Cultivation of the Cinchona.

The republic of Guatemala has engaged Mr. Forsythe, a planter from Ceylon, to introduce into Guatemala half a million of the trees that bear the Peruvian bark, from which is distilled the salts known as quinine. Mr. Forsythe has ridden 1,000 miles through Central America in search of the best sites. He states that the rapid increase in the number of uses to which cinchona bark is put, not only for the manufacture of quinine and as an ingredient in the substitute for hops, but also for various commercial purposes, has led President Barrios to try this experiment.

LUMINOUS ATTACHMENT FOR HARNESS.

A novel application of luminous paint is illustrated in the accompanying engraving. The advantages of it will be

LUMINOUS ATTACHMENT FOR HARNESS.

apparent without special description. Any part of the harness, but preferably some part of the bridle, is coated with luminous paint, which is allowed to absorb light during the day and give it out during the night. This will render the parts thus treated visible, so that the position of the horse may be readily seen in the dark. As a modification of this device, the inventor proposes to treat some kind of a plate or tablet with luminous paint and attach it to the bridle or harness. Mr. Ernest F. Pflueger, of Akron, O., is the patentee of this invention.

How We Lived Forty Years Ago.

To go back forty years, fully as useful a contrast and as instructive a comparison may be made as to bring the early settler from England, Holland, and France in opposition to their descendants of two hundred years later. In 1843 and for some period thence onward, money, as currency, was scarce. Possibly general business suffered for want of the medium of exchange. Money, in bills or coin, had a value that would be looked upon now as almost a worshiping of a fetich. "One dollar a day" was "a good day's pay," and so it was considered even for fairly skillful labor. Several men, for instance, were employed in squaring, by chalk line and broad ax, the round timbers to form the framing of a dam. Others bored the holes for mortises and chiseled them out. Others did the "scribing," the sawing, and dressing of the tenons. Few of them got over one and a quarter dollars per day "from sunup to sundown." The man who could "scribe," and who laid out the job, got perhaps one dollar and fifty cents. The machinist got from one dollar and fifty to two dollars per day; and he who got the two dollars was a fortunate man; and for that time he was a competent man. Laborers had fifty cents per day, and in haying time, when several days' ordinary work must be crowded into twelve, fourteen, or possibly sixteen hours, they got seventy-five cents. Special workmen, apt at any jobs, one dollar.

Now this is a fair showing of the value of labor forty years ago. What was the relative value of housing, fuel, food, and clothing? Rents were low. A good house for the times cost from $25 to $40 per year. Fuel—wood—was somewhat less than it can be furnished, as coal now, at any place remote from the mines; say for an ordinary family six cords of hickory, $24; now four tons of coal (two fires), about equal. Food cost less forty years ago than now; but it was not the same food. Fresh meat once, or at most twice, a week, and rarely that except in "the killing season;" fish caught at the stream or pond, or hawked about at four cents a pound dressed. Vegetables from the garden, or from the market at twenty-five cents a bushel for potatoes and less prices for turnips. Onions almost as dear as now, and cabbages no cheaper. Clothing can be bought cheaper now than it could be forty years ago, and it is cheaper in more than one sense. Perhaps it would be better for the country at large if better clothing at higher prices should be the rule.

It is scarcely necessary to add to "how we lived forty years ago" any statement of how we live or how we might live now. It is enough to the present earner of his bread by labor to know of the annoyances and lack of opportunities of his predecessor. A glance over the condition of forty years ago and the present condition will convince any unprejudiced mind that an improvement has been made in the condition of our workers, and that the worker of to-day gets a better return for his labor than he did forty years ago. And this statement applies as nearly to the unskilled worker as to the adept mechanic. Only that the advantage now, as ever before, holds with the intelligent, skilled, experienced mechanic.

An Important Decision.

A decision has been handed down by Judge Blatchford as Circuit Judge of the Southern District of New York in the action of the Gramme Electrical Company against the Arnoux & Hockhausen Electrical Company, which was brought in equity for the infringement of letters patent granted to Zenobe Theophile Gramme and Eardley Koms Charles d'Ivernois, October 17, 1871, for seventeen years from that day for an improvement in magneto electric machines. It is set up for the defense that the patentees obtained a patent in Austria on December 30, 1871, and that an application was filed in the United States Patent Office on August 17, 1870. The court holds that as the Austrian patent expired at the latest on December 30, 1880, and before this suit was brought, and No. 120,057 continued to exist no longer, there was no ground for this suit in equity when it was brought. "The novelty of the invention patented is attacked, and it is also contended that the patent is invalid, because it was issued for a term of seventeen years and not for a shorter term. But the consideration of these questions is unnecessary, and the bill is dismissed with costs."

The Tornado at Rochester.

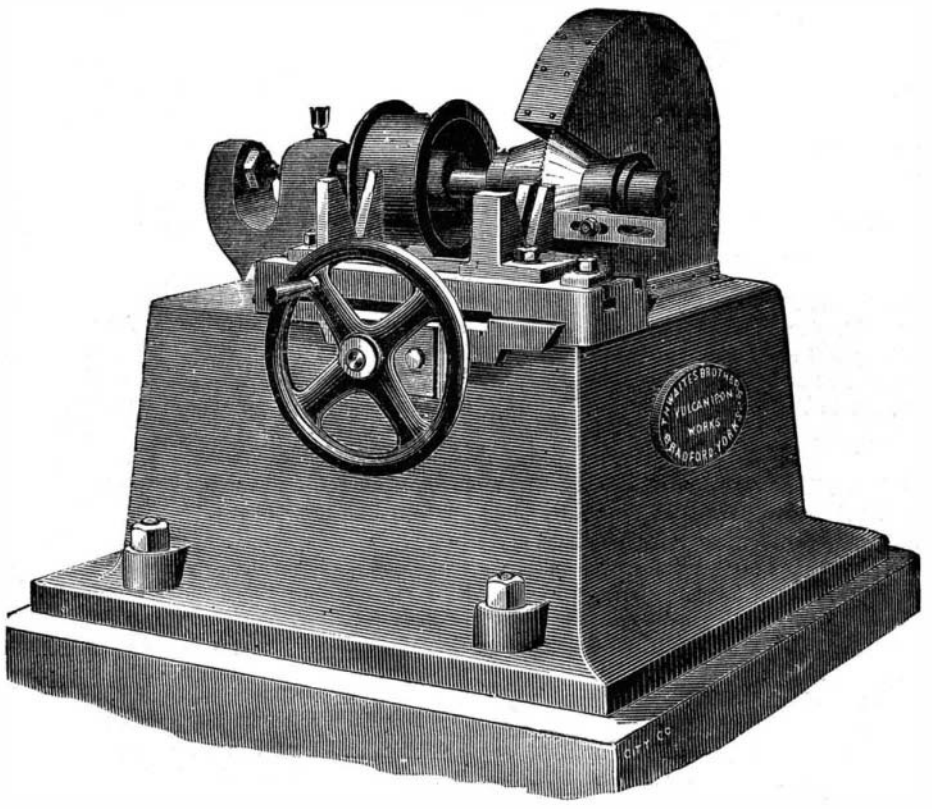
The wind that destroyed the town of Rochester, Minnesota, August 24, was attended with many remarkable results. On the grounds of F. A. Poole, opposite the court house, a curious freak of the storm is to be seen. A pine board, about six feet long and four inches wide, is driven endways through the trunk of a maple tree six inches thick, and remains embedded in it.

The wife of one farmer, who was in the field, started for the house, but failed to reach it. She ran for a stake in the field, but was blown almost to pieces. The stake was driven through her body, and her limbs torn off so that they have not yet been found.

The Hon. John McCall, of Winona, was killed near his elevator. He had started for the house, across the way, but had evidently been caught in the air and whipped on to the earth, for the grass was swept clean where he was found and every bone in his body was broken.

CIRCULAR SAW FOR HOT IRON.

We illustrate a circular saw for hot iron by Thwaites Brothers, of Bradford. It is a simple and handy tool, useful in a smith's shop, and capable of promoting economy in wages, fuel, and iron. The saws are made in different sizes



CIRCULAR SAW FOR HOT IRON.

from 21 to 36 inches diameter. The one exhibited at the Engineering Exhibition, and herewith illustrated, is 36 inches diameter. The saw is of the best steel, mounted upon a cast steel spindle, and runs, says *Iron*, at a speed of from 1,500 to 2,000 revolutions per minute. The bearings are of phosphor bronze, and the saw runs in a water trough which is formed in the bed. For sawing bars to dead lengths a moving slide is provided. The saw is covered in with a wrought iron guard. The bar is fed up to the saw on the slide rest by the hand wheel and quick threaded screw. The whole arrangement is compact, and the machine occupies but a small space.

What Constitutes a Carload.

Railroads do not exactly agree in their rules and estimates, but it is generally conceded that 6,000 feet of solid boards, 17,000 feet of siding, 13,000 feet of flooring, 40,000 shingles, one-half less hard lumber, one-quarter less green lumber, one-tenth less of joists, scantling, and all other large lumber constitute a carload. These figures are given by the *Southern Lumberman*, and approximate so closely to the general average that shippers will find them a great convenience as a matter of reference.

EAR TRUMPET AND CANE HANDLE.

The engraving shows a very compact form of ear trumpet which can be attached to a cane or umbrella stick as a handle. The sectional view shows how the trumpet is applied

EAR TRUMPET AND CANE HANDLE.

within the cane, the cane handle being provided with apertures which can be closed when the ear trumpet is not in use. An ear trumpet of this form is very portable, and may be used without attracting attention.

This invention has been patented by Mr. Henry Waldstein, of New York city.

Newport Natural History Society.

The General Assembly of Rhode Island, at its session of May, 1883, chartered the Newport Natural History Society for the purpose of establishing in Newport a museum of natural history, a zoological garden, and an aquarium. The society has been organized with seventy-one members, Professor Raphael Pumpelly being the president, George C. Mason, corresponding secretary, and Dr. J. J. Mason, curator.

Gas Poisoning.

Prof. M. Von Pettenkofer says it is a fact frequently proved that when a gas main breaks in the street, people in the nearest houses are frequently taken sick and may even die. At all events death results from the carbonic oxide, of which there is about 10 per cent in coal gas. It can always be detected in the blood of the sick or dead by Hoppe-Seyler's test. It is also a fact that such breaks are more dangerous in cold weather. The reason why more gas finds its way into the houses in winter than in summer is due only in part to the higher pressure on the gas during long winter nights, as well as the frozen soil above has less penetrability, but far more to the important fact, which can be proved experimentally, that in winter the interior of the house acts like a chimney upon the air in the ground and cellars.

Max Graeber had already established the minimum limit for injurious quantities of carbonic oxide in the air by a series of experiments upon animals, as 0·6 to 0·7 per thousand. There are decided symptoms of illness with 1·5 per thousand, which increase until it reaches 2 to 3·5 per thousand, without fatal results, even if such air is breathed for many hours. But when the quantity of carbonic oxide reaches 4 or 5 per thousand, fatal poisoning rapidly follows. Cramps set in with *opisthotonus*, and the animals soon cease to breath.

In one accident that occurred in Munich, where the room held 28 cubic meters (988 cubic feet) of air, 1·44 cubic meters (about 52 cubic feet) of coal gas sufficed, when mixed with the air, to reach 5 parts per million.

As a precaution against ground air contaminated with illuminating gas from entering houses, Von Pettenkofer recommends the police, the gas engineers, and private citizens to open all cellar windows as well as those on the ground floor of threatened houses, so as to prevent directly sucking in the ground air or render it harmless by dilution. Moreover, the smell of gas serves as a warning.—*Proceedings of the Munich Academy.*

It is said that dwarfs die of premature old age, and giants of exhaustion.