

boiler, 3 feet 2 inches in diameter, grate bar 6 feet 6 inches long; grate surface is 252 square feet. Heating surface is 6,850 square feet. Thickness of iron plates of shell $\frac{3}{8}$ inch; of furnaces $\frac{1}{2}$ inch; of tube sheets $\frac{1}{4}$ inch; of all other parts $\frac{3}{8}$ inch. The longitudinal braces are $1\frac{1}{2}$ inch diameter.

Average number of revolutions per minute 62. Speed $12\frac{1}{2}$ knots per hour. Pressure 80 lbs. per square inch.

Our Enormous Consumption of Timber.

In pleading for the protection and perpetuation of forests, the *Lumberman's Gazette* gives some interesting particulars of the amount of timber consumed every year in this country. "We have now," it says, "about 90,000 miles of railroad; the annual consumption for ties or sleepers alone is 40,000,000, or thirty years' growth of 75,000 acres. To fence these roads would require at least 130,000 miles of fence, which would cost \$45,000,000 to build, and take at least \$15,000,000 annually to keep in repair. We have 75,000 miles of wire, which requires in its putting up 800,000 trees, while the annual repairs must take 300,000 more. The little, insignificant lucifer match consumes annually in its manufacture 300,000 cubic feet of the finest pine. The bricks that are annually baked require 2,000,000 cords of wood, which would sweep the timber clean from 50,000 acres. Shoe pegs are quite as important an article as matches or bricks, and to make the required annual supply consumes 100,000 cords of fine timber, while the manufacture of lasts and boot trees takes 500,000 cords of maple, beech, and birch, and about the same amount is required for plane stocks and the handles of tools. The packing boxes made in the United States in 1874 amounted to \$12,000,000, while the timber manufactured into agricultural implements, wagons, etc., is more than \$100,000,000. The farm and rural fences of the country consume an immense amount of lumber and timber annually, but as we grow older as a nation, this consumption may, and probably will, be reduced by the more general use of live fences or hedges. Our consumption of timber is not only daily on the increase, but our exportation of timber is also rapidly increasing. Our staves go by the million to France annually, walnut, oak, maple and pine to England, and spars and docking timber to China and Japan."

The Growth of Texas.

Ex-Governor Pease, of Texas, asserts that immigration has done more for Texas, within the past eight or ten years, than it has done for any other State; and a notable feature of this growth is the circumstance that the immigrants have come, not, to any considerable extent, from Europe, but from other States in the Union. During the six or seven years immediately following the war, tens of thousands of people who were born and had always lived in Mississippi, Alabama, Louisiana, Georgia, South Carolina, and other Southern States—but especially Mississippi—finding themselves seemingly ruined at home, migrated in crowds to the wider and newer fields of Texas.

The greater part of the immigration into Texas, during the last three or four years, has been, and now is, from the Northwestern States. People from Wisconsin, Iowa, Minnesota, and all that region, tired of the long, severe winters of the Northwest, are flocking southward into the more genial climate of Texas.

That great State, which is very nearly equal in geographical extent to the whole of France, with an addition equivalent to the size of New York State, can support a population equal to the last census of the United States. Its division into two, three, or four States is only a question of time. It possesses in its northern part a great wheat growing region. Its western slopes and plains are finely adapted to grazing and to sheep culture. Winter pasturing is always sure. Texas has no "rainy season;" its rains are uncertain as to season, and are scattered through the year; though the supply is probably not always fully equal to the needs of the agriculturist.

Fish Culture in the Far West.

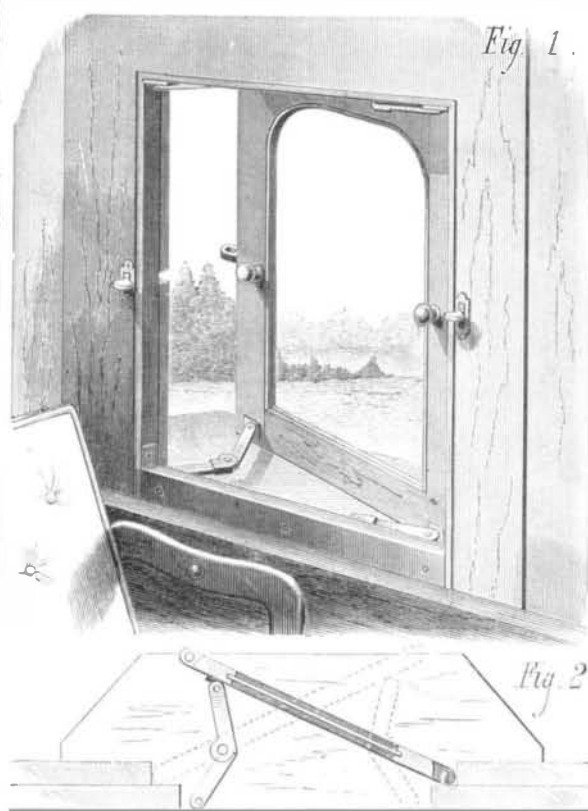
The propagation of salmon at the United States fish hatching establishment on the McCloud River promises well. It is said that the run of fish is plentiful, and preparations have been made for securing 12,000,000 eggs. The catfish placed in the Sacramento some years ago are doing well. No further distribution of catfish will be made by the commissioners, as they think the supply already distributed will be sufficient for the State. It is said that shad are becoming abundant. The commissioners expect to receive a supply of superior carp from the Government some time this year. Fish Commissioner Parker, of Nevada, has obtained 2,500 catfish to stock the Humboldt River. Nevada also receives this year 500,000 salmon, to be placed in the Truckee River, so that they can go to Pyramid Lake. The California commissioners will get 2,500,000 young salmon this year to replenish the stock in the Pitt, McCloud, and Sacramento rivers.

Steel Tow Lines.

The Cleveland *Plaindealer* says that steel tow lines are becoming popular on the lakes. They are found to work well. Of a line recently imported the *Plaindealer* says: "It is 660 feet long and weighs less than 800 lbs.; is made of the best crucible steel, at the same factory that supplies the British navy. It left Liverpool sixteen days ago, was imported and fitted by Messrs. Upson, Walton & Co. for the owner, Mr. R. K. Winslow, and is now on its way to Lake Superior. This may be considered quick work."

A NOVEL RAILWAY CAR WINDOW.

Every traveler knows too well the discomfort of dust and cinders which with the present ventilating devices seek an entrance to the car with every fresh breath of air. The problem of avoiding this annoyance without obstructing the view from the car window has been solved by Mr. C. T. Deblois, of 51 Dwight street, Boston, Mass., who patented April 30th, 1878, the device shown in the accompanying engraving, Fig. 1 being a perspective view, and Fig. 2 a horizontal section showing the arrangement of the hinges.



A NOVEL RAILWAY CAR WINDOW.

The invention consists in a novel arrangement by which a car window of any size now in use on ordinary or palace cars may open outward diagonally from either side according to the direction of movement of the train, thereby effectually preventing the annoyance from cinders, smoke, and dust. A simple hinge at the top and bottom of each side of the sash connects it with the window frame, the hinges being so arranged as to allow the window to swing outward from either side. In addition to this support each side of the sash is provided with an ear having a hole to receive a pintle, or equivalent, connecting with a thumb piece on the inside of the car. When both pintles are in the eyes both sides of the sash are firmly closed. By removing either pintle or by lifting the thumb piece, the other pintle serves as a pivotal point for the sash, and it is obvious by lifting the rear thumb piece the sash from that side may be thrown outward, and a window so held and supported at each side may open to the right or left according to the direction of movement of the car, for purposes of ventilation, without at all obstructing the view. A projecting "cap" at the top and a similar projection or shelf at the sash make, when the window is open, a complete inclosure from cinders, smoke, and dust. The necessary expense of windows with this improvement is but little if any more than for those now in use, which fact recommends it to the managers of railroads as well worthy of their consideration and approval. For further particulars address the inventor.

NEW COFFEE POT.

The making of a really good cup of coffee is an art which



NEW COFFEE POT.

comparatively few have acquired. While it occasionally happens that a good cup is produced by the ordinary methods, it only happens, and is the exception rather than the rule. To render the process positive, and to insure a uniformly good product, Mr. A. B. Place, of Denver, Col.,

has devised the coffee pot shown in the accompanying illustration.

The exterior portion of the coffee pot is of the usual form. A vessel, A, having a conical bottom, perforated sides, and a flaring top, is fitted to the outer portion of the coffee pot, and contains a wire gauze or perforated sheet metal vessel, B, which is flanged and supported by a ledge in the vessel, A.

The central portion of the vessel, B, extends to the cover of the coffee pot, and a tube extends upward from the conical bottom of the vessel, A, into the central opening of the vessel, B.

The parts being in the position shown in the cut, the ground coffee is placed in the vessel, B, boiling water is poured through the central opening of the vessel, B, in the desired quantity, and the apparatus is placed over the fire, and the water allowed to boil a few minutes. As the water boils the conical shape of the chamber at the bottom of the coffee pot causes the water to rise through the central opening of the vessel, B, and a current is established which extends through the coffee in the vessel, B, and quickly extracts the strength therefrom. Any fine grounds which may be forced out through the perforations in the vessel, B, will fall into and be arrested by the annular trough in the bottom of the vessel, A, where they are retained. If desired, the cup or vessel, B, may be removed after the strength is extracted from the coffee, leaving only the liquid coffee remaining in the apparatus.

For further information address the inventor as above.

Important Use of Natural Gas.

The petroleum product of Pennsylvania now reaches the fabulous sum of eighty millions of dollars per year, while the exportation runs to about sixty millions. Until recently, or at least within a few years, but little use has been made of the natural gas which has discharged into either the open air or been burned in huge torch lights through the oil regions. In Beaver Falls, a manufacturing town of considerable note, located about thirty miles west of Pittsburgh on the Fort Wayne and Chicago Railroad, one well was put down about sixteen years ago for oil, and struck gas at about 1,100 feet in depth, whence it poured continuously until about two years ago, when it was leased, cased up, and brought into use. This induced the Harmony Society to put down more wells in different localities (five in number), all of which give out liberal supplies, some as high as one hundred thousand feet every twenty-four hours, which is now being used in nearly every manufacturing establishment in the town. About one half of the gas used for lighting the town comes from these wells; it is also used under the gas retorts for heating (five in number). The large cutlery works use it in 49 heating furnaces; the hinge works, in three large heating furnaces; the pottery works, in two large kilns and two very large furnaces for drying ware; the shovel works, in one large heating furnace; the file works, in seven large annealing furnaces; the saw works, in one very large heating furnace, 14 feet long by $11\frac{1}{2}$ feet wide, which is run to a very high heat. It is also used in one forging furnace. Two drying kilns for seasoning lumber use it. And it is also introduced into dwelling houses, heating furnaces, and stoves and cooking stoves, and is exclusively used direct from the wells for lighting one large dwelling. Other wells are now going down, and everything indicates the exclusive use of this gas for all heating, illuminating, and manufacturing purposes. Its value is really incalculable in working steel. It is said to be fully equal to charcoal, if not superior, there being no base substance like sulphur or other matters so damaging to its quality. A remarkable feature about it is, that men work right along in a room filled with it, take it freely into their lungs, in short, breathe it as they do air; and it appears rather healthful than otherwise, while manufactured gas is actually dangerous to inhale. The flame is clear white and gives an intense heat with very little smoke. There seems no diminution in the supply; there may be a limit to the supply, but the gas is in all probability being constantly produced down deep in the earth.

J. E. EMERSON.

Large Shipments of Cheese and Meat.

The cheese shipments by steamer for Europe, from this port, August 24, exceeded anything before made in one day, the total amount being 68,500 boxes. The steamship *Devon*, of the Great Western Line, for Bristol, carried 7,000 boxes of cheese, 200 sheep and 50 head of cattle; the *Germanic*, of the White Star Line, for Liverpool, had 33,500 boxes of cheese and 200 tons of fresh meat; the *Bolivia* carried to Glasgow 15,000 boxes of cheese and 800 quarters of fresh meat, and the *Helvetia*, of the National Line, for Liverpool, took 13,000 boxes of cheese and 45 tons of fresh meat.

American Paper for Export.

Holyoke manufacturers report a steady growth of export trade in American papers. The export of the country has risen from \$491,000 in 1871 and \$856,000 in 1876-77 to over a million in 1877-78. It is said that the ability of American manufacturers to compete in price with those of Europe is largely due to the fall in the price of rags, brought about by the large use of wood pulp.

PRIMARY instruction is indispensable; it is the fruitful mother of manual labor as well as of arts and industry; it alone frees men from the gloom of superstition, helps them to understand their duties as sons, fathers, and citizens, and enables them to render themselves worthy of liberty.—E. Ogier.