



## New Inventions.

### Self-acting Brake for Vehicles.

Mr. John Boynton, of South Coventry, Ct., has invented a beautiful self-acting Brake for vehicles, which must prove of great value for wagons in hilly countries or those who have to drive teams down steep declivities. It consists of a friction brake which by shifting a pin acts at once upon the face of the fore and back wheels by being operated by the pole and reach of the wagon, by the animals attached to the wagon. At some future period there will be a very extensive mountain trade with the elevated regions of Mexico and California, and lines of railroads leading to the older portions of these States. In that case this brake will become of immense value, and the years are not far distant when this will be the case. Measures have been taken to secure a patent.

### Improved Straw Cutter.

Among the many varieties of this class of machines, it might be supposed that anything new was an impossibility, but such is not the case. We occasionally see improvements and modifications where we would not expect it. This is the case with a straw cutter invented by Mr. Lewis Tupper, of Auburn, N. Y. The knife is arranged in a different manner from any other that we have seen, and the feeding rollers are turned by the reciprocating motion of the cutter. The knife is a single blade bevelled downwards on both sides from the middle. (This is like some others.) It is secured to a vibrating horizontal rod or lever, (one on each side of the box,) and it has fork ends with screws on them which pass through the knife and secure it firmly, while it can easily be detached when required. These rods have a reciprocating motion by being attached to the knife at one end and secured by pivot axis to the side of the feed box at the other end.—One rod passes through a small groove on the end of a vibrating arm which works two clicks that mesh into a ratchet wheel on the end of the upper feed roller; therefore every cut of the knife moves the feed roller one notch round, giving it an intermittent rotary motion to coincide with the motion of the knife. This arrangement saves some gear wheels and is a good method of feeding an intermittent cutting motion.

### New Steam Boiler Feeder.

Mr. William Foskit, of Windsor, Ct., has invented a new and beautiful little apparatus for feeding boilers without the use of the force pump. It is so constructed that the water will be continually kept at the water line, feeding none when above that line, although its motion is the same as when feeding a regular quantity. The principle of it consists in bringing a receiver alternately in communion with the water tank and then with the steam of the boiler and the water in the boiler, to receive the water in the one case and pass it into the boiler by the steam at the water line, in the other case. For this purpose he has constructed a small revolving disk driven by a pinion which works steam tight between two metal plates, communicating with the boiler at a certain line by a tube passing down below into the water of the boiler. This is the only way it has communion below. Above it communicates with the water tank at one part by a pipe and at another part by a small pipe with the steam. The revolving disk has a cavity or receiver in it, (more may be used if required) which receives the water from the tank above, carries it round between the upper and lower plates until it is passing above the feed pipe into the boiler below, when at that moment it is also brought into communion with the steam pipe above and the water is deposited into the boiler. It will be observed that if the water is up to the line of the

revolving disk that the water in the cavity of the disk will not be pressed in but carried round. It can be operated by a reciprocating motion and its principle of communion with the water, boiler and steam, is like that of a slide valve, only it has a cavity to receive and carry the water to feed it into the boiler. The apparatus is very ingenious. Mr. Foskit has taken measures to secure a patent.

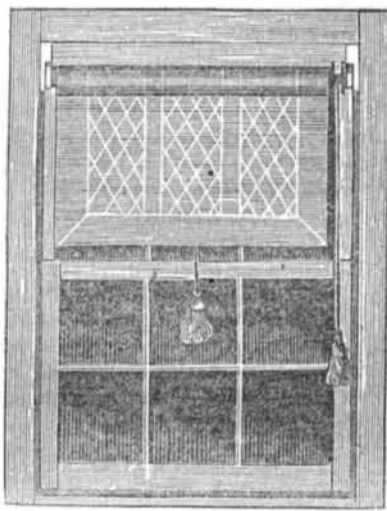
### New way of making Shot.

The manufacture of shot, we learn, is about to be commenced in this City upon a new principle. The tall tower is to be abolished, and one of moderate height substituted, which will equally answer every purpose, by the new invention, which consists in forcing a current of air upwards in the flue while the lead is descending, which thus retains the shot as it falls from above, and cools it, without making it necessary that it should drop from any great height.

Messrs. Leroy & Co., Water street, are manufacturing shot on the above principle.

### Marden's Improved Mode of Hanging Window Shades.

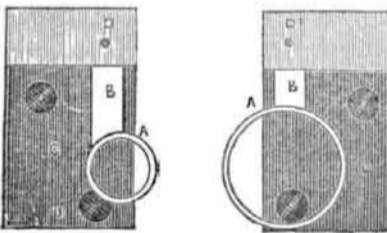
FIG. 1.



This invention is that of G. H. Marden, of Charlestown, Mass., and patented by him last year. The nature of it consists in providing oscillating side blocks, in which the ends of shade roller is suspended to allow the shade and roller to be moved out and in and to allow the window sash to move up the full length of its plane, and also to allow inside shutters to close freely.

Fig. 1, is a front view showing the shade applied to the window and fig. 2, is a view of the oscillating blocks into which the ends of the shade roller is suspended. C C, are pieces of brass screwed into the beads of the window

FIG. 2.



staff. A A, are the oscillating blocks secured under D D strips of metal, and swing on axis suspended by hanging pieces B B. The ends of the shade roller being hung in the blocks or eyes A A, one on each side of the window, and in this way the shade can be moved out and in as set forth above. The invention is a very neat and convenient one and those who would prefer to have a neat and superior mode of hanging and operating their window shades, to the inferior common way, will find this method unrivalled by any other plan yet brought before the public.

### Important to Railroad Men.

The Independent, N. H. Democrat says:—Mr. Josiah M. Magoon, of Hooksett, has left at our office a model machine for carrying off the smoke and cinders, from railroad trains. This is an important desideratum, and if feasible, will add greatly to the safety and comfort of travellers. The machine invented by Mr. Magoon is very simple, and we see no reason why it may not be perfectly successful. It consists of a series of sheet iron pipes a pipe to each car—made tunnel fashion, the

small rear end of the forward pipe extending into the larger end of the pipe next behind it. The model may be seen at our office.

[Townsend's apparatus the same as the above is illustrated and described in Vol. 2, Scientific American.

### Important Invention in Wool Spinning.

The following from the Cold Water Fountain, Gardiner, Me., will be read with interest by many of our readers.

"It is well known to those acquainted with this kind of manufacture, that wool is not, like cotton, drawn out and then twisted, but that both must be done at the same time, and with the same operation. The present mode of performing this work is by means of "Jacks," which take the wool or roping which has previously been prepared by the cards, and draw and spin it into thread for warp or filling. The Jacks occupy a large space, and occupying a large space require a great amount of labor and care to work them. But by this new invention Jacks may be wholly dispensed with and the thread is drawn out and twisted by the unaided operations of this machine, which is called the "Bates & Tucker Revolving Draft and Wool Spinner."

The Spinner occupies a length of four feet six inches, by a width of three feet and contains twenty spindles. It is stated to do the work of fifty spindles on a Jack, which would occupy a space of ten feet by seven feet eight inches. In other words, fifty spindles of the Jack occupy seventy-eight square feet, while the spinner occupies thirteen and one-half square feet—a fraction over one-sixth of the same space!

This machine possesses several important advantages over the Jack. 1. There is a great saving of time, as seen above. 2. A great saving of labor, performing a much greater amount of work with much less manual assistance. 3. It requires much less power in its operations. 4. By this method there will be no small saving in using the yarn, as bobbins wound by machinery will contain a greater quantity of yarn, and it being wound more even, can be wove or warped off with less delay.

The yarn spun by the Revolving Draft is more even both in size and twist, than that spun by the Jack; and it makes a soft, elastic and strong thread. It will spin coarse as well as fine stock. The machine is very simple in its arrangement, and it is so constructed as to give great strength to each part, while but little strength is required to do the work.

Public attention was first called to this great invention by the Maine Farmer last November, but since that time important improvements have been made by the inventors and its powers more fully tested. This machine is the invention of Mr. Wm. C. Bates and Mr. S. B. Tucker, of Gardner, Maine. Mr. Bates is a practical machinist, and Mr. Tucker a wool spinner and manufacturer."

This machine, we noticed before in the Scientific American, and a number of enquiries were made of us regarding its peculiar arrangement and construction. Of course, we could not give this information definitely, but we always like to notice improvements in machinery, and like to hear of them. We have a sample before us of the yarn spun by this machine, and it looks really beautiful.

### New Locomotive Engine.

A new locomotive has lately been introduced on the Camden and Amboy Railroad, New Jersey, designed by R. L. Stevens Esq., of this city, and built from his plan by Norris & Bros. Philadelphia, and which is certainly an original. It is constructed with two driving wheels, 8 feet in diameter—a 13 inch cylinder, and 34 inch stroke; the boiler is hung under the axle of the driving wheels, and runs upon six truck wheels in front, which are quite low. By this means, the weight of the engine is brought very near the track, which enables it to run steady, notwithstanding the great height of the wheels. It is constructed with a variable cut off so as to use the steam expansively as may be required. The furnace is made to burn coal and is inclined downwards from the furnace door. It is represented as being able to run 70 miles an hour with ease, and with a train of 8 or 10 cars.

### A Curious Discovery.

Mr. William Longmaid, of London, has recently taken out a patent in England for a new way of treating the oxides of iron and obtaining products from them for making paints, &c. which is certainly novel.

The mode of operation is as follows:—

The oxide of iron is to be reduced to a finely pulverized state, preparatory to the process, and in that state is to have intimately mixed with it some resin or tar, or other carbonaceous material, the patentee preferring the use of resin or tar for the purpose; and the proportions he recommends to be from about 10 to 15 per cent of the carbonaceous material, according to its nature; the patentee prefers to use a quantity of the carbonaceous material a little in excess of that necessary for the operation. The carbonaceous material employed is to be reduced to a pulverized state when used in a dry state; but when they are fluid or semi-fluid, they are mixed with the oxide in that state, and afterwards dried and reduced to powder; the materials thus mixed are then put in retorts or other proper close vessels, either of cast iron or other material; these vessels being about five feet long, one end being open, and to be afterwards closed by a cover; this retort is to be afterwards charged with the mixed materials—the quantity of each charge being about 1½ cwt., and when the cover is secured upon the end of it, the retort is placed within a suitable furnace in a vertical position; the open end, upon which is the cover, being placed downwards, that the gaseous matters evolved during the process may pass into the furnace and be consumed; the retort is then to be gradually raised to a dull-red heat, and when the contents of the retort have ceased to evolve the gaseous products, then the whole is suffered to remain for about two hours at this temperature, when the retort is to be removed from the furnace, and suffered to gradually cool down ere the contents are withdrawn—as by allowing them to come in contact with the atmosphere while in a heated state, the quality of the products would be injured; the product thus obtained is a dark-colored matter, which may be used as a pigment, or ground with oil, will form a paint. Instead of allowing the gaseous products evolved to pass into the furnace, they may be collected by closely luting the cover of the retort, and applying a pipe to carry them off to a condenser and gasometer; these products being a volatile oil, and an inflammable gas fit for an illumination.

### Novel Method of Marine Propulsion.

Messrs. R. L. and B. F. Stevens have constructed an iron vessel which is now in this City to test the principle of their new invention, which we noticed last year, and which they have secured by patent.

The principle of the invention consists in applying air to the immersed surface of a vessel in motion, as described, and thus interpose, by a continuous or intermittent supply, a stratum of air between the immersed surface or portions thereof, of the vessel, and the water, for the purpose of reducing the friction of the water.

### New Instrument for dressing Wounds.

The Boston Medical and Surgical Journal says, that Daniel Huntington, M. D., of Rochester, Vt., has invented a curious little instrument for restraining bleeding vessels, which would be an excellent tourniquet under any circumstances. The idea is to use a pocket handkerchief, a ribbon, or a cord, instantly, if necessity requires. It is really a beautiful winch, which, with a ratchet wheel and dog, holds a grip which would be equal to all emergencies. While it combines all the advantages to be found in any and all the known kinds of tourniquets, it is far more simple than any of them in point of construction, cheap, and yet powerful and certain in its action.

### The Potatoe.

It is a fact perhaps not generally known to farmers, that there are two parts in the potato, which if separated and planted at the same time, one will produce tubers fit for the table eight or ten days sooner than the other. The small end of the potatoe, which is generally full of eyes, is that part which produces the earliest; the middle or body of the potatoe produces late, and always larger ones.