 floors, 32 elevators.

<15>

# CHRYSLER BUILDING, NEW YORK



One of the famous Art Deco style elevator doors.

<16>

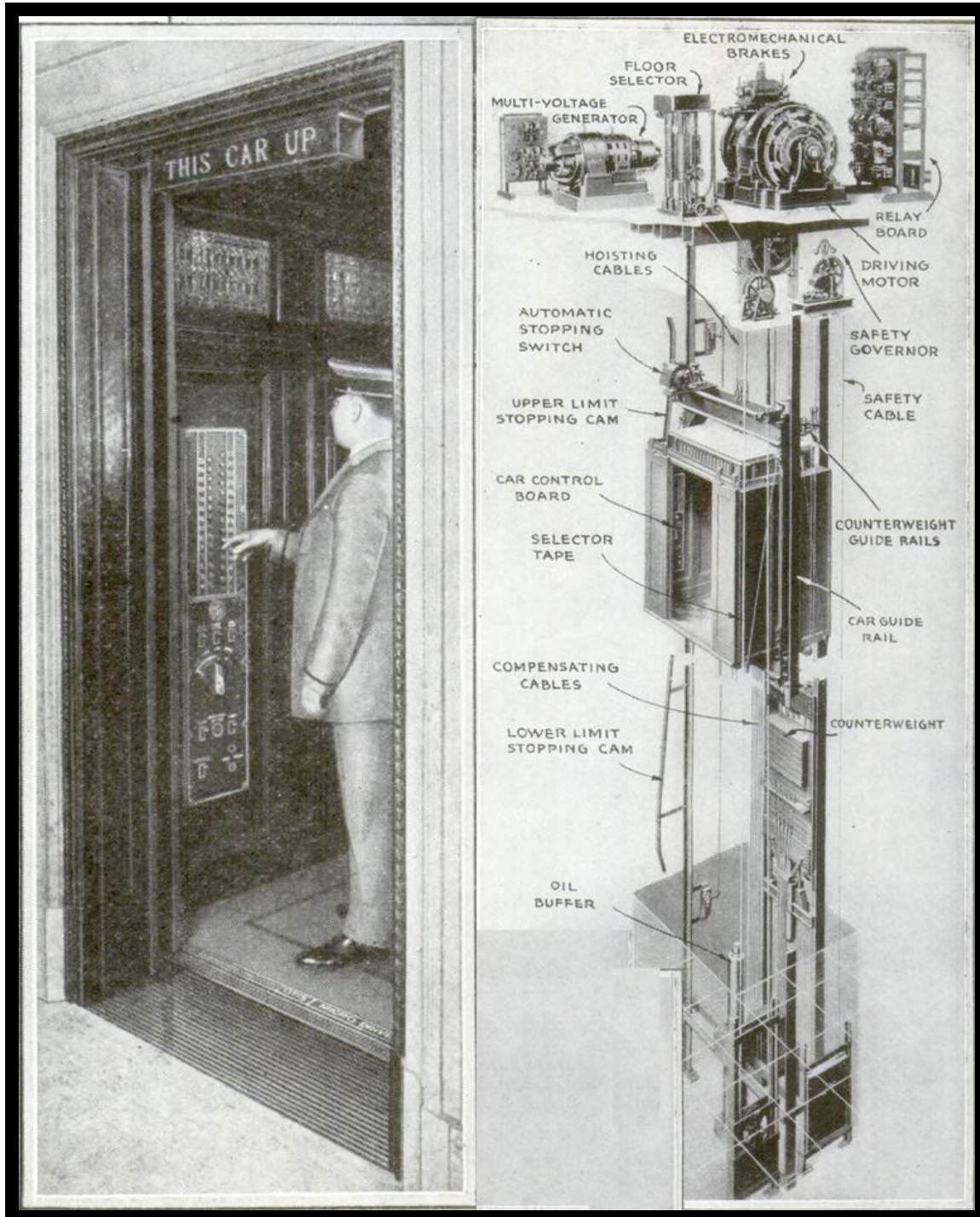
# EMPIRE STATE BUILDING, NEW YORK



Built 1931, 1250 ft tall, 102 floors, originally 64 elevators.

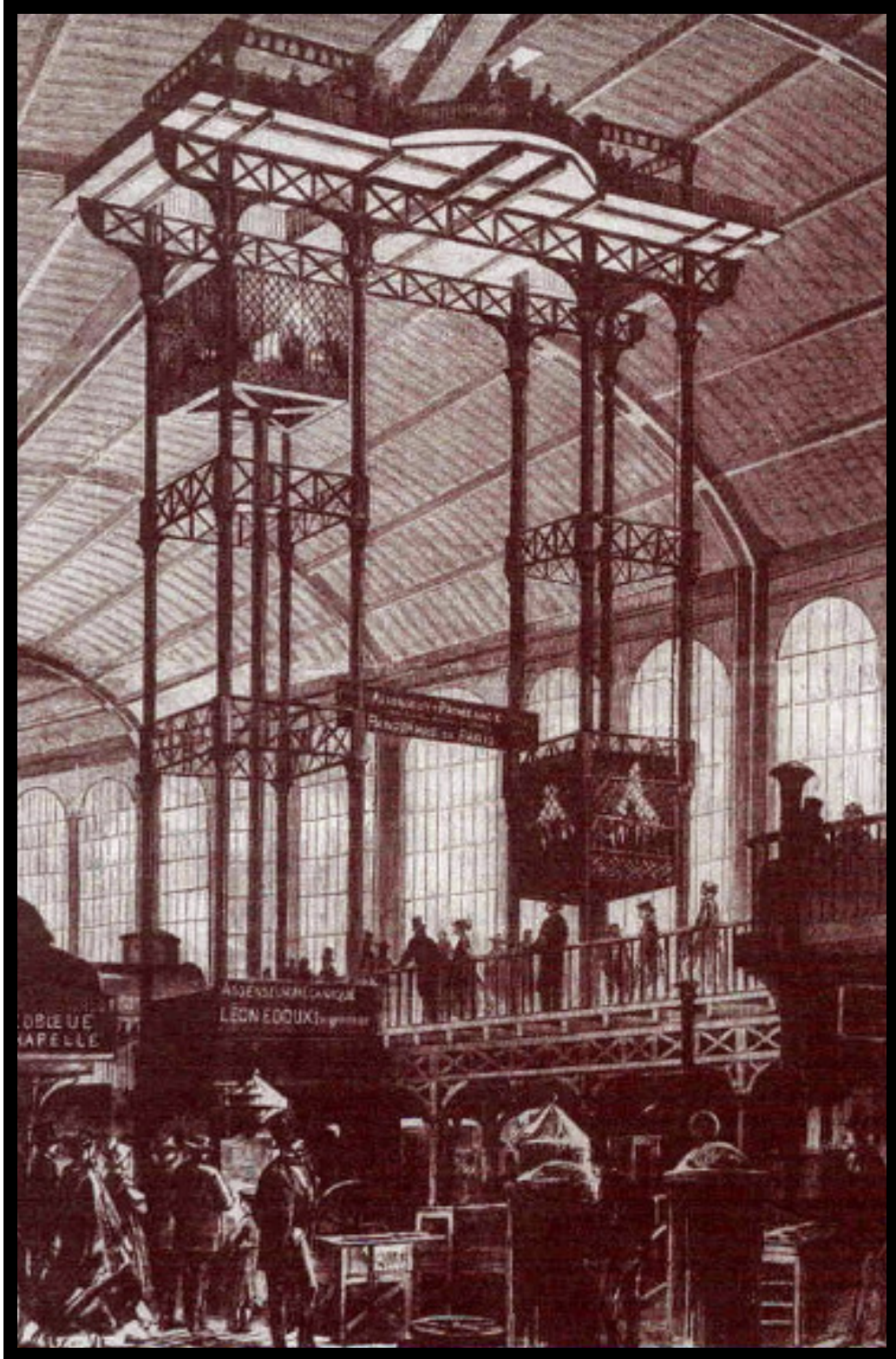


# EMPIRE STATE BUILDING, NEW YORK



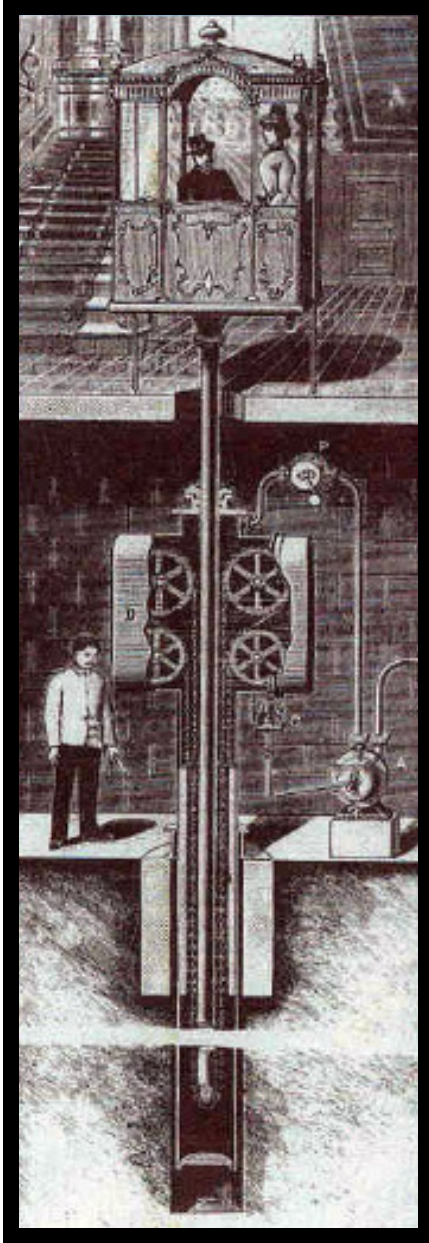
Elevator cab with schematic of system and controls.

# EDOUX ELEVATOR

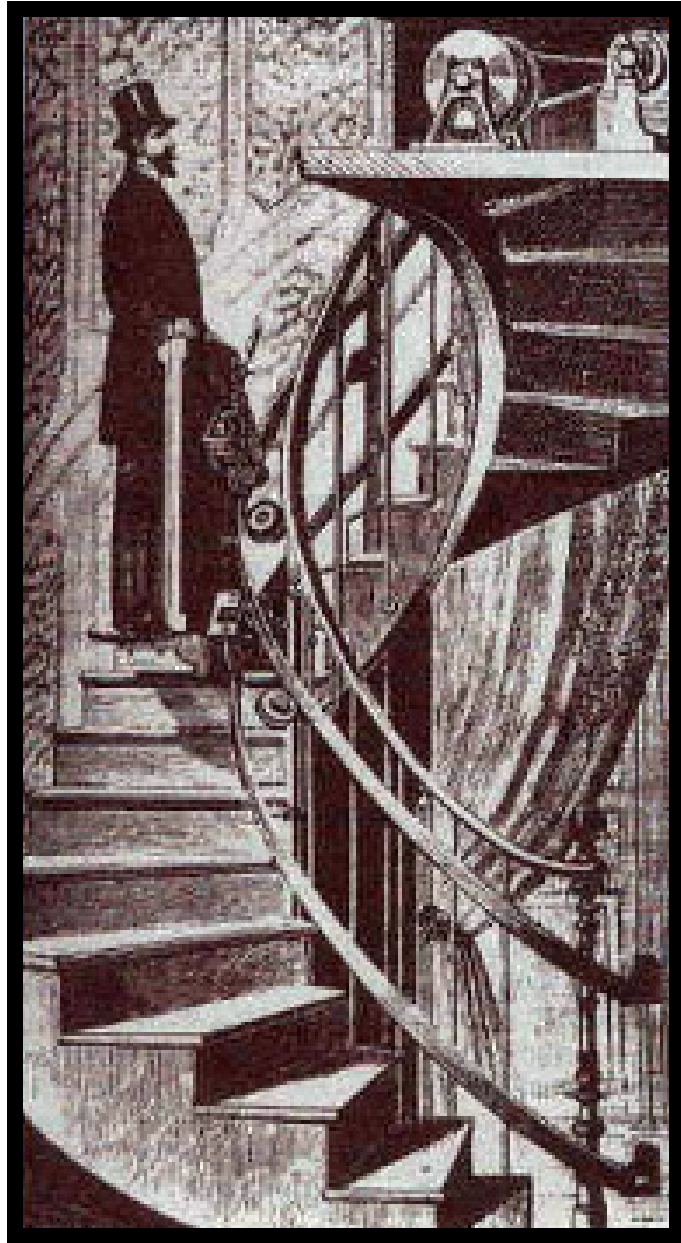


The Leon Edoux Hydraulic elevator at the Paris Exposition of 1867.

## DESIGNS FROM FRANCE

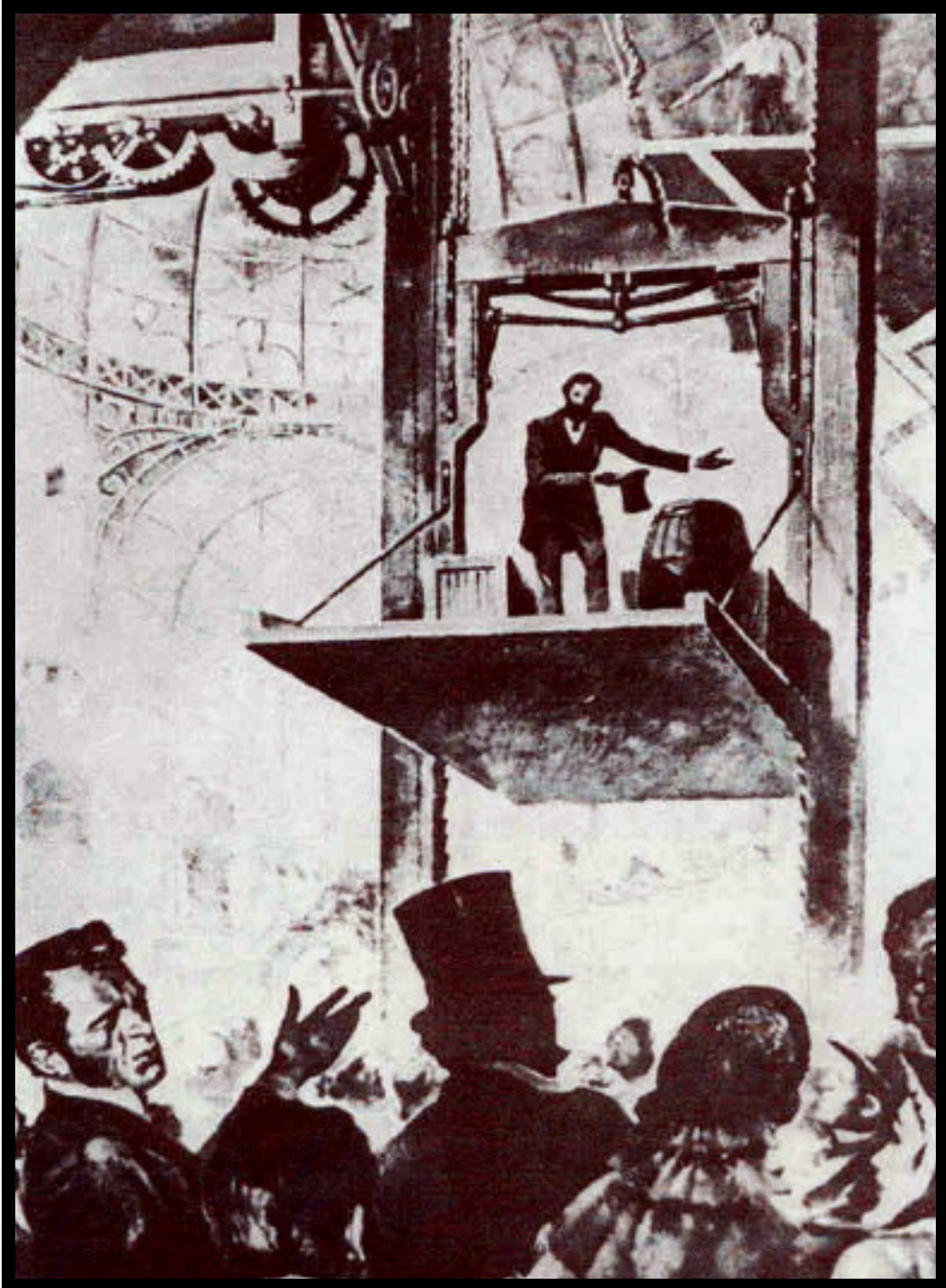


Edoux Hydraulic Lift 1888.



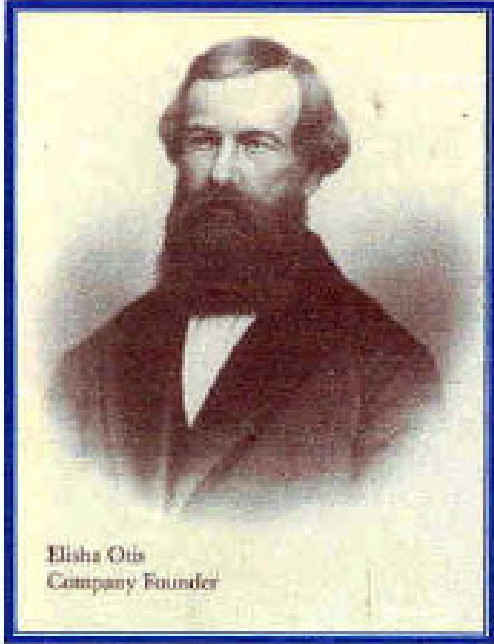
Amiot's Stair Climber 1889.

## ELISHA OTIS: SAFETY ELEVATOR

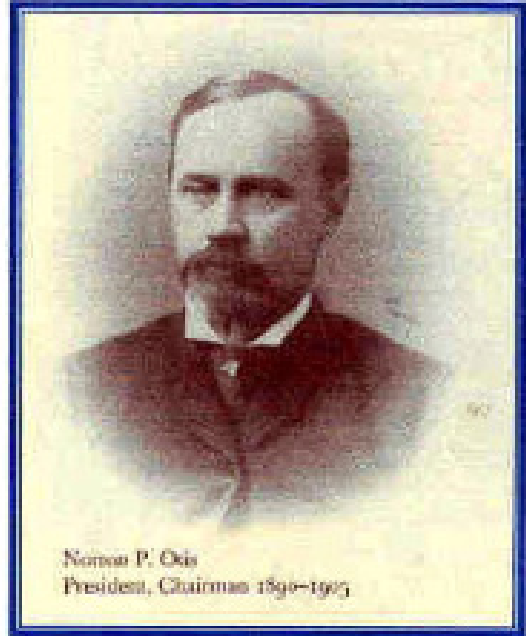


Elisha Otis demonstrates his Safety Hoist  
World's Fair Exhibition, New York 1853.

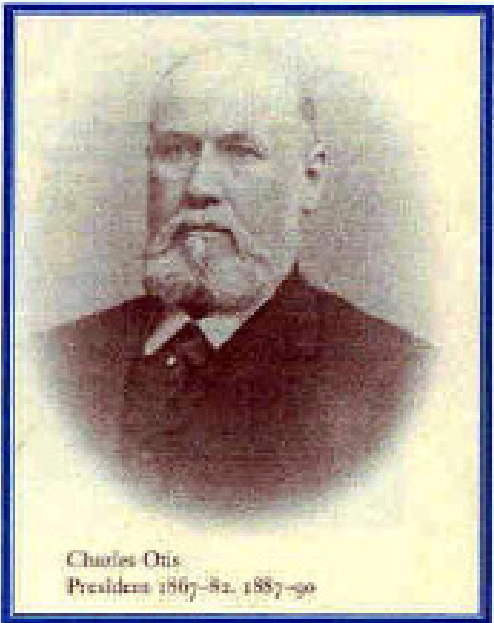
# OTIS ELEVATOR COMPANY PIONEERS



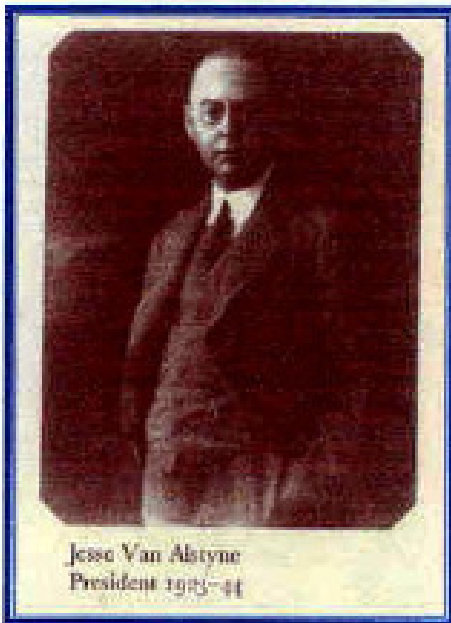
Elisha Otis  
Company Founder



Norton P. Otis  
President, Chairman 1890-1907



Charles Otis  
President 1867-82, 1887-90



Jesse Van Alstyne  
President 1907-11

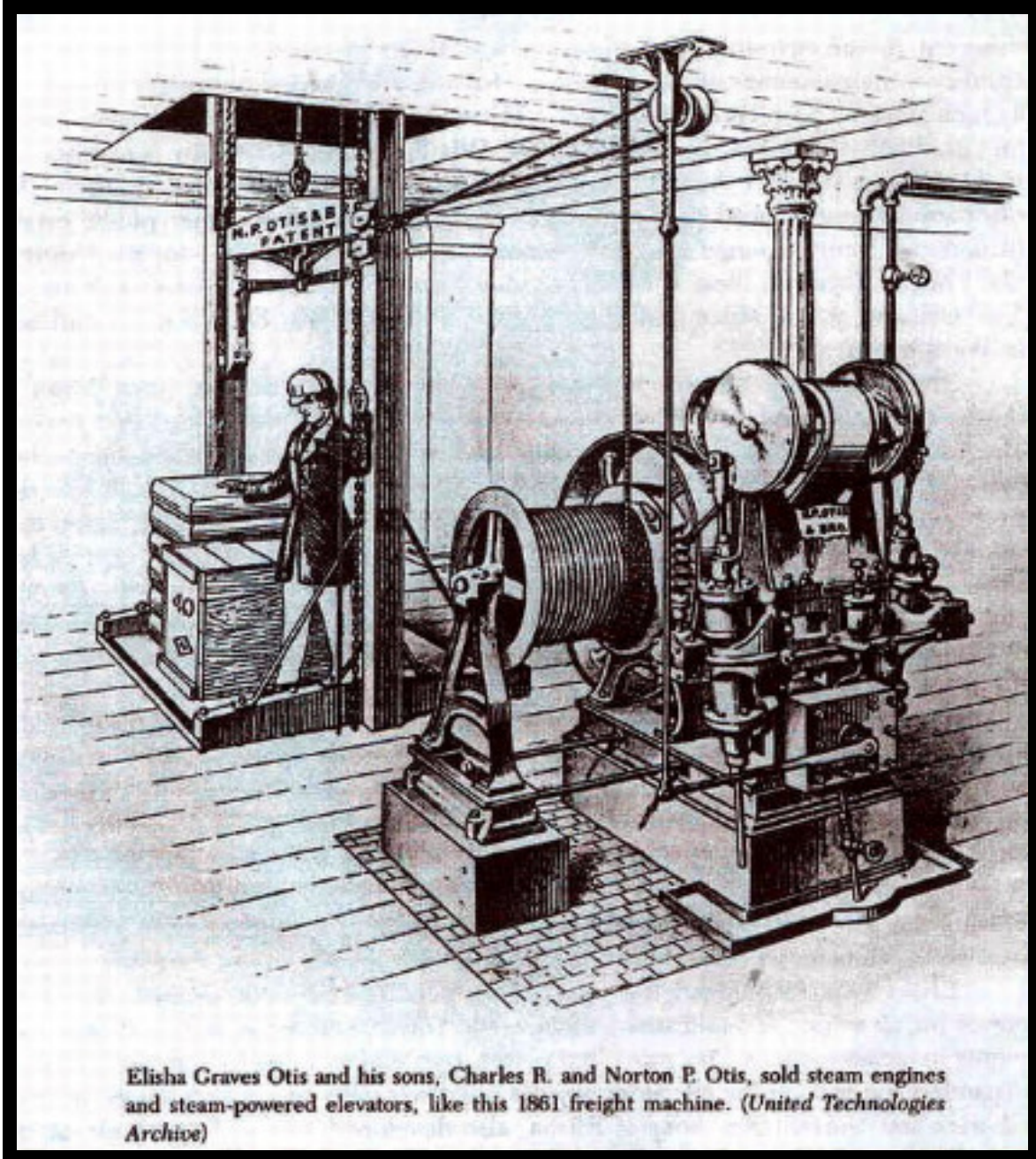
Elisha Otis (Founder)

Norton P. Otis (Second President/Chairman)

Charles Otis (First President)

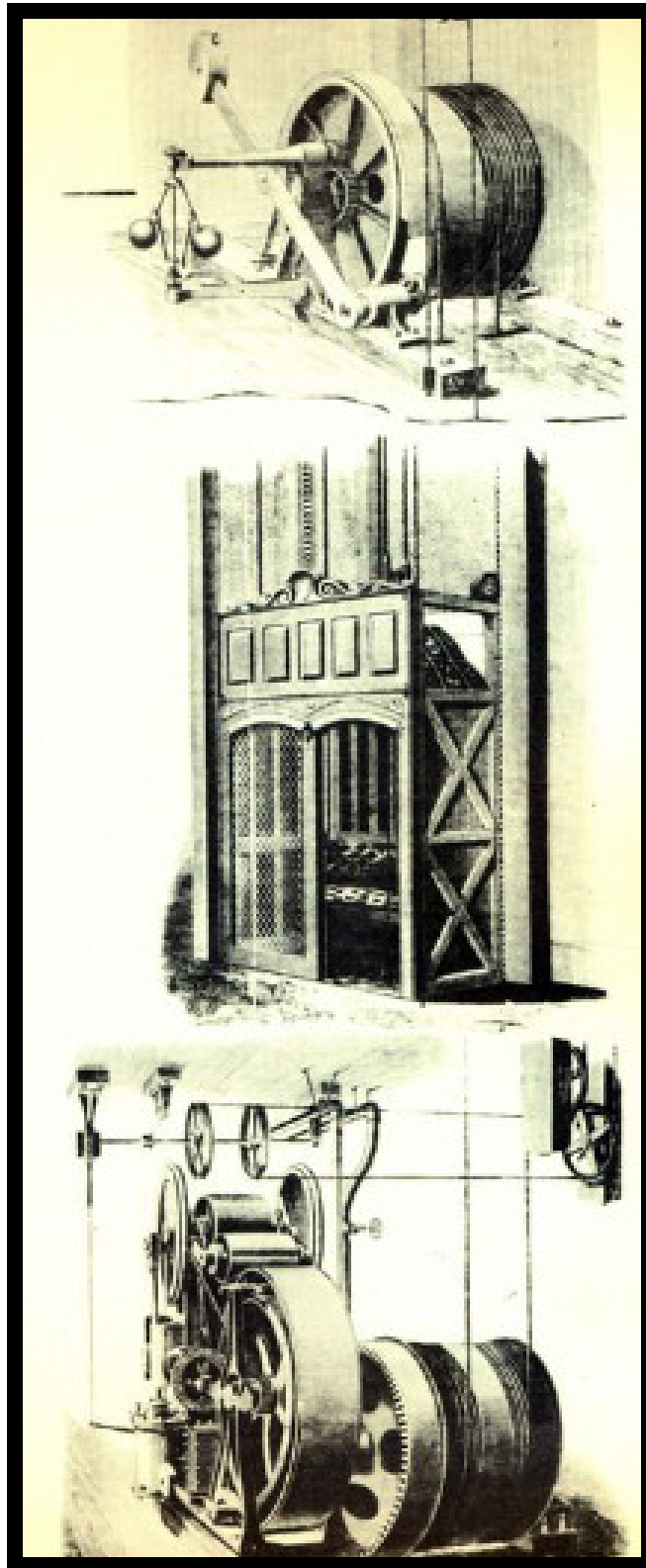
Jesse Van Alstyne (Third President)

## OTIS STEAM ELEVATOR



Otis steam engine and steam-powered elevator (freight machine) of 1861.

# OTIS STEAM ELEVATOR



Chicago Exhibition of 1893.


# OTIS BROTHERS HOISTING MACHINERY

**OTIS, BROTHERS & CO.,**  
Sole Manufacturers of  
**OTIS' PATENT LIFE AND LABOR SAVING  
HOISTING MACHINERY**


MANUFACTORY AT YONKERS, N. Y.  
OFFICE 307-9 BROADWAY, New York.

For the use of Mines, Mills, Construction Houses, Storage Warehouses,  
Sugar Refineries, Packing Houses, Lumber Sheds, Factories,  
Wharves, Docks, Shipping, Docks, Steam, etc.

A GREAT VARIETY OF SUPERIOR HOISTING MACHINES, ADAPTED TO EVERY CLASS OF BUSINESS  
AND POWER, CONSTANTLY ON HAND AND IN PROCESS OF MANUFACTURE.




**Otis Hoisting Engine - Otis 1.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.




**Otis Hoisting Engine - Otis 2.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.


**WIRE ROPE**  
Of the best quality, manufactured expressly for Hoisting, constantly  
on hand and ready to order.



**Wire Rope - Patent Hoisting Engine - Otis 3.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.




**Hoisting Engine - Otis 4.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.

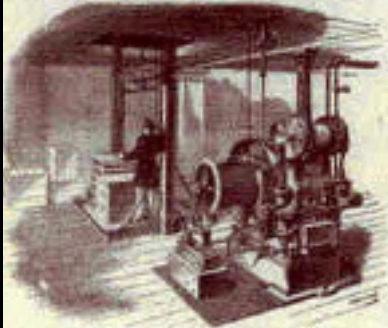


**Hoisting Engine - Otis 5.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.


**QUANTITIES REDUCED**  
of the Hoisting, with any quantity  
of rope, and in quantity or otherwise in  
any or all cases.




**Hoisting Engine - Otis 6.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.




**Hoisting Engine - Otis 7.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.




**Hoisting Engine - Otis 8.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.



**Hoisting Engine - Otis 9.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.



**Hoisting Engine - Otis 10.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.

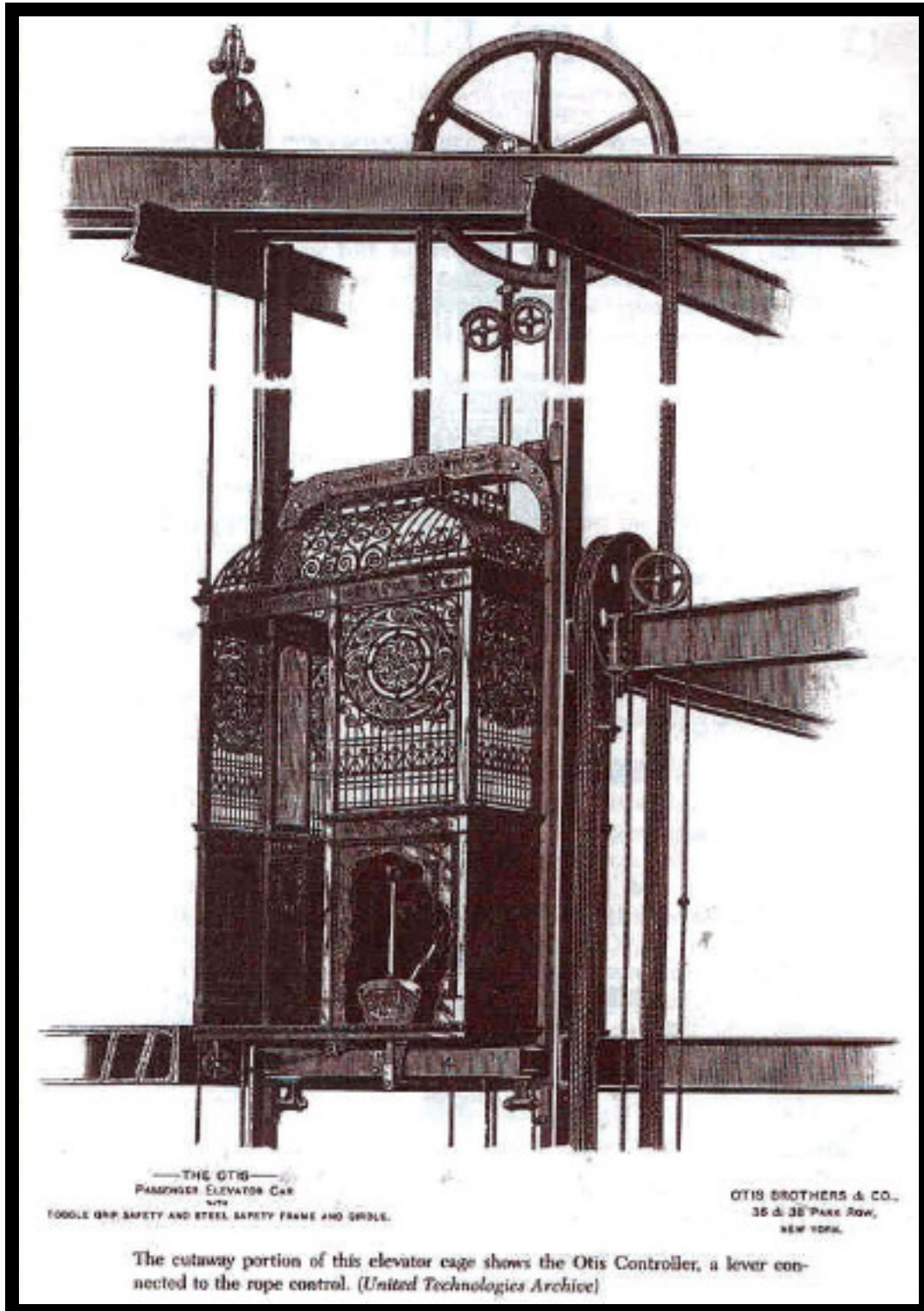


**Hoisting Engine - Otis 11.**  
This engine is used for hoisting in mines, mills, and other places where a large amount of work is done. It is a simple and reliable machine, and is adapted to every class of business.

Otis Patent "Life and Labour Saving" Hoisting Machinery.



# OTIS ROPE-CONTROLLED ELEVATOR



The Otis Controller, (a lever connected to a rope) controlled the movement of the elevator cage.

# OTIS BROTHERS HYDRAULIC ELEVATOR

**STANDARD**  
**HYDRAULIC ELEVATOR**  
*For Passengers and Freight.*

ADOPTED BY U. S. GOVERNMENT.  
Upon Report of Eminent Experts appointed by the Secretary  
of the Treasury.

**SAFE, SIMPLE,  
ECONOMICAL.**

ADAPTED TO USE IN

HOTELS,  
PUBLIC  
BUILDINGS,  
STORES,  
OFFICE  
BUILDINGS,  
FLATS,  
PRIVATE  
HOUSES,  
AND FOR  
DUMB  
WAITERS,  
ALSO IN  
WAREHOUSES  
AND  
FACTORIES.



OPERATED BY  
**Water Pressure**  
FROM  
STREET MAINS,  
OR FROM  
A TANK in Upper Story,  
or on Roof of Building,  
OR  
PRESSURE TANK IN BASEMENT

Always Ready for Use,  
NIGHT OR DAY.

**COSTS NOTHING**  
WHEN  
NOT IN USE.  
CAN BE MANAGED  
BY ANY  
LADY OR YOUTH.

Manufactured by **OTIS BROS. & CO.,** Yonkers, N. Y.  
G. N. EVANS & CO., Agents for New England; also, makers and designers of Steam and  
Water Heating Apparatus for public and private buildings.  
N. Y. Office, 60 DUANE STREET. Office, 72 SUDBURY STREET, BOSTON.

The Otis Standard Hydraulic Elevator, which operated by water under pressure, was  
introduced in the 1870s. It is shown here in an 1882 advertisement. (United Tech-  
nologies Archive)

Operated by water under pressure, introduced in the 1870s.

# OTIS ELEVATOR CO: ELECTRIC ELEVATOR

ELEVATORS

## OTIS AUTOMATIC ELECTRIC ELEVATOR FOR USE IN RESIDENCES

is an addition to the comfort of every member of the household; and at the same time increases the value and salability of property more than cost of installation. No house of pretension should be without one. We frequently install elevators in houses already built. It is not as much of an undertaking as one might think to thus bring an old house up-to-date. Write for blanks and specifications.

**OTIS ELEVATOR COMPANY,**  
New York Office, 17 Battery Place  
*Branch Offices throughout the Country*



11 121015 51 28 233

At the turn of the century Otis advertised its popular automatic electric elevator for use in residences. Automatic meant pushbutton control. (United Technologies Archive)


The residential automatic electric elevator, c.1900.

# HARRODS MOVING STAIRCASE

HARRODS, Limited, Brompton Road, London, S.W.

## THE "MOVING STAIRCASE,"

NOW RUNNING DAILY FOR THE CONVENIENCE OF CUSTOMERS.



PRESS QUOTATIONS.

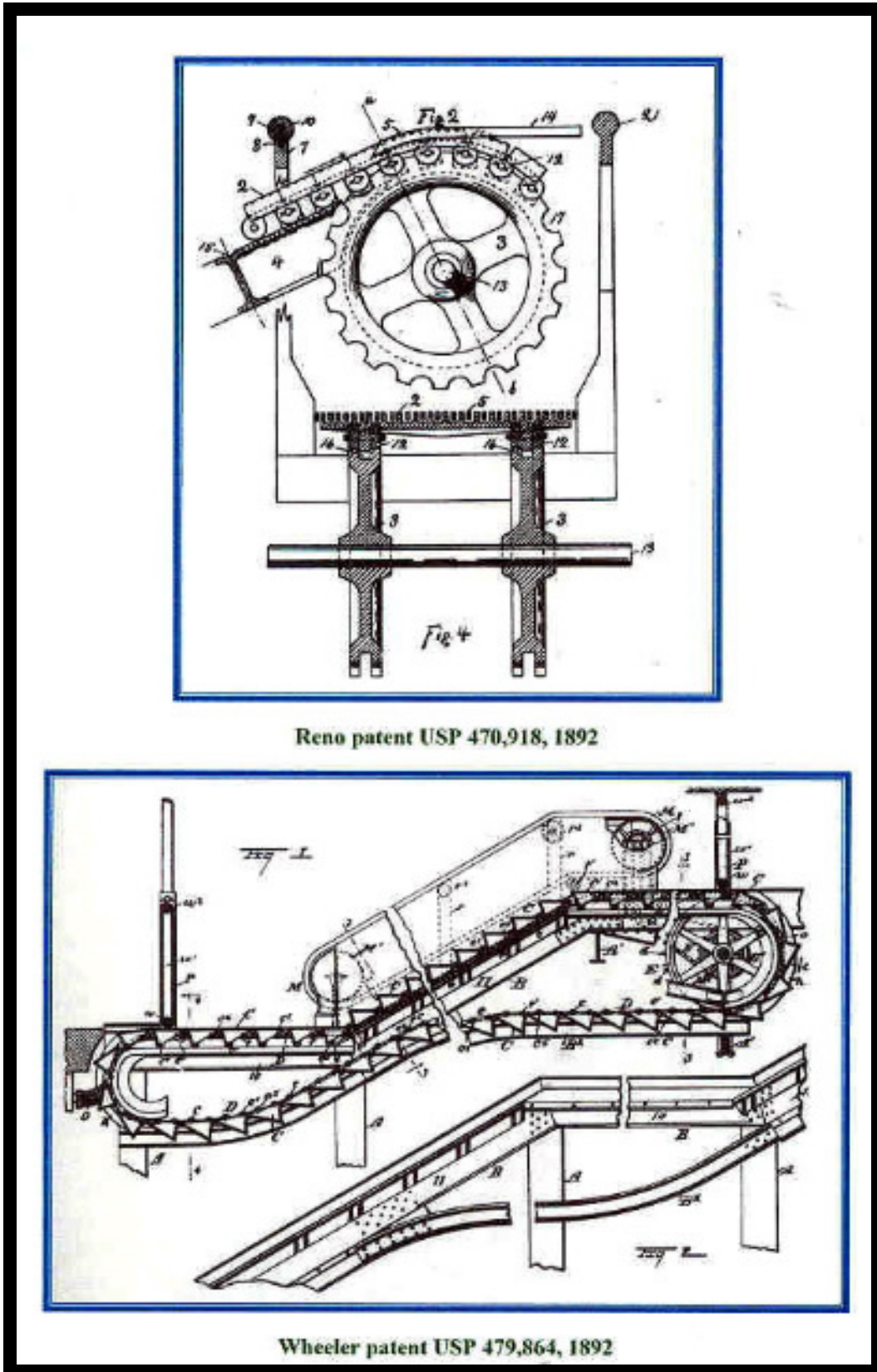
**"MORNING POST."**  
"A remarkable substitute for the ordinary lift or elevator, which is rare & novelty in this country. . . . These need never be any of those needless waits which occur when an ordinary lift is in use."

**"SKETCH."**  
"By a delightful movement which is both exhilarating and fascinating, you are carried from floor to floor without the least effort, and without any of those unpleasant thrills which lifts always succeed in giving to nervous persons. . . . I think they will find it so popular that there will surely be a State or a great trading business in London that will not be glad to substitute the new invention."

**"WAREHOUSEMAN AND DRAPE."**  
"There can be no doubt the usefulness of the form, and they should soon be in use in railway stations, public buildings, hotels, warehouses &c."

A flat travelling belt (or moving pavement) installed 1898 (from 1902 press).

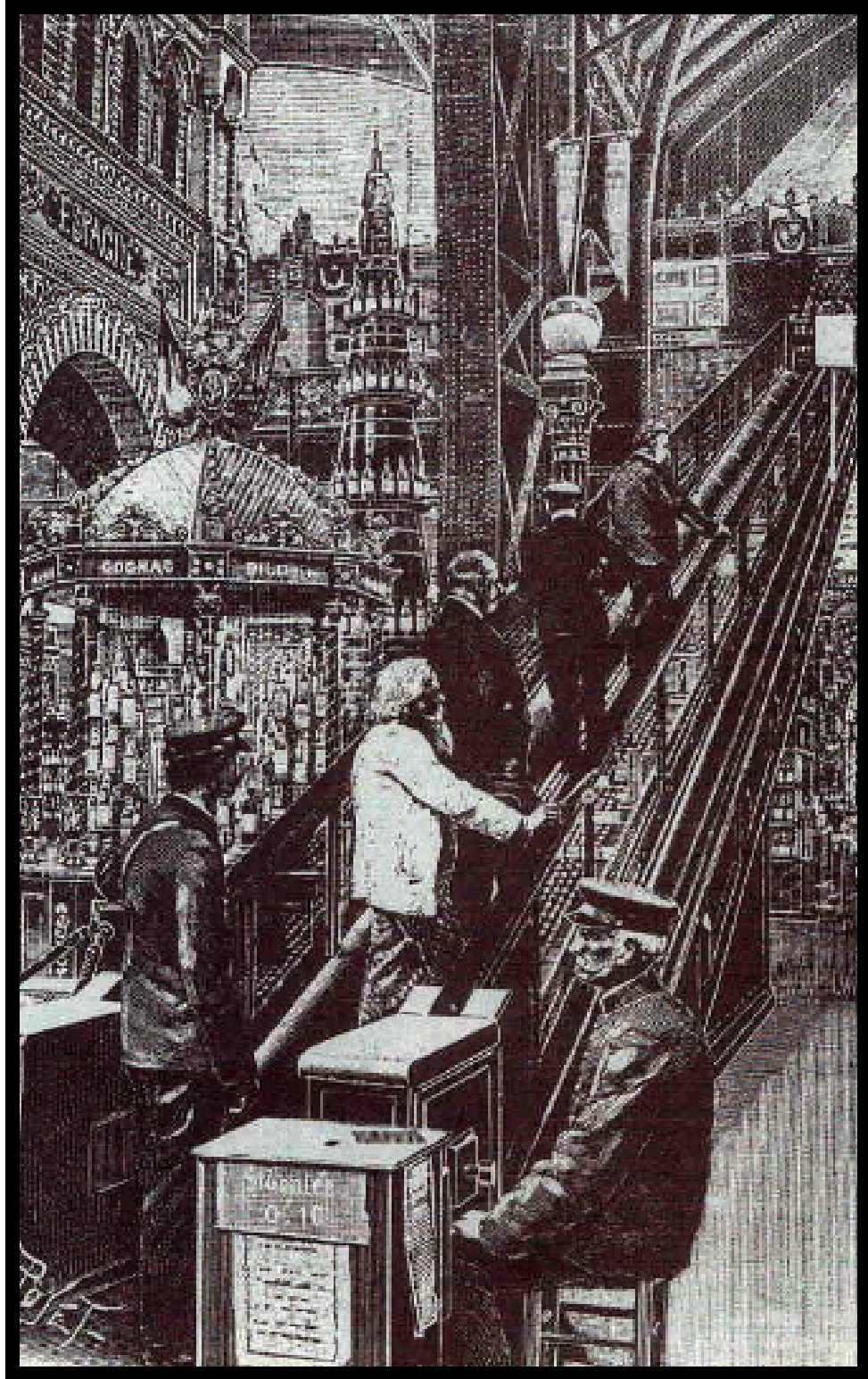
# RENO and WHEELER ESCALATOR PATENTS



Reno patent USP 470,918, 1892

Wheeler patent USP 479,864, 1892

## PARIS ROLLING STAIRCASE



Rolling Staircase at the Paris World Exhibition of 1900.

## PARIS MOVING WALKWAY



Moving Walkway at the Paris Exhibition of 1900.

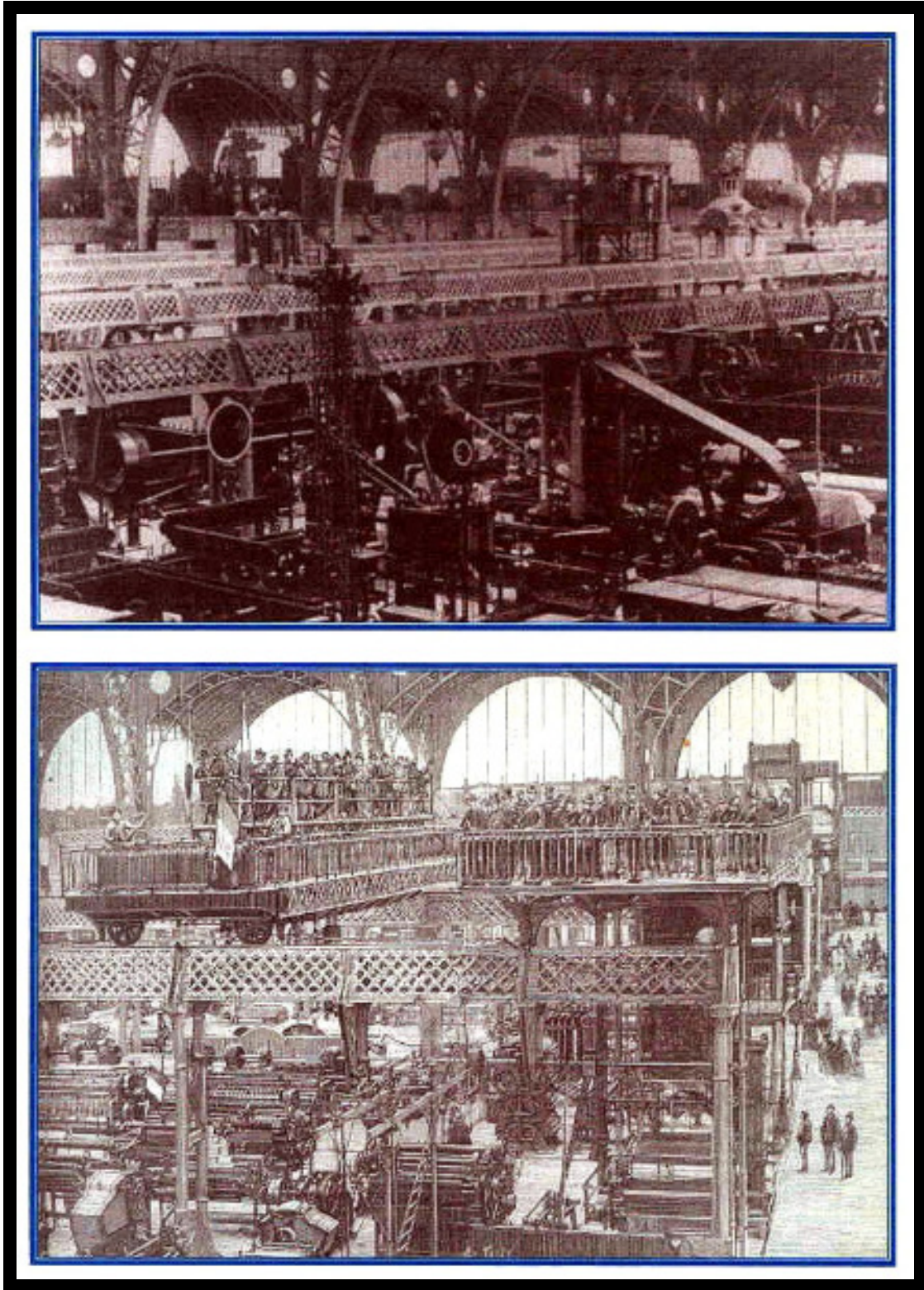
## PARIS MOVING WALKWAY



Two views of the Moving Walkway at the Paris Exhibition of 1900.



## PARIS TRAVELLING GANTRY



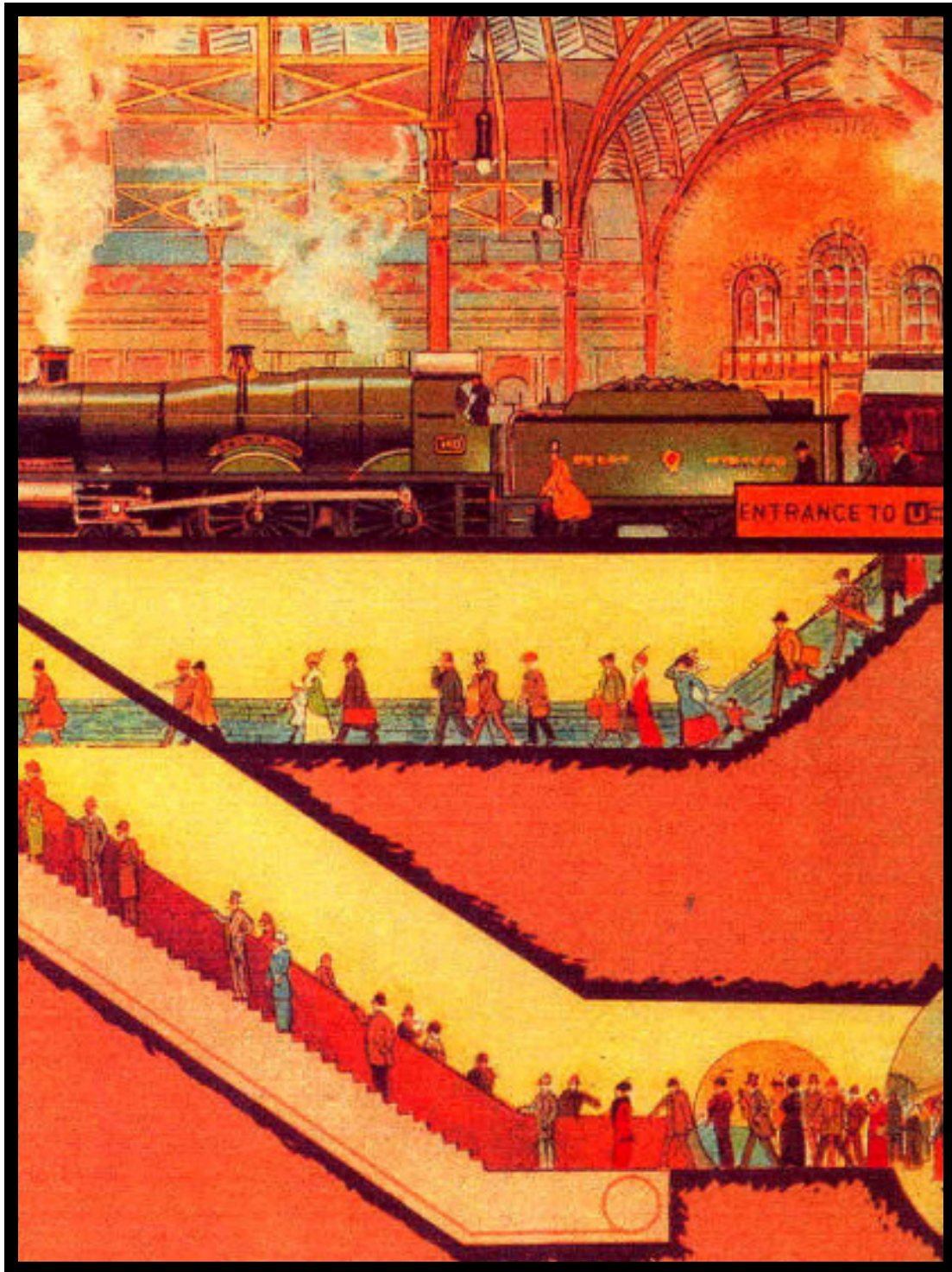
Demonstration of people and freight mover (the Travelling Gantry)  
Palais des Machines, Paris 1889.

## EARL'S COURT ESCALATOR



First London escalator installed at Earl's Court Underground Station in 1911.

# PADDINGTON STATION ESCALATOR



The Escalator at Paddington New Station, London in 1913.

## EIFFEL TOWER

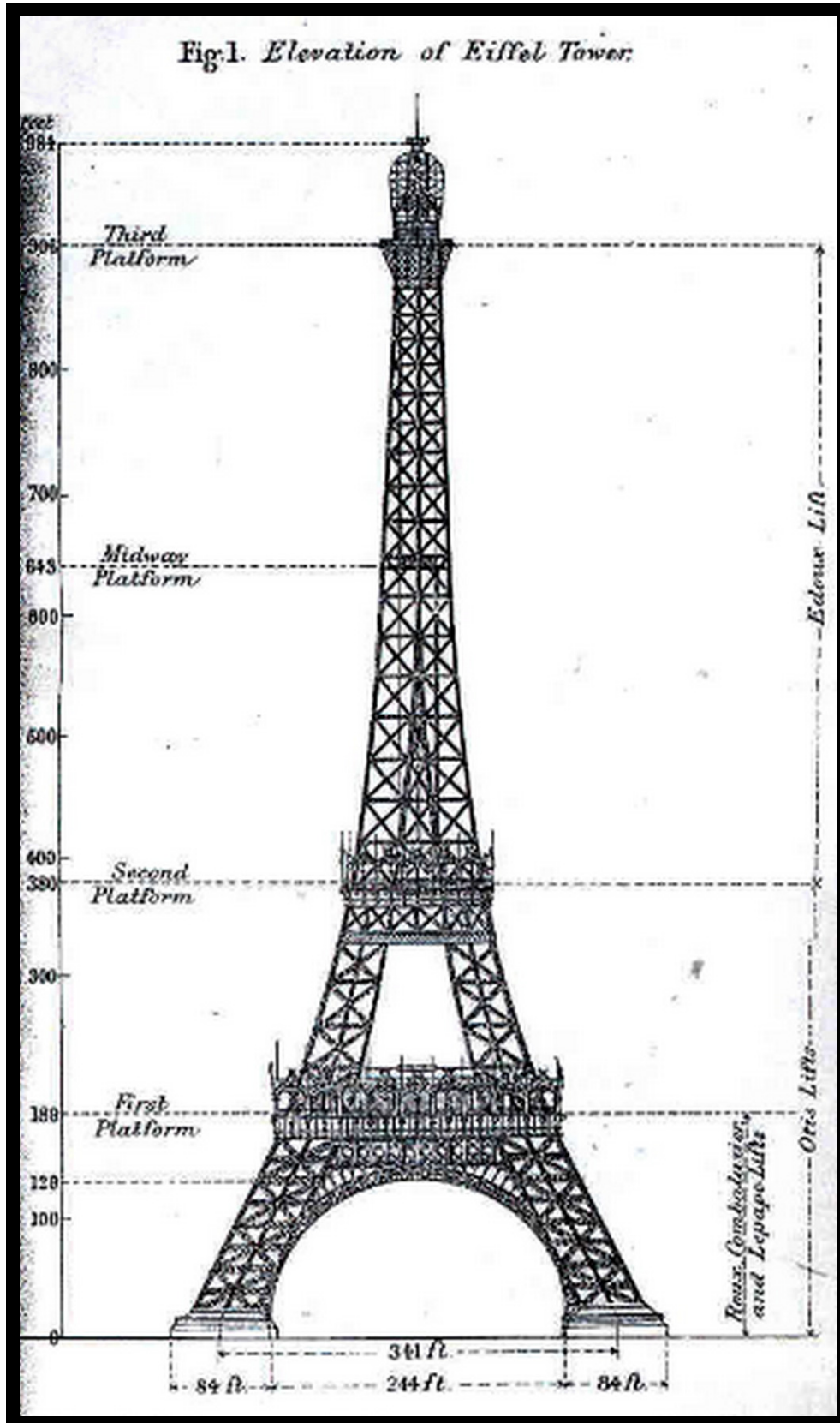


Gustave Eiffel 1832-1923 French Civil Engineer

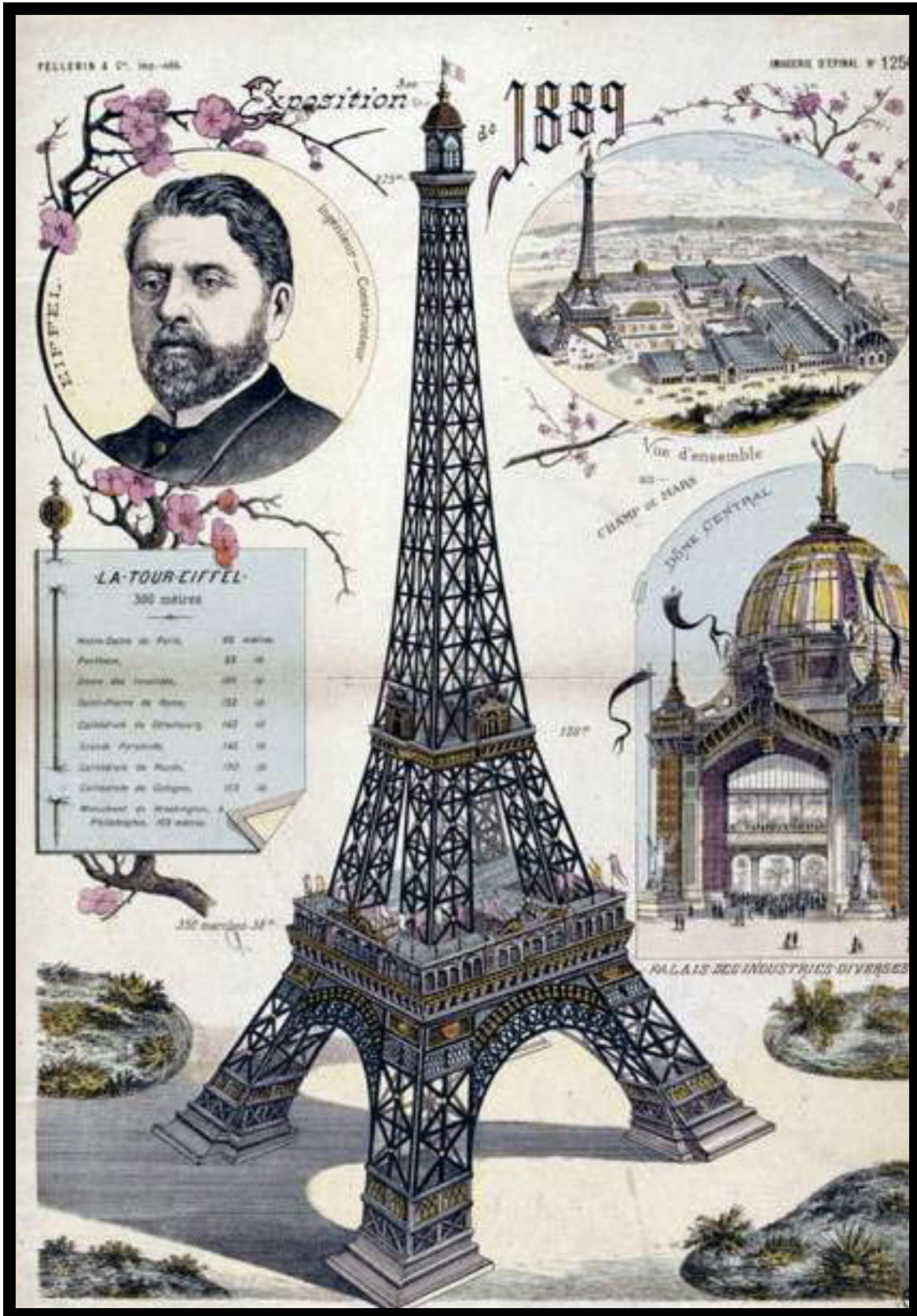
### THE EIFFEL TOWER ELEVATOR SYSTEMS

Gustave Eiffel planned for three different systems to access the Tower. All of them were to be driven by hydraulic power, with water reservoirs installed on each floor. Four double-deck elevators served the 1st and 2nd floor, sliding on inclined rails in the pillars. Operators sitting in the small seats outside of the cars steered them. Two elevators provided by the American company Otis were installed in the North and South pillars, and were pulled by cables, equipped with cast iron counterweights, with a safety system meant to stop them in the event of a cut cable or excessively high speed. The two other elevators, in the East and West pillars, were built by Roux, Combaluzier et Lepape. They were driven by hydraulic pistons with movable joints installed at the foot of the elevators. Between the 2nd floor and 3rd floor, the ascent was provided by a vertical hydraulic elevator built by Edoux. The two cars were balanced, and each car ran only half of the height. Visitors thus had to switch cars on an intermediate landing to go all the way up to the top. The power for the five elevators was driven by a steam engine installed in the South pillar. The steam from the engine was evacuated by a brick chimney, which was built in the gardens near the West pillar.

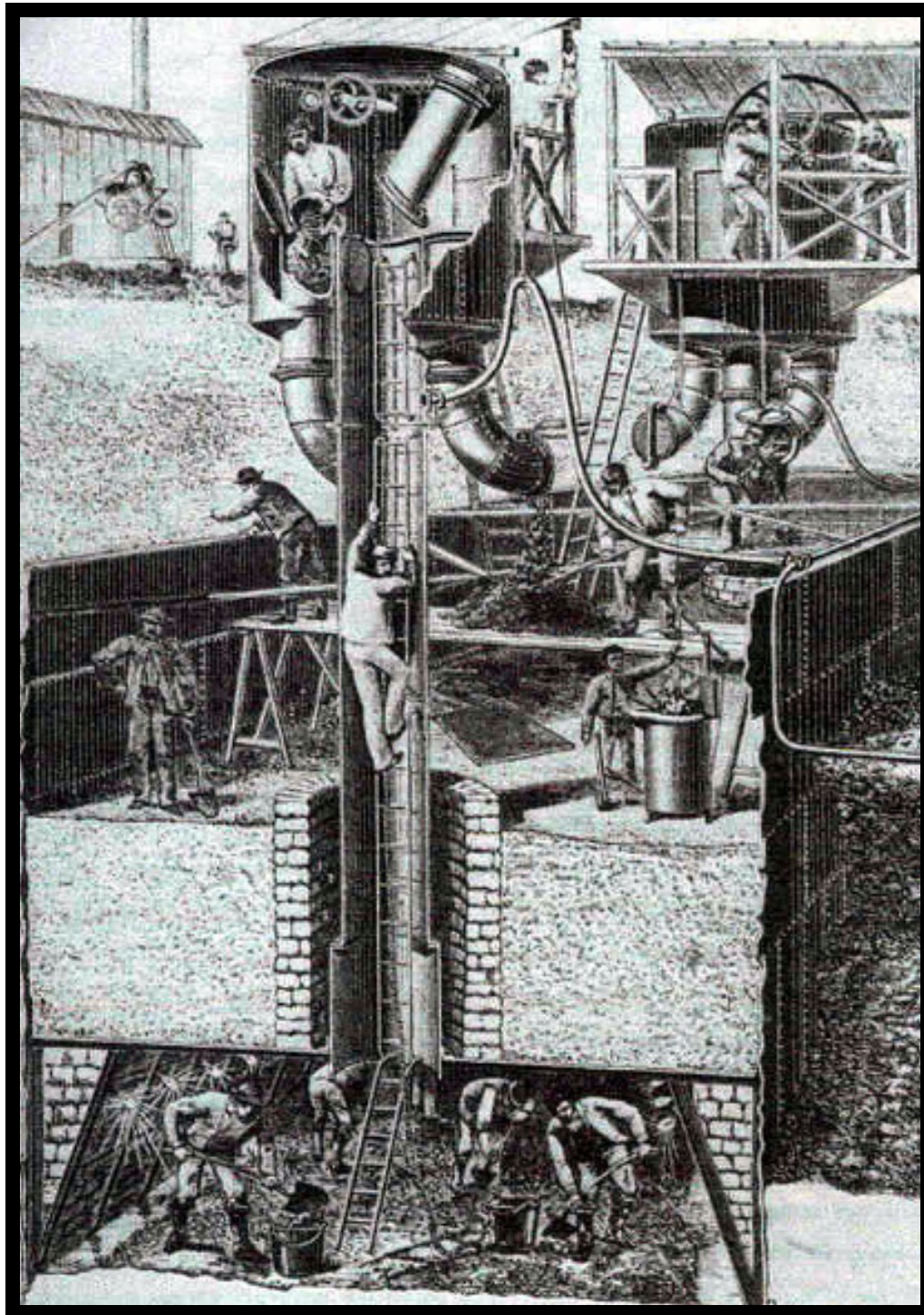
# EIFFEL TOWER



# EIFFEL TOWER

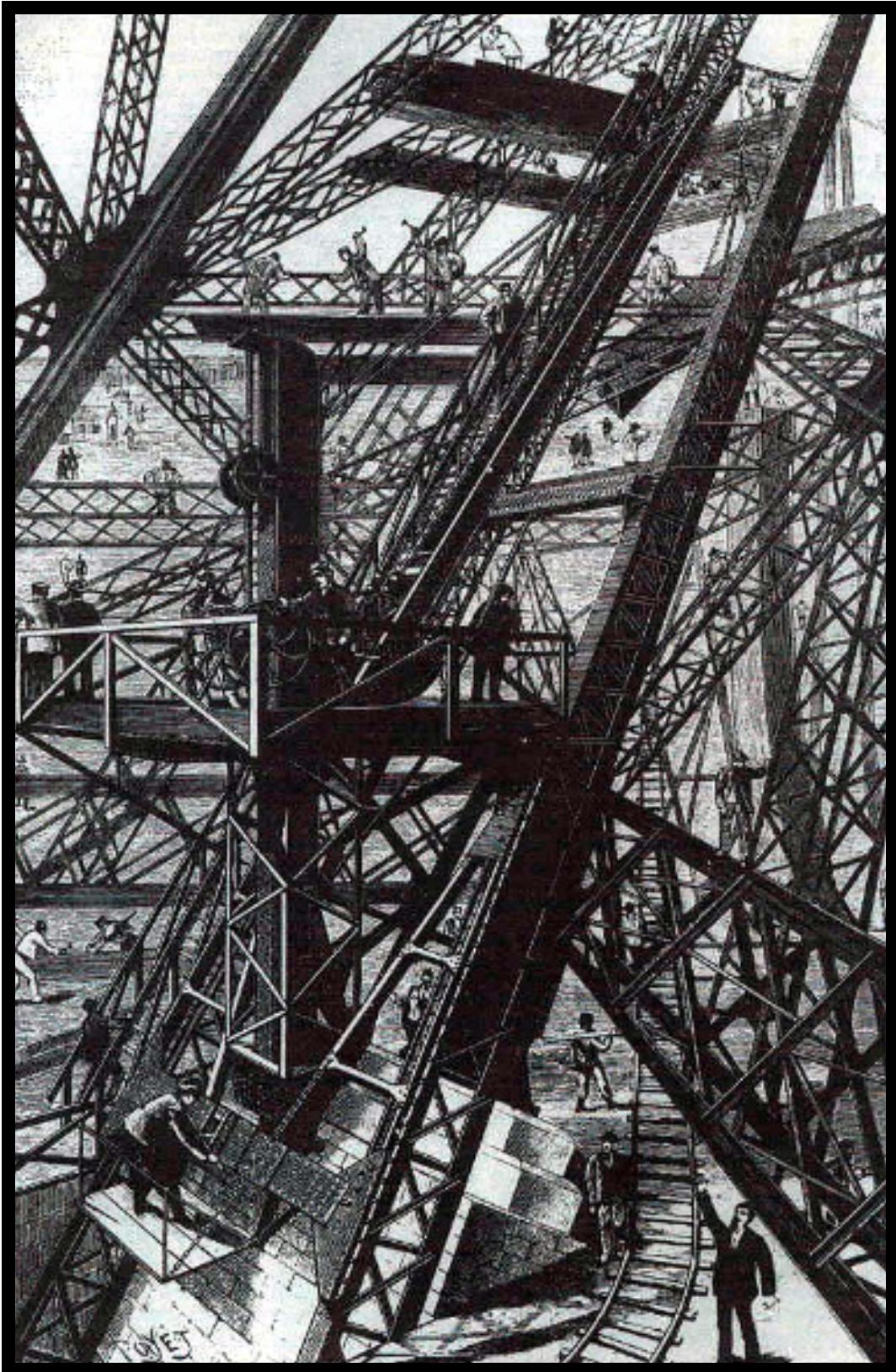


# EIFFEL TOWER



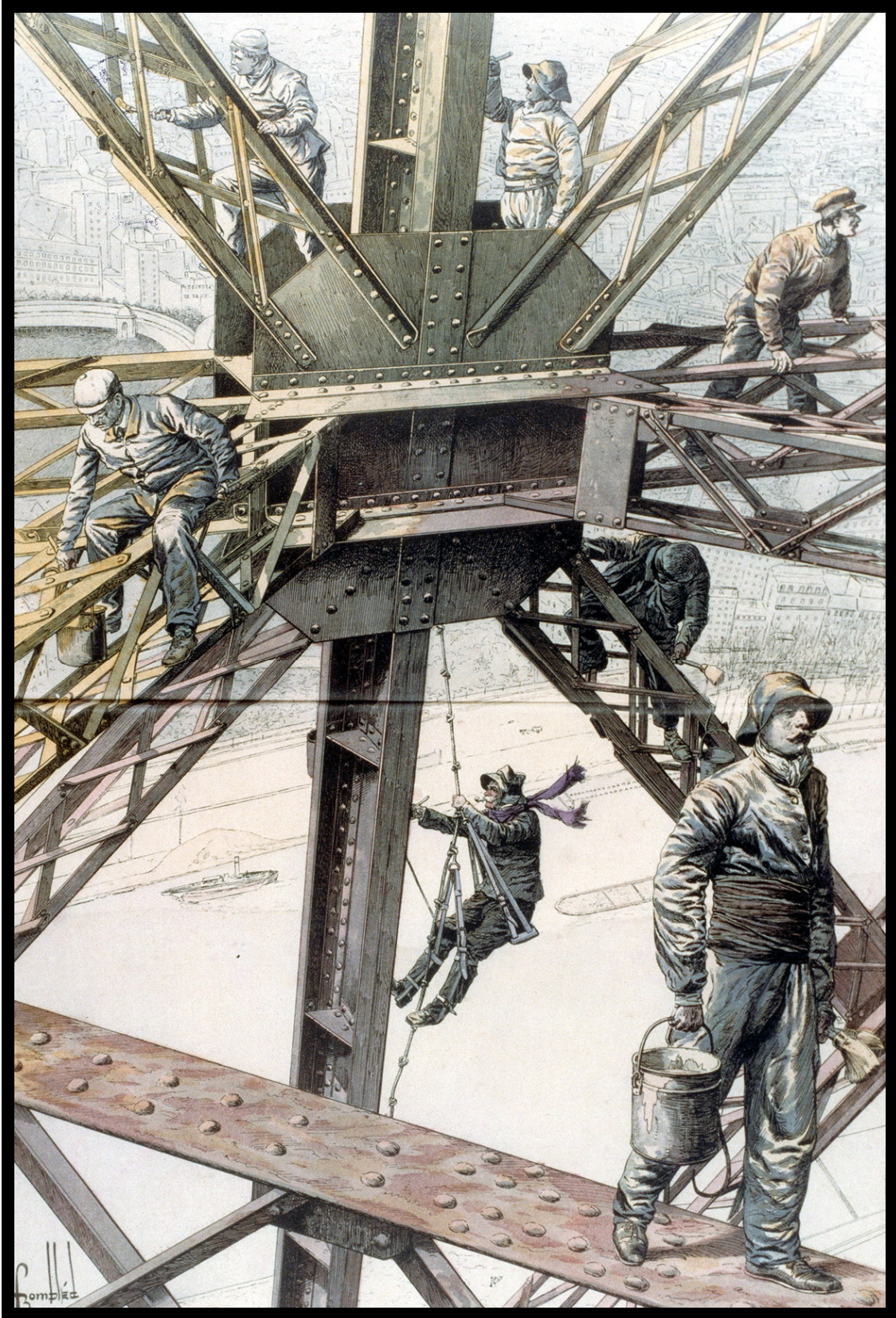
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# EIFFEL TOWER

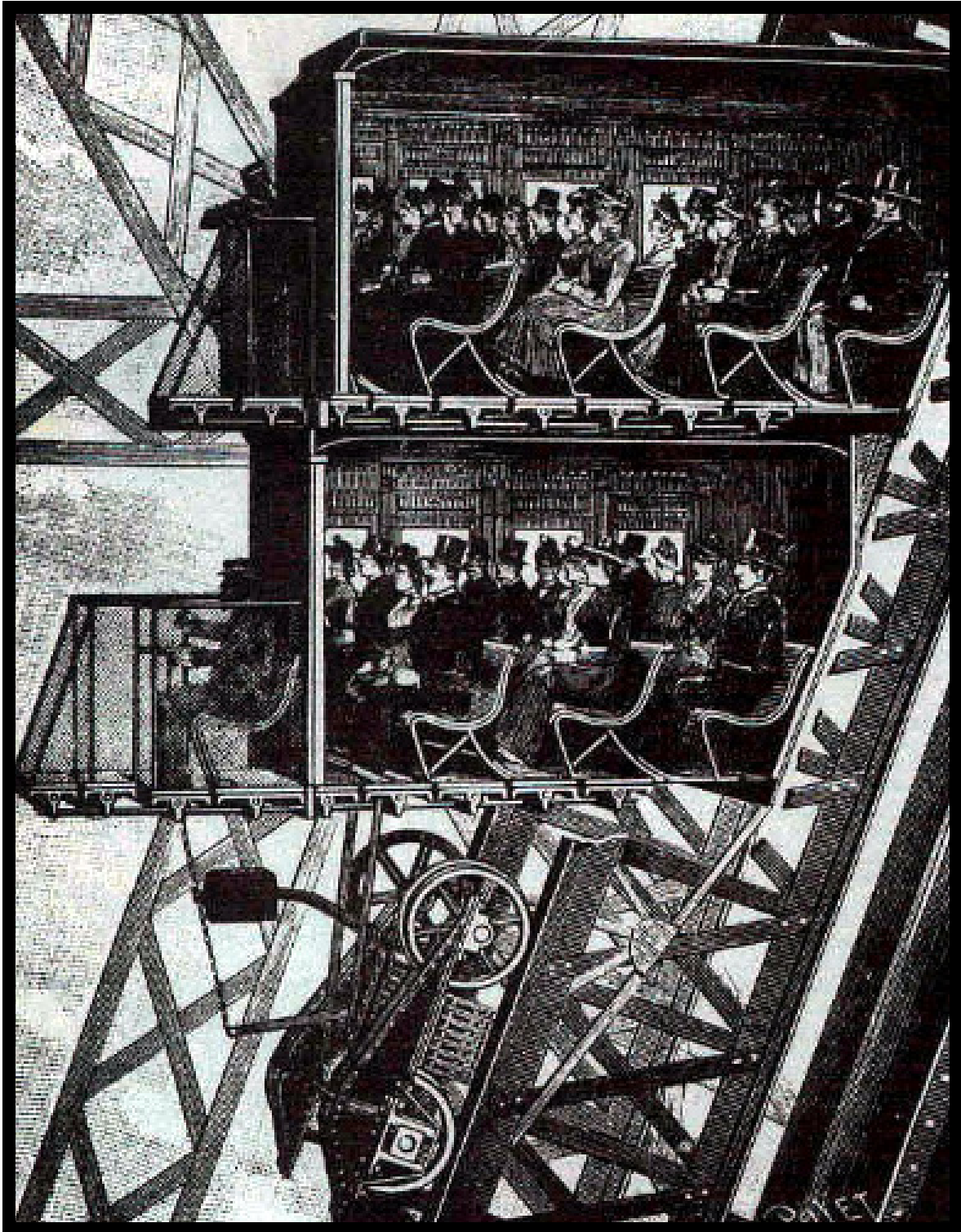




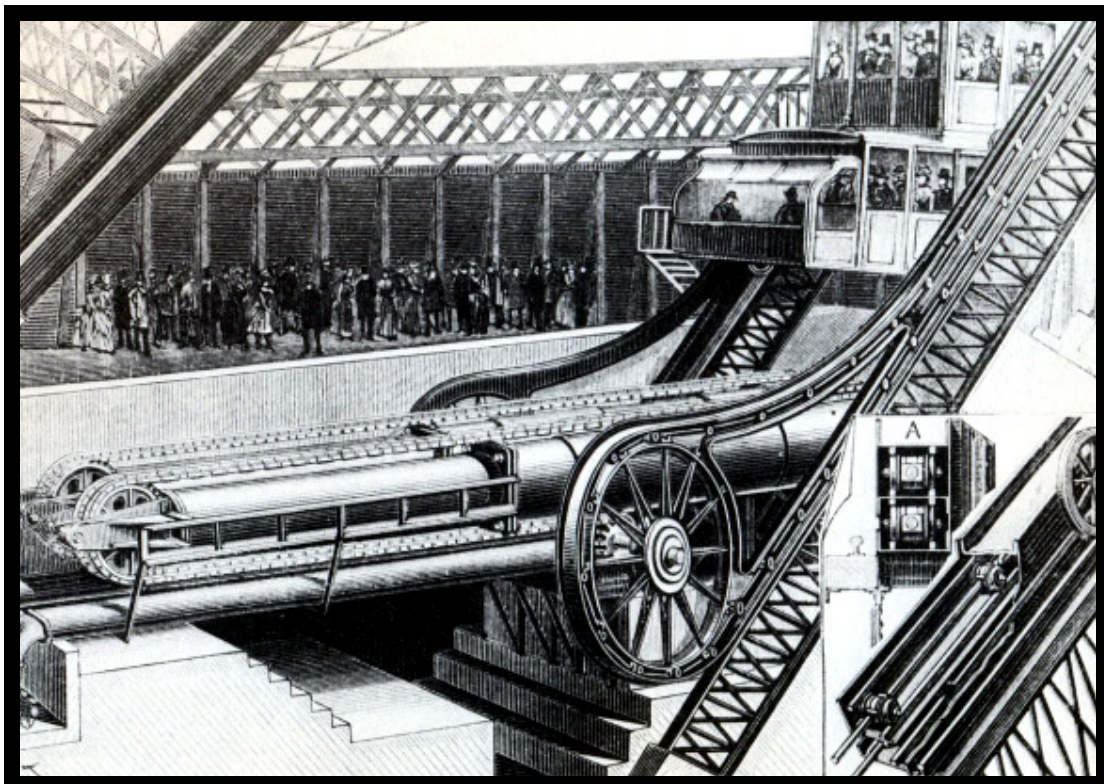
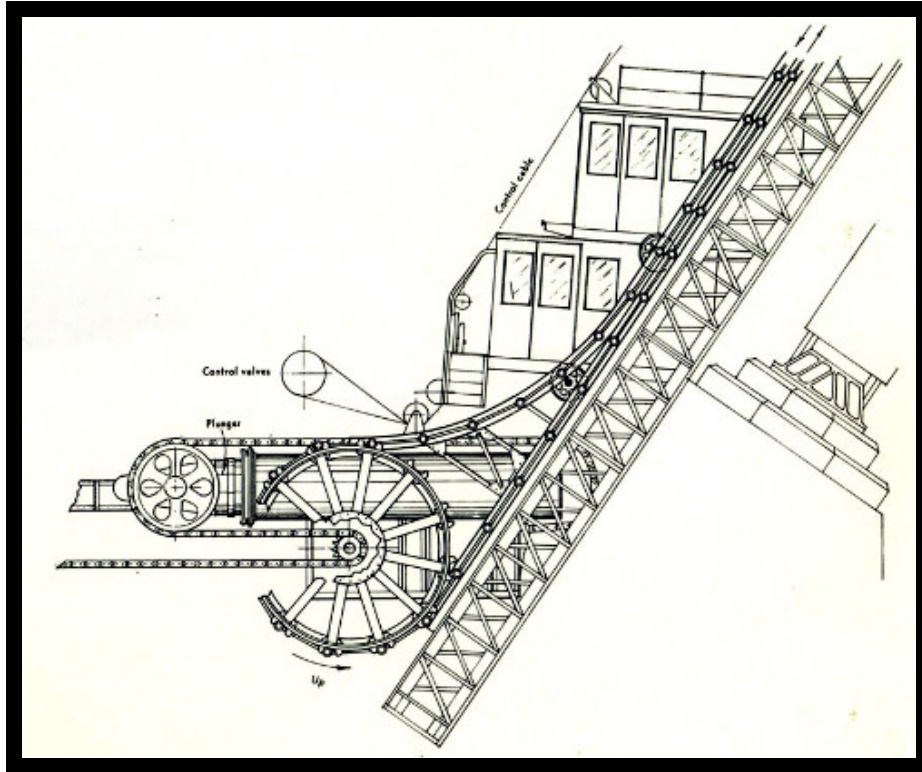
# EIFFEL TOWER



# EIFFEL TOWER



# EIFFEL TOWER



# EIFFEL TOWER

