

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Pulverizer.—This invention consists in a novel construction and arrangement of a rotary cutter or pulverizer, whereby the same is made to operate in the most efficient manner, and to overcome difficulties attending the rotary cutters hitherto used for pulverizing the soil. The invention also consists in a novel construction of a traction drum, on which the frame of the machine is mounted, whereby said drum is prevented from becoming smooth and inefficient by the adhesion of earth to it. The invention further consists in a novel application of caster wheels to the machine, whereby the same may be adjusted with the greatest facility, for the purpose of rendering the pulverizer operative or inoperative, as may be desired. Lemuel S. Fithian, of Absecon, N. J. (assignor to himself and John Young, of Joliet, Ill.), is the inventor.

Millstone Pick.—This invention relates to a new and improved millstone pick of that class which are constructed of thin steel plates, and are fitted or secured in metal heads secured to a handle. The object of the invention is to obtain a simple and efficient means for securing the pick blades in the metal head, and one which will admit of the frame being readily adjusted, to compensate for grinding or wear, and which will also admit of the pick blade being readily removed from the head when necessary. Lemuel C. Stone, of Kingston, N. Y., is the inventor.

Cut-off.—This invention consists in the employment or use of a squirrel cam, applied in combination with the governor and with the main valve and cut-off valve of a steam engine, in such a manner that by the action of the cam on the rod of the cut-off valve the steam is cut off instantaneously, or nearly so, and the wire drawing of the steam is avoided; and, furthermore, the cam being in action only for a short space of time, leaves the governor free during the largest part of the stroke. It consists, further, in the application of a latch and sliding pin, in combination with the rods of the main valve and of the cut-off valve, and with a suitable cam, in such a manner that by the action of the latch the main and cut-off valves are locked open, leaving no liability to close the ports until the proper time arrives, and by the action of the ram and pin the two valves are disconnected instantaneously, allowing them to move in the same or in opposite directions, as occasion may require. J. H. Paine, of Hartford, Conn., is the inventor.

Hook and Eye.—The common hook and eye are very likely to become unfastened in case of any relaxation of the tension of the garment produced by the movements of the body or by other causes. Many modes of preventing this have been invented, but all have been more or less objectionable, on account of their making the hook and eye more complicated and more difficult to manufacture. The object of this invention is to make the fastening secure without making the hook and eye any more complicated, or increasing its cost, and to this end it consists in the combination of a bill broader than the bent portion of the hook, and an opening in the eye narrower than the bill of the hook, which prevents the withdrawal of the bill without bringing the hook to an oblique position relatively to the eye. J. P. Culver, of New York City, is the inventor.

ENGLISH AND AMERICAN COAL TRAINS.—The *London Railway News*, in an article on the coal trade on the London and Northwestern Railroad, says:—"An ordinary load for one locomotive is thirty-five trucks, but even that immense weight is sometimes exceeded." Now, as a truck, according to the same authority, "holds between six and eight tons of coal," it follows that thirty-five trucks of eight tons each make 280 tons a maximum English load.

On the Philadelphia and Reading Railroad, last year, the loaded trains averaged 576 tons of coal, or more than twice the number of tons in a maximum train on the London and the Northwestern Railroad. The newer engines on the Philadelphia and Reading Railroad draw 150 cars containing about five tons each, or nearly 750 tons of coal on freight.

Admiral Porter's Report on the Monitors.

We extract from this officer's report such portions as relate to the monitor iron-clad batteries:—

"My late experience with the monitor class of vessels under fire at sea and in riding out heavy gales, justifies me in making a special report in the matter. I feel the importance of the Government's receiving accurate information in relation to a class of vessels about which there has been a difference of opinion, and of which we are building quite a number.

"My experience has been with the *Monadnock Saugus*, *Mahopac* and *Canonicus*, all vessels of some difference of construction, and built, I believe, by different contractors.

"The *Canonicus*, *Mahopac* and *Monadnock* left Hampton Roads on the 18th ult. The weather was quite rough, and at times the sea would go over the turrets and down the funnels; but I passed them while at sea, and they were making excellent weather of it. On asking their Commander afterward, how they got along, the answer was, 'Oh, quite well, sir; only a little damp.'

"The *Monadnock* is capable of crossing the ocean alone, (when her compasses are once adjusted properly,) and could destroy any vessel in the French or British navy, lay their towns under contribution, and return again, (provided she could pick up coal), without fear of being followed.

"On the 21st ultimo, it came on to blow hard from the southwest, and a very heavy sea commenced rolling in. The vessels are all anchored in thirteen (13) fathoms water, with a long scope of chain out. Most of the vessels dragged during the gale. The *Tuscarora* and *Juniata* put to sea (I think unnecessarily), while the monitors rode out beautifully. I was anchored quite near them, and witnessed their performances. I at first thought I had been imprudent and had unnecessarily risked the lives of officers and men, but I went to sleep the first night of the gale quite easy in my mind in regard to the monitors.

"I saw that they were making the best weather, and riding easier than any of the other vessels in the fleet. All the transports cut and ran, though I think that was quite unnecessary. After the gale I inquired of the Commanders of the monitors how they passed through the ordeal, and they seemed to think they got along very well. The smaller monitors, *Mahopac* and *Canonicus*, at times almost disappeared from view, and the Commander of the former vessel complained of discomfort, owing to the decks leaking, but the vessels were in no danger at the time.

"The Commanders of the monitors seem to feel quite at home and safe in them, and apprehend no more danger at sea than in any other kind of vessel. Commander Parrott, of the *Monadnock*, remarked he did not see any difference between her and anything else. The *Saugus* joined me after the first day's fight, off Fort Fisher, and was towed round from Norfolk by the *Nereus*, in very rough weather. The vessel leaked a good deal through her bows, and some uneasiness was felt for her on that account; but her seagoing qualities were spoken of as good. The difficulty was a mechanical one, and in no way detracts from the qualities of the vessel. There is no great amount of comfort on board these vessels at sea; that is conceded on all sides, but they are seldom at sea, and only exposed when making a voyage. This is the first time, I believe, that the monitors have ridden out heavy gales, in an open sea at anchor, though they have ridden out gales in Charleston Roads."

Destruction of the Smithsonian Institute by Fire.

On Jan. 25th, the magnificent structure known as the Smithsonian Institute, at Washington, was destroyed by fire. The *Intelligencer* thus speaks of the catastrophe:—

"The fire originated in the loft above the picture gallery. Workmen had been engaged there in hanging pictures, and the room being cold, they put up a stove, and, it is supposed, ran the pipe into a defective flue, and thus caused the fire. The fire spread rapidly and soon the roof of the lecture room fell, driving out the firemen who were endeavoring to confine the flames to the picture gallery. The fire spread to other portions of the building. It was deemed prudent to remove the furniture from the east wing, occupied by Prof. Henry as a private residence,

and also the stuffed birds and preparations from the taxidermist's rooms; but in the haste and from the narrowness of the passages much damage was done to the property so removed.

The library in the west wing and the residence of Prof. Henry in the east wing will be saved from the ravages of the flames. The museum on the lower floor is also safe, for the floor between it and the upper rooms is of brick and constructed so as to be fire proof.

The instruments and apparatus in the east wing were worth at least \$10,000, and it is not yet known how many were saved.

Apparatus of Historic Interest Destroyed by the Recent Fire.

Among the articles destroyed by the disastrous fire at the Smithsonian Institute were all the chemical apparatus presented by Prof. Hare, a large magneto-electric machine, an electro-magnet, and set of apparatus illustrating the discovery of the vibration of Trevelyan's bars by galvanism, presented by Prof. Page. The magneto-electric machine was of peculiar construction, a full description of which is given in Vail's work on the American telegraph. Noticing its performances the author says:—"This machine operated Morse's telegraph in 1844 through 80 miles of circuit, makes an electro-magnet sustain 1000 pounds, and melts a platinum wire one-fortieth of an inch diameter."

Sir Wm. Armstrong's Present to Jeff Davis.

Among the many trophies captured at Fort Fisher was an Armstrong gun presented by the manufacturer, Sir William Armstrong, to Jeff Davis.

A soldier describing it says, "it is by all odds the handsomest gun I ever saw, being entirely of twist wrought iron, and mounted on a magnificent solid mahogany carriage."

Such a present is eminently characteristic of Sir William, who believes that all patent laws for protecting inventors' rights should be abolished. He thinks, probably, that one of his guns in the hands of Davis would not only contribute to kill Yankees, but would also aid towards destroying the patent laws.

American Nails in the British Provinces.

The *Iron Trade Circular*, of Birmingham, remarks:—"A hint to nailmakers reaches us from Vancouver and British Columbia, in a letter which says:—"I trust that the nail manufacturers have made some provision to remedy the defect I pointed out previously; for as new towns are continually springing up here, all of which are built of wood, fastened together with nails, a large and interesting trade exists; but so inferior are the English-made nails, that no carpenter will undertake any contract without being provided with American nails."

THE BEST TIME TO PRUNE TREES.—At the last meeting of the Farmers' Club there was a long discussion on pruning trees, by Dr. Ward, and Messrs. Ely, Carpenter, and Smith, and they agreed in opinion, as the result of their experience, that the best time for pruning is the summer when the trees are growing. Trees pruned at that time heal more readily, and are less likely to be attacked by black blast, or otherwise injured, than if pruned in the winter.

DRILLING UPWARD.—A machine has been invented in England for boring upward from tunnels, for the purpose of ventilating mines. We have not seen the machine, but it is described as working much the same way as augers used in boring salt and oil wells. The auger is spliced as the work progresses, and as the boring is upward there is no trouble about clearing the hole of chips, as they drop down as fast as made.

ORNAMENTING IRON AND STEEL.—Mr. Christian Weintraud, jun., of Offenbach, Hesse Darmstadt, has patented an invention, which consists in ornamenting, by drawing or otherwise marking on the surface of steel or wrought-iron, which must be first polished or bright, or "matted," any desired spots, pattern, or device, with boracic acid. The metal is then fired, and according to different temperatures so will the effects differ.

Improved Car Truck and Brakes.

Brakes, as ordinarily applied to railway car trucks, are a source of danger, for not unfrequently the sustaining irons break and let the beams down on the track, endangering the security of the train and passengers. In this improved railroad truck such disasters cannot occur, for even if the stirrup irons, supporting the brake beams from the car frame above, are entirely removed, the brakes themselves cannot drop down, as in the ordinary truck. Additional security is given the brakes by prolonging the ends of the beams, A, and affixing an iron bar, B, between the two pedestals, C, so that the beam ends rest upon it. There are also iron straps, D, in the ends of the beams, through which the bar, B, passes, thus preventing the beams from sliding endwise should they be broken in the middle. In the center of this truck frame there is a stout timber, E, over which rods, F, provided with springs, G, pass. There is one of these rods at each end of the truck, and they also serve to sustain the brake beams, while the springs, G, keep the brake blocks, H, off the wheel, so that they are out of contact except when in actual use.

The application of the brakes, or retarding power, to these trucks, puts the train under perfect control. Two levers, I, are used, and the hand wheel, J, is connected with one, while to the other a stationary chain, K, is fastened, which holds it to the truck frame. These two levers are also tied rigidly together at the bottom, under the beam, by an iron rod, so that when

strain is applied to the first lever it will be communicated to the other by the rod before-mentioned, and both sets of brakes will be forced up against the wheels.

This brake was invented by W. G. Goodnow, and assigned to Goodnow & Wood, through the Scientific American Patent Agency, on October 18, 1864. For further information address D. S. Wood, Albany, N. Y.

EMPLOYMENT FOR DISABLED SOLDIERS.

It is to be regretted that full and accurate records have not been kept by the Government respecting soldiers and sailors discharged for disability during the war. The authorities have been lax in this particular. The system which was well adapted to our regular army in time of peace falls far short of the requirements of a great volunteer army in active service. A Bureau of discharge established at Washington, St. Louis, Cincinnati, and New Orleans at which men sent from the front could be re-examined and through which candidates for discharge should be sifted, might have saved thousands of perfectly able bodied soldiers to the government, and at the same time furnished statistics of the most interesting and useful nature.

Although we have really no means of determining the number of men who have lost arms or legs, or suffered other injuries in battle, or even the number discharged by means of wounds, the fact that numbers have thus suffered and become unfit for future service and for ordinary employments, becomes more and more apparent. Col. Nott, who is acting as Secretary of the new "Bureau of Employment for Disabled and Discharged Soldiers and Sailors," at 35 Chambers street, gives us some data which future observations may confirm or modify. It appears that of the first two hundred applicants for employment registered at the Bureau, 63 per cent were discharged for wounds, 31 per cent on account of other disabilities and 6 per cent on the expiration of their terms of service. It also appears that 16 per cent of

all the applicants have lost an arm, and 15 per cent have lost a leg, and nearly every trade seems to be represented among them.

A main noticeable feature is the small proportion of men "fit for service." It indicates very clearly that nearly all of our veterans who are not disabled re-enter the service. The next fact is the large proportion of men who have lost the use of arms or legs. Thirty-one per cent of all the applicants (in effect one-third) are of those permanently disabled groups. A new class of laborers is, therefore, to be provided for in one of two ways:—either by giving them work, or by charity.

We cannot consent to make paupers of our soldiers; of all others they are the first who deserve

ferred to. There is another feature about a shoe which is permanently attached to the horse's hoof. Humanitarians have urged that it is no more reasonable that a horse should retain his stiff, unyielding shoes, after a hard day's work, than his master, and that where the latter doffs his heavy travelling boots, the beast should have the same privilege, and the shoes ought to be removed when his day's work is done. It is argued in favor of this course that the comfort of the animal is not the only consideration, for, if the animal stood in his "bare feet," the floor of the stall would be preserved from injury, and wear much longer than when sharp iron came in contact with it; also that the shoe itself would be more durable, because it would not be worn except when in actual duty. By the disposition of the several parts of the shoe here shown, which is intended to be removed at will by any person, the hoof is preserved from injury, and diseases of that member prevented, by keeping them in a state of nature, or free from the boring, burning and cutting incidental to the present system of shoeing horses.

Whether these conditions are all obtained is more than we can say. The shoe shown is simple in construction and adjustment, and seems likely to fulfill the ends required of an article of this character.

In detail, it is a common shoe, A, with a strong metallic shield, B, at the front and rear. This is fitted to the hoof, and the whole is then retained in place by the metallic bands, C, one end of each fitting over

a button, D, which holds them both in place, or allows the shoe to be taken off by simply turning the button on one side.

This horseshoe is the invention of Morgan Chittenden, of Danbury, Conn., and was patented on the 17th of October, 1864. For further information address him as above.

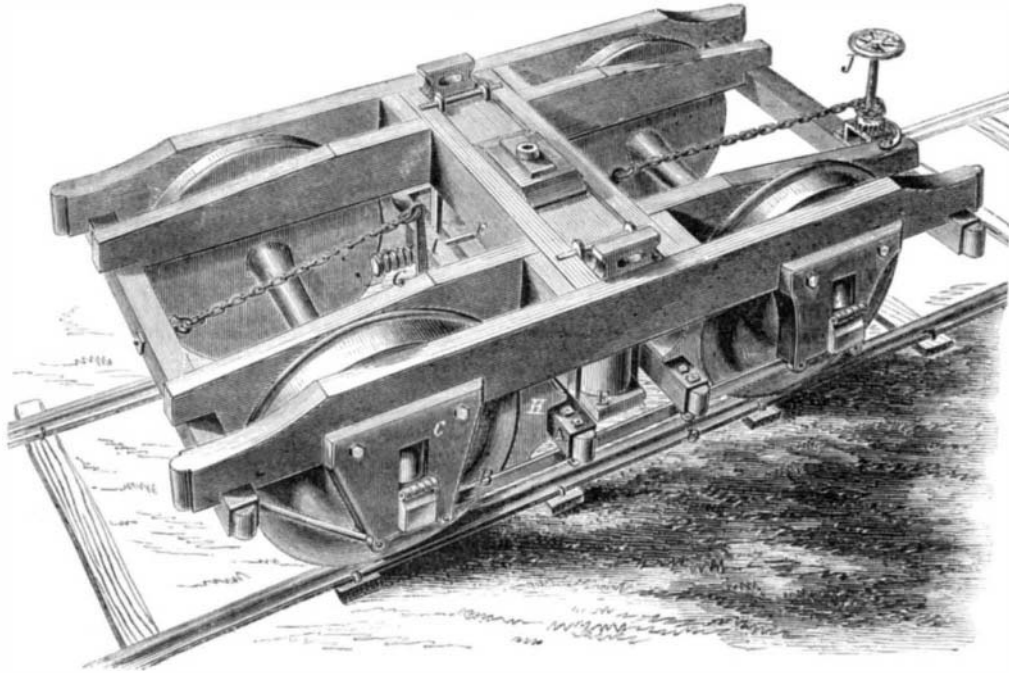
Revived Corks.

The attention of the French public has been called by M. Stanislaus Martin to the employment of refuse corks as dangerous to public health. It is the custom of the Paris scavengers to collect those which are brought down by the sewers, and sell them to persons who make it their business to revive them. If the corks are of unsightly shape they are recut; while, if containing holes, they are filled up with mastic, and then smeared with powder to give them a proper color. Such corks used only to be employed by the ink and blacking makers, but their low price (5s. 6d. per 1000) has of late induced retailers of bottled beverages to purchase them. Some of these corks may have been formerly used to stop bottles containing poisonous substances; for although a good cork is not permeable, a bad one, full of holes, may readily become the receptacle of particles of verdigris, carbonate of lead, arsenic, or an infinity of other poisonous substances, which may be more or less soluble in water, wine, beer, cider, vinegar, milk, or oil.—*London Grocer.*

Marine Railway around Niagara Falls.

Mr. Horace H. Day, the famous India-rubber manufacturer—now retired from that business, has shown us a plan which has been inaugurated by him for transporting vessels around the falls of Niagara on the American side. It is designed to place vessels with their cargoes in a portable lock filled with water, which is to be drawn by locomotives upon numerous rails.

The maximum grade is 120 feet to the mile, and the estimated cost is three and a half millions of dollars.

**GOODNOW'S CAR TRUCK AND BRAKES.**

well of the country. Whatever employment is adapted to their condition should be set apart for them. It is indisputable that thousands of able bodied men are employed on work which should be transferred to the disabled. The Government offices, Navy Yards and Custom Houses can give permanent occupation to large numbers of these men as clerks, book-keepers, messengers, letter carriers, watchmen, &c. The action of the Government and the efforts of every individual employer are needed to co-operate in this field of furnishing employment to disabled soldiers.

CHITTENDEN'S HORSESHOE.

Very many horses have been maimed for life by the carelessness of farriers. Sometimes the evil is



caused by misfitting shoes, or by driving the nails in too far. In either case the result is the same, and severe losses have been the result of the mischief re-