## Scientific American

## SCIENTIFIC

Analyzing Oils with Sulphuric Acid. At the last meeting of the French Academy of Sciences, the following communication was presented by M. Dumas, from M. Maumene, on the above subject. The fatty oils mingled with sulphuric acid disengage heat, this action may serve to distinguish them; it separates in a striking manner the drying oils from those that are not so. Fifty grammes of olive oil having been placed in an ordinary test glass,

were carefully dropped into it 10 cubic centimetres of sulphuric acid at the temperature of thermometer was shaken, and the rise of the heat at 42°. The experiment made with difmeter rose to 670-increase, 420. The mix- constant when the oil is pure, and when made drying oils, and may be easily known. The

the temperature of which was known by

plunging a thermometer in the liquor, there

one minute is required to obtain the maximum temperature.

In another similar glass there were placed 50 grammes of oil of poppies, and it was likewise tested with sulphuric acid, the thermometer rose from 26° to 100°.5-increase, 74° '5. In this instance there was noticed, firstly, a very remarkable developement of sulphurous acid, not caused by olive oil; and, secondly, a very great bubbling up of the liquid. On account of these two circumstances, the figure 740.5 is too small. The difference between 42° and 74° 5 is sufficiently great to present a mode of analysis.

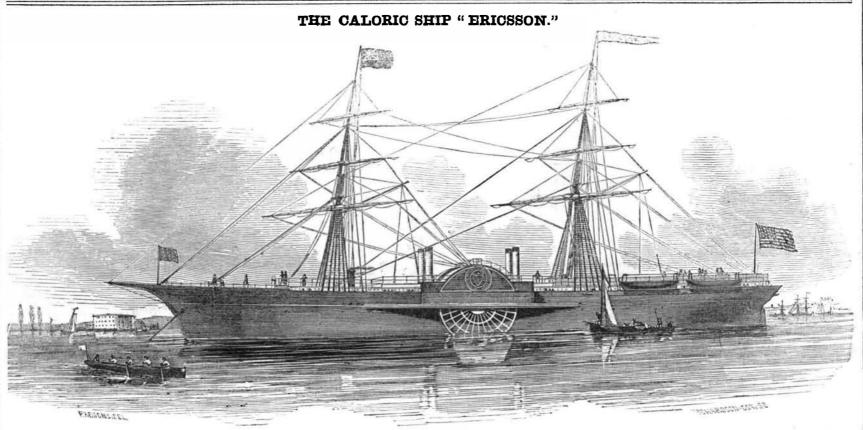
The experiment repeated several times under the same conditions, with the same olive

with a similar degree of heat. The action of the acid is not less constant with the oil of poppies; experiments, moreover, prove that the developement of heat due to this oil is really at 880.4, instead of 71 or 74 degrees, as the direct experiment indicates. This process of analyzing may be applied to the olive oils of commerce; these oils are often adulterated only with oil of poppies, and in such a case their analysis can be made with certainty, if their qualitative composition is sure. But how would it be in case of other oils? In answer to this inquiry, I have fixed the rise of temperature produced by most pure oils, it results from my researches that the oil of ben and oil of tar furnish almost the same disengagement of heat as olive oil. That the other 660 (Baume). While mixing the liquids the oil, gave each time the same developement of oils produce a much greater disengagement of heat by means of which they can easily be mercury noted. Beginning with the tempe- ferent sorts of olive oil, from various sources, distinguished from olive oil. Finally, that the rature of 250 for the oil and acid, the thermo- proved that the action of the sulphuric acid is drying oils give much more heat than the non-

oil of ben and of tar cannot be mixed with olive oil, consequently, whenever olive oil gives more than 42° of heat in its mixture with 10 cubic centimetres of sulphuric acid (at 25°) their oil is not pure. The preceding appears sufficient to show the use that may be made of sulphuric acid for analyzing oils. In mixtures composed only of two oils, the employment of this acid will very much help in determining its quality. When the qualitative analysis has been made the quantity may often be declared with precision.

#### LITERARY NOTICES.

THE MILK TRADE OF NEW YORK—By John Mul laly: Fowlers & Wells, pp. 118.; price 25 cts. An excellent little treatise on the Milk Trade of New York, an article that forms so important an item in the food of mankind. The author gives some useful statistics, and shows the injurious effects of using what is commonly called "swill milk," which, as is well known, is obtained from cows stabled in the city and fed on the refuse from brew-houses and distilleries. An exposure of this system of supply so deleterious to the health of our citizens was very much wanted, and we hope that this pamphlet will be read by every one.



The above is a view of the Caloric Ship | of fair wind, and the tide in her tavor. She | something not complete about her machinery. | Air Engine, see first page. We are indebted to

Burning Fluid and Safety Lamps.

We have received a letter from a corres pondent in Boston, containing an article from the "Haverhill Gazette," Mass., on the above subject. The author of it is evidently well acquainted with his subject, and it is one of

much importance to the community. The article in question says, "I have made a full investigation of the chemical character of the various liquids sold by dealers for the purposes of artificial illumination, and have subjected these compounds, and the lamps designed to be used with them, to very accurate experiments. Dangerous frauds have been continued for years by unprincipled men in the sale of those compounds without exposure," He asserts that a mixture of turpentine and alcohol, colored with turmeric, has been sold by dealers for years, under the name of "vegetable oil," with the unblushing assertion that it was perfectly safe and unexplosive. This mixture afforded by the distller 50 cents per gallon, at once in the hands of an unscrupulous dealer advances from 50 cents to 70 cents per gallon, by adding one cent's worth of turmeric to it, and changes from a volatile dangerous hydrocarbon or burning fluid to the safe vegetable oil. Such are some of the tricks of trade. Every case of this kind should be punished with severity. The author (we do not know him,) of the article in question, states that Newell's wire gauze lamp, which has been noticed in the Scientific American, is but a modification of the one patented by Isaiah Jennings, of this city, N. Y. in 1836, and the question is asked of us, if this is true, as Newell's has been sold for a patent lamp. We are not aware of any patent hav-

ver that one was granted to I. Jennings in 1836, but there was one in 1841, which combined a cotton percolator and wire between the fluid chamber and the flame. All volatile hydrocarbons are explosive, that is, any fluid employed for giving light, if it evaporates at a low heat, and this vapor is suffered to mix with the atmosphere it becomes an explosive gas. None of what are called the explosive fluids will explode until they become vaporized, it is the vapor, not the fluid, that is the cause of explosions. The author of the article in question asserts that in the lamps of Newell which he saw, there were orifices in sequently, a sort of mid-channel has been the cap, made, as he was informed, at the sug- formed, commencing a short distance below gestion of Dr. Jackson, for the purpose of the origin of the outlet, narrower and much letting off the vapor-a safety valve. If these deeperthan the first, down which the water lamps have small holes in their caps, it is a vent lamp explosions is to exclude the air. feet below its previous surface. This mid-The pressure of heat from the vapor of an channel has gradually deepened in the centre, apartment, can never be so great as to ex- forming an outlet down which the waters are depends upon excluding the fluid and vapor the outlet has been forced, from its abrupt lamp never yet exploded. As we have stated more than once, we say it again, fluids should never, under any conditions, be used in a may have been instantly uplifted, and as house where there are children or servants.

fluid sold, by the name of "Rosin Oil," under the pretence that it is a safe unvolatile hydrocarbon. Five minutes before writing this, we examined some of this "Rosin Oil," which the purchaser supposed was something very different from a turpentine mixture: thus people are often deceived by names. There ing been granted for it, and we cannot disco- distillation, but not a burning fluid.

#### Drainage of a Lake by an Earthquake

A singular phenomenon lately occurred in California, by which Lake Merced, a sheet of water, covering about thirty acres, and which is situated seven miles distant from San Fran cisco, threatens to become dry ground. A shock of an earthquake took place during the night, and in the morning it was discovered that a portion of the lake's boundary had been swept away, and a passage forced by the rushing waters about three hundred yards in width, and ten or twelve feet deep, opening on the sea shore to the width of a mile. Subseems to have rushed with much velocity, scientific blunder, for the grand object to pre- until the lake has been emptied at least thirty plode the lamp. The safety of such lamps yet flowing into the ocean. And now that from the atmosphere. A perfectly tight sides may be seen flowing the gaseous fluids which succeed earthquakes among lofty mountains. It is supposed that the bed of the Lake quickly have returned to its customary level; In this vicinity there is a dangerous burning | thus forcing an outlet through the heavy alluvial by which it was formerly confined.

#### Erratum.

In the description of the Safety Railway Truck, illustrated on the front page of last week's paper, the address of the patentee, A. L. Finch, should have been New Britain, is an oil made from rosin by its destructive Conn., this is the more essential because there are two "Britains" in that State.

# "Ericsson," on her first trial trip, with a gale is now lying at "Green Point," there being For a full description and history of the Hot the N.Y. "Illustrated News," for the above cut.

#### Manufacturers and Inventors.

A new Volume of the SCIENTIFIC AMERICAN commences about the middle of September in each year. It is a journal of Scientific, Mechanical, and other improvements; the advocate of industry in all its various branches. It is published weekly in a form suitable for binding, and constitutes, at the end ofeach year, a splendid volume of over 400 pages, with a copious index, and from five to six hundred original engravings, together with a great amount of practical information concerning the progress of invention and discovery throughout the world.

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The Patent Claims are published weekly and are invaluable to Inventors and Patentees.

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