

Messrs. C. and M. C. Jackson, of Denver, Col., have patented a stovepipe that may be adjusted to fit pipes of various sizes, so that one may be telescoped within the other any desired distance to lengthen or shorten the line of pipe and to make a closely fitting joint.

An improved chair brace has been patented by Mr. Floyd Heavener, of Denver, Col. This invention consists in combining with the chair two wires running from the crossbar of the back of the chair down through the seat, and thence to the front corners of the seat, and upward over these wires two other wires are strained, which pass from the two hind legs to the two fore legs.

**Cement Floors.**

A correspondent of the *Country Gentleman* states how he mixed cement and gravel for cellar bottoms and roads, which stand use and the weather.

In October, 1878, I put down a cement drive-way. The first coat was three and a half inches thick, seven parts of sharp, coarse sand or fine gravel, to one part of cement, thoroughly mixed in a box dry, then dampened with water. I spread it on the ground in sections or squares. As soon as it was set, I put on another coat, one inch thick, of one part of cement to three parts of sharp sand. When that was set, for a finishing coat I put half an inch thick of one part of cement and one part of sand. It will in a week or ten days do to drive over. For my cellar bottom I used five parts of clean, coarse, sharp sand (plasterers call it fine gravel) to one part of cement. This was mixed in the same manner as for the drive-way. It only requires to be damp enough to work well. It was mixed in a box, wheeled into the cellar, dumped, and spread smooth with a shovel, hoe, or trowel, about two inches thick. Take a spade or shovel, flat side, and beat it down hard and smooth. For finishing, use one part of cement to one part of sand; this is thoroughly mixed, and then watered so it is like plastering mortar. Dump it on the first coat, about half an inch thick, spread and smooth with a trowel. It will soon become as hard as stone. The cement I used is known as Portland cement, though I think the common hydraulic cement will answer if fresh.

**Cruising for Icebergs.**

The early appearance of icebergs in the track of Atlantic steamers, and the imminent risk which these wanderers from the north occasion to navigators and passengers, again call forth the query whether something cannot be done to diminish the hazard of them, if not to destroy them outright. Commander McKay, of the steamship *Parthia*, suggests that it would be a good plan to detail a government gunboat or two to follow one or more of these icy monsters to study their natural history after they have entered upon their voyage. A record of such observations, he says, would be of priceless value to the navigator, as it would help him to estimate the probable position of an iceberg, so as to avoid it after being told of its position at some previous date. This would give value to the now practically useless ships' reports, signaling, etc. He suggests, also, as has been recommended before in this paper, that gunboats might profitably be detailed to test the effects of shot, shell, dynamite, or torpedoes on these ice masses, and is disposed to think that such treatment might very much hasten the dissolution of the bergs.

For the benefit of readers who are not navigators Commander McKay adds that neither the air nor the water temperature gives the slightest help to the navigator in indicating the neighborhood of an iceberg, except perhaps when there is a fresh breeze blowing directly over it and in a line with the ship, or when there is a change of water temperature crossing its wake. But in the passages to and from America it is usual to cross their track on nearly a right angle. Consequently this last small factor as a guide to its whereabouts is lost. In the early part of last July he passed within three miles of an iceberg with temperature—air, 63°; water, 61°. In the latter part of the same month, 120 miles north and 100 miles east of the former position, he passed quite close to an iceberg with a steady temperature of air 64°, water, 60°.

**Ammonia Vapor Engines.**

A correspondent of *Engineering* says that one may find the theory of the subject discussed in a paper read in 1867 by M. Frot before the Société des Ingenieurs Civils (Paris), and re-

ported in the *Mémoires* (1867, pp. 671, 688; 1868, p. 170). He might also consult with advantage the references under the entry "Moteurs," in the index to the *Comptes Rendus* of the Paris Academy of Sciences for 1865. See further, *Génie Industriel*, August, 1865 (vol. 30), p. 63, for an account of Delaporte's machine, with historical notices of other inventions; *Génie Industriel*, April, 1867, (vol. 33), p. 198; Fromont's ammonia vapor pump; *Annales du Génie Civil* 1865, p. 826; A. van Waeyenberch's engine. Tellier's machine is described in *L'Invention* 1865 (vol. 21), p. 87; and in *Le Technologiste*, December, 1865, p. 149. The use of such engines for driving tram cars is mentioned in *SCIENTIFIC AMERICAN*, November, 1871, p. 290; *Engineer*, January, 1872, p. 23; Dingler's *Polytechnisches Journal* (vol. 203), p. 234. Joy's engine is described in *Bayerisches Industrie und Gewerbeblatt*, 1872, p. 153. For an account of Laughland's engine, see *Engineer*, August, 1871, p. 131; *Mechanics' Magazine*, August, 1871, p. 152; *SCIENTIFIC AMERICAN*, July, 1871, p. 70; September, 1871, pp. 131, 199. See also the "Abridgments of Specifications Relating to Air, Gas, and other

vehicle bodies. It consists in constructing the braces with ball-and-socket joints to give the braces freedom of movement in every direction without employing loose joints.

A steam cock with a self-adjustable check valve has been patented by Mr. William Bronk, of Albany, N. Y. The cock has its rear end threaded to screw into the boiler, and is provided with the valve seat, to which is fitted a valve, which may be closed by the boiler steam and opened by a push pin.

An improved hose coupling has been patented by Mr. John B. Newman, of Milford, Pa. By this device hose or pipe can be coupled or uncoupled more quickly than by any of the devices in general use, and without the use of wrench, spanner, or any other special tool. The construction of the coupling is such that it cannot be described without engravings.

**Petroleum and Plant Life.**

At the last meeting of the California Academy of Sciences a discussion took place on the subject of the use of petroleum for destroying scale insects on rose bushes. Dr. Henry Gibbons said that two months ago he put petroleum on the trees in his garden. Since then the trees have grown better than ever before, they have grown faster than ever before, and given better roses than ever before. The petroleum seems to kill the scale insect. The handsomest rose he exhibited was from a bush which looked nearly dead a short time since. The petroleum was mixed with castor oil. It is not applied profusely and allowed to run down the roots. Perhaps in a crude state the petroleum would be bad, even on the stalks; but mixed with the castor oil it appears to be advantageous to the plant. The compound does not evaporate nor give out the insoluble portion. Therefore you have a permanent coating, acting on the entire surface of the plant.

Dr. Gibbons exhibited a large bunch of beautiful roses of exceeding fragrance and in full bloom, which he gathered from a bush in his garden which two months ago was overrun with scale bugs and nearly dead.

Now, since using the petroleum and the castor oil, no sign of any scale insect can be seen in the whole garden. He thought castor oil was the only oil that will mix with alcohol, turpentine, and the benzines. It is soluble in alcohol, and when mixed with crude petroleum forms a sort of varnish or cement, which remains on the bushes, and does not fall to the ground. Petroleum, uncombined with castor oil, evaporates swiftly, but when combined forms a useful coating to preserve the plant. Many things have been thus tried. Trees have been whitewashed with caustic potash and lime. One of his rose bushes, nearly ruined by scale insects, thus treated, has borne an unusual number of roses, and a single cactus has borne 200 flowers this season. He thought these were practical facts, and quite as valuable as theoretical ones, although he valued both, and was glad to learn of any experience having a bearing of such importance to the agricultural industries of the human family. He cautioned persons against saturating the earth with petroleum, as such a course prevents future vegetation. Like all things else, its moderate use, wisely directed, is good, and its excessive use is destructive. A grain of opium relieves pain, but its habitual use persisted in brings death.

Dr. Behr said that as the mixture was not soluble in water, if it reaches the earth, it cakes the ground and thus shuts out the air, which must permeate the surface and is necessary to plant growth. A few applications will make rose bushes grow better if sparingly applied, and kill the scale bugs, but if allowed to reach the soil it renders vegetation thereafter impossible in that spot until it is eradicated.

Dr. A. Kellogg thought a simple wash of common lye would at first be sufficient in many cases. Petroleum deteriorates ground for crops. One scale bug has sixty offspring.

Mr. Verder received a large lot of lemon trees from Australia, covered with scale bugs. He applied refined petroleum to the leaves carefully, and they all fell off,

but every bug died, and fresh leaves came out, and the plants continued healthy for many years. He afterward applied it successfully to orange trees. He thinks there is a misapprehension among those who condemn its use. It should not be allowed to reach the ground.—*Mining and Scientific Press*.

PURE olive oil will saponify by combination with spirits of hartshorn.



INDIAN FAIENCE.

Motive Power Engines" parts, 1 and 2, in which he will find a description of all the ammonia vapor engines patented in Great Britain from the earliest period to the end of 1876.

**FAIENCE OF INDIA.**

The engraving shows several examples of the curious faience of India, which is remarkable for the simplicity of its design and ornamentation, yet is truly artistic and pleasing. The ornamentation is of the character usually found in Eastern textile fabrics.

**ELEGANT CHAIRS.**

We give an engraving of two fine chairs from the manufactory of B. Ludwig, of Vienna. The frames are of solid



CHAIRS UPHOLSTERED IN STAMPED LEATHER.

mahogany or of ebonized wood, and the cushions and back are of richly embossed morocco leather.

**MECHANICAL INVENTIONS.**

An improved spring brace for vehicles has been patented by Mr. George W. Cooper, of Pulaski, Iowa. The object of this invention is to brace the springs of buggies and other vehicles against the forward and rearward pitching of the