

NOVEL FOLDING CRADLE.

The cradle represented in the annexed engraving is capable of being folded into very compact form for storage or shipment, and, when extended, it possesses all of the conveniences of the best cradles in use. The cradle is formed of two triangular folding end frames provided with folding braces and connected by longitudinal rods, from which the canvas bottom is supported. These frames are pivoted at their apex on the top of two connected triangular folding standards, and are provided with a crank for swinging the cradle.

A bent rod, from which a fan is suspended, is attached to the bearings of the cradle in such a way that it moves in a direction opposite to that of the cradle when it is swinging, or the fan may be operated independently of the movements of the cradle. The two triangular frames forming the cradle are provided with pivoted folding braces and are suspended at their apex from shafts mounted at the apex of triangular folding standards which are also provided with the pivoted folding braces. The cradle ends are connected with each other by rigid longitudinal rails. The cradle frames are connected by the longitudinal bars from which the canvas forming the bottom of the cradle is suspended. Wicker work or a railing extends along the sides of the cradle.

The shaft, from which the cradle is suspended, is provided with a crank for swinging the cradle, and with connections for operating the fan. These connections are made adjustable, so that the fan may be moved more or less, and provision is made for swinging either cradle or fan separately. The cradle may be operated by means of a treadle, or by a string or belt, from an adjoining room.

Fig. 1 is a perspective view showing the cradle in condition for use, Fig. 2 is a sectional view, showing the operating mechanism, and Fig. 3 shows the cradle folded up.

This invention was lately patented by Mr. C. C. Clark, of Brownwood, Texas.

NOVEL BOOK HOLDER.

The engraving shows a new adjustable and folding-book holder recently patented by Mr. Philip Lohges, of Pittston, Pa. The frame has two upright ends, each formed of two strips connected at the upper end by a hinge and by a band spring. These end pieces are provided with spring fingers for holding the book open, and are connected together by removable upper and lower longitudinal rails, one of the lower ones being provided with a shelf for supporting the book. The end pieces are provided with an adjusting device by means of which the inclination of the book may be changed at pleasure. The device may be taken apart readily and packed in very small compass. It will be found very useful by students, copyists, and readers generally. It is neatly and substantially made of wood and nickel-plated brass.

Cooking by Electricity.

Of the many curious things certain to be seen at the forthcoming exhibition of electricity at Paris, not the least remarkable will be the electrical cooking range of M. Salignac. That ingenious gentleman is going to fit up his apparatus in the grill room of the restaurant, and intends to furnish a great variety of meats which have been cooked by heat generated from the electric current.

At the last Paris Exhibition, M. Mouchot roasted mutton in condensed sunshine, and literally turned his spit on the hearth of the sun; but an enthusiastic admirer might say that M. Salignac had far surpassed this in broiling steaks by lightning and warming coffee with the aurora borealis. As a matter of fact, the electric current is as well fitted to produce heat as it is to produce light, and just as electricity will, in all probability, be made to yield the principal artificial light of the future, so will doubtless it be applied to household heating. The same machines which light the house by night will heat and cook by day, besides performing other duties, such as driving a coffee mill or a sewing machine.

The Philadelphia Elevated Railway.

The elevated extension of the Pennsylvania Railroad on Filbert street, Philadelphia, is open for freight traffic. The line of the extension leaves the present passenger tracks at Powelton avenue, and passes over Thirtieth street on a wrought iron deck bridge 33 feet above the street. The

Schuylkill River is crossed 42½ feet above ordinary high tide on a wrought iron double intersection triangular truss of three spans. About 190 buildings were removed along Filbert street in preparing for the construction of the work. The roadbed from Shock to Sixteenth street, a distance of 2,042 feet, is 106 feet wide, and contains nine tracks. Near Seventeenth street is a turn-table, east of which is a hydraulic elevator for mail express and baggage.

The building on the square bounded by Fifteenth and Sixteenth and Market and Filbert streets, formerly used for the freight station, has been entirely removed and rebuilt of iron and brick, two stories high. All the freight will be received

Mr. John F. Rakes, of Greenup County, Ky., has patented an improved apple cutter and corer, so constructed as to cut the apples into pieces, separate the pieces from the cores, and discharge the cores from the machine.

A cigar-lighting device or lamp, which will not only be adapted for the purpose of cigar lighting, but at the same time embody an attractive and effective means of advertising, has been patented by Mr. William E. Parsons, Jr., of New York city.

Mr. George G. Niedomanski, of Washington, D. C., has patented an improved spring catch or lock to be applied to cigar boxes, by means of which nails are dispensed with,

and a fastening is provided that may be instantly operated to lock or unlock the lid to the box.

Heretofore paper moulds have, in practice, generally been made up of alternate layers of unsized paper and sheets of tissue paper pasted together, which, while damp and more or less plastic, receive the impression of the type, and after being set by baking, form a matrix into which the melted stereotype metal is poured. The object of the tissue paper in the composition of the mould is to give a body to the same and to prevent ragged edges from sticking up. In making this kind of mould the paper of which the mould is composed has set once by drying, and is dampened when the mould is made. It has been found that it is not possible to reduce the paper, having once been set, to the proper condition of a plastic, no matter how damp it may be made, and when an impression is taken in such a composition the proper depth of impression is not obtained, and the tenacity of the tissue paper on the face of the mould causes it to draw, so that the cups of the letters and the spaces between the same are not of sufficient depth and sharpness. To remedy these objections

Mr. Willard S. Whitmore, of Washington, D. C., has constructed a new composite mould, which is formed of a sheet of unsized paper covered with a layer of paper pulp which has never been set by drying.

An improved speaking-tube mouthpiece has been patented by Mr. George F. Richter, of New York city. The invention consists of an indicator that opens and closes horizontally, in combination with a vertically adjustable mouthpiece, that when adjusted for use closes the indicator, so that it can fall at the slightest puff of the operator.

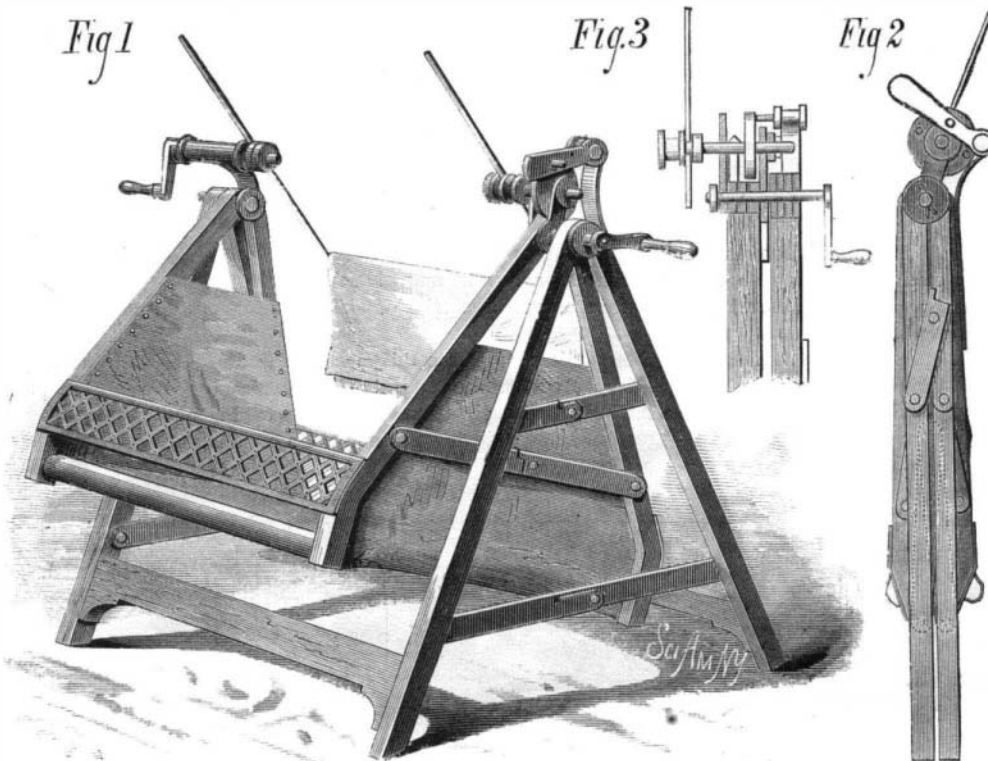
Mr. William F. Mann, of Mount Pleasant, Mich., has patented an improved form of buckle designed to be used, in connection with a strap, for fastening the mouth of a bag or other purpose.

An improved rack and spool for holding rope coils has been patented by Mr. Charles J. Le Roy, of Palestine, Texas. This invention relates particularly to certain new and useful improvements upon the rack and spool for holding rope coils, patented September 28, 1880, No. 232,733; and it consists in a peculiar construction of frame adapted for supporting spools of different lengths, as well as an improved construction of spool for expanding and holding the coil of rope in the center of the reel while being used.

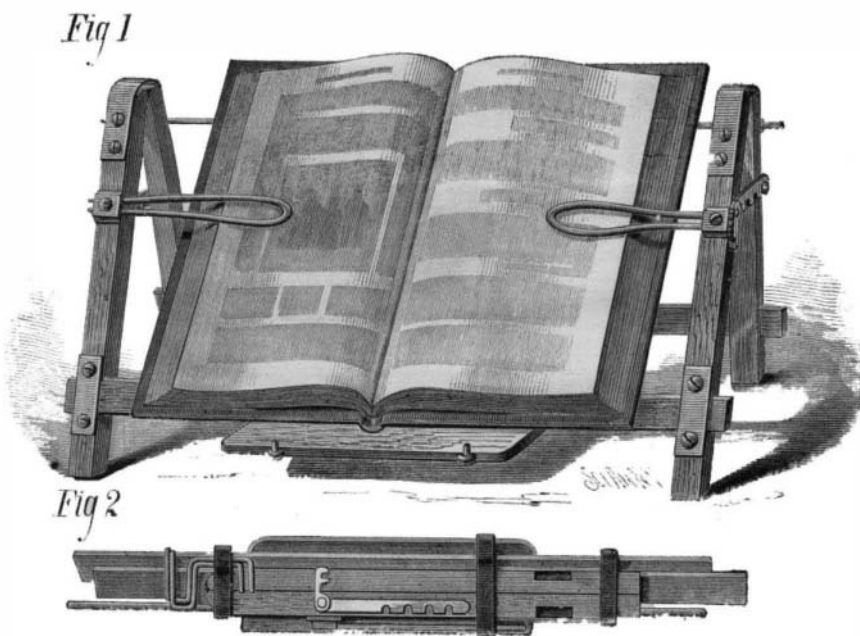
A simple, inexpensive, and efficient device for propelling vessels, and for other purposes, has been patented by Mr. John C. Smith, of Troy, N. Y. It consists of a swiveled loop, and a propeller having a twisted plate at the opposite end of its shaft and a crank, whereby the twisted plate is worked in the swiveled loop so as to feather the paddle.

An improved moth trap, to be placed in front of the openings or apertures of beehives for the purpose of trapping the moths as they attempt to enter the hive, has been patented by Mr. Robert F. Ivey, of Williamsburg, Ga. The invention consists in a box or receptacle provided with two tubes, one inside of the other, the inner one passing through the box into the hive, and the outer one leads into the box, so that the moths that are not able to get at the inner tube must pass into the box, whereas the bees pass through the inner tube directly into the hive.

Mr. John F. Smith, of Erie, Pa., has patented an improved bit in which cheek plates are provided with suitable means for attaching them to the cheek rein and cheek of a bridle, the cheek plates being connected by elastic metallic bars, secured to each of the plates at one of their ends, and pass loosely through the other plate, and are provided with loops or other suitable means at their other ends for attaching them to the ends of the reins, whereby the cheek plates may be drawn together to clamp and compress the jaws of the animal without cutting, pinching, or otherwise injuring the mouth.

**CLARK'S FOLDING CRADLE.**

from and delivered to wagons on the ground floor, being moved between the first and second floors by sixteen hydraulic elevators capable of lifting five tons each. All that portion of the second story from Market street is laid with four tracks for freight, with standing room for thirty-five cars. That portion of the second floor parallel with Filbert street, extending from Fifteenth to Sixteenth street, is intended for a shed for the incoming and outgoing passenger trains. Fifteenth street is crossed by the eight passenger tracks, 19 feet above the surface of the street. The space between Fifteenth street and Merrick street, a distance of 122½ feet, and extending from Filbert street southward 190

**LOHGES' BOOK HOLDER.**

feet, is occupied by the passenger station, which is not yet completed.

RECENT INVENTIONS

Mr. Charles Barlow, of Cookshire, Quebec, Canada, has patented an improved fire escape which consists of a cylinder provided with a piston filled with compressed gas, water, or other liquid, and having a wire coiled around its screw-threaded surface, inclosed, sliding, and revolving in another cylinder that is to be attached to the belt of the operator; and it consists also of an arrangement of valves and their connections, so that the operator may control the movement of the inner cylinder, and thereby the speed of the unwinding of the coiled wire and the rapidity of his descent.

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