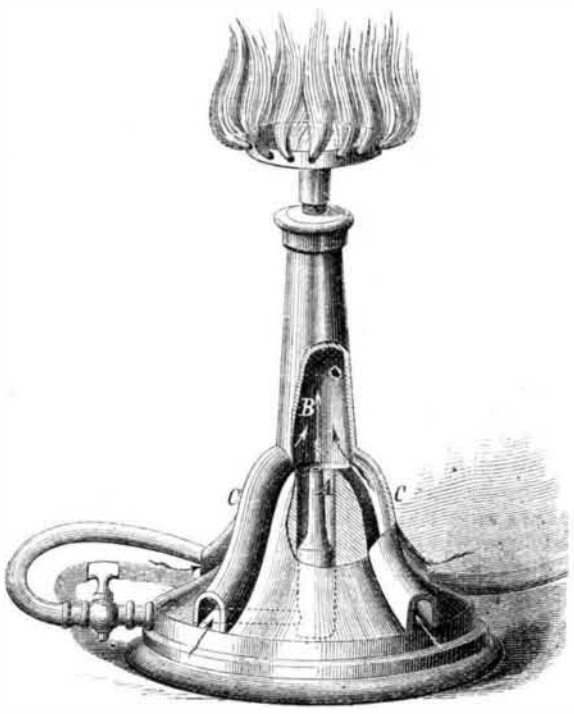
IMPROVED GAS BURNER FOR HEATING PURPOSES.

The accompanying engraving represents a new gas burner, designed for heating or cooking purposes, the novel feature in which is a chamber in the standard, in which the gas and air is mingled, the latter being drawn in by the ascending gas current. The object is to afford to the gas flame a more perfect supply of oxygen, and so to insure better combustion.

In the illustration, the gas is brought into the standard through the pipes indicated by the dotted lines and discharged at the nozzle, A, into the chamber, B. The air is drawn in through the channels, C, several of which are disposed about the lower portion of the standard and communi-



cate with the chamber. The burner, the tube of which leads from the compartment last mentioned, is of any desired form.

Patent pending through the Scientific American Patent Agency. For further particulars address the inventor, Mr. Anatole Ehret, No. 540 Washington street, San Francisco, Cal.

SCIENTIFIC AND PRACTICAL INFORMATION.

A NEW RAILWAY GAS LIGHT REGULATOR.

In the trains of the London and Northwestern Railway, in England, gas made from oil has been substituted for that obtained from coal, the former containing more carbon, weights being equal, and burning longer. Each carriage carries under its flooring its own reservoir, into which the gas is compressed to six atmospheres' pressure. From the reservoir, a copper tube leads to the regulator, which consists of a cast iron box closed by an impermeable membrane which connects by a rod with a valve. When the latter is open, the gas enters the regulator; and when the regulator is full, the membrane swells and shuts the valve. It is said that the mechanism governs the flame perfectly, keeping it equal even during the movement of the train.

THE FAUNA OF THE MEDITERRANEAN.

A series of deep sea dredgings are soon to be undertaken on the Mediterranean bottom, the results of which it is expected will add greatly to the numbers and natures of the submarine zoöphytes now known. An annelid which has hitherto been believed to be peculiar to the Spitzbergen seas alone was recently discovered on the French coast.

VEGETABLE WAX.

The result of a series of investigations, recently concluded by M. de Bary, upon the subject of vegetable wax, shows that the material is a secretion of the epidermis of the plant in which it is elaborated. This is a confirmation of the theory, held by old writers but denied by more modern histologists. The wax is fusible at above 212° Fah., combustible, lighter than water and insoluble therein, but is soluble in boiling alcohol.

EARTHQUAKE INVESTIGATIONS.

Father Bertelli, an Italian monk, for several years past has made a study of the tremblings of the earth, and more especially those which are so extremely slight as not to be perceptible, save by pendulums placed in the fields of microscopes. In one year, he recognized 5,500 of these movements; and graphically representing the same over many years by a curve, he finds that the line corresponds neither with the thermometric curve nor with the tidal phenomena, nor can it be brought into any relation with the distances or positions of the sun or moon. With the barometric curve, however, it is otherwise; and it appears that, in the large majority of cases, the intensity of the movements augmented with the lowering of the barometric column as if (as the investigator states) the gaseous masses imprisoned in the superficial layers of the earth escaped more easily when the weight of the atmosphere diminished.

A FATAL BALLOON ASCENT.

The Zenith, a balloon belonging to several eminent French aaronauts, Messrs. Tissandier, Spinelli, Sivel, and others, recently (says a cable dispatch) ascended to a hight of 26,000 feet. Two out of the three persons in the car were killed by suffocation, and the third reached the earth in a condition of eerious and probably mortal illness. No names of the victims are given; and it is to be hoped that those of none of the abovenamed eminent gentlemen have been added to the long roll of the martyrs of Science.

THE MISSISSIPPI DELTA IMPROVEMENT.

Captain Eads has, we are informed, closed a contract with Colonel James Andrews, of Allegheny City, Pa., for the construction of 350,000 cubic yards of fascine work, and 100,000 cubic yards of stone work, at South Pass, together with a large amount of timber work, piles, etc., for the Mississippi river enterprise described in our last issue. Colonel Andrews is to furnish his own outfit for this work, and put in place 60,000 yards of fascines, piles, etc., before requiring any pay. His contract will amount to $2,500,000. Colonel Andrews built the masonry work of the great bridge at St. Louis. He visited Europe last summer with Captain Eads, and carefully studied the jetty works there. He will begin providing his equipments as soon as $300,000 is subscribed by the South Pass Jetty Company, which has been organized in St. Louis. The government is to pay $5,250,000 for the work when completed and a minimum of 30 feet of water obtained.

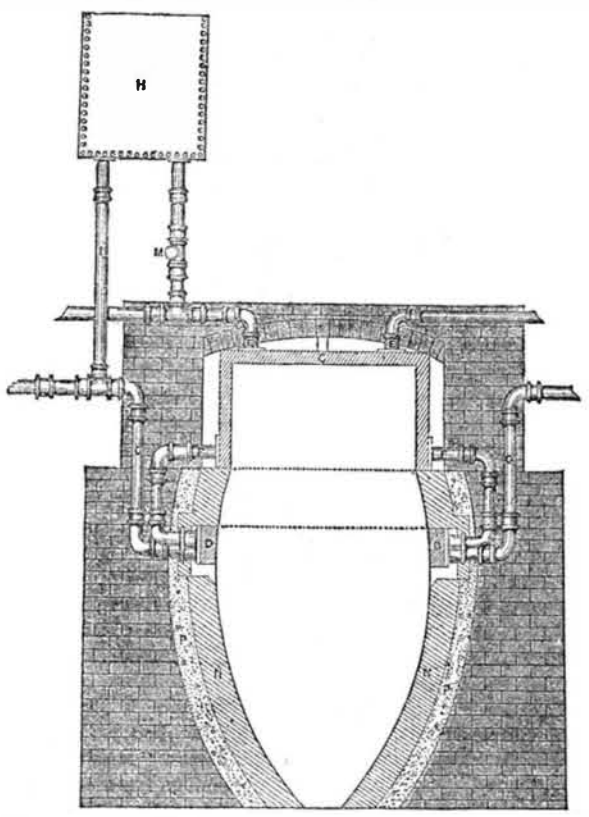
New Mode of Burial.

A new idea for the disposition of the dead has recently been broached in Paris, by a lady, Mlle. Jaloureau, which is both simple and practical, and certainly appears to offer a means of avoiding the deleterious results ascribed to the presence of cemeteries, while allowing of the retention of those, by most people, hallowed resting places. The objects sought were, first, a coffin which should closely confine all noxious exhalations, and second, a means of hastening decomposition while preventing putrid fermentation. These desiderata, it is said, are effectually obtained, the first by coating the interior of the receptacle with bitumen or asphalt, and the second, by placing with the body a quantity of phosphate of lime. The editor of *Les Mondes*, in describing this invention, asserts that corpses thus enclosed may be kept for years without alteration, save in the mummification of the bodies, and he adds that the process is virtually the same as that of the Chinese and the ancient Hebrews.

HEATING BUILDINGS WITH HOT WATER.

We illustrate, in the annexed engraving, a system of utilizing waste heat, by which water can be raised to a high temperature and conveyed to a distance, there to be used in heating buildings, etc. It is the invention of Mr. Cowan, a Scotchman, and it attracted much attention at the Manchester Exhibition in 1873. It has been largely used in Europe for hot house and greenhouse purposes.

In our engraving, the invention is shown in section, in combination with a lime kiln, but the system can be adapted to a great variety of circumstances. L is an egg shaped kiln chamber, which may be made eight or nine feet in depth; C is the main boiler, occupying the position of a cover to the kiln; D is an annular boiler, communicating with the boiler, C, through the pipes, F; G G are the return mains, completing the circulation, for the return of cooled water to the boilers, and also for keeping open communication with the expansion cistern, H; and this cistern, H, also acts as a safe-



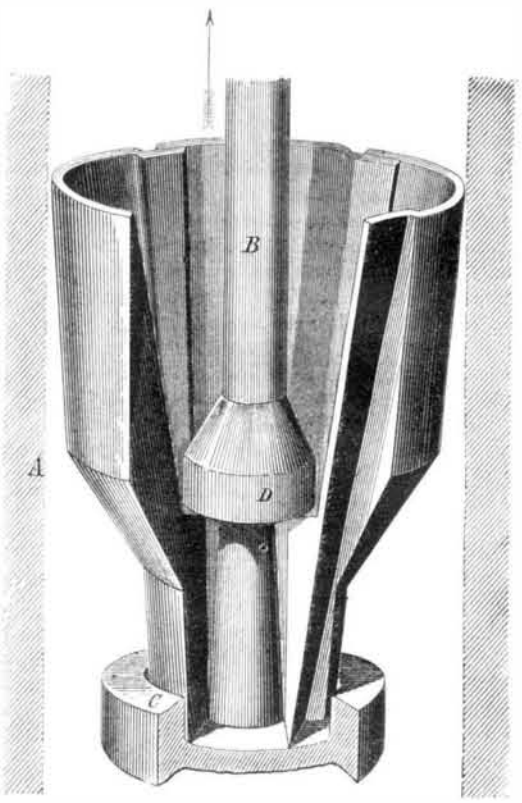
ty valve to the whole apparatus, and is therefore indispensable. The condensed water from the cistern, H, is returned to the annular boiler, D, through the perpendicular pipe, I; M is a valve in the flow pipe to the expansion cistern, H; and the pipes, E, communicate with all the premises to be warmed, and through valve, M, with compensating cistern, H. A blow-off cock for the annular boiler is necessary.

A complete circulation, through pipes of great length, is claimed for this apparatus, which can be erected anywhere outside of the buildings to be heated. In the extensive hothouses at Hatfield Park, England, 7,000 feet of four inch pipe are heated in this way; and one gentleman uses the furnace or kiln for the manufacture of coal gas for his own consumption, obtaining gas, coke, and heat for his forcing house at a very moderate expense.

IMPROVED SECTIONAL PUMP BUCKET.

The sections of which this bucket are composed are so constructed that they pack tightly together when the bucket is raised, and loosen or contract when the same is lowered. The appliance is made entirely of metal, and without pins, screws, or bolt.

A, in the annexed illustration, is the barrel of the pump



and B, the plunger rod. The bucket is formed of sections, as shown, the lower portions of which rest in the cup, C. A broad collar, D, on the plunger rod, forms the bottom of the bucket, the sections closing tightly around it, while also lapping on each other so as to break joints. The bucket is brought to an edge at the top, and when raising water it expands against the barrel and remains tight. When descending it partially collapses, and so is lowered, without friction against the barrel. The bucket may be made of any size to hold more or less water.

Patented through the Scientific American Patent Agency, March 16, 1875, to Mr. Geo. W. Burr, of East Line, N. Y., who may be addressed for further particulars.

A New Water Gas Enterprise.

We are enabled to announce to our readers that the manufacture of gas through the decomposition of steam by incandescent carbon, according to patented methods of M. Tessié du Motay, of France, is about to be carried on, on a large working scale, in this city.

The company is known as the Municipal Oxygen Gas Company, and is under the presidency of R. M. C. Graham, Esq. Their works are located in 41st. street, between Tenth and Eleventh avenues. They have decided to erect furnaces at once, and to lay mains for the manufacture and distribution of from four to five hundred thousand feet of this gas, enriched with naphtha, for illuminating purposes. The cost of the production, in this way, of a gas of good calorific power, we have every reason to believe, from information in our possession, will be very low indeed; and the prospect seems good, therefore, that gas may soon be furnished in New York city for warming houses and cooking food, as well as for many manufacturing uses, cheaply enough to inaugurate a new era of civilization—an era which we have long hoped for and looked forward to.—*American Gas Light Journal.*

John Harper.

John Harper, the elder of the two survivors of the four Harper Brothers, who founded the celebrated firm of that name, died at his residence in New York on April 22. He was born in 1796, and was the grandson of an Englishman, an early disciple of John Wesley, who came to this country about 120 years ago. With one of his brothers, he opened a small printing office in Dover street, in this city, in 1817. The two other brothers subsequently joined them; and by their joint endeavors, and their perseverance and integrity, the vast business now owned by the firm was steadily and quickly built up. Mr. Fletcher Harper is now the sole survivor of the original firm; but the sons of the seniors are accomplished business men, and there is no fear but that the house will be carried on in a manner to sustain its reputation.

A BELLIGERENT PROFESSOR.—Señor Varela, Professor of Physiology in the Medical School at Barcelona, Spain, was recently annoyed by hissing and other disturbances among the students, whereupon he drew a loaded revolver and threatened to fire on the class. A general stampede took place, in the midst of which the rector seized and disarmed the warlike teacher, and conducted him off the scene.—*Medical Journal.*

ACCORDING to the *Journal des Chemins de Fer* of Constantinople, the total length of all the railroad lines in the world is 122,462 miles, and their cost, $11,255,100,000.