

New and Better Incandescent Lamps

Troy, N. Y., Times.

The whole world applauded when Thomas A. Edison, after working steadily three days and two nights to make a filament for his first incandescent lamp, proved that the small electric light was possible and could be made for a price within reach of all. Since that wonderful day, now nearly twenty-five years ago, many noteworthy improvements have been made in electric machinery of all kinds and a great many changes for the better have taken place in the incandescent lamp, making it cheaper and more economical. Today the incandescent lamp is one of the most common things in this electric age and although the process of manufacture has been so perfected that they cost but a few cents each, the total value of last year's output in this country is estimated by the census bureau as over \$7,000,000.

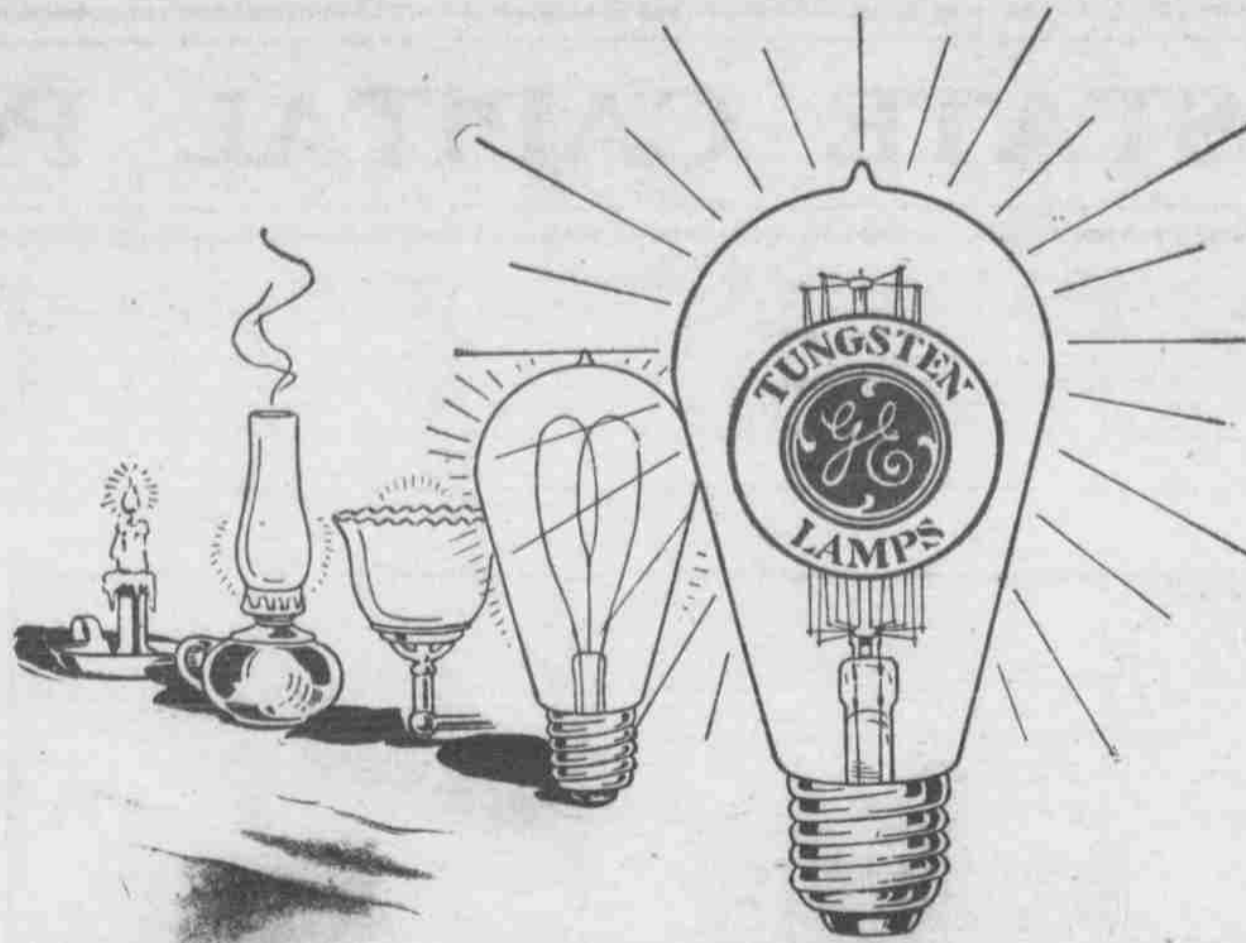
When the first incandescent lamp was introduced to the public it was a clumsy, expensive and inefficient affair compared with the lamps of today. These first lamps contained about thirty times as much costly platinum wire as the present types, as the platinum lead-in wires to the glass bulb were unnecessarily long and heavy. The exhausting of the air from the bulb in those days cost more than the entire lamp does today. In 1882, and for years after, the glass bulbs were blown by hand labor. Lately they are produced to a certain extent by mechanical means at less than 10 per cent. of the former cost. Even the testing of the finished lamps is done for less than one-tenth of the original expense.

The wire-like filaments in the first incandescent lamps were made of thin strips of carbonized paper or bamboo. At a very early stage cellulose material replaced these delicate and short-lived conductors. Such lamps of sixteen candle-power size require about 50 watts of electrical power to attain their full efficiency. This current consumption has recently been reduced by half in commercial lamps of practically the same type.

In perfecting the incandescent lamp the scientists and inventors are always trying to secure higher candle-power with less consumption of current and more light with less energy wasted in heat. One of the latest improvements in the carbon filament lamp is the "gem" unit with what is known as a "metalized" filament, although it contains no metal. This lamp consumes only 2.5 watts per candle-power against 3.1 to 3.8 for the older type. The filament in this new lamp is improved and strengthened by baking it in an electric furnace at a temperature of 3,700 degrees Centigrade. The result is the production of an exceedingly pure form of carbon having greater density and lower specific resistance than the older filament.

Perhaps the most noteworthy advancement in incandescent lighting was the introduction, a few months ago, of the new metal filament lamps. In

Progress Leads to Perfection



THE INTRODUCTION OF THE

G.E. Tungsten Lamp

Marks the greatest progress in electric lighting since the invention of the incandescent lamp

Ask us about it to-day

Portland Railway, Light and Power Company
Willamette Valley Division
Commercial and State Sts., Salem, Oregon

the early experiments metals which could stand reasonably high temperatures without melting, such as platinum, were tried but they broke down, or melted, before they attained the results of even a good carbon lamp. Experiments were continued along these lines utilizing several rare metals then slightly known but never existing in pure form. The first success was to the credit of German electrical and metallurgical experts. Several years ago, acting on the principle as a starting point that the light from an incandescent lamp filament increases progressively with the temperature of the filament, elaborate experiments were begun in Germany to discover a metal that would withstand a much higher temperature than carbon. After the rare metal tantalum was produced in its pure form it was found to give most satisfactory results.

The chemical properties of tantalum are very remarkable. It is very hard and only recently has it been successfully drawn into wire. When cold it resists the action of the strongest acids. The filament in a tantalum lamp is about fifteen inches long looped many times on a spider support. As the filament becomes soft when heated to incandescence it must be anchored at both ends of the loops. The bulb contains a glassy rod with platinum wires at the end and midway upon which the tantalum wire is looped. These lamps require only two watts per candle-power against 3.1 in the ordinary lamps. This gives the man whose house is lighted by electricity a third more light for the same amount of money.

The latest and most valuable development in the incandescent lamp field is the new tungsten lamp. These lamps are made from still another rare metal known as tungsten. It is also a German discovery which was subsequently purchased by the General Electric Company and developed to its present state of usefulness. This lamp consumes only 1 to 1.5 watts per candle-power, a saving of more than two-thirds in current consumed in the ordinary lamps. This wonderful economy is best shown by stating that with tungsten lamps substituted for the common incandescent lamps in a house lighted by electricity the result would be three times as much light for the same amount of current and the same amount of cost.

The fundamental value of tungsten as a lamp filament lies in its wonderfully high melting point. It is almost impossible to melt this metal. As a metal, as we understand the word, tungsten is practically unknown. It cannot be made into ingots, bar or wire. In its usual refined form it appears as a fine, steel-blue powder. Because it cannot be drawn into wire the lamp filaments from the metal have to be made in a roundabout way. The powder is mixed with an adhesive paste and squirted through a die in a fine thread. This "thread" is baked in an electric oven at a high temperature until the particles of tungsten are practically welded together. The filament is then looped and anchored in the bulb nearly the same way as in the tantalum lamp.

The fact that experiments and discoveries within the past few months have resulted in new incandescent lamps which produce two and three times as much light for the same cost is very encouraging to those who enjoy electric lights. What the future will bring forth is, of course, merely speculation, but there are those among the world's leading inventors who say that the incandescent lamp is still a long way from the perfection it will attain in the next few years to come.

Salem's Largest Wholesale Grocery House

The business of H. S. Gile & Company, wholesale grocers, was organized at Salem in 1896. It was located in the State Insurance building, and necessarily the beginning in making Salem a distributing and jobbing center for groceries and green and dried fruits were small. In 1900 the firm moved into the large Wallace warehouse, corner of High and Trade streets. This year an addition in the shape of a fire-proof building 40x90, with three floors has been added, and the total sales will probably surpass the half million mark. The firm keeps three salesmen on the road and has a very large business in the Capital City. In the line of canned goods, which are handled in carload lots, most of the pack is put up under their own labels. In the dried fruit trade this firm has large evaporators at Newburg and Roseburg. They have overcome all difficulties in building up a large wholesale trade. They have demonstrated that Salem has water and railroad transportation and really possesses marked advantages for reaching the territory of Western Oregon in the cheapest and most expeditious manner. By erecting platforms on the South side Gile & Company will still further extend their plant, the floor space of which now covers several acres. Their handsome new offices will be thrown open this New Year's Day, when they expect to receive many of their friends in their new quarters.

Starr Oil Company Building Up a Good Trade at Salem

C. G. Lewis, manager of the Starr Oil Company began to deliver oil and gasoline to residences and business places in Salem last June and today he has over five hundred customers, and also all kinds of gasoline and naphtha. The quality of his stock is as represented and the goods are perfectly clean, and all his customers who have given the matter a good trial say they get better oil from him than they do anywhere else. It is a common expression from his clients to hear them say: "This is so much better than any of the stores sell" and that is the remark that Mr. Lewis works hard to get his customers to make, and the success of his business proves that he is making good.

Salem Growth as Shown by Statistics

Number of banks and amount of deposits, three banks Nov. 1, 1909; 1908, \$2,780,909.91; 1909, \$3,398,213.71; increase, \$617,303.80.
Value of civic improvements—1908, \$1,004,400; 1909, \$2,008,755; increase, \$1,004,355.
Miles of streets paved and concrete sidewalks laid—16,542 lin. ft. of pavement cost \$242,235; 16,200 lin. ft. concrete sidewalk, \$9,720, 1909, \$251,955.
Postal receipts (less extraordinary items)—1908, 43,653; 1909, \$48,000.00.
Land sales (estimated)—1908, \$3,000,000; 1909, \$3,000,000; increase, \$2,000,000.

Fifty Years Continuous Record in the Meat Business

Three generations have been identified with the Cross Meat Market business in this city. The founder was Thomas Cross, who was succeeded by Edwin C. Cross in 1884, and in 1907 the firm name was changed to E. C. Cross & Son. The founder, Thomas Cross, took up the butcher business when Salem was a mere village, and today the firm is conducting a modern metropolitan market in a city of 20,000 people. E. C. Cross & Son have just put in a complete set of nickel plated metal racks, with walls and ceilings finished in white enamel. The re-

frigeration and manufacturing department have been enlarged, improved, and rendered perfectly sanitary in every respect.

As has been their custom for many years the proprietors of the Cross market have had on exhibition during the past week their annual display of Xmas beef. This beef is from the full blooded Hereford herd from the A. M. Gilbert ranch in Polk county. These prize steers are especially fattened for the Cross market and dress from 850 to 1,000 pounds. It is a tradition with the old first families of the Capital City to have a prime roast from Cross's Xmas beef every year and the choice cuts always go off at fancy prices. The people of Salem are justly proud of the pioneer market that has been maintained in their midst for half a century.

Building Up Fine Family Market in the Capital of Oregon

That is what P. W. Reyelts is doing in the city of Salem.

He was born in Iowa, and is now 36 years old. He was first employed in the Kurz & Steusloff Bros. markets, but started a shop of his own at No. 173 Commercial street. He has gradually enlarged it until he is now employing four people and his business is making a constant and steady growth, and he is enjoying a very nice class of trade.

Mr. Reyelts has his own slaughter house, renders his own lard and has the latest and up-to-date machinery for chopping meat and making sausages.

His telephone is number 370.

Popular Home Industry Built Up by a Popular Man

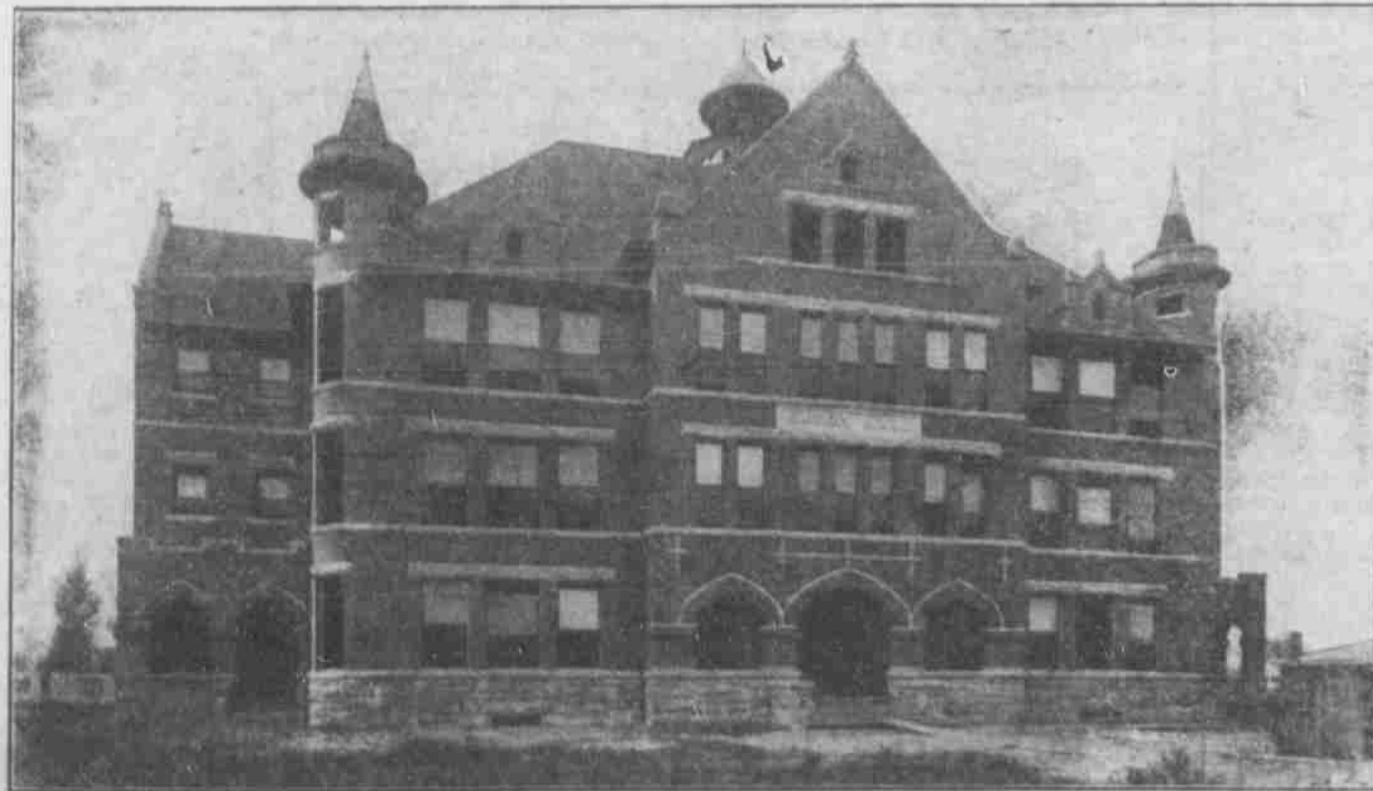
A. Huckestein landed in Salem August 10, 1889. He is a native of the grand old Keystone State of Pennsylvania, and has recently been elected alderman from a Republican ward, a great distinction when it is considered that he is a stalwart Democrat and was chosen more on account of his progressive principles and sturdy integrity, than for any political reasons. Mr. Huckestein is also one of the trustees of Salem Hospital.

Mr. Huckestein's record in the cigar industry started with his going to work himself at the trade immediately upon arriving in this city as a young man twenty years ago. The first brand he put on the market was the now famous "La-Corona," and he has been manufacturing them ever since, with a constantly increasing demand for this first-class handmade seed and Havana. It is considered, in the opinion of the best judges, year in and year out, as the most satisfactory ten cent cigar on the market; also the Flor De Eila. His "Tashmoo," a two for twenty-five cents cigar, is also steadily winning fame and popularity, and his "Bon Ton" 5 cent cigar besides other brands. The Salem Cigar Factory employs about nine men, Mr. Huckestein selects all his stock personally, makes a full hand at the workbench every day in the year when his business or public duties do not call him away. He enters upon his official duties in the city government today, and will probably put a new brand of cigar on the market with a handsome label, "The Alderman."

Long Record of Well Known Salem Undertaker

Mr. A. M. Clough, undertaker and graduate embalmer, 455 Court St., came to Salem May 2, 1876, and whether in honor of his arrival or not, the Salem Woolen Mills, then in the old Lincoln Wade store, burned down that evening. He went into the undertaking business in 1880, and has served the community continually in that capacity ever since. His establishment now carries a large stock of every kind of casket, and he has all the equipments of expeditious service when required. He has a convenient funeral chapel and one of the finest hearses in the city—in fact, it is as good as there is in Oregon. At the close of his present term Mr. Clough as coroner, will have served sixteen and a half years.

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