

MISCELLANEOUS INVENTIONS.

Mr. Edward R. Mollenhauer, of New York city, has patented an improvement in violins which relates to the arrangement of their interior, effected without changing their outward form or structure or altering the manner of playing them. This improvement increases the power of the instrument, and gives greater roundness and fullness to its tone without sacrificing any of its special and peculiar properties. The invention consists in interposing a board at any intermediate point between the belly and back of the instrument, parallel thereto, so as to divide the interior into two chambers, and providing the board with sound post, sound ports, and a base bar.

An improved fastening for shoes, etc., has been patented by Mr. John Howenstine, of Fort Wayne, Ind. It consists of a case secured to the flap, in which is pivoted a catch, held in position by a spring. A tongue is fastened to the other side of the opening, which is adapted to enter the case and to be engaged by the catch. The catch is made to release the tongue by pressing the projecting end with the finger.

Mr. Thomas B. Mosher, of Portland, Maine, has invented an improved ruler, which consists of a narrow strip of suitable material, made flat on its under surface to prevent rolling, provided with a sharp edge to serve as a paper cutter. It has a hollow cylindrical back piece running its whole length on its upper surface, so combined with it as to form a step along the line of junction. This step is sufficient to prevent ink from soiling or blotting the paper. The back piece is made hollow throughout for holding pencil or pen handle, or other articles, and in each end there is a plug, one forming the handle of an ink eraser, the other forming the handle of a piece of erasive rubber.

An improved process for removing the germ and fuzzy or woody fibers found upon the ends of wheat and other similar grains before reducing the grain to flour has been patented by Mr. Samuel Potts, of Minneapolis, Minn. The process consists in separating the grain kernels into grades of uniform length, and treating the grades in a continuous operation in separate mills, having each a stationary roughened surface and an opposing revolving roughened surface, these surfaces being rigidly adjusted with respect to each other at a distance apart which is invariable, and greater than the lateral axis of the grain kernels, and less than their longitudinal axis.

An improved life preserving suit, patented by Mr. Frank Vaughan, of Elizabeth City, N. C., has a lower section made in the form of rubber pants, distended and protected by rigid frames and rings, and having a sectional annular float at the waist. It is worn in connection with a rubber shirt having a strap and draw cords to connect it with a flange on the float.

Mr. Anson L. Sonn, of Toledo, Ohio, has invented a novel brush, which is an improvement in the class of hair and other bristle brushes having sheet metal back or casing. It consists in constructing the case or frame of the brush of two metal parts, one being let into or inclosed by the overlapping edges of the other, and united to form a water-tight joint.

Mr. James A. Peek, of Beloit, Kan., has patented an improved scraper for use upon railroads, ordinary roads, and in other places where grading is to be done, or soil moved from place to place. The invention consists in a novel combination of devices which cannot be described without engravings.

An improved mail package has been patented by Mr. George Bassett, of Chicago, Ill. It consists of an outer metal case made in two parts, each having a perforated head and inside rubber springs, on which the transparent box containing the samples or other articles is held, so as to be free from the jarring and pressure to which the package is subjected.

A horseshoe, provided with a spring attached to the under side of the toe and carried back in a median line to the heel, and then brought up in an enlarged form on a double or fold to support the frog of a horse's foot, has been patented by Mr. George Bacon, of White, Mich.

A lamp stand, which can be readily attached to a table, shelf, sewing machine, etc., and will securely hold the lamp placed in it, has been patented by Mr. Joseph Robison, Sr., of Birmingham, Conn. A clamp grasps the edge of the sewing machine table or shelf, and is firmly secured by means of a screw. The lamp sets in the ring with its handle between two uprights; a slide, moved down upon the lamp handle, holds the lamp in place.

A simple and, it is claimed, unfailing device for instantly detaching horses from vehicles, whether in motion or at rest, has been patented by Mr. Elijah Stevens, of Somerville, N. J. By this device a horse is attached to a vehicle securely, and in case of threatened accident he can be instantaneously disengaged, the strength of a child being sufficient for the purpose.

An improved butter package, constructed so as to keep the butter sweet and pure for any desired length of time, and which can be conveniently transported, has been patented by Mr. Arthur White, of Derby Line, Vt.

An improved barbed fence wire has been patented by Mr. John A. Duncan, of Kansas City, Mo. It consists in providing the main wire or wires with a loop or loops, and passing the wire barbs through the loops and twisting them together and around the wires so that they will be at right angles to each other and held immovable in their places.

A purse or pocketbook fitted with devices for registering or printing figures upon a strip of paper by the act of clos-

ing the purse or book, has been patented by Mr. Hugh C. Baker, of Hamilton, Ontario, Canada. The figures are adjustable, so that they may be set to print as desired. The device is intended for keeping an account of money taken from the purse from time to time without the necessity of using a pen or pencil.

An improved brick kiln has been patented by Mr. Thomas S. Hawkins, of Chattanooga, Tenn. The kiln is built in the form of a cupola furnace, with a chimney stack connected to the upper part of the burning chamber. In the lower part of the chamber is a platform that is raised and lowered by a screw. Access to the platform is had through an opening at the bottom of the kiln, through which the bricks can be removed.

An improved device for sprinkling water or other liquid in a fine spray upon clothes, plants, tobacco, leaves, and for various other purposes, where the liquid is required to be delivered in a fine spray, is the invention of Mr. James H. O'Connor, of Helena, Ark. The sprinkler consists of a cup, having a handle, a convex perforated plate or rose, and a valve, which facilitates the entrance of water into the cup by permitting the air to escape.

An improvement in sugar evaporators has been patented by Mr. James F. Sargent, of Strafford, Vt. This invention relates to improvements in the construction of the furnace and evaporating pans used in the manufacture of sugar. The object of the improvement is to direct the fire under the whole or a part of the pan; also, to enable a part of the pan to be used for boiling sap and another part for granulating the sirup.

Mr. Almon P. Whiting, of Astoria, N. Y., has invented an improved rail tie, to which rails may be firmly secured in a novel manner. The rail tie is double flanged and notched to receive the rails, and the rail is secured by a slot bolt and a clip of peculiar form.

Cumberland Mountain Caves.

One of the members of the Harvard University Summer School of Science (which, under the direction of Professor Shaler, has been studying the geology of the Cumberland Mountains in Virginia) writes from Pennington's Gap to the *Detroit Free Press* describing some of the caves of that region. He says:

"There are numerous small, and a few large, caverns in the limestone hills about here, but none of them have any true cave beetles. In one cave I descended into a pit by means of a rope, and from this pit into a second pit, in which I found the floor strewn with bones of cave bear, cave men, and five or six other animals, all of which I got out and packed for the survey. The largest cavern I have examined is only two miles from camp. I have spent three entire days in exploring it, of course returning to camp each night. Of three passages examined I reached the end of but one. I walked for four hours through one series of chambers, which constantly increased in size as I went on, and was obliged to turn back without finding any end, simply because I could not carry in mind the many landmarks that had to be remembered on the return.

"This cave contains the most exquisite chalcite and gypsite formations. One large chamber is lined for half a mile with delicate frostwork of crystals as white as snow. The walls seemed to be draped with folds of ermine puffed with bunches of ostrich plumes. In other places are sloping banks covered with an apparently vegetable growth of fungi, moss, and ferns, but all formed of chalcite needles or bunches of white, brown, rose pink, and crystal clear gypsite. There are pillowy masses, like couches of eider down, inviting the tired explorer to repose, but stinging like nettles the hand that brushes, no matter how lightly, against their bristling points. There are ledges, like the shelves of a museum, stored with branching coral. This part of the cave exhibits the perfection of this kind of cave ornamentation, and was said by members of the survey to be unusual in its extent and beauty. Other parts contain curious stalactite and stalagmitic formations, such as one seen in many other caves, halls of statuary, giant coffins, waterfalls, organs, and unexpected imitations of natural and artificial objects."

Explosion in a Bessemer Shop.

An accident occurred at Sheffield, England, the other day, which shows the danger of experimenting with petroleum in blast furnaces. The men in the Bessemer shop of Messrs. Brown, Bayley & Dixon's works had been engaged in what is known as the "patent injector experiment," in the course of which an apparatus for blowing vaporous petroleum by steam through molten metal is used, so as to render it hotter—"cold heat," as it is technically called. Shortly before seven o'clock the last of these experiments was being conducted. If it works well, combustion is immediate at the tuyere holes, and thus none of the heat caused by the presence of petroleum is lost. In this instance the experiment was on the point of being concluded, and some thirty men were engaged in the final operations, when an explosion, which shook the entire building, and was heard over the whole district, took place. Mr. Cooper, the acting manager, was at the works, and the inquiries he made showed that the petroleum had exploded in the box of the patent injector (or the vessel used in the experiment) containing the molten metal, and had blown the bottom lid of the latter off. The vessel then turned down, as usual when the experiment is concluded, and the molten metal commenced to run into the pit below, but fortunately no one was there, for the men had run for their lives as soon as they saw the danger. The

foreman, however, did not escape, and he was somewhat severely singed over the face and arms. The cause of the explosion is attributed to the fact of there being an excess of petroleum—some of it vaporized—in the box, and that this larger quantity, coming into contact with the air, caused it to spring into a flame, and led to the explosion.

A NOVEL EXHIBITION.

The Royal Agricultural Society of England has issued a circular calling for examples of agricultural engines and machines for their next exhibition, which have been damaged in part or entirely by the incapacity or negligence of the operatives.

It is a novel idea, but such a collection of machinery as it proposes to get together is calculated to do much service to the manufacturer, who can inform himself wherein his machine may be improved in the whole or strengthened in parts, and not less so to the farmer or owner of the machine, who will thus be informed of the incapacity of his employes. The society also request that a written statement accompany each exhibit, stating the circumstances under which the damage was done. These specimens are to be displayed in a special shed in the show, which is to be held at Carlisle, on the 1st of July, 1880. Early notice is thus given that farmers may preserve their injured machines for the exhibition.

In addition to the great loss of property caused in the mismanagement of agricultural machines by incompetent help, a great many innocent persons lose their fingers and some their lives from the same cause. Such an exhibition is intended to form the basis for further investigation, first as to the cause, and then to devise a remedy for such evils.

Progress in Railway Making.

In a recent address Mr. Edmund Smith, one of the vice presidents of the Pennsylvania Railroad, said that thirty years ago 10,000 tons each way daily, or 7,000,000 tons a year, was thought to be the maximum capacity of a double track railway between Philadelphia and Pittsburg. Yet in 1878, the tonnage of the Pennsylvania Railway was 11,000,000 tons, and the extent of its capacity is far from having been reached. In loading cars, a few years ago the rule was one ton to a wheel. The cost of moving one ton one mile under the most favorable circumstances on first class railroads a few years ago was 1 cent: now it is reduced to 1/2 cent. The most important element in causing these reductions has been steel rails, which are furnished now at two thirds the cost per ton of iron rails 30 years ago. He did not think there was any reason why we should not go on to improve and develop the system in the future as in the past, and he ventured the opinion that the day is not far distant when the main lines of railway will be illuminated at night by the electric light, while other and greater improvements will keep pace with the spirit of the age.

Impurities Contained in Glacial Acetic Acid.

The actual acid present in the 57 specimens examined varied from 87 to 99.5 per cent. The author finds that the oil of turpentine may serve for determining with exactness the acid present. For this purpose he takes 10 c. c. of the sample, and carefully drops into it oil of turpentine from a burette graduated into tenths of a c. c. until the last drop added dissolves after slight agitation without producing a permanent turbidity. The quantity of oil which may thus be added increases with the quantity of pure acid. In samples above 99.5 per cent in strength the oil dissolves in any proportion. To obtain comparable results the samples operated upon should be at one and the same temperature, 15° being the most suitable.

In practice it is sufficient to add to a known volume of the acid eight or ten times its volume of the oil and to stir two or three times. If the mixture remains clear the strength of the acid is at least 97 to 98 per cent. Otherwise it should be rejected.—*M. Berdy.*

English Silk Mills to Remove to New Jersey.

We have had several occasions lately to mention the transplanting of English manufacturing establishments to this country. Another significant and important move in this direction is reported in the *New York Times* of August 31. It appears that three gentlemen prominently engaged in the manufacture of silk in Macclesfield, formerly the great center of that industry in England, have been visiting the silk mills of Paterson, N. J. One of the gentlemen builds silk machinery, and hearing of the great prosperity of the Paterson mills, he thought he would find a market for his machinery in that city. He was surprised to learn that nearly all the machinery wanted is made in Paterson, one silk manufacturing company making all its own machinery on the premises. One of the other visitors is superintendent of a large silk mill in Macclesfield, and the other is the son of a great mill owner. Both of these gentlemen, after a tour of the Paterson mills, confessed that the American manufacturers had nothing to learn from their English rivals, but that the latter had much to learn from the former.

A NEW INDUSTRY—FROG FARMING.—A Mr. Soule, of Elgin, Ill., is in his third year of frog farming, and his first crop is now being marketed. He has an acre and a quarter devoted to the frog industry. The kind grown is the "Goslin frog," much larger than the common sort. Mr. S. will, next season, furnish St. Louis, Chicago, and Cincinnati with frogs, and is confident of success in the business.