

少年英文叢書

# 近代十大發明

Stories of Modern Great Inventions

顧學民 譯

上海競文書局印行

# Stories of Modern Great Inventions

## THE ELECTRIC TELEGRAPH° AND SUBMARINE CABLE°

It was the genius° of Samuel F. B. Morse° that gave the electric telegraph to the world in 1844.° While he was busy perfecting° his invention in America, many great scientists° in Europe were working on the idea of° using electricity° for sending messages,° notably° Sir Charles Wheatstone.°

Morse's electric telegraph, however, was so simple and messages could be sent by it so quickly that very soon after the establishment of the first line° between Washington and Baltimore° in May 1844, his system was in general use in all parts of the world. His instruments have since undergone° many improvements, but there has been no radical departure° from his original idea.

The story of Morse's life, and the years of self-sacrifice° and patient toil° devoted to the perfecting of his telegraph instrument, is one° which every boy and girl should read. He was born in Charlestown,° Massachusetts,° in 1791. From his father, who was a Congregational minister,° and a very highly educated man, he inherited° great dignity° and a love for study;° from his mother, a gracious manner.° When he finished college it was a keen disappointment° to his father to find that his eldest son had set his heart on° becoming an artist° rather than enter one of the "learned professions°".

When he was attending Yale,° however, he had shown a deep interest in chemistry° and physics,° and eventually,° after spending twenty years in the successful study of art, his love for science triumphed.° Those twenty years were filled with successes, disappointments, and deep sorrow. The first four° were spent in London studying under Benjamin West.° Under this great master° he made most encouraging progress,° but financial reverses° made it impossible for his father to assist him further with his studies, and he was obliged to turn his work into money.°

On his return home he had many ups and downs,° till finally he came to be recognized as° the greatest artist in America. He not only painted portraits° of many people of note,° who, won by his personal charm,° became his warm friends, but gave talks on art,° and was the leader in organizing the National Academy of Design.° In the height of his success° his beautiful young wife died; and within a few months he lost his dearly loved father and mother. Though heart-broken° he went on with° his work, and ambitious to become a famous painter of historical pictures,° he decided to spend three more years in Europe visiting the art galleries° and studying the paintings of the great masters.

It was on his return voyage° from France in 1832, on the packet ship° *Sully*, that the inspiration° of the telegraph came to him. The passengers were sitting around the luncheon table,° listening to Dr Jackson of Boston tell about some interesting

experiments° in electro-magnetism° that had been made by European scientists, and every one was greatly interested when told° that electricity passed instantaneously° over wires of any length,° and its presence° could be made visible° in any part of the circuit.° “If that is so,” Morse exclaimed “why should not intelligence° be transmitted° by electricity?” He did not know at the time° that scientists in England, France, and Germany were working on the idea of using the electric current° to send messages, and that in America Joseph Henry° of the Smithsonian Institution° was experimenting along the same line,° having brought the electro-magnet to great perfection.°

The idea took possession of Morse°—he could think of nothing else during the remainder of the voyage. Upon leaving° the boat he said: “Well, captain,° should you hear° of the telegraph one of these days° as the wonder° of the world, remember that the discovery was made on the good° ship *Sully*”.

And now came his gradual transformation° from painter to inventor.° With commissions awaiting him,° and a life of honour and wealth° before him, to the amazement and disappointment of° his many friends, he chose instead° to live in a tiny room in a down-town New York office building,° and there devote° his time and money to working out° his scientific problem.° For nearly five years he lived in this single room, which served alike for° studio,° bedroom, kitchen, and workshop.° Coveting° all the time he could get to work on his

invention,° he painted only enough to earn a scanty living.° But Morse had many influential° friends, and a wide reputation° as a man of great intellectual ability,° and when he was about ready to show° his rather crude model° to the public,° he was appointed Professor of the Arts of Design° in the University of the City of New York. This gave him a home in the university building, and there he moved° his apparatus.°

Here Professor Gale, instructor in chemistry,° gave him valuable scientific help;° and through him° Morse became acquainted with° the work and discoveries of Professor Joseph Henry. Short of° the necessary funds° to perfect his invention, he took into partnership° Alfred Vail,° a wealthy student of high technical ability,° who was to furnish the money needed° and help with the instruments.°

In 1837, the same year that Wheatstone patented° his electric needle telegraph,° Morse and Vail applied for a patent° on the American Electromagnetic Telegraph,° but capitalists° and business men pronounced° it a “wild scheme”——“quite impractical°”. People ridiculed° the idea that messages could be sent over wires in such a mysterious° way. Morse tried to induce Congress° to give him \$30,000 to finance° an experimental line,° but Congress refused to vote° such a large sum of money on an untried enterprise.° Then he took his invention to England, France, and Russia. Statesmen and scientists were much interested in it—the inventor was declared a great genius and highly

honoured.° At one time it seemed as if France and Russia would adopt his system, but in the end° nothing was done.

Imagine his consternation,° when, on returning to America penniless° and disheartened,° he learnt that during his absence his partner's° father had met with° heavy losses° in a financial panic.° The next four years were the darkest° in Morse's life. Nevertheless,° in the face of° their many difficulties, he and young Vail worked patiently on,° and by 1843 their invention was much improved and ready for the crucial° test to which it was put° the following year, when again Morse sought the aid of Congress, and this time° succeeded in getting an appropriation° of \$30,000 to build a forty-mile line from Washington to Baltimore.

In May 1844, the first message was flashed° over the wire. It was received in Baltimore and flashed back, giving immediate proof of the success of the telegraph. Morse's labour of eleven years was now crowned with success.° His system marked by° beautiful simplicity° was soon in general use in all parts of the world. He was universally honoured—orders,° crosses,° and large sums of money were conferred upon° him by foreign governments, and he was given degrees° by European and American universities.

Eventually he became a very wealthy man. He married Miss Griswold° of Poughkeepsie,° and built a charming villa° surrounded by extensive gardens at Locust Grove, on the Hudson.° His delightful home filled with books and pictures became

amous for its gatherings° of distinguished° men and women.

Morse lived to see° the power and scope° of the telegraph vastly° extended by later invention and enterprise, and had the gratification° of seeing the fulfilment° of his prediction,° made many years before, that one day° Europe and America would be connected by telegraph.

In 1858, after several failures, the stupendous° feat° of laying° an electric cable° two thousand five hundred miles across the Atlantic was accomplished through° the wonderful perseverance° of Cyrus W. Field,° an American capitalist, and the great scientists, Sir Charles Bright° and Lord Kelvin;° but it was not wholly a success until 1865, when Lord Kelvin, that great and much-beloved Scottish° genius, had perfected his incredibly° delicate receiving instrument.° This instrument enabled the electricians° to reduce the heavy charges° of current° that were destroying the cables, and also made the cabled message° very accurate° and rapid.

Morse's death in 1872, 'at the ripe age° of eighty-one, was an occasion for national mourning.°

## NOTES

**P. 1.** Electric Telegraph, 電報機.  
Submarine ('sabmeri:n) Cable,  
海底電線.  
genius ('dʒi:njəs), 天才.  
Samuel ('samjuəl) F. B. Morse  
(mo:is), 美國發明家 (1791-1872).

It was...that gave...1844, 在 1844  
年把電報給與世界的便是....  
was busy perfecting (pə'fektɪŋ),  
忙於完成.  
scientists ('saɪəntɪsts), 科學家.  
working on the idea of, 把...做

目的而工作；試驗着計劃....

electricity (ilek'trisiti), 電氣.

messages, 消息.

notably ('noutebli), 特殊地；尤其.

Sir Charles Wheatstone ('wiiltstən), 有名的英國物理學家 (1802-1875).

line, (電)線.

Baltimore ('bɔiltimɔi), 美國東部的大都會.

have since undergone, 從那時候到現在曾經受過.

radical departure, 根本的改革.

self-sacrifice, 自我犧牲；爲了他人的利益而犧牲自己的利益.

patient toil, 忍耐的勤勞.

one = a story.

Charlestown ('tʃaɪlztəʊn), 美國地名. 現在是 Boston 的一部份.

Massachusetts (ˌmæsə'tʃuɪsets), 美國東海岸北部的一洲 (state).

Congregational minister, 組合教會的牧師.

inherited, 遺傳.

dignity, 莊嚴.

love for study, 對於研讀的愛好.

gracious manner, 優美的態度.

keen disappointment, 強烈的失望.

had set his heart on, 專心致志於.

artist, 畫家.

learned ('lə:nɪd) professions, 需要學問的職業 (例如醫師, 教士, 律師, 等).

**P. 2.** Yale (jeil), Connecticut 州 New Haven 城的大學.

chemistry (kemistri), 化學.

physics ('fiziks), 物理.

eventually (i'ventʃuəli), 最後地.

triumphed ('traɪəmfɪt), 勝利.

four=four years.

Benjamin ('bendʒəmin) West, 美國有名畫家 (1738-1820).

great master, 大家.

encouraging progress, 足以鼓勵他的進步.

reverses (ri'veɪsɪz), 不幸事；失敗.

was obliged to turn his work into money, 被迫而變工作成金錢；不得不出賣工作 (指賣畫).

ups and downs, 浮沉；命運的變遷. came to be recognized as, 漸漸被認為.

portraits ('pɔ:trɪts), 肖像畫.

of note, 著名的.

won by his personal charm, 被他的形貌的魔力所引動；因爲他的動人的姿態.

gave talks on art, 作關於藝術的演講.

National Academy of Design, 國民圖案協會.

In the height of his success, 在他最得意的時候.

heart-broken, 非常悲痛的.

went on with, 繼續.

historical pictures, 歷史畫.

art galleries, 美術館.

return voyage, 歸航.

packet ship, 郵船.

inspiration (ˌɪnspe'reɪʃən), 靈感.

luncheon table, 午餐桌子.

**P. 3.** experiments (ɪks'peri-ments), 實驗.

electro-magnetism (i'lektro-'mægnɪtɪzəm), 電磁.

when told=when he was told.

instantaneously (ˌɪnstən'teɪ-njəsli), 立刻.

over wires of any length, 經過任



何長的電綫。

its presence, 它(指電)的存在。  
could be made visible, 能被使它  
被看得見。

circuit (/sə'kit), 電路。

intelligence (in'telidʒəns), 通信;  
消息。

transmitted, 傳遞。

at the time, 在當時。

electric current, 電流。

Joseph (/dʒouzif) Henry, 美國科  
學家 (1797-1878)。

Smithsonian (smiə'sounjən) In-  
stitution, 美國有名的學術協會  
(英國科學家 James Smithson 所  
創立)。

along the same line, 在同一方面。  
brought the electro-magnet to  
great perfection, 使電磁石非常  
完成。

The idea took possession of  
Morse, 這個意念佔有了 Morse;  
Morse 被這個意念所吸引了。

Upon leaving, 一經離去了....

captain, 船長。

should you hear—if you should  
hear.

one of these days, 不久以後的某  
天。

wonder, 奇物。

good, 這字用在“ship”前面是習慣  
用法, 沒有什麼意義。

gradual transformation, 逐漸的  
變化。

from painter to inventor, 從畫家  
變成發明家。

With commissions awaiting him,  
有委任(指請他作畫)等待他。

life of honour and wealth, 尊榮  
和財富的生活 (指作畫成功以後的

生活)。

to the amazement and disap-  
pointment of, 使...驚奇和失望。  
instead=instead of the life of  
honour and wealth.

down-town New York office  
building, 在紐約城市裏的事務所  
大廈。

devote—to devote.

working out, 解決。

served for, 充作。

studio (/stju:'diou), 畫室。

workshop, 工場。

Coveting (/kə'vɪtɪŋ), 貪求; 儘量  
利用。

P. 4. work on his invention, 從  
事於他的發明。

only enough to earn a scanty  
living, 僅夠維持他窮苦的生活。

influential (ɪnflu'entʃəl), 有勢力的  
的。

reputation (ˌrepju'teɪʃən), 名聲。

intellectual ability, 智力。

was about ready to show, 幾乎預  
備顯示。

rather crude model, 頗粗陋的模  
型。

public, 公眾。

Arts of Design, 圖案藝術。

moved, 遷移。

apparatus (ə'pæ'reɪtəs), 器械; 裝  
置。

instructor in chemistry, 化學教  
師。

valuable scientific help, 貴重的科  
學上的援助。

through him, 靠着他的介紹。

became acquainted with, 變成熟  
悉....

Short of, 缺乏。

funds, 資金.  
 took into partnership, 邀...合作.  
 Alfred Vail (veil), 美國發明家  
 (1807-1859).  
 technical ability, 技術上的材能.  
 was to furnish the money needed,  
 必須供給必要的錢.  
 help with the instruments, 在機  
 械方面幫助.  
 patented ('peitəntid), 取得...的  
 專賣特許.  
 electric needle telegraph, 電磁針  
 電信機.  
 applied for a patent, 請求特許權.  
 American Electro-magnetic Tel-  
 egraph, 美國電磁氣電信機.  
 capitalists, 資本家.  
 pronounced (prə'naunst), 宣稱.  
 wild scheme (ski:m), 荒唐的計劃.  
 quite impractical, 全非實際的.  
 ridiculed ('ridikju:ld), 嘲笑.  
 mysterious (mis'tiəriəs), 不可思  
 議的.  
 Congress ('kɒŋɡres), (美國) 國會.  
 finance (fɪ'næns), 供給資本與...  
 experimental (eks'peri'mentl)  
 line, 實驗(電)線.  
 vote, 投票表決而付給.  
 u tried enterprise ('entəpraiz),  
 未試驗的事業.  
**P. 5.** highly honoured, 非常被  
 尊重(前面省去 "was").  
 in the end, 結果地; 到後來.  
 consternation (kɒnstə:'neɪʃən),  
 驚愕.  
 penniless ('penilis), 分文沒有的.  
 disheartened (dis'ha:tnɪd), (被  
 使) 沮喪(的).  
 partner's, 合作者(指 Vail) 的.  
 met with, 遭遇.

heavy losses, 大損失.  
 in a financial panic ('pænik), 經  
 濟上的恐慌.  
 darkest, 最暗澹的.  
 Nevertheless (nevəðə'les), 雖然  
 這樣.  
 in the face of, 不顧.  
 on, 繼續地.  
 crucial ('kru:ʃiəl), 決定的.  
 to which it was put, 它所被使它  
 受的那個(試驗).  
 this time, 這次(和上次不同了).  
 appropriation (ə'prɒpri'eɪʃən),  
 撥付的金額.  
 flashed, 用電報法傳達.  
 was now crowned with success,  
 現在到底成功了.  
 marked by, 有...的特色的.  
 simplicity (sɪm'plisiti), 單純.  
 orders, 勳位.  
 crosses, 勳章.  
 were conferred upon, 被贈給.  
 degrees, 學位.  
 Griswold ('grɪzwɔ:ld), 姓.  
 Poughkeepsie (po'ki:psi), 紐約城  
 附近的都會.  
 villa, 別墅.  
 on the Hudson ('hudsən), 在  
 Hudson 河旁.  
**P. 6.** gatherings, 集會.  
 distinguished (dis'tɪŋɡwɪʃt), 著  
 名的.  
 lived to see, 生而見; 活到能見...  
 的年紀.  
 scope, 範圍.  
 vastly, 廣大地.  
 gratification (grætɪfɪ'keɪʃən), 滿  
 足.  
 fulfilment (fʊl'fɪlmənt), 實現.  
 prediction (prɪ'dɪkʃən), 預言.

one day, 將來必有一天。

stupendous (stju:'pendəs), 巨大的。

feat, 功業。

laying, 敷設。

electric cable, 海底電線。

through, 藉; 因。

perseverance (ˌpə:si'viərəns), 不屈的努力。

Cyrus ('saɪərəs) W. Field, 美國大商人 (18 9-1892)。

Sir Charles Bright, 有名的英國電學家 (1832-1888)。

Lord Kelvin, 對於熱學和電學上有很大貢獻的英國偉大物理學家

(1824-1907)。

Scottish, 蘇格蘭 (Scotland) 的。  
incredibly (in'kredəbli), 難信地;  
非常地。

receiving instrument, 收報機。

electricians (ilek'trifənz), 電機師。

charges, 充電。

current, 電流。

cabled message, 海底電線通信; 海底電報。

accurate ('ækjʊrit), 正確的。

ripe age, 高的年齡。

national mourning, 全國的哀悼。

## THE SEWING-MACHINE°

The sewing-machine ranks as° the greatest labour-saving device° ever introduced° into the household.° It also has made possible° the development of scores of new industries.° From the middle of the eighteenth century many ingenious° persons in England, France, and the United States tried to invent a machine that would imitate° the movements of the needlewoman's° fingers, but nothing really practical was devised° until Elias Howe° of Cambridge,° Massachusetts,° completed and patented in 1846 his lock-stitch° machine, which combined many novel° devices.

Howe was a machinist°—a frail° man, slightly° lame and poor—his wages in the machine shop° were not sufficient to support° his wife and three children. Watching° his wife toiling over her needle° in the evenings to help make both ends

meet° inspired in him a desire° to invent a machine that would lighten° such labour.

Taking counsel of no-one,° he worked on the problem° for a long time in a little shop he set up° in the garret° of his father's house. He was so short of money° that often he was unable to buy the iron and steel needed for his models.° Finally, a coal and wood dealer° in Cambridge, named Fisher, became interested, and in exchange for a half-interest° in the invention took Howe and his family into his own home, provided him with a workshop,° and loaned° him \$500 for the construction of his first machine.

This machine did strong and accurate work; everyone acknowledged° that it was effective,° but no-one would believe in its usefulness.° It was denounced° by dressmakers° and tailors,° who were afraid it would deprive them of° their means of livelihood.° No-one would invest° a dollar in it, and Fisher, becoming discouraged, withdrew.°

Borrowing money from his father, Howe took his machine to England, to see if° he could find a market° for it there. In London he fell into the hands of° an unscrupulous° corset-maker,° who, by the payment to Howe of two hundred and fifty pounds, got possession of° his patent rights° for great Britain, and himself made° at least a million dollars out of the investment.°

Two years later Howe returned home penniless just in time to see° his wife, who was dying of consumption.° He found that during his absence abroad° other inventors had entered the field in

competition with him,° and there were imitations° of his machine on the market with a number of practical features added.°

For° Fisher's half-interest in the invention, and the additional security° of a mortgage° on the farm of Howe's father, a wealthy man advanced° the necessary money to prosecute° the infringers.° The lawsuit° dragged on° in the courts° for over four years. During this time Howe was manufacturing machines in a small way° in New York.

Outstanding competitors° of Howe in the invention of various devices connected with° the sewing-machine and in its manufacture were A. B. Wilson, a Michigan cabinet-maker,° and Isaac° M. Singer, a machinist of Oswego,° New York. Wilson was considered° the most original,° and had perhaps the finest inventive genius of any of the sewing-machine inventors of his day. Singer was not a great inventor—his genius was directed towards making practical° the ideas of others, and with his great business ability he did more than anyone else to arouse the world to° the value of the sewing-machine, by resorting to° the most original and extensive advertising methods.°

In 1854, Howe won a hard-fought victory° in the United States Supreme Court.° In the mean time° his new partner had died, and his heirs,° having no faith in the future of the sewing-machine, had sold their share to Howe for a mere nothing.° Howe was now, for the first time, the sole owner° of his invention. So completely were his rights conceded° by the Court that he received royalties°

on all sewing-machines, of whatsoever kind, made in the United States. In a few years' time, chiefly through Singer's great advertising campaign,° so great was the demand for sewing-machines that Howe's royalties leapt from three hundred dollars to two hundred thousand dollars a year.

Howe's machine was shown at the Paris Exhibition° in 1867, and was awarded° a gold medal, while Howe himself received that much coveted° French decoration,° the Legion of Honour.° But his health had been broken° by his long struggle for success, and in October 1868 he died in Brooklyn° at the age of forty-eight.

Isaac Singer became the founder° of the largest sewing-machine company in the world, and the manufacture and sale of sewing-machines had become a huge industry. Today they are to be found in every corner of the globe.° Their development and the innumerable purposes° for which they are employed is amazing. The 'household type'° has been improved and modified° to carry special attachments,° until now it can handle° a great variety of work, and the most modern machines are run° electrically.° For factory use there are machines for sewing almost every article of clothing;° and others for upholstery,° sewing carpets, leather goods,° canvas,° and shoes. There are machines with four, six, and eight needles for making gloves.° These are only a few of the important uses of the sewing-machine. More than six hundred kinds are made by one company, some of which run as fast as four thousand stitches° a minute.

NOTES

**P. 10.** Sewing-machine (/sou-  
ingmə'fi:ln), 縫紉機.

ranks as, 佔着...的地位.

labour-saving device, 省勞力的發  
明物.

ever introduced, 曾被介紹的.

household (/haushould), 家庭.

made possible, 使...可能.

scores of new industries, 數十種  
新工業.

ingenious (in'dʒi:injəs), 有創造本  
領的.

imitate (/imiteit), 仿效.

needlewoman's, 縫紉女子的.

devised, 計劃出來.

Elias (i'laɪəs) Howe (hau), 美國  
發明家 (1819-1867).

Cambridge (/keimbridʒ), 英國的  
都會.

Massachusetts (\mæssə'tʃulsets),  
美國東部的一州 (state).

lock-stitch, 雙線縫針.

novel, 新奇的.

machinist (mə'ʃi:nist), 機械工.

frail, 虛弱的.

slightly, 稍少地.

machine shop, 機械工場.

support, 維持; 瞻養.

Watching, 注視 (這字是全句的  
subject).

toiling over her needle, 勤苦地縫  
着.

**P. 11.** make both ends meet, 使  
出入相抵.

inspired in him a desire, 使他的  
心裏起了一種慾望.

lighten, 減輕.

Taking counsel of no-one, 不和誰

商議.

worked on the problem, 從事於這  
問題.

set up, 設立.

garret, 屋頂室.

short of money, 缺乏錢的.

models, 模型.

coal and wood dealer, 煤和木柴的  
商人.

in exchange for a half-interest,  
交換一半的利益; 把佔有一半利益  
做條件.

workshop, 工場.

loaned, 借給.

acknowledged (æk'nɒlɪdʒd), 承認.

effective, 有效的.

believe in its usefulness, 相信它  
的有用.

denounced (di'naunst), 公然非難.

dressmakers, 女子衣服的製者.

tailors, 男子衣服的製者.

deprive them of, 奪去他們的....

means of livelihood (/laɪvlihud),  
生計.

invest, 投(資).

withdrew (wið'dru:), 退出.

if=whether, 是否.

market, 銷場.

fell into the hands of, 落入...的  
手中.

unscrupulous (ʌn'skru:pjʊləs),  
沒良心的.

corset-maker, 製婦人胸衣者.

got possession of, 取得.

patent rights, 特許權.

made, 賺得.

out of the investment, 從這投資.

just in time to see, 恰巧來得及看見.

was dying of consumption, (kən'sampʃən), 將死於肺病。

during his absence abroad, 當他在海外而不在本國的時期。

**P. 12.** entered the field in competition with him, 開始和他競爭。imitations (imi'teɪʃənz), 做造品。with a number of practical features added, 加上了幾個實用的特色。

For, 把得到...做條件。

additional security, 另加的擔保。mortgage ('mɔːɡɪdʒ), 抵押。

advanced, 墊(款)。

prosecute ('prɒsɪkjʊt), 告發。

infringers (ɪn'frɪndʒəz), 侵害他人者。

lawsuit ('ləʊsjuːt), 訴訟。

dragged on, 延長。

courts, 法院。

in a small way, 小規模地。

Outstanding competitors (kəm'petɪtəz), 明顯的競爭者。

connected with, 和...有關的。

Michigan ('mɪʃɪɡən) cabinet-maker, Michigan 州的家具工人。

Isaak ('aɪzək), 人名。

Oswego (ɒz'wiːɡəʊ), 紐約州的都會。

was considered, 被認為。

original (ə'rɪdʒənəl), 獨創的。

was directed towards making practical, 被使趨向於使...實際化。

arouse the world to, 使世人感到。resorting to, 憑藉; 依賴。

advertising ('ædvətaɪzɪŋ) methods, 廣告的方法。

hard-fought victory, 惡戰苦鬪(而得)的勝利。

Supreme Court, 最高法院。

In the mean time, 其時。

heirs (eəz), 承繼人。

for a mere nothing, 幾乎一無所得地。

sole owner, 唯一的所有者。

So completely were his rights conceded=His rights were conceded so completely, 他的權利這樣完全地被給與。

royalties ('rɔɪəltɪz), 特許權使用費。

**P. 13.** campaign (kəm'peɪn), 運動。

Exhibition (ˌeksɪ'bɪʃən), 展覽會。was awarded, 被授。

much coveted ('kʌvɪtɪd), 被非常熱望的。

decoration (ˌdeke'reɪʃən), 勳章。

Legion ('liːdʒən) of Honour, 法國勳位名; 在1802年創立。

broken, 損壞。

Brooklyn ('brʊklɪn), 紐約城的一部。

founder, 設立者。

globe, 地球。

innumerable purposes, 無數的用途。

household type, 家庭用的一種樣式。

modified ('mɒdɪfaɪd), 變更。

carry special attachments, 帶有特別的附屬品。

handle, 處理。

run, 運用。

electrically (ɪ'lektrɪkəli), 用電氣地。

every article of clothing, 衣類的每種物品。

upholstery (ʌp'həʊlɪstəri), 室內裝飾品。



leather goods, 革製品.  
canvas ('kænvəs), 帆布.

gloves (glavz), 手套.  
stitches, 針.

## THE ELEVATOR°

In the present age we are so accustomed to mechanical miracles° that the modern elevator is taken for granted° by the millions° who use it every day. Yet, less than a century ago people looked with fear upon° any device to lift them off the ground. Land in American cities was cheap, and buildings were small, so that vertical transportation° was not an urgent necessity, and no-one gave it more than a passing thought°. Following experiments with elevators°, in which there had been accidents°, periodicals° of the day merely mentioned “elevator perils°”.

Then came a change—the year 1852 brought the first safe elevator. In what was then a little town°, Yonkers°, on the Hudson°, not far from the city of New York, Elisha Graves Otis°, of Vermont°, designed° the first hoisting mechanism° in which the main hazard° of accident was eliminated°. The following year Mr Otis exhibited° at the Industrial Exposition° in New York a model of this hoist° with the safety device° he had invented.

His model consisted of° a platform moving between guides°, which would come to rest° if the hoisting ropes should break. It was the first of all mechanical safety devices designed to function° automatically° to safeguard° human life°. The automatic air-brake°, invented by George Westing-