fire, and the coke from the oven would supply the furnace and much more heat. This plan of furnace would consume but a small quantity of coke, and could be applied to any kind of works for drying, and for material of any description, and if properly constructed would, he thinks, be preferable to any other.

## 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:—

*Boiler for Kitchen Ranges.*—This invention relates to a very important improvement in the mode of securing the plate constituting the side or body portion of a kitchen boiler, to and upon the head plates of the same; it consists in so forming the head plates that when the body of the boiler has been soldered, or in any other proper manner fastened thereto, both the expansion and contraction of the metal composing the boiler shall be resisted in an equal degree—a result which has never before been accomplished in such boilers, and the importance of which as regards economy and safety is manifest to all. The inventor is Joseph H. Ash, of Brooklyn, N. Y.

*Breech-loading Fire-arm.*—The object of this invention is to convert, in an easy and simple manner, ordinary Springfield muskets to breech-loaders without disturbing the lock or any part connected therewith. The invention consists in the application of a tapering socket in the cone seat of a musket to receive a wedge-shaped projection, extending from the side of the breech block, which is hinged to the top of the barrel, and with a plunger passing through said wedge-shaped projection in place of the cone, in combination with the ordinary lock and hammer, in such a manner that a cartridge placed in the barrel can be exploded by the action of said hammer without disturbing its original position or changing any other portion of the lock; at the same time, by the wedge-shaped projection, a shoulder is formed which assists in holding the breech block in place when it is locked. A spring bolt, with a tapering head, which drops into a conical seat in the breech of the barrel, serves to lock the breech block; and a tongue or ridge, projecting from the inner surface of the breech block, and catching into a notch or groove in the barrel when the breech block is closed down, takes up the recoil and relieves the pivot connecting the breech block with the barrel from all strain. From the hinged breech block, or from its pivot, extends a spring arm which is applied in combination with an ejecter, in such a manner that, on throwing the breech block open, after a cartridge has been fired, the empty shell is withdrawn from the barrel, and a new cartridge can be introduced without loss of time. W. H. and G. W. Miller, of West Meriden, Conn.

*Carpenter's Gage.*—This invention relates to a gage which is provided with a stationary bead of the ordinary construction on one side, and with a movable slide provided with a band on the opposite side of its shank, in such a manner that the gage can be readily set for gaging the width and the thickness of a board. The head is adjustable by means of a wedge which can be readily fastened and unfastened without loss of time, and a set screw passing through the same serves to retain the slide for gaging the thickness. An additional adjustable band on that side of the chuck which contains the slide, acts in combination with the brad in the said slide as a mortise gage. Martin Horton, of Brooklyn, N. Y., is the inventor.

*Needle for Knitting Machines.*—This invention consists in the application to the needle of a cam so shaped that when the needle is drawn back after having received the yarn, it is made to raise the point of the sliding latch, and to carry it over the point of the hooks, thereby allowing the old stitch to drop over the new stitch without the liability of catching; it consists, also, in a stop applied to the latch and operating in combination with a space in the edge of the needle, in such a manner that said latch is held in a proper position while the needle is being thrust forward to receive the yarn for a new stitch, and to allow the old stitch to slip back over the point of the latch which, in this position, is covered by a slot or groove in the needle; further, in making the additional latch of one thickness, so that they may be operated in the same slot of the needle bed; and, finally, in the application to the latch of a stop and of a curved point, in combination with the cam of the needle, in such a manner that when the needle recedes the point of the latch is compelled to drop over the hook of the needle, and the operation of casting off the old stitch is rendered certain. L. L. Otis, of Florence, Mass., and Samuel L. Otis, Manchester, Conn., are the inventors.

*Ore Grinder and Amalgamator.*—This is an improved machine for grinding ores in a dry state and for amalgamating the precious metals contained therein to separate them from the foreign substances. The invention consists in an improved manner of attaching the shoes to the muller, whereby said shoes are enabled to adjust themselves to the bed or bottom of the pan, thereby compensating for the wear of the shoes and causing the bed or pan bottom to be preserved at all times, which adds greatly to the efficiency of the machine. This device is now in operation and works well. M. B. Dodge, of New York City, is the inventor.

*Horse-power.*—This invention relates, first, to a useful means for regulating the speed of the horse-power, whereby a steady and uniform motion of the same is obtained by an automatic mechanism. This speed-regulating mechanism consists of a ball-governer combined with a brake, the latter being arranged to operate against the balance or fly-wheel of the machinery. This invention relates, second, to a new and useful improvement in the construction of the endless platform whereby it is rendered rigid or inflexible in one direction, namely, under the downward pressure, due to the weight of the animal; and, at the same time, rendered flexible in the other or opposite direction, and the use of rollers in the platform dispensed with, the platform, being allowed to work on rollers and with much less friction than the ordinary platforms in use. Third, to a brake attachment for stopping the machine in case the belt of the same should break, a contingency of frequent occurrence, and which is liable to injure either the horse or the machine. Fourth, to an improved means for giving the machine and consequently the endless platform a greater or less degree of inclination as may be required. Fifth, to the manner of hanging the machine whereby the adjustment referred to may be made without affecting the belt by which motion is transmitted from the machine to the machinery to be driven. D. W. Hunt, San Francisco, Cal., is the inventor.

### The Review of Sherman's Army.

The Washington correspondent of the *Times* says of the review of Sherman's army on the 24th:—

"The men who marched from the Ohio to the Tennessee under Buell, only to march back again; who first penetrated down into Alabama under the daring and nervous Mitchell; who fought at Perrysville under McCook, and checked the advancing tide of the rebellion to again send it reeling southward, at Stone River, under the chivalrous Rosecrans; who toiled over the rugged passes of the Cumberland Mountains, and seized the great natural fortress of Chattanooga; who held the left with a tenacity that saved them from defeat at Chickamauga, under the ever-victorious Thomas; who stormed Lookout Mountain, and fought above the clouds with Hooker; who cut their way from Chattanooga to Atlanta, and from Atlanta to the sea; who swept the Carolinas as with a besom of destruction, and who gave the finishing blow to the great rebellion, in following the lead of Sherman, and Howard, and Slocum—these were the men who received to-day the enthusiastic plaudits of a hundred thousand spectators.

"The interest of to-day has exceeded that of yesterday. The Army of the Potomac is our old acquaintance, but the Armies of Georgia and Tennessee few people here had ever seen. The most eager interest was therefore exhibited to view the veterans of the West, whose marches can only be counted by thousands of miles.

"The magnificent physique of the men at once elicits the admiration of all; tall, erect, broad-shouldered, stalwart men, the peasantry of the West—the best material in the whole world for armies. The brigades move by with elastic, springing step, in excellent order, and fully equal to the marching of yesterday, save that the intervals between brigades and divisions were longer, though the regiments themselves were kept well closed up. At the head of each brigade was a battalion of black pioneers, the simon-pure contraband, in the garments he wore on the plantation, with shovel and ax on the shoulder, marching with even front, sturdy step and lofty air.

"The rear of Gen. Barnum's brigade was brought up by the first genuine pack-mule train ever seen in Washington. I will warrant Barnum had an eye to letting his friends see with what a degree of comfort he travels. It was a most nonchalant, grotesque spectacle—two very diminutive white donkeys bestrode by two diminutive black contrabands. If that is not a paradox, a dozen patient pack-mules, mounted with Mexican pack saddles, camp equipage on one side and boxes of hard tack on the other; half-a-dozen contraband females on foot; a dozen contraband males leading the mules; a white soldier or two on horseback, to see that everything was all right; the servants of the mess, and the mess-kit, and, scattered about on the panniers of the mules, reclining very domestically, half a dozen game cocks, a brace of young coons, and a sure-footed goat, all presenting such a scene as brought laughter and cheers from end to end of the avenue.

"To give an idea of the length of the column, it is only necessary to state that when the rear of the Fourteenth corps passed over Long Bridge the head of the Twentieth had already crossed the river on the pontoon bridge at the foot of Twentieth street, the route being from the first-named bridge along Maryland avenue to the Capitol, around the Capitol on the south side to Third street east, along that northwardly to Maryland avenue, thence westwardly to the Capitol, passing around on the north side to Pennsylvania avenue, up this avenue westwardly by way of Fifteenth street to Twentieth street, and thence south to the river. The entire distance of this column was fully seven miles. These two corps did not embrace more than half the entire force reviewed, which would make the whole column about fifteen miles long. It required a little more than six hours to pass any given point."

## MISCELLANEOUS SUMMARY.

THE TUNNEL RAILROAD.—Gov. Fenton has vetoed the recent act of the Legislature authorizing a company to construct an underground railroad in this city. He objects to it on the ground that no limit is assigned in which such road is to be completed; and furthermore, that the bill authorizes the transfer of State and city property for the use of the company.

DUTCH GAP CANAL NAVIGABLE.—The Dutch Gap Canal, it seems, has not been altogether a failure, for the Richmond *Whig* says that General Mulford arrived there from Fortress Monroe, having passed through Butler's Dutch Gap Canal on the steamer *Clyde*. This is the first steamer that has passed through.

FOR some years to come, old iron will be plenty enough around Petersburg, Va., to supply several large founderies. East and south of the city, plowing is dangerous, as exploding shells are very likely to send horse and driver high in the air.

ACCORDING to Dr. James Johnston, 800,000,000 of men smoke different sorts of tobacco; 400,000 smoke opium and its compounds; 300,000 hemp and haschish; 100,000 betel, and 40,000 the American plant coca.

THE directors of the Oporto Crystal Palace Company and the exhibition committee have fixed Monday, the 21st of August, 1865, as the opening day of the exhibition.

TUNS upon tuns of used-up, worn out "hoops" are annually worked up in cannon, shafts for machinery, etc., at the iron works of Lazell, Perkins & Co., Bridgewater, Mass.

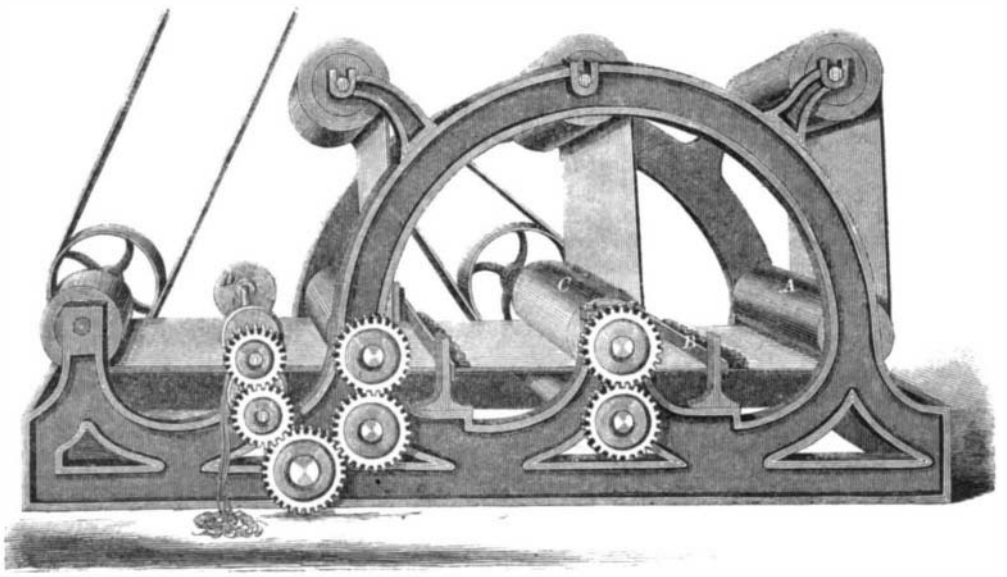
IT is stated that George Cutler, Brattleboro, Vt., has apples sound and fresh, grown in 1863. He kept them in a cellar made in his garden, and packed in walnut saw-dust.

THE two large reservoirs at East Killingly, Conn., built to supply water to several cotton mills, gave way one night last week, causing damage to the amount of $30,000

THE very low price of wheat in England has induced farmers there to feed it to stock quite extensively. Sheep eat it at the rate of about a pint a day

### Improved Roofing Material.

There are many places where it is highly important that some expeditious method should be provided for protecting roofs from damage by fire and the weather, and also make it water-tight. This is particularly the case in new countries, or in temporary buildings which are to be put up and taken down again in a few months. To obtain this object many substances have been proposed, most of them being mixtures composed of bitumen and gravel. It has been found that the composition with which this fabric is coated is remarkably well adapted to shed water and resist fire, and it is now and has been for some time in use all over the country. The machine by which this fabric is prepared is here shown. Its arrangement is simple, and the chief merit lies in the article produced.



ROBINSON'S ROOFING MATERIAL.

The reader will see that three thicknesses of cloth or felt are used, and that each thickness is carried on a roller, as at A, where the process of laying on the composition begins. The fire-proof substance is then applied and laid evenly by means of the scraper, B. A second roller, C, in proper position, gives off another layer, which is also coated in the same way; this is succeeded by a third, and the same coating repeated until the ends unite, when the finished fabric is wound upon a fourth roll at the end of the frame; two revolving cutters, D, trim the edges and leave the felt one width throughout, thus making it come fair and even when laid on the roof, and also greatly facilitating the process of applying it.

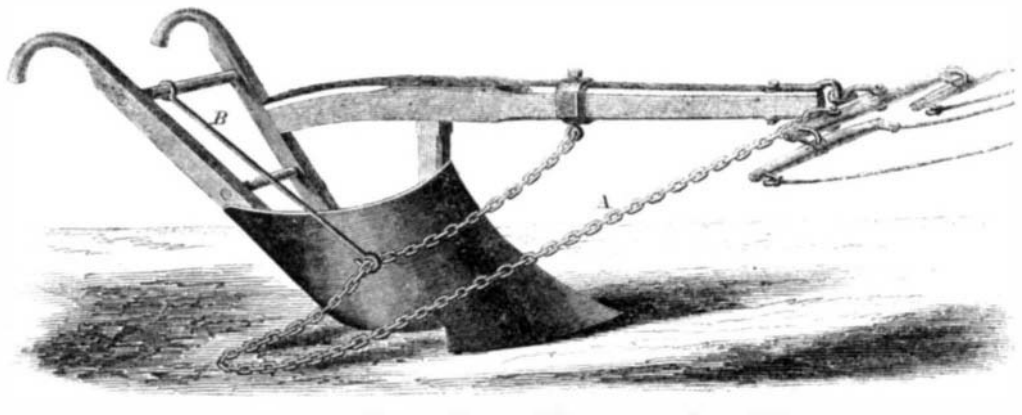
This method of manufacture gives a strong and durable coat that lasts for many years and can be applied in any climate, hot or cold. It is quickly and easily transported over mountains or in countries where there are no railroads, and is, for this reason, particularly adapted to the South American trade. It can be made in rolls of any length convenient to handle, and can be put on by any ordinary workmen.

This roofing material is the subject of a patent issued Sept. 13, 1864. For rights to make or for roofing, address Alfred Robinson, 73 Maiden Lane, New York.

### Device for Plowing-in Cornstalks.

Men take from the soil more than they put in. While they greedily exact all it will give, they are unwilling to aid it by fertilizers. Weeds and cornstalks afford nourishment, if properly plowed under; in general they are left on the surface or sticking half out, and cursed as a nuisance.

This attachment to the plow, as shown in the engraving, is intended to facilitate and make the plowing-in certain, for by its aid all growth, of whatever kind, is caught under the advancing plowshare as waves roll under the bow of a ship; the plow rides over the stalks, and they are seen no more, but their influence on the soil is for a long time.



KILMER'S DEVICE FOR PLOWING-IN CORNSTALKS.

The attachment in question is merely a chain, A, connected to the plow beam and the double whiffletree, and provided with a rod, B, which is called a "regulator" by the inventor. This regulator makes a bight or loop in the chain, so that the matter desired to plow under is caught by it and diverted toward the furrow, into which it is thrown and covered up, as before explained. The exact shape of the rod is not adhered to in all cases, and the claim covers the use of a rope or its equivalent for the same purpose.

The inventors claim that this is a desirable and useful addition to a plow, and it was patented through the American Patent Agency on March 7, 1865, by Josiah Kilmer. For further particulars address, J. & A. Kilmer, Barnerville, N. Y.

### The Public Debt of Great Britain.

In the budget recently presented by Mr. Gladstone to the British Parliament it is stated that on March 31, 1859, the total public debt was £825,934,000, and on March 31, 1865, it was £808,288,000—showing a decline of £17,646,000, or at the rate of about three millions of pounds sterling per annum. In 1859 the total amount of the trade with France was £26,431,000, and in 1864, £49,797,000, or nearly ninety per cent increase. The revenue for the financial year of 1864-65 amounted to £70,313,000. The expenditures were £65,957,000—showing a decrease as compared with those of 1860-61, the year of the highest expenditure, of £6,547,000 since the Russian war, but an increase of nearly twelve and a half millions as compared with the ordinary expenditures immediately antecedent to that period. The whole trade of the country, which last year was valued at £445,000,000, had increased during the year ending on the 31st of December, 1864, to £487,000,000, the imports being £274,000,000 and the exports £213,000,000. Those who argue that a preponderance of imports over exports is opposed to the commercial prosperity of a nation receive a practical refutation of their theory in these conclusive figures. The estimated income for the financial year just entered upon is £70,170,000, and the expenditures, £66,139,000.

THE manufactory of Saint-Gobain, France, has been engaged six years in fabricating a lens two feet in thickness, which it has now given as a present to the Observatory of Paris for the large telescope in course of being manufactured, the power of which will exceed that of the most powerful instruments known.

### Velvet Factory to be Started.

The Paterson (N. J.) *Press* says that the business of that thriving town is to be increased by the establishment of a factory for the manufacture of silk plush velvet, which will be a novelty in the United States. It seems that a company of capitalists, mostly Englishmen, some time since obtained a charter from the Legislature of the State of New Jersey, and having imported the requisite machinery and brought over a number of workmen, commenced their work in Newark, but, considering Paterson a more desirable locality, they are now making extensive preparations for their works in that town. Thus are we from time to time rendering ourselves independent of foreign workshops and supplying ourselves with establishments that will produce every article required for the use of our people. Our cotemporary say: "We are informed that parties in England, who use the fabrics such as this company will make, expect to import them from this country. Some Frenchmen will doubtless institute the manufacture of kid gloves, instead of our people taking hold of the enterprise. The leather-glove trade is one of the most valuable we have, but we do not know that any factories make kid gloves.

### A New Enterprise in Buffalo.

The City of Buffalo is becoming famous for its manufactures, especially of steam engines, there being several large founderies and machine shops engaged in that business.

Recently, Mr. David Bell, one of the enterprising citizens of the place, has commenced building locomotives, and one named after him has recently been tried. The *Buffalo Courier* gives the following description of the engine:—

The *David Bell* is one of two locomotives which Mr. Bell started, on his own account and capital, to build last winter. The later stages of their construction were closely scrutinized by Mr. Grant, upon whose recommendation both were promptly purchased, at the highest ruling prices, by Wm. Scott, Esq., President of the Erie and Pittsburgh Road. The sum paid for the two is $50,000, with the addition of the Government tax. The *Bell* is one of the largest class of locomotives, built as a "compromise" engine, and hence equally suited for freight or passenger work. Its cylinders are 16-inch bore and 24 inches stroke.—The driving wheels measure 5 feet 1½ inches.

The boiler is built for the use of either coal or wood, and is fitted with 150 two-inch copper flues. The engine and tender weigh together 40 tuns. Both are finished with elaboration, durability and elegance. The gages and lamps were made by the Buffalo Steam-Gage Company. The model and working properties of the engine, as we have already intimated, have been found, so far, faultless. It ran ten miles in thirteen minutes, with ease.

THERE are, unhappily, at the present moment, in Paris, five strikes of workmen, viz.:—locksmiths, tailors, carriage builders, hatters and dyers.

ONE-POUND box of concentrated lye will cleanse foul cistern.