

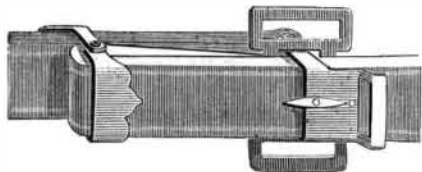
RECENT INVENTIONS.
New Animal Trap.

The engraving shows an animal trap which is automatic and capable of resetting itself, or it may be sprung and set by an attendant who waits and watches for the game. A cylindrical vessel, the upper edge of which rises from the rear to the front, rests upon a tank filled with water. In the vessel a platform is pivoted in such a manner that it can swing up and down on the line from rear to front. At the rear of the vessel the platform rests on a projection, and is drawn downward by a weight attached to its under side. A curved spring is attached to the side of the vessel, and when the platform strikes against the spring, it forces the platform down again. On the inner surface of the raised part of the vessel a bait hook is fastened, and an additional bait hook is attached to a vertical slide, fitted in a groove in the elevated side of the trap, to slide when the bait is pulled upon by the animal as he sinks downward with the swinging platform, in order that he may not be startled and turn back until it is too late for him to get out. The trap is provided with a catch bolt, which may be made to hold the platform until the trapper desires to trip it by means of a cord attached to the bolt. This novel and effective trap has been patented by Mr. T. B. Turley, of La Mine, Mo.



New Trace Buckle.

Mr. Henry J. Butler, of Dallas, Polk, Co, Oregon, has patented an improvement in harness trace buckles, the object of the improvements being to provide a buckle that obviates the use of the box loops or strap loops ordinarily attached to the hame tug, to connect the hame tug with the trace by the buckle in a manner that divides the strain upon

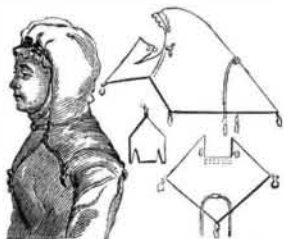


the leather, thus obviating the entire strain being upon one point alone in the trace, as is the case with other trace buckles, and

to obviate having any part of the buckle on the hame tug or the trace while in the course of construction, the hame tug and trace being entirely finished before the buckle is attached. The annexed engraving represents the buckle.

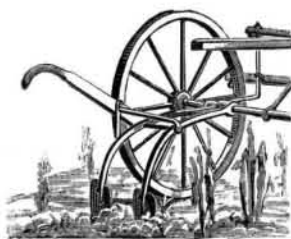
Ladies' Head Wear Protector.

We give an engraving of an article that will be appreciated by our lady readers. One view shows the manner of applying the protector, and the other the several pieces of which it is formed, laid out flat to show their shape. The protector made in this manner, when placed on the head of the wearer, furnishes a perfect covering and protection for the hat or bonnet of the wearer, covers the neck, shoulders, and breast, and also protects the sides of the face and the throat. It is cheap, easily put on and removed, looks well, and when removed may be rolled up to occupy small space, so that it may be carried in the pocket or shopping bag, ready for all emergencies of weather. This invention has been patented by Julia A. Kneeland, of 37 North St., Salem, Mass.



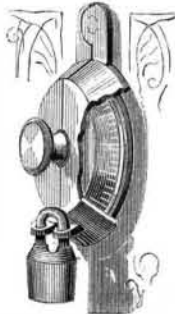
Gopher Attachment to Cultivators.

An improved shovel for cultivators has been patented by Mr. John E. Mitchell, of Fowler, Ind. The invention consists of a novel gopher attachment to cultivator shovels for cultivating corn, being designed for ridging the earth up around the plants in the later dressing, when they are well grown, without injuring the roots. To the blades of a common cultivator plow, or any equivalent form of the same, as the narrower "bull tongue," the inventor applies or forms together therewith the gopher extension upon the right or left side, according to the side of the row of plants the shovel is to work, the said extension being located about midway between the top of the taper of the point and the top of the shovel, and its surface being in uniformity with that of the shovel, that is to say, flush and smooth therewith at the junction. By preference the plow plate, together with the attachment, will be cut out of a plate together; but they may be welded together, if preferred.



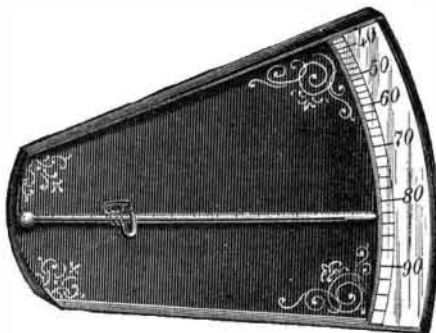
Guard for Safe Locks.

The object of this invention is to cover and protect the dial plates of combination safe locks when the owner desires to prevent others, knowing the combination, from opening the safe. The device consists of two semicircular plates, which are so formed as to cover the dial plate of a combination safe lock, while their outer edges rest against the safe door. In the center of the adjacent edges of the plates are formed semicircular recesses to receive the neck of the knob. Upon the plates at one end, or their straight edges, are formed lugs, the outer ends of which overlap, and are hinged to each other, so that the two plates can be swung apart to allow them to be placed upon and removed from the knob and the dial plate. Upon the ends of the plates, opposite the hinged lugs, are formed eyes in such positions that the arm of a padlock can be readily passed through them. When this guard has been applied, it will be impossible for any one to see the dial plate and unlock the safe without first removing the guard. This invention has been patented by Mr. Philip Laubenberger, 253 Columbia Street, Brooklyn, N. Y.



The Balanced Thermometer.

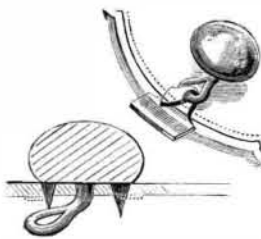
Among the inventions of recent date which bid fair to prove beneficial to the public and profitable to the inventors, the balanced thermometer deserves mention. It has been a desideratum with thermometer makers for some years to secure an instrument which could be read at a distance without interfering with the regular occupation. This object is secured by this instrument in a very ingenious way. As shown in the cut, a mercurial tube graduated, is bal-



anced on needle points, the tube itself acting as a pointer on a dial carefully constructed for the purpose. The pointer being once adjusted to indicate the same temperature as shown by the mercury in the tube, the weight of the mercury will afterward determine the direction of the pointer and show the temperature. This thermometer was patented in December last by Messrs. Kirk & Brayton, of Phelps, N. Y., and is now being manufactured by the Geneva Balanced Thermometer Company, of Geneva, N. Y. We understand that a company is being organized in this city for the sale of instruments and territory.

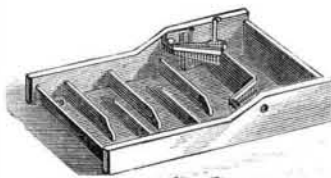
Novel Shoe Fastening.

The engraving shows a shoe fastening recently patented by Mr. Samuel A. Milton, of Clinton, Mo., which resembles a button fastening, but consists of concealed hooks and eyes. The button is provided with a shank terminating in an elongated eye combined with a hook adapted to be passed through this eye, the button being attached to one flap of the shoe and the hook to the opposite flap. The button is secured by means of a plate attached to the under side of the same, and provided at the ends with sharpened prongs, which are forced through the flap and bent against the under side.



Improved Sugar Evaporator.

We give an engraving of an improved sugar evaporator invented by Messrs. R. D. Shendelbower and Henry Pressler, No. 1,307 West Green Street, Louisville, Ky. In this pan all of the parts exposed to the fire are seamless, so that there is no solder to melt, and thus cause leaky joints. The pan is provided with a very perfect skimming device for cleaning the sirup before it enters the finishing part of the pan, and the skimmers are so arranged as to receive the froth as it boils up, the skimmer being made lower at the sides than at the center for this purpose. We are informed by the inventor that this pan works perfectly and is very durable. Further information may be obtained by addressing the inventors as above.



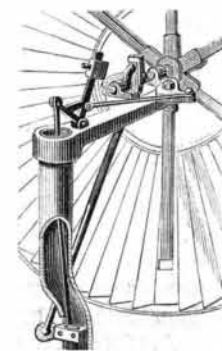
Portable Fence.

The principal advantages of the fence illustrated are its cheapness, owing to the small amount of material used; its strength, owing to the fact that the panels brace each other; and its durability. All nailing is avoided and the posts are held free of the ground. The fence may be very easily put up and as easily taken down, and can thus be moved from place to place at a comparatively small outlay of time, labor, and expense. The panels of the fence are each formed of posts, a central wooden rail, and upper and lower wires. The posts of one end of the panel are provided, near their upper ends, with the eyes or staples, while the posts of the other end of the panel are provided, near their upper ends, with the hooks hooked into the eyes of the adjacent panel for holding the panels together at the top. The posts are made short and blunt at their lower ends, and when the fence is set up are held clear of the ground by the short stakes of wood or iron, driven into the ground, the posts being held to the stakes by the iron rings or bands. The stakes are driven diagonally into the ground, and hold the posts of the different panels at opposite angles, so that when locked together at the top the panels brace each other, and thus make the fence very staunch, so that it will resist all ordinary wind storms. By connecting the adjacent panels in this way, it will be seen that each panel may be opened as a gate. This invention has been patented by Mr. Enoch H. Alden, of Alexandria, Minn.



Improved Windmill.

The engraving represents an improved windmill recently patented by Mr. Charles D. Bowler, of Ohio, Ill. Both the wheel and its mountings are of peculiar construction. The wheel is made concave to bring its weight over the bearings. The mill is mounted on a vertical tube, which is bent above its bearing, into an eccentric position for the turntable of the wheel, to enable the wheel to shift around with the wind without the use of a tail vane. The crank is arranged in relation to the other parts, so that it acts positively and without lost motion. The device for regulating the speed of the mill is very simple and easily managed, and the same may be said of the other parts of the machine. This is a great advantage, as a windmill, of all machines, is most likely to be situated where simplicity of construction will be appreciated.



Estimation of Glucose in Sugar.

A. Vivien's method of estimating glucose in quantities less than 0.1 per cent is given in *La Sucserie Indust.* Copper solutions of different strengths are employed, 10 c. c. of which correspond to 0.01, 0.009, and so on, down to 0.001 gramme of glucose. The quantity of glucose is found by the color of the solution after boiling, and from the red precipitate. The experiment is conducted as follows: He dissolves 10 grammes of sugar in about 200 c. c. of water, then adds 10 c. c. of the copper solution corresponding to 0.01 gramme of glucose, boils, and allows the precipitate to subside. If the blue color is gone and a red precipitate formed, the sugar must contain at least 0.1 per cent of glucose, which can be estimated in the usual manner by titration with the aid of a burette. If, however, decolorization of the solution does not ensue, the experiment is repeated with weaker copper solutions, until one is found of such strength as will just be decolorized. With a little practice it is possible to pick out the proper solutions very quickly. Of course, inverted sugar, or any other reducing substance, would vitiate the correctness of such tests as these, and render polarization absolutely indispensable.

An Easy Test for Adulterated Sugar.

A few years ago P. Cassamajor proposed the use of methyl alcohol for the detection of glucose when mixed with cane sugar. At a recent meeting of the American Chemical Society he announced the fact that his test would not work when anhydrous grape sugar (amylose) instead of ordinary hydrated glucose is used. In place of that test he now suggests that a sample of the suspected sugar be placed in a beaker-glass or teacup, and an equal quantity of sugar known to be pure in a similar vessel. On adding a little water to each and placing the vessels in hot water, the adulterated sugar will melt much sooner than the other and appear more like molasses. On allowing the two solutions to cool, the pure cane sugar will become solid again, while the adulterated article will remain a sirup. In a sample sent to him to test he found that about 20 per cent of crystalline glucose had been added. The form of the crystals in the anhydrous glucose were, he said, easily distinguishable from either cane sugar or ordinary hydrated glucose by means of the microscope. The quantity can only be determined by optical means.