

taken with the short legs, when the increased size will be exhibited by the long legs. The proportions indicated will vary according to the angle given to the short legs; these may be set by a scale, if desired, the scale being attached at the point of junction of the short legs with the long ones. By turning the short legs down to the sides of the others, these dividers may be used like a pair of the common kind.

Dividers of this kind are, in many respects, superior to other instruments now used for the same purpose, while they are much more simple and cheap. Draughtsmen will readily perceive and appreciate the various uses and advantages of the improvement. It forms an accurate, reliable instrument, and, we doubt not, will find an extensive introduction. We regard it as a valuable invention. For further information address the patentee.

**Improvement in Bridges**—By Peter C. Guion, of Cincinnati, Ohio.—This invention consists in a peculiar combination of the arch with tension braces, whereby it is alleged that greater security is obtained, at less expense than in other bridges. The materials employed are wood and metal. Without diagrams it would be useless to attempt a particular description.

**New Method of Excluding Dust from Railroad Cars**—By Joseph Woods, of Jersey City, N. J.—This improvement consists in enclosing all the open space below the car with lattice-work, arranged like the lattices of common Venetian blinds. The enclosure extends from the base of the car down as near to the ground as safety permits, the wheels, &c., being covered in.

The inventors allege that the dust is raised by the air which rushes in to fill the vacuum occasioned by the rapid passage of the car, as it sweeps over the surface of the ground.—They also allege that the lattice-work serves to cause a suction from both sides inward, underneath the car, and that the two currents of air, when they meet, unite, and rush backwards to the rear end of train. The dust, as fast as it rises, is thus drawn in beneath the cars, carried back, and discharged at the rear. The improvement is applicable, at very small expense, to all of the ordinary passenger cars. If it will accomplish what the inventor states, it is an important improvement.

**Improved Gold Separator**—By Edward N. Kent, of New York City.—Consists in using a grain separator, for separating some of the metal from the earthy particles, in connection with a crusher. The crusher is of the "Chilian form"—two large heavy wheels moving around on a circular bed, the quartz being crushed between the wheels and the bed. The improvement here consists in placing the crushing wheels in a deep basin, and submerging them in water. The exit mouth of the separator empties into a tube which conducts the quartz down beneath the water, and deposits it upon the bed of the crusher.

**Cockroach Trap**—By C. H. Guard, of Brownsville, N. Y.—In this contrivance there is a curious arrangement of tubes and falls, into which the unfortunate vermin are precipitated. The loss of life among them, when this invention comes into use, will be shocking to contemplate; but housekeepers, we presume will regard the operations of the trap with complacency.

**Machine for Cutting out Shirt Collars**—By O. W. Edson, of Troy, N. Y.—This consists of a combination of blades, cams, levers, &c., whereby a hundred shirt collars of the most fashionable form may be cut out almost as quick as a single one by the common hand method. The claims of the patentee will be found in the official list.

#### Recent Foreign Inventions.

**A Stationary Piston for Steam Engines**—A patent has been granted in England to C. J. Symons, for constructing a steam engine with a fixed piston and a movable horizontal cylinder supported on a pair of wheels, and which has attached to it a bracket connected to a rod to communicate motion to the crank.—None of our engineers, we presume, will blunder on the construction of such an engine.—To make the steam drive the cylinder instead of the piston, may be a novel method of applying steam, but not a good one.

**Spiral Railway Spikes**—A patent has been taken out by George Hopper, of London, for a new railway spike for fastening the chair to the sleeper. The spikes are twisted spirally, so that they revolve when driven into the sleeper, and hold the chair to the seat with all the firmness of a screw. The round part under the head is tapered conically, so as to fit with accuracy the hole in the chair, by which means any side vibration of the rails is effectually prevented. The *London Railway Gazette* says, respecting it, "Mr. Hopper has already made nearly 1000 tons of spikes, and has recently taken out another patent for an improved form of "swaging rolls" to facilitate their manufacture. While the cost of ordinary wooden treenails is £4 per 1000, the cost of the improved spike varies according to the price of iron, from 70s. to 110s. per 1000; but as they may be guaranteed for 20 or 30 years, they may be considered much cheaper in the end."

About eight years ago, a Boston mechanic brought a spike of the same kind as the above described one to our office, and left it with us for some weeks. He once intended to apply for a patent, but why he did not we cannot tell. His spiral spike was intended for ship-building; it could be driven home without boring, as it was so made that continued blows on its head made it enter timber like an auger.

**Concentrating the Coloring Matter of Fresh or Spent Madder**—E. J. Hughes, of Manchester, patentee.—This inventor takes a fibrous or porous substance, such as cotton, wool, or sponge, and steeps it in a mordant calculated to combine with the coloring matter, &c.—When the material is thoroughly saturated, he subjects it to the action of the necessary processes to remove the acid and thoroughly precipitate the mordant on the material, as is usually done in calico printing. He then puts the material thus prepared into water with the madder or any preparations thereof. He heats the water, and leaves it a sufficient time to allow all the coloring matter to combine with the mordant fixed on the material, after which he exposes the material to the action of a strong acid, such as sulphuric, muriatic, &c., either slightly or much diluted, for a sufficient length of time to dissolve or decompose the mordant, and carbonize or dissolve the fibrous or porous material. When this is accomplished he puts it on a filter and washes and neutralizes it until the acid is removed. The residue is then the concentrated coloring matter he wishes to obtain.

For the delicate pinks on fine muslins this is a good plan of obtaining a refined extract of madder color; but for common purposes, the process appears to be a very expensive one.

**Generating Steam by Friction**—H. Dembinski, of Paris, has taken out a patent in England for obtaining heat from friction to generate steam. The object of the invention is to generate steam without combustion. We cannot understand how M. Dembinski is to obtain his power to work his friction rods in generating steam, excepting by the employment of mules to turn the crank. It is very evident that he cannot generate as much steam by friction as will work his friction apparatus.

**Boiler Furnaces**—T. Barling, of London, has obtained a patent for constructing fire bars and furnaces as follows:—The fire bars are hollow, and steam is forced into the chimney, to increase the draft and keep them cool. The fire bridge behind the grate is built close up to the boiler, and the gases of combustion have to pass through the solid fuel and the grate spaces to the bottom of the boiler and the flues.

**Acoustic Railroad Signals in Great Britain**—An invention for signaling on trains has been tried on the South-Western Railway, England. The apparatus consists of a gutta percha tube extending through the whole length of the train. It is formed in sections—a joint for each car—and these are fastened together when in use. This tube is connected with an air-pump in the front, and at the end of the train. By a stroke of this pump the air is forced through the tube to the opposite end of the train, and produces a very loud and shrill whistle at the mouth-piece attached to the tube in each guard's van, and to a mouth-

piece which extends also close to the engineer. Printed instructions are placed in the hands of guards, engineers, and stokers, which state that one whistle means "look out," two whistles signify "caution," and three whistles denote "danger." Its object is the same as the bell or gong used for signaling on our trains, and is, in our opinion, not an improvement.

#### Selling Patent Property by Sample.

Messrs. Editors—In Maine they have a law to prevent citizens of other States selling goods by sample there without a license. Can this law be made to apply to patented articles? or can a patentee be compelled to purchase a license to sell in any State an article which the United States Government has given him the exclusive right to make, use, and vend for a limited period? O. L. R.

Dover, N. H., Feb. 18, 1856.

[This is a simple question relating to the judicial power of a State in making a law to regulate the sale of property or merchandize. The State of Maine and every other State has the power to make such a law as that referred to; and it includes "patent property" the same as common merchandize. A patent does not confer any privilege upon an inventor in regard to his property in making and selling it in any State, which any other citizen does not possess in regard to any other species of property recognized by civil and common law. The Government, by patent, grants to an inventor the exclusive right to make, sell, and use his invention for a limited period, but this simply means that no other person can do so without his consent. The law mentioned above is an act for the regulation of trade within the borders of a State; it does not take away any natural right which an inventor possessed before his patent was granted; and it does not place his property on a different platform from that of other property belonging to other citizens. Were the case otherwise, the United States would have to become a party in patent property suits. In relation to such a question Judge Hopkinson says—

"On a careful review of the Patent Laws of the United States I have found no indication of an intention that the United States are to be brought in as a party to a litigation respecting the validity of any rights claimed or denied under these laws. On the contrary, these rights are considered as the private rights of the party who has obtained them, and are afterwards to be impeached and defended as such."

#### Making a Needle.

Needles are made of steel wire. The wire is first cut by shears from coils into the length of the needles to be made. After a batch of such bits of wire are cut off, they are placed in a hot furnace, then taken out and rolled backward and forward on a table until they are straight. They are now to be ground. The needle pointer takes up two dozen or so of the wires, and rolls them between his thumb and fingers, with their ends on the grindstone, first one end and then the other. Next is a machine which flattens and gutters the heads of ten thousand needles an hour. Next comes the punching of the eyes; and a boy does it so fast the eye can hardly keep pace with him. The splitting follows, which is running a fine wire through a dozen, perhaps, of these twin needles.

A woman with a little anvil before her files between the heads and separates them. They are now complete needles, but are rough and rusty, and they easily bend. The hardening comes next. They are heated in batches in a furnace, and when red hot are thrown into a pan of cold water. Next, they must be tempered, and this is done by rolling them backward and forward on a hot metal plate. The polishing still remains to be done. On a very coarse cloth needles are spread, to the number of forty or fifty thousand. Emery dust is strewed over them, oil is sprinkled, and soft soap daubed by spoonfuls over the cloth; the cloth is then rolled hard up, and, with several others of the same kind, thrown into a sort of wash-pot, to roll to and fro for twelve hours or more. They come out dirty enough; but after a rinsing in clean hot water, and tossing in saw dust, they look as bright as can be, and are ready to be sorted and put up for sale.

#### Wonderful Presence of Mind of a Railroad Conductor.

Recently, while the Eastern and Western trains were out of time at night on the road, one of them was unprovided with a lantern, in which case the conductor went ahead of the train with his own lantern, while the train followed slowly at a distance behind. Unfortunately, his lantern went out just as his ear was struck by the noise of the Western train rapidly approaching. The night was so dark he could not be seen, and he was not able to raise his voice above the wind and the noise of the passing train, so as to attract the attention of the engineer. His first resort was a club. He seized one and threw it at the locomotive, but the wooden missile glanced off from the engine without making a noise. The train was flashing past. Taking his own lantern, he hurled it at the lantern of the passing locomotive just as it came opposite to him. The crashing glass and the extinguishment of the light startled the engineer. A sharp whistle was heard, the brakes were shut down, and the train stopped. All was safe, when but for the throwing of that lucky lantern scores might have been killed and wounded. But how stupid and reckless it was for the train to be going on without a lantern.

#### New System of Weights and Measures.

We have received quite a number of communications on this subject, since we published the articles of Mr. Wilcox, on pages 134 and 142. It is impossible for us to present a title of the substance contained in these communications. Some of these agree with the views of Mr. Wilcox, others do not. All, however, agree in the necessity of a reform in our systems of weights and measures. We must therefore tell Members of Congress that there are hundreds of thousands of our citizens expecting they will do something before this Session closes in relation to effecting such a reform.

#### American Turret Clocks for Siam.

We learn that John Sherry, Clock Manufacturer, Sag Harbor, N. Y., has received an order for three turret clocks for Siam, one of which is designed for the King's Palace. These, it is said, will be the first turret clocks ever introduced into that Empire. The order is in good hands. The *SCIENTIFIC AMERICAN* goes almost everywhere, and among other places to Siam. We have several subscribers there, and presume it was in consequence of some notice in our paper that Mr. Sherry received the above commission.

#### Stone Tortoises, Hyenas, &c.

The St. Louis *Democrat* states that Dr. Hayden, a young man of that city, a devotee of natural science, has collected gems of the science from the regions surrounding the Missouri river. These gems consists of fossil tortoises of immense dimensions, sea shells of infinite variety and beauty, (an ammonite, of a single curl, twenty-five inches in diameter and a foot in thickness,) skulls of the hyena, the crocodile, monkeys, petrified forest trees, and varieties of fossil flora, are a few of the specimens that make up a various and wonderful collection.

#### Photographic Pictures on Silk.

Daguerreotype pictures are fast disappearing in our city. Photographs are rapidly driving them out of existence. The correctness of the photographic pictures now taken by our best artists, is remarkable. We have also been highly pleased with the beautiful photographic pictures taken on silk and glass, by Mr. Charles R. Meade, No. 233, Broadway. If a person wishes to have the likeness of his beautiful self taken on silk, Mr. Meade can do this for him on a white silk handkerchief; and unlike one taken on paper, or a metal plate, this picture, like his face, can undergo ablutions without being effaced. Whether it be owing to the nature of our atmosphere, or the superior skill of our artists, we cannot tell, but their photograph, daguerreotype, and ambrotype pictures far surpass those taken in Europe.

A line of powerful screw propeller steamers is shortly to commence running between New York and Cork. Some wag says that it is to be called the Cork-screw Line.