H. K. PORTER & CO.

PITTSBURGH,

PENNA.

E. M. Harden

H K PORTER & CO

BUILDERS OF

LIGHT LOCOMOTIVES

OF EVERY DESCRIPTION

Their Plant and Facilities and
Examples of their Finished Products

PITTSBURGH PA

ARMSTRONG & FEARS
HARRISON BUILDING
PHILADELPHIA PA

PUBLISHED BY
ARMSTRONG & FEARS
HARRISON BUILDING
PHILADELPHIA PA

PREFACE

This volume is published in the interest of our present operations. In it we desire to show the extent and character of our facilities and graphically illustrate our finished products. As this work is designed for a business enterprise, for the quick eye and limited time of the business man, it was found imperative to condense the matter to a considerable extent, rendering the use of many illustrations necessary to supply the place of ordinary text; therefore, through the entire book will be found half-tone cuts, which will show, in detail, the points we wish to exemplify.

The advertisements inserted are from firms personally known to us, and whom we can recommend as standing foremost in their respective lines, and we are therefore glad to take the opportunity, by distributing these books, of placing their names before our friends.

HISTORICAL

The firm of Smith & Porter began business in 1866 in a single room with rented power on Twenty-eighth Street, Pittsburgh. The entire force consisted of the two members of the firm, one machinist and one apprentice. Within six months a shop building was begun on Bingham Street, Pittsburgh, in the manufacturing district on the south side of the Monongahela River. This was originally a one-story frame structure, and two more stories were soon added. Quite a number of stationary engines, many of which are still running, were built in this shop. On March 4, 1867, the first locomotive was contracted for, and after nearly nine months' effort it was shipped on Thanksgiving Day. This was a four-wheel saddle tank locomotive, 42 inches gauge. When completed it was run to the railroad depot for shipment, by its own power, on the street car rails, utilizing the space between the two double tracks. The route led across the old Monongahela bridge, one of the earliest built by Roebling, and long since replaced. The weight of the locomotive, about 11 tons, caused great anxiety, as this was considered close to the safe limit for suspension bridges. The bridge toll schedule did not provide for locomotives, and the toll keeper exacted toll at elephant classification. This original first light locomotive saved its cost to the purchaser inside of six weeks, and was still running when heard from some two years ago. In 1868 a locomotive was shipped, by its own steam, to a river point inaccessible by rail, by jacking it up on a flat boat, and attaching the rods to a stern paddle-wheel. In 1869 several queer looking inside connected mine locomotives were shipped to Johnstown. These machines were so small that a man of ordinary height could stand on the track and look down into the smoke-stack, and were used many years in the coal mines and mills of the Cambria Iron Company. The same mines are now operated by H. K. Porter

& Co.'s powerful compressed-air locomotives of the most modern and improved type. Locomotives were also built in this year for United States Government work, and for the construction of the Hoosac Tunnel. In 1870 nineteen locomotives were built of various types, including locomotives for logging, underground and surface work at coal and iron mines, and for contractors' use. Four locomotives of about 14 tons weight were shipped to Duluth, which were used in the construction of the Northern Pacific Railroad.

On February 7, 1871, at about 5.30 A.M., the old shop was discovered to be on fire, and when the hands came to work nothing was left but hot ashes and scrap iron. Soon after the fire the style of the firm was changed to Porter, Bell & Co., and a new site was selected in a different part of Pittsburgh, on the Allegheny Valley Railway. The new shops were at first surrounded by open fields, and almost in the woods, but at the present time this district, with its fine facilities for the receipt of raw material and for shipment of finished product, is crowded with immense and busy manufactories. The first locomotive built at the new site was shipped in June, before the shops were roofed in. In 1872 thirty-four locomotives were turned out, including a small shifting engine for Kloman & Carnegie Brothers, a firm which has since grown into the great Carnegie Steel Company, and which, at its various furnaces, steel mills, ore mines and at the works of its associated industry, the Frick Coke Company, keeps more than fifty of H. K. Porter & Co.'s locomotives hard at work. In this same year a small narrow-gauge locomotive was shipped to the Red Mountain Coal and Iron Company, of Alabama, an enterprise which was one of the beginnings of the Tennessee Coal, Iron and R'y Co., who have many of H. K. Porter & Co.'s locomotives in use. 1872 also marked the beginning of the narrow gauge excitement, and from this time narrow-gauge passenger and freight locomotives have been an important part of the product. Some of these early passenger locomotives, with driving wheels only 44 inches diameter, were operated at sixty miles per hour. In 1873, a number of logging locomotives were sent to the Southern States, and passenger and freight locomotives were exported to Ecuador and Peru. In 1875 the first locomotive with the boiler wholly of steel plates was built. Crucible steel was used, at a cost of about 20 cents per pound, and more resembling edge-tool steel than the present tough, ductile open-hearth steel, which has since made American boilers famous, and which was then unknown. In 1876 the

shops were greatly enlarged, and the first steam street motors, popularly known as "dummies," were built. In 1877 the first logging locomotives for Michigan were built. These rapidly displaced the old method of winter logging by sleds, and for a number of years the shops were never without locomotives under construction for Michigan. Some of these logging locomotives were hauled on wagons many miles to the timber tracts, and others were run by their own steam over dirt roads, with horses to pull the locomotive around stumps. The first Louisiana sugar plantation locomotive was also built in 1877. In 1878 the firm of Porter, Bell & Co. was dissolved by the death of Mr. Arthur W. Bell, and the present firm of H. K. Porter & Co. was organized. In this year the first locomotive for the South Carolina phosphate mines was built; and a locomotive was shipped to the United States of Colombia, taken apart in 300-pound pieces. This arrangement was necessary for hauling mule-back over some fifty miles of mountain passes, and required dividing the boiler and other heavy pieces into a number of sections. This method of construction has since been applied to other foreign shipments. In 1880, the first locomotives were exported to Japan, being the first locomotives shipped from America to Asia. A little machine for the copper mines of Arizona was also built for a track only 20 inches gauge. In 1882 the first coke-oven locomotive for the Connellsville district was built. In 1883 locomotives were shipped to the Panama Canal, which proved so superior to the French locomotives as to bring additional orders. The years 1884 to 1887 were noted for the unusual number of locomotives built for steel works, contractors and mines. Locomotive No. 1,000 was built in 1888. In 1889 the number of locomotives shipped to Brazil and other South American markets was larger than in any preceding year. The years 1888 and 1889 were high-water mark for the output of noiseless steam street motors. In 1891 the first compressed-air mine locomotive was constructed. This system of haulage is now recognized as the safest and most economical and reliable for underground work, and for surface work subject to extra hazard from fire. In 1892 a locomotive was shipped to nitrate mines in South America at an elevation of 12,000 feet above sea level.

Among more recent machines with peculiar features of construction may be mentioned a Forney locomotive of such proportion of size of cylinders to gauge of track that the combined diameters of the two cylinders were four inches greater

than the gauge of track, the cylinder diameter being 12 and the track gauge 20 inches; also a consolidation freight locomotive weighing 44 tons, and with cylinders 16 inches diameter for 36 inches gauge of track; mine locomotives for home use, and banana locomotives for export, with cylinders only 5 inches diameter by 8 inches stroke; compressed-air mine locomotives weighing only 5 tons for 18 inches gauge of track; mine locomotives less than 4 feet in height; and compressed-air street cars.

H. K. Porter & Co. have built locomotives for gauges of track, varying almost by half inches from 18 to 72 inches, and weighing from 4 to 45 tons. These locomotives are at work in the various States and Territories of the United States, including Alaska; the various divisions of Canada, Mexico, Nicaragua, San Salvador, Honduras, Guatemala, Yucatan, Colombia, Venezuela, British and Dutch Guiana, Brazil, Uruguay, Argentine, Chile, Peru, Ecuador, Cuba, Haiti, Puerto Rico, San Domingo, Hawaii, Japan, Finland, Russia and South Africa. One marked peculiarity of the Light Locomotive business is the great variety of designs built, and the equal variety of service for which these locomotives are used. In addition to the designs for freight, passenger, switching and other ordinary railroad uses, there are special designs for a multiplicity of special purposes, among which are—surface and underground haulage at gold, silver, copper, iron, coal and other mines; phosphate mines; stripping; working over tailings; brick works; clay banks; cement, asbestos and stone quarries; logging railroads, lumber yards, and refuse burners; contractors' service; government construction work at docks, fortifications, canals, harbor improvements, and navy yards; plantations; steel works, iron mills, blast furnaces; copper and silver smelting works; coke ovens; pleasure and excursion roads; street and suburban railroads; manufactories of cars, car wheels, tires, plate glass, sewing machines, wood-working machines, mowing and reaping and threshing machines, cerealine, sewer-pipe, gas and cast-iron pipe; and in industrial establishments of many other kinds.

Illustrations are presented in the following pages of a few types out of the hundreds of varieties.

At frequent intervals the shops have been enlarged to meet the demands of a growing business. The year 1876 was marked by the first considerable enlargement. In 1882 new shops were added and the capacity practically doubled. In 1894 a more radical improvement and increase was undertaken,

with new machine and erecting shops, smith shop, boiler shop, wood shop and office. These improvements brought the capacity of the works up to about 300 locomotives annually. At the present time still greater enlargements are in progress, with new foundry, erecting floors, and enlargements and improvements in other departments which will still further increase the capacity of the works, and give facilities for constructing locomotives of heavier weight. A number of views of various parts of the shops are presented in the following pages.

THE SMITH SHOP.

The steam hammers are placed centrally. The large heating furnace is in the rear right-hand corner, behind the hammer. Forge fires and anvils are placed along each side of the shop. This smith shop is a modern steel structure, well lighted and provided with every appliance for economical and perfect work.