

and are thirty feet in height above low water, and have a width at the bottom of nine feet, and at the top under the coping (which projects nine inches on all sides) of six and one half feet. They are all built of heavy cut stone laid in cement.

The face stones are all clamped together by iron clamps, and, in addition, the two faces of the pier are tied together by iron bars at intervals on each course along the front, extending through the pier from side to side; and still further to insure the strength of the masonry, the head stones are all dowed together with iron dowels—each stone to the stones both above and below.

The bridge has been constructed by "The Albany Bridge Company," constituted mainly of directors in the different railroads centering at Albany, and it is understood that it is owned one-half by the New York Central Railroad, and one quarter each by the Hudson River and Albany and Boston Roads. The total cost of the bridge has been over a million of dollars.

HOW THE PACIFIC RAILWAY IS BUILT.

From an able correspondent of the Cincinnati *Gazette*, who accompanied the senatorial party, we learn the *modus operandi* of the construction of the great trans-continental road, which is steadily progressing at the rate of two miles per day.

"There is really little known by the people of the character of the enterprise. Most think that a company of capitalists are hastily putting down a rude track, over which cars can be moved with care, for the purpose of securing lands and money from the government. The fact is, that one of the most complete roads of which the country can boast, with equipments that surpass many, is being laid with a speed that fails to impress the nation, simply because it is not believed. But let the facts tell their plain yet wonderful story.

"General J. S. and D. C. Casement, of Ohio, grade the road, lay the track, and put up the telegraph. The graders go first. There are two thousand of them. Their advance is near the Beach Hills. They protect themselves and are digging the great fortification which makes the future sure for us, on through Indian battle fields while the daily fight goes on. Their work is done to Julesburg.

"Of tie-getters and wood choppers there are one thousand five hundred. Their axes are resounding in the Black Hills, over Laramie Plains, and in the passes of the Rocky Mountains. They have one hundred thousand ties in these hills awaiting safeguards for trains to haul them.

"A mile in advance of the track layers are the squads which place the tiers. There are three of these. First, however, the engineers set their leveling stakes at distances of one hundred feet on the straight lines and fifty feet on curves. At each of these points sawed ties are placed and leveled by them. Then come two men with a measuring rod, marking off spaces equal to the length of a rail, and also the half of this space. These sawed ties are laid by the second squad, to give firm support to the ends and middle of each rail. These are placed by sighting along the guide ties already laid. The third squad then place the intermediate ties, and the bed is then ready for the iron.

"Now go back twenty miles on the road and look at the immense construction trains loaded with ties, and rails, and all things needed for the work. It is like the grand reserve of an army. Six miles back are other trains of like character. These are the second line. Next, near the terminus, and following it hour by hour, are the boarding cars and a construction train, which answer to the actual battle line. The one is the camp; the other is the ammunition used in the fight.

"The boarding cars are each eighty feet long. Some are fitted with berths; two are dining halls; one is a kitchen, storeroom and office. Under the whole those men who prefer fresh air have swung hammocks. Rifles are hung overhead, plentiful in number, loaded, and convenient. The party protects itself without attention from the government. The track-laying gang numbers 400. On the 350 miles already built there are 1,000 track repairers constantly improving the road bed.

"The boarding cars go in advance. They are pushed to the extremity of the track; a construction train then runs up, unloads its material and starts back to bring another from the second line. The boarding train is then run back till it has cleared the unloaded material.

"Three trucks, each drawn by two horses, ply between the track layers and their supplies. The horses run outside the track, pulling with a long tow line, as boats are moved on canals. They must be out of the way of the workmen. One of these trucks takes on a load of rails, about forty, with the proper proportion of spikes and chairs, making a load, when the horses are started off on a full gallop for the track layers. On each side of these trucks are rollers to facilitate running off the iron. On reaching the end of the last rail the truck is stopped. A single horse is attached to move it over each successive rail. Meantime, the truck last emptied has been turned on its side to allow the loaded one to go to the front. The two horses released are started back on a keen gallop for another supply. The third one moves up in like manner, and thus through all the day they are rushing forward with their iron load. To see them, and reflect what their rush and roaring means, is as exciting as it ever was to watch a battery thunder into position at a needed moment, at the vital point in its line.

"The rails within reach, parties of five men stand on either side. One in the rear throws a rail upon the rollers, three in advance seize it, and run out with it to the proper

distance. The chairs have, meantime, been set under the last rails placed. The two men in the rear with a single swing, force the end of the rail into the chair, and the chief of the squad calls out 'down,' in a tone that equals the 'forward' to an army. Every thirty seconds there came that brave 'down,' 'down,' on either side of the track. They were the pendulum beats of a mighty era; they marked the time of the march and its regulation step.

"One of the rear men drove the cars, in addition to handing the rail. The horses started as each rail fell into his place, the truck rolled on to the end of it; a second rail was projected into the wilderness, with the same precision and haste; then came the magic 'down,' the car moved on again, and another length was accomplished.

"Two spikers followed each rail, one party a little in advance of the other. One rail was fastened at the end and at the middle. The second party then drew the opposite rail to the exact gage, and fastened it at the middle and the end. Then came other squads of spikers, moving along with the precision of military drill, each having a particular spike to drive, and no one interfering with another. Track liners followed these, and with their crowbars rectified the line. The fillers came last. One party of these filled and packed the spaces at the ends and middle of the rails; the other completed the intermediate intervals, and the job was left till the squads of track repairers should come up and finish the ballasting. But as the fillers leave it, full trains can run over it with safety at twenty miles an hour.

"These are the dry details. Let the reader picture the scene. The rush of the loaded truck; the successive dropping of the rails in place; the rattle of the spiker's hammer, sounding like a hotly contested skirmish; the roar of the distant supply trains moving up; the resounding of the frequent signals, near at hand; the universal bustle; the 'rumble, and grumble, and roar' of the wonderful advance. Let the elements of savage warfare and the actual presence of hostile Sioux along the bluffs be woven into the picture, and together it forms one that the world has not seen before, and which the stories of magic can scarcely equal.

"Nor is any of this energy wasted. If it is asked: 'How does the work get on?' again let the facts answer. On the 9th of May, 1866, but forty miles of road were completed. In a hundred and eighty-two working days thereafter two hundred and forty-five additional miles were laid and put in prime condition, every rail, and tie, and spike having been brought up from the rear. Seven saw mills furnish the ties and lumber. All bridges are framed, the pieces numbered, and set up where wanted without the least delay. The bridge at Loup Fork is fifteen hundred feet long, and as fine a Howe truss as can be found in the land. While our train was running the sixty miles from North Platte, over a mile of track had been put down and one train passed over it. From one o'clock till four in the afternoon a mile and two hundred feet were added to this while the party were looking on. The progress was astonishing, and the more so because the ground was wet and the soil stiff and hard with alkali.

"Unless driven off by Indians, which does not now seem probable, the road will touch the base of the Rocky Mountains the coming autumn. The California end has already reached a point about a hundred miles east, and is descending the eastern slope of the Sierra Nevadas into the valley of the Humboldt. It is confidently expected that Salt Lake will be reached next year, and that 1870 will see the whole line completed. While the nation has scarcely heard of what was being done, the work has been near one-third accomplished."

A PHILADELPHIA NEWSPAPER ESTABLISHMENT.

The new and splendid building of the *Public Ledger* newspaper, at Philadelphia, was inaugurated on the 20th inst., and the proprietor made it the occasion of a remarkable festive gathering of remarkable people. Many of the prominent newspaper personages from all parts of the country were present and after inspecting the new establishment the company adjourned to the spacious dining rooms of the Continental Hotel, where a magnificent repast was provided, and many fine speeches were made.

The new *Ledger* building is one of the largest printing houses in the Union, very beautiful in architecture, located on the corner of Sixth and Chestnut streets. Every portion of the establishment is complete with regard to light, heating, ventilation, and other comforts. The office and editorial rooms are furnished splendidly. The composing room is on the upper floor, which, by aid of a Mansard roof, has a height of twenty-one feet. The main entrance is ornamented by a sculptured coat-of-arms of Pennsylvania, and over the doorway at the corner of the streets, is a pedestal sustaining a statue of Franklin, in whose right hand is a lightning rod, which at night will emit gas jets. At the base of the pedestal is a public drinking fountain. The press room has a height of over twenty-three feet, contains the Harrison boilers, and is to be filled with Hoe's great presses, folding machines, etc. There is not a more complete newspaper establishment in the world.

The *Public Ledger* belongs to the class of cheap or popular daily newspapers. It has been in existence for more than a quarter of a century, and until the breaking out of the war was always sold at one cent per copy. But taxation has deprived the people of the luxury of penny newspapers, and now the *Ledger* readers pay two cents.

The *Ledger* is one of the best daily newspapers in the country, and wields an immense influence for good, in Philadelphia and vicinity. Everybody reads it, trusts it, and follows its counsels. Any thing published in the *Ledger* is regarded by all Philadelphians as authentic. The *Ledger* has a daily circulation of 70,000 copies, an immense weekly edi-

tion, and probably more than half a million readers. The *Ledger* was established by Swain, Abell & Simmons. After the death of the last named, a few years ago, Mr. George W. Childs became the proprietor, under whose auspices the establishment continues to prosper. Mr. Childs is a young man of ability and popularity. His success in life has been well earned, and he understands the responsibilities which rest upon him as the owner of a great newspaper.

One of the peculiarities of the *Public Ledger*, is an entire absence from its columns of self laudation, puffery, clap-trap, and braggadocio. Its news and its discussions of public questions, have always been characterized by truthfulness, and an apparent desire to disseminate correct information. If it did not agree with its cotemporaries, it never called them knaves and scoundrels, by way of argument; but stated its views dispassionately, and thus acquired universal esteem and respect.

The editorial management of the *Ledger* has always been remarkably excellent, and we think that to this fact the success of the paper is in a great measure due.

The editor-in-chief is Mr. Wm. V. McKean, a gentleman of rare qualities for this responsible position. In person he is rather under the medium stature, of compact organization, nervous temperament, large brain, quick perception, fine taste, well balanced mind, safe, cautious, prudent, a ready writer, an acute observer, thoroughly posted upon all subjects, and full of strong, practical common sense. He is indeed a model editor.

Long may the national banners wave from the proud turrets of the *Ledger* building, betokening prosperity to those within her walls and public confidence in their honorable labors.

FRENCH OCEAN STEAMERS.

We learn from the report of the French Trans-atlantic steam navigation company, presented to its shareholders at their annual meeting held in Paris on the 13th ult., some interesting facts in regard to the speed of vessels belonging to this company. Tables drawn up by the post office authorities show that in eleven complete trips from Brest to New York and return, made by the *Ville de Paris* and the *Pereire* between March 1866, and February 1867, in an interval of about twelve months, comprising both the summer and winter seasons, the average speed was 12.8 knots instead of the 11.5 knots required by the terms of the contract. This speed, says the report, we believe has not been equalled even in England; it exceeds by two-tenths of a knot, the average runs of the celebrated *Scotia*, as stated in official documents. One of the quickest passages on record since the commencement of steam navigation between Europe and America, was made by the *Ville de Paris* between the 21st and 30th of July 1866, the average speed of that steamer having been 13.60 knots in a run of 3,000 nautical miles, from port to port. The propeller *St. Laurent*, in one of her passages made 12.10 knots, running 350 nautical miles in twenty-four hours for four consecutive days. The last passage of the *Pereire*, between Havre and this port, was made in nine days and four hours from dock to dock.

In comparing the relative advantages of screw and side wheel steamers, the report asserts the use of the screw propellers for vessels of equal tonnage, a saving of about twenty-five per cent in fuel, with an increase of twenty per cent in speed. The results appear to the directors so satisfactory that two steamers the *Washington* and *Lafayette*, of excellent nautical qualities, but too slow for present requirements are to be fitted with double screws, which recent successful trials in England and in the French imperial navy prove, possess the advantage of being more easily and more economically adapted than the single screw to vessels already built. The saving of fuel and increase of space reserved for passengers and freight, it is claimed will more than balance the cost of transformation.

Internal Revenue Decision.

TREASURY DEPARTMENT,
OFFICE OF INTERNAL REVENUE,
WASHINGTON, June 14, 1867.

SIR: In your letter of the 13th inst. you inquire whether a manufacturer of patented articles is bound to return the full price at which they are sold, including the patent fee, or whether he should be allowed to deduct said fee.

In reply I have to say that whenever a patent enters into the combination of an article or machine, giving additional value to the same, and enhancing its cost or price to the purchaser, such patent becomes an element of value, and cannot be separated any more than any other element of value. The actual sales' price, including royalty, must be returned for taxation. Yours, respectfully,

E. A. ROLLINS, Commissioner.

OBITUARY.

HON. ISAAC NEWTON, Commissioner of Agriculture, died at Washington, June 19th, at the age of sixty-seven, having been born in March, 1800. He was appointed in 1861 Chief Clerk in the Bureau of Agriculture, and in 1862 to the position made vacant by his death. The duties of the office he held were not such as permitted the exhibition of brilliancy of talent, but demanded industry, application, and much patient care, qualities which Mr. Newton undeniably possessed. He was a gentleman highly esteemed by those who knew him for his courtesy, affability, and purity of character.

THE "Modern Carpenter and Builder," noticed in our last issue, is published by Howard Challen, No. 1,308 Chestnut street, Philadelphia.