THE PREMIUM FOLDING STOOL AND CHAIR.

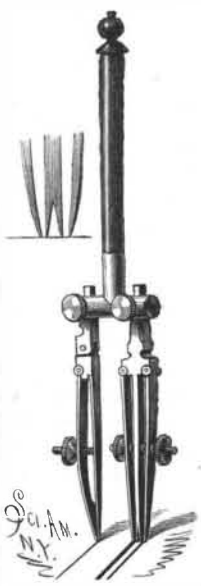
The object of this improved form of chair is to permit a greater spread of the legs, which renders it more steady and more firm on its foundation, and also enables it to be packed into a small space for storage or transportation. It will be noticed that the slant of the back rest and of the legs is not the same, and to provide for these different slants, the back rest and legs are made in separate pieces. It is not possible to construct the back and legs of one continuous straight piece and accomplish this. If the legs were continued straight up to form the back, the inclination would be too great, while if the back is raised to a comfortable angle the legs would be too close together, rendering the chair uncomfortable and unsteady. This objection is sometimes overcome by curving the back and legs to an angle, but this prevents the chair from being folded into a very compact form. Since the back is independent of the slant of the forward legs, it may be adjusted to any angle desired, by simply changing the point of its pivoted connection. When folded, the chair occupies only about one inch and a half in thickness, and a space of 60 ft. will hold enough chairs for 500 people, or chairs of this design can be placed in a hall or opera house for seating 2,000 people, and yet may be stowed away under the stairs or beneath the side benches.

A very desirable feature of this chair is that the back section is made detachable, and the chair may thus be readily converted into a neat camp stool.

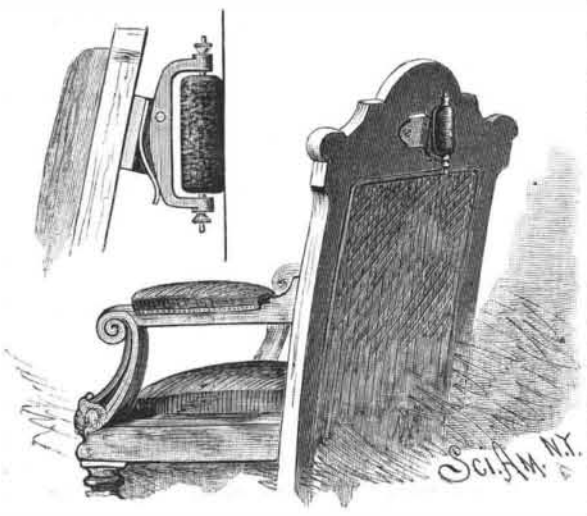
This chair is the property of Mr. Hiram F. Henry, of Gowanda, N. Y.

A PEN FOR DOUBLE AND SINGLE LINE RULING.

A ruling pen, consisting of two pens combined in convenient form for use, one of the pens capable of making two lines at a time and the other a single pen, is shown in the accompanying illustration, and forms the subject of a patent recently granted to Mr. Christian A. F. Orlob, of Salt Lake City, Utah Territory. The pens have each a square shank which fits into a corresponding aperture in a cross piece secured to the handle, and to use either pen singly one has only to turn the other in its socket at right angles to the normal position, or it can be readily removed from the socket. The center plate of the double pen is split into two prongs at the point, and the distance of the side plates therefrom is regulated in the usual way by the small nuts, according to the thickness of the line to be made, the pen, when filled with ink, making a double line without permitting the ink to run from one pen to the other. The other pen is such as used for ordinary ruling, but it has a joint to permit of swinging the lower end of the pen toward or from the double pen, decreasing or increasing the distance between the double line and the single line.



ORLOB'S RULING PEN.



BARROWS' FURNITURE ATTACHMENT.

A New Repeater.

According to the semi-official *Berlingske Tidende*, the new repeating rifle of Captain Wadsen and Lieutenant Rasmussen is to be introduced in the Danish army. In this rifle the barrel is not fixed to the stock, but is secured by a spring. In firing, the barrel is forced backward, by which motion the bottom plate of the breech is opened, the empty cartridge ejected, and a fresh cartridge pushed forward into its place, the magazine holding six cartridges. The bottom plate is then closed again, and all these movements are made automatically, so that the rifle need not be taken from the shoulder. All that is required to be done is that, as soon as the six shots are fired, the magazine is refilled. The rapidity of firing is stated to be marvelously rapid, as many as six shots having been fired in a second (?) In aiming, of course, more time is required; but if the aim is once taken, the six shots may be fired in succession.—*Broad Arrow.*

Gold on Alaska Islands.

Samples of ore from a new mining discovery in Alaska are on exhibition at the office of Geo. W. Sessions, in Nevada Block. The new mines are on Ounga Island, one of the Choumagin group, 100 miles west of Sitka, 200 miles east of Ounalaska, and 1,200 miles north of San Francisco. The island is near the southwestern shore of the Alaskan peninsula. It is about 14 miles long and 6 wide. Geo. C. King, who went there for the Sitka Mining and Commercial Company last summer to look for coal and copper, found the ledge in September. In December another expedition of the same company went up and made more careful investigation. The result was that early in April another expedition, with a number of miners, a five stamp mill, and supplies, landed on the island.

Active work was begun on the ledge. It has been traced for some 10,000 feet. It was found that the porphyry hanging wall on the east was 200 feet from the outcrop, the granite foot wall on the west was 800 feet from the outcrop, and the outcrop was at no point less than 100 feet in width.

To determine the value of the rock in the ledge, two crosscuts were started—one from the east side and one from the west—at a vertical depth of 50 feet. The crosscut from the west, at a distance of 20 feet, struck a body of galena ore, which was from 2 to 4 feet thick in the bottom of the cut, the day before Mr. Sessions left for home. The assays were from $5 to $200 in gold and silver, and the ore also carried from 70 to 80 per cent galena, which alone, at present quotations, is worth $80 per ton.

It will be remembered that the big mine of Alaska, known as the Treadwell, is on an island—Douglass—and there are plenty more islands to prospect. This new discovery will doubtless cause a more vigorous prospecting on the islands as well as mainland of Alaska. A mining district has been formed on Ounga Island, where the big ledge has been discovered.—*Min. and Sci. Press.*

A DUSTLESS CARPET SWEEPER.

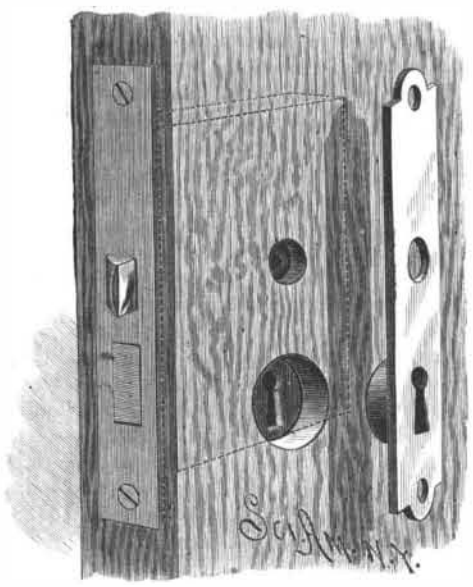
The invention herewith illustrated, which has been patented by Mr. John M. McClain, of Catlin, Col., consists of a fan wheel rotated in a sweeping box and a moistened dust catching wheel emptying into a water trough. The sweeping box has low runners on the sides, on which the device is pushed forward over the floor, and on its front is a vertically adjustable brush, one edge being provided with wire and the other with hair and jute bristles, the brush being reversible at will. As the device is pushed forward, a fan wheel in the front compartment is revolved by turning the crank, when a current of air is caused in the direction shown by the arrows, catching the dust raised by the brush and carrying it back over a dust pan and upward against a dust wheel. This dust wheel, which is set in motion by the current of air, just dips its rim in a water trough in the bottom, thus keeping it moist, and at the same time deposits the collected dust there, the heavier particles not thus carried up on the dust wheel being deposited upon the dust pan, which is situated between the water trough and the open bottom part of the sweeping box in front.

A WALL PROTECTING ATTACHMENT FOR FURNITURE.

To preserve walls from being broken and furniture from being marred or scratched, Mr. Frederick Barrows, of Haverhill, Mass., has devised and patented an attachment, such as shown in the accompanying illustration. It consists of a roller of wood, rubber, or other suitable material, mounted to turn loosely on its axle, the latter being held in the upper and lower ends of a bowed supporting arm, which is pivoted between lugs upon a bracket secured to the back of the sofa or other article of furniture. A plate spring is also employed to exert a slight outward pressure against the back of the bowed supporting arm below its pivot. It is intended that two of these rollers shall be attached to the back of a sofa, bedstead, or other large article of furniture, while one will be sufficient for chairs and similar small pieces.

AN IMPROVED KEY HOLE GUIDE AND ESCUTCHEON.

The practice of cutting a slot in the wood, where a mortise lock is used, to guide the key to the key hole, and covering this slot with the ordinary key hole escutcheon, is often carried out in so unworkmanlike a way as to make it difficult to insert the key in the lock. The register of the slot with the aperture in the lock is generally only approximate, and it is usually roughly cut and a good deal too large. To overcome

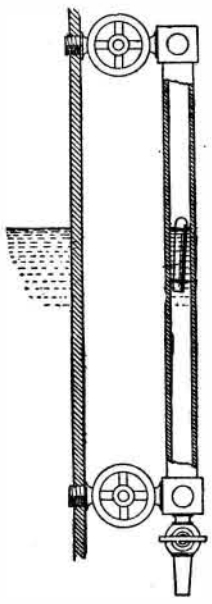


PATTERSON'S KEY HOLE GUIDE AND ESCUTCHEON.

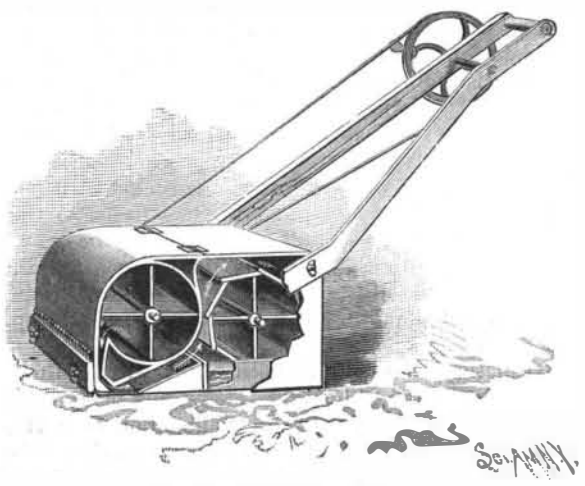
this difficulty, Mr. Samuel S. Patterson, of 233 South Street, Wilkesbarre, Pa., has patented the combined key hole guide and escutcheon shown in the accompanying illustration. A circular recess is cut in the framing over and leading to the key hole, and therein is fitted a cylindrical boss, formed integrally with the escutcheon, but having a key hole slot which continues and exactly registers with that in the escutcheon, and also registers with the key hole of the lock. The escutcheon may be secured to the framing by screws in the usual way.

AN IMPROVED WATER GAUGE FLOAT.

The accompanying illustration represents a glass water gauge attached to a boiler, and within the gauge a float of novel design, which has recently been patented by Mr. Loudon Campbell, of Alexandria, Va. The float is made of dark blue glass, highly tempered to prevent its breaking, and is provided near each end with encircling rings forming projecting flanges. These rings serve as scrapers within the tube of the water gauge, during periods of ebullition and under the normal action of the boiler, scraping the froth and scum from the inner surface of the tube, and keeping it always in a bright and cleanly condition. The float thus indicates the height of water in the boiler in so plain a manner that it cannot fail to be observed by a casual glance, while it can be easily seen from a considerable distance. A spiral spring, not shown in the illustration, is placed in each end of the gauge tube to prevent breakage of the float when the tube is blown out and the float goes to the bottom.



This improvement is applicable to all classes of steam boilers, being especially desirable in gauges where the water used is muddy or impure. It is now being used by steamers on the Potomac River and by several manufacturing concerns.



McCLAIN'S CARPET SWEEPER.

Death of a Notable Elephant.

Bijou, the great pet elephant who has for two years been on exhibition in the World's Museum on Washing Street, Boston, and previously was a resident of the Central Park menagerie in New York, is dead. This animal is the oldest and had been in captivity longer than any elephant ever on exhibition. Bijou has been in this country for sixty years, and while he is known to be seventy-five years old, the probabilities are that he was born nearly a hundred years ago. Recently he had suffered greatly from old age, and his efforts to stand up and receive cakes and candies from visitors at the museum, as he used to, were painful in the extreme. In the last two weeks his massive legs refused to support the weight of his huge body, and his attempts to respond to the call of his old trainer were very affecting. He would try to raise himself on his knees, and then reaching his trunk toward his keeper, the huge beast would settle back and moan.

The old elephant had also lost his appetite and was growing thin. He found it hard to sleep, and lay awake nights groaning and in such evident pain that it was decided to kill him. A box of chocolate drops saturated with a powerful poison was given Bijou after the museum closed on the night of June 19, and in forty-five minutes the beast twined his trunk affectionately around his keeper and died. Bijou's body will be buried in an underground air tight vat until decomposition is complete. This will require some nine months, after which the bones will be separated, bleached, and then prepared, and in another month the skeleton will be placed on exhibition at the World's Museum.

Bijou was an African elephant. Sixty years ago he came to this country, since which time he had traveled with nearly every circus on the road. Twenty times, it is said, his ownership changed hands, and with each stranded show poor Bijou would get a new master. When a youngster he was owned by a London tavern keeper, who exhibited him with a pair of immense gorillas in his tavern, and from there he drifted across the Continent. When but an infant, Prince Albert of England rode him and made him a pet, but his after life was not so pleasant.

In 1840 he visited Germany with a prominent showman, and tramped back and forth throughout the world until 1873 and 1874, when he was an attraction in the Great Eastern Circus. Then O. P. Older, a well known circus man, purchased him, and later Bob Frier, an equestrian with Barnum's circus, broke him to tricks.

Bijou then went to California, and at last drifted back to New York. On the way home, in crossing a bridge Bijou refused, after trying the planking, to make the passage. His keepers, it is claimed, goaded him on. He took a few more steps and plunged through the rotten boards, spraining his ankle, and since then he has never been himself.

While in the Central Park menagerie in New York, the agent of the World's Museum bought him. That was two years ago, and until within three weeks Bijou was never off his feet, even to lie down. He was considered one of the best trick elephants in the country. He played five tunes on the harp, played the harmonica, stood on his head, and did the housekeeping business for the circus with all the intelligence of his nature. During his sickness he has been fed largely on fruit, and a day's allowance included two dozen oranges, twelve loaves of bread, one hundred and fifty pounds of hay, half a bushel of grain, and a bucket of shorts.

Bijou was valued at $3,000, and was probably better known throughout this country than any elephant ever on exhibition.—*New York World.*

Test for Animal and Vegetable Fibers.

A new method has been enunciated by Hans Molisch, in *Dingler's Polytechnisches Journal* (No. 261,135), for distinguishing between animal and vegetable fibers, depending on two new sugar reactions. α-naphthol and thymol give characteristic reactions with cane and grape sugar, which are more delicate than the tests of Trommer and Fehling in common use. The method of procedure is as follows: 5 cub. cm. of the sugar solution are mixed with one or two drops of a 20 per cent solution of α-naphthol in alcohol, and then concentrated sulphuric acid is added in large excess. A deep violet coloration is produced, which gives rise to a bluish violet precipitate on dilution with water. Thymol similarly gives a red brown precipitate. Glucosides and carbo-hydrates, after treatment with sulphuric acid, will also respond to these tests, so that the cellulose in the cell walls of plants may be detected by its use. As animal fibers do not contain any sugar or carbo-hydrates which are capable of giving this color reaction, they can be readily distinguished from plant fibers.

Satisfactory results have been obtained with linen, cotton, hemp, jute, China grass, straw, and many other substances of vegetable origin; while wool, hair, etc., give no reaction. With silk, however, a transient color is produced, especially if the boiling has been continued for some time. When wool is to be tested, it is necessary that it should be first well cleansed, as "wool lice," a feature of vegetable origin, gives the color reaction. Also, many fabrics made from animal fibers are finished with gum or mucilage, which must be removed before the test is applied. Any coloring matter present, according to the author, does not prevent the reaction from being seen.

A NEW STYLE OF THERMOMETER.

In the SCIENTIFIC AMERICAN for December 5, 1885, we published an interesting letter from Dr. Warren, of Boston, Mass., in which he described at considerable length the disadvantages of the common thermometer and the urgent need there was of a new form of instrument, especially for medical purposes. Since that date there has been brought into market a new and ingenious form of thermometer, Immisch's avitreous thermometer, which seems to answer many, if not all, the requirements. We give an engraving of its exterior appearance and size, the cut being the same size as the article itself. The interior mechanism consists of a small tube, bent in circular form, having one of its ends fixed to a support, the other end free to move, but connected by a fine spring with a shaft carrying the indicating or dial pointer. The tube is filled with a highly expansible liquid. Any variation of temperature causes the tube either to curl or expand, as the case may be, and thus moves the pointer. There is a stop catch, by which the pointer may be held or locked to show its indication as long as desired.

The instrument is waterproof and durable, very sensitive to slight changes of temperature, and very accurate. This fact is established by the guarantee of the Kew Observatory, which accompanies each instrument. Altogether, this is a scientific and desirable form of thermometer, which every medical man especially should be provided with. Messrs. Sardy, Coles & Co., 96 Maiden Lane, New York, supply the instruments and give further information.

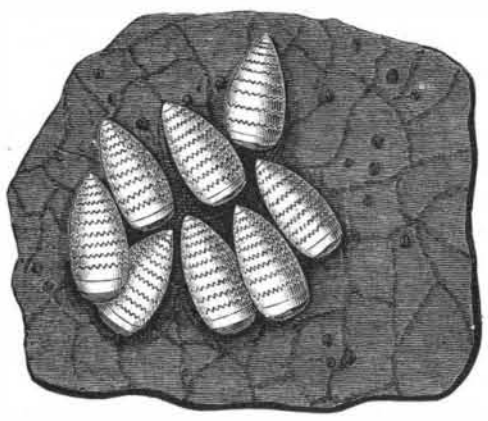
LARVÆ OF BOT FLY IN HORSE'S STOMACH.

BY JAMES F. M'DOUGALL.

I have lately had sent to me, by the son of one of our most eminent breeders, a portion of a horse's stomach, containing a great number of large maggots (the larval form of the horse bot fly) adhering in thick clusters to the lining of the stomach. The gentleman in forwarding specimen writes me that the number of maggots in the entire stomach would have filled a peck measure. I am strongly of opinion that these maggots are much more prevalent in horses' stomachs than has hitherto been made plain.

I have spoken to a number of veterinary surgeons with large country practices, and they inform me it is quite a common thing with horses that have died between January and June to find these maggots in large numbers in the stomach, especially if the animals were at pasture the previous summer or autumn.

The maggots are produced from eggs laid by the horse bot fly (*Gastrophilus equi*). The female deposits her eggs upon those places which are most easily reached by the animal's tongue, as, for instance, the shoulders, the legs, the inside of the knees, etc. The effect of the moisture and heat of the tongue seems to be such that licking the places where the eggs have been deposited liberates the minute maggots contained in the eggs, which adhere sufficiently to the tongue to be carried from thence with the food into the stomach. On reaching the stomach they immediately attach themselves to the lining by means of two small hooks with which their mouths are furnished. Here they remain till the following spring, feeding upon the mucus secreted by the mucous membrane. When full grown, they are about an inch in length. When the maggots are fully developed from the larvæ, they are removed from the stomach during ordinary evacuations. —*The Farmers' Gazette, Dublin, Ireland.*



HORSE BOT FLY MAGGOTS ON LINING OF STOMACH.

Many Items of Interest.

At a recent meeting of the Polytechnic Society of Berlin, says the *Journal of the Telegraph*, the question was asked, What studies are best to fit one to be an electrical engineer? Herr Frischen, one of Siemens and Halske's experts, replied that much practical experience was required. After graduating from school, a rigid course in an advanced technical school should be taken, followed by an apprenticeship in a factory. He remarked that at present the title of electrician is used too freely, and that the claim of some to it is that they have nailed up a few wires.

A lens which magnifies, and yet is perfectly flat on both sides, is a scientific novelty. It is made at Jena, by the manufacturer of Professor Abbe's new optical glass. The lens consists of a single disk, whose density varies so that its refractive power decreases regularly from the surface inward.

To purify water in glass vessels and aquariums, it is recommended to add to every 100 grammes of water 4 drops of a solution of 1 gramme of salicylic acid in 300 grammes of water. The *Norsk Fiskeritidende*, published at Bergen, Norway, says that thereby the water may be kept fresh for three months without being renewed.

An observer down South says an alligator's throat is an animated sewer. Everything which lodges in his open mouth goes down. He is a lazy dog, and instead of hunting for something to eat, he lets his victuals hunt for him. That is, he lies with his great mouth open, apparently dead, like the 'possum. Soon a bug crawls into it, then a fly, then several gnats, and a colony of mosquitoes. The alligator doesn't close his mouth yet. He is waiting for a whole drove of things. He does his eating by wholesale. A little later a lizard will cool himself under the shade of the upper jaw. Then a few frogs will hop up to catch the mosquitoes. Then more mosquitoes and gnats will light on the frogs. Finally a whole village of insects and reptiles settle down for an afternoon picnic. Then all at once there is an earthquake. The big jaw falls, the alligator blinks one eye, gulps down the entire menagerie, and opens his great front door again for more visitors.

The application of soda ash or any other scale resolvent to a dirty boiler, the editor of the *Locomotive* says, should be followed by a thorough cleaning shortly afterward to remove any scale which may be detached or loosened, or injury to the boiler may result. The idea obtains in some cases that it is only necessary to put the solvent into the boiler and let it work, no further attention being necessary. This is a great mistake. If a solvent does any good, its action is either to loosen scale so that it becomes detached in flakes, or it dissolves it so that it remains in the water, either in a finely divided state or in solution. In the first case, the accumulation of a mass of scale on the bottom of the shell is more than likely to result in burning the plates. The only thing to do is to open the boiler and remove it mechanically.

In the second case the result will depend more or less upon the nature of the scale and the amount and character of impurities that find their way into the boiler. If the scale is cut by the action of the solvent into a fine powder, and grease gets into the boiler, as it will in all cases where an engine exhausts into an open heater for the purpose of heating the feed, trouble is sure to result. Burned plates may always be expected under these circumstances. The only thing to do is to blow off all the water in the boiler, thoroughly clean it out, and begin again, omitting the grease.

Gold will only melt at a comparatively high temperature, as we all know, but what is not generally known, the *Jewelers' Journal* says, is that if two per cent of silica be added to the gold, it can be melted over the flame of a common candle.

From the same source the reader may learn that a pretty alloy, said to resemble gold exactly, can be made with 16 parts copper, 1 of zinc, and 7 of platinum. The copper and platinum are covered first with borax and then with powdered charcoal and melted, then the zinc added, and the alloy thus produced is exceedingly malleable, and can be drawn into the finest wire, while it never tarnishes.

Food Adulterations.

The examinations as to tea, coffee, and sugar conducted by Edward G. Love, Ph.D., for the New York *World*, resulted as follows:

A review of the 300 reports discloses that of the samples of tea, 88 were not adulterated and 12 were adulterated, mostly with "lie tea" and foreign leaves; that of the samples of ground coffee, 72 were unadulterated and 28 were adulterated, mostly with chicory and peas; that of the sugar samples, 98 were pure and only 2 adulterated with starch glucose. In all, there were, of the 300 samples, 258 good and 42 more or less bad. As to the weights of the samples, those of 270 were correct and 30 were light.