

"The Ames 'Union' Gun a Practical Triumph," signed J. G. R., the writer takes occasion to speak of "four shells (with an improvement upon them) weighing from 110½ to 112 lbs.," which he says "were of the Stafford pattern." This statement is entirely incorrect. The four shells mentioned were not of the Stafford pattern, nor in any way similar to them. They are made on an entirely new plan, of which I am the inventor and patentee. The improvement consists in the sabot and mode of applying it, which increases the range and accuracy of the projectile, especially in guns like those of Mr. Ames, where large charges of powder are used. The two sub-caliber shot, also mentioned, were made by me, and under my patent. I have just finished a long course of experiments, occupying a space of four years, in which I have been entirely successful. I have sold all my patents to "The Bridgeport Steel Projectile Company," located in Bridgeport, Conn., who are making extensive arrangements to manufacture projectiles under my patents. Your correspondent was probably misinformed. By simply giving this letter a place in your columns you will oblige one of your old subscribers.

WILSON H. SMITH.

Birmingham, Conn., Nov. 26, 1864.

Flying of the Albatross.

Messrs. Editors:—I would suggest to experimenters, constructing flying machines, a careful study of the form, structure and movements of the albatross. When in motion there is probably no bird, proportioned to his size and weight, that flies with less muscular power. With no other than a scarcely perceptible, though rapid, motion of the feathers that extend along the lower edge of the wings, he is able to maintain a current of air commensurate with his velocity; which current, acting like a wedge on the concave inclined surface of the under side of the wings, supports him for hours in his elevated position. Yet the albatross, though he seems to fly with so much ease, exhibits much difficulty in rising and alighting in a calm. In rising he goes floundering off, beating the water with his feet and wings for several hundred yards before he can attain sufficient height and velocity to support himself in the air with motionless wings; and, in alighting, he does well if he can manage to overcome his inertia within fifty yards of his objective point; he must then stop, look about, and approach his object by swimming.

But in the regions usually inhabited by the albatross, calms are of rare occurrence; strong gales generally prevail; when, to rise, it is only necessary to turn his head to the wind, spread his wings, set his propellers in motion, and, with one vigorous spring with his feet, he is off. To change his course, a slight motion of the head and tail to one side changes the center of gravity; one wing is depressed, the other elevated, when the course is changed to the direction indicated by the depressed wing. It appears to me that the main difficulty to be encountered in flying with a machine constructed in imitation of the albatross, is to be found in overcoming the inertia of rising and alighting. This difficulty may perhaps be obviated by means of an elevated platform attached to an engine capable of attaining to a high degree of velocity, placed upon a circular railway, having considerable radius to the circle.

G. W. G.

Combination Type.

Some gentlemen engaged in the work of bringing a type-setting machine to perfection, have undertaken to ascertain what words in our language occur most frequently. They have taken ten thousand words from ten different authors, and by a careful count have ascertained how many times any word at all in the composition is given in the whole course of it. The word "the" occurs most frequently. One of the examples taken was the Review of the Week from the *Traveler*, and there the word "the" occurs more frequently than in any other. They have also ascertained, in the same way, the number of times all combinations of letters occur in the examples taken. They have then selected twenty-three from those which occur most frequently, and they propose to have these—such as "the," "and," "ion," "ing," "en," "er," etc., cast as single types, thus saving time and labor. This latter im-

provement is likely to have a trial without waiting for the new machine.—*Springfield Union*.

["Some gentlemen" can save their time and money by addressing Mr. Tobitt, of this city, who has used such type for many years.—Eds.]

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:—

Process of Amalgamating Gold and Silver.—This invention consists in the construction and arrangement of certain mechanical devices for utilizing the process of amalgamating gold and silver by means of the distilled vapor of quicksilver. The ore, in a pulverized state, is fed from a hopper into a rotating or oscillating and inclined cylinder, into which also is fed a current of the vapor of quicksilver distilled in a retort set near the hopper. The said vapor thoroughly permeates the agitated mass of pulverized ore and amalgamates with the particles of gold and silver, whose surfaces are exposed to it, becoming condensed in the course of the operation and the whole mass is passed from the cylinder into an ordinary "Arastra," where it is worked in water by skids or drags in the usual manner of operating that machine. Henry W. Adams, of New York city, is the inventor.

Apparatus for Separating Quartz.—This invention consists in the employment of two crushing wheels, each provided with a series of cogs and intervening cavities, and placed in such relation to each other that they mesh into each other like cog wheels, so that a rotary motion imparted to one of said wheels is transmitted to the other without the use of gear wheels. This is done in such a manner that quartz or any other substance thrown between said crushing wheels is gradually drawn in and crushed between the cogs of one and the cavities of the other. Furthermore, by the difference in the velocity of the crushing surface of the cogs and that of the cavities in passing each other, a grinding effect is produced which facilitates the crushing operation in a great measure. These crushing wheels are provided with projecting side flanges to prevent the substance to be crushed and that already crushed from getting between the journals and journal boxes. Andrew Buchanan, of Brooklyn, N. Y., is the inventor.

Brush Handle.—This invention relates to an improvement in wire brushes, such as are generally used for cleaning off castings. These brushes are generally made by tying a number of wires together until a bunch is obtained of sufficient thickness for a brush. One end of this bunch forms the handle, and the other end, in which all the ends are left open and not fastened together, forms the brush. A brush of this kind can be used until it is worn down to the handle, but that portion of the wire which forms the handle is mere waste, and large quantities of wire are thus wasted and thrown away as useless. To obviate this waste which, particularly with the present high price of wire, is of considerable account, is the object of this invention. It consists in the employment, for the purpose of holding a wire brush, of a hook or loop projecting from a shank which is secured in a suitable handle and to which two jaws are hinged in such a manner that when the shank is taken out of the handle, and the jaws are opened, the wire which is intended for the brush can be readily wound round the hook or loop, and when the shank is introduced into the handle, the jaws, by coming in contact with the edges of the ferrule, are closed, and the wire is firmly and securely confined, and a brush is obtained which can be used up to within a short distance from the hook or loop. Fred. Rudolph and Wm. Kasefang, of Jersey City, N. J., are the inventors.

Street Railway Cars.—This invention relates to an improvement in the construction of cars for street railways, commonly termed horse cars, and it consists in a means employed for bracing the bodies of the cars by which the permanent form of the cars is maintained and its durability greatly promoted. The bodies of these cars are supported on two axes necessarily located near the center of the body, and the tendency of the overhanging ends is to droop, distorting the form, and diminishing the strength of the structure. To prevent this, various methods

have been adopted, among which is the truss or arc rod, fastened at the ends and strained taut by studs with adjusting screws located over each axle. This plan has not been successful because the methods for securing the ends of the rods have been insufficient, a difficulty fully obviated by this invention. John Stephenson, of New York city, is the inventor.

Machine for Scutching Tangled Flax.—This invention consists in the use of scutching blades attached to radial rotating arms in such a manner that they will yield or give, and thus be enabled to perform their work in a much more efficient manner than if arranged fixed or stationary. The invention also consists in an improved feeding device for feeding the flax to the cutters, the same consisting of a pressure roller and a concave, whereby the flax may be fed uniformly to the scutching blades. The invention also consists in the means employed for adjusting the scutching blades nearer to or further from the concave as may be required; and it consists further in the employment of a screen to separate the woody matter from the fiber. William C. McBride, of Raritan, N. J., is the inventor.

Self-acting Pulley Brake.—The object of this invention is to dispense with the necessity of "belaying" during the process of hoisting and lowering with tackle and falls, and to prevent the occurrence of those accidents which are frequently caused by a loss of control over heavy weights, such as scaffolds, ships' sails, merchandize, etc., while suspended during the operation. It consists of a spherical wedge, fitted between a groove in one end of the body of the block and the unoccupied portion of the corresponding groove in the circumference of the sheave, having a spiral spring attached and passed through the space between the grooves, when, by a small degree of stretching, the end of the spring is hooked upon a pin which is fixed into the opposite end of the first-named groove for that purpose, so that the tension is just sufficient to prevent the wedge from falling out of place and to render it susceptible of being acted upon by the sheave which revolves freely while hoisting, throwing off the brake during the process; but upon the slightest indication of a backward revolution of the sheave the brake is drawn firmly between the grooves, performing the function of a "chock," when the sheave is stopped and a small proportion of the hoisting power is sufficient to sustain or lower a weight, as in the latter case the rope glides over the sheave at the will of the operator. A weight which two men can lift with the ordinary tackle, requires a third man to "take in the slack" by the process of belaying, which cannot always be conveniently done, and often magnifies the danger of accident rather than preventing it. By the use of the above invention the third man is not required for a similar weight; his hire is thereby saved and the labor reduced. This brake is exceedingly simple and does not require a peculiarly-constructed pulley for its application, as is the case with other inventions of this class, which renders them expensive, complicated and liable to get out of repair, but may be applicable to any of those which are in use at the present time in a few minutes without altering or disjoining the block. The inventor of this device is John Jochum, of Brooklyn, N. Y.

An Immense Establishment.

The Cambria Iron Works, at Johnstown, Pa., are being enlarged, though already the most complete and extensive establishment of the character in the country. These works give employment to about two thousand five hundred workmen, whose labor produces every week an average of over eight hundred tons of railroad iron. The ore and coal necessary to produce this iron are taken out of the hills surrounding Johnstown, to the large and seemingly inexhaustible deposits of which the location of the rolling mill at that place is due. The monthly payments of the proprietors of the rolling mill to their employees, to neighboring farmers, lumbermen, etc., amounts to about one hundred thousand dollars, nine-tenths of which sum passes at once through the channels of home trade.

A GENTLEMAN went into a store in Manchester, N. H., recently, and inquired for small copper-toed shoes. The shopman immediately ordered him off, saying that this was no time or place to talk politics

Forging Iron by Hydraulic Rams.

Some time ago Mr. Henry Bessemer patented a highly ingenious form of hydraulic press for forging metals. An ordinary ram of a hydraulic press is in communication through a pipe with the usual force-pump plunger, driven with a crank on a shaft provided with a heavy fly-wheel. The barrel, in which is working the plunger, is unprovided with valves, and is continued as a simple pipe till it communicates with the cylinder of the press. The water between the plunger of this kind of pipe and the ram thus acts as a communicator of motion between the two, and they rise and fall through distances varying respectively as the areas of the plungers. It will be seen that the heavy fly-wheel does the principal work in compressing; for as soon as the rams—the propelling plunger and the driven plunger—meet with resistance, the inertia of the heavy fly-wheel at once comes into play. We do not know whether this invention has been found successful in practice; and a yet more recent patent of Mr. Bessemer embodies the plan of supporting the bearings of the bottom roll of mills for rolling armor plates on a hydraulic ram. This ram is in communication with water pressure, which can be let on or off, as required, by means of a valve. In case the armor plate being rolled should stick—as often takes place—the water below the ram is let out, with the result of relieving the plate from pressure.

It is scarcely possible to over-estimate the importance of the application of the hydraulic press for forging purposes, and it may be ranked almost as high in the scale of practical improvements in working iron as the introduction of the rolling mill, and at least as high as the introduction of the steam hammer. It would seem to fit in with the recent inventions, giving us a command over the production of steel in large masses, affording, as it does, means of working a substance of much more delicate manipulation than even wrought iron. Nor does the use of the hydraulic press seem to be confined to working of iron and steel in an incandescent state, as is evidenced in the remarkable production of steel tubes drawn cold by hydraulic pressure.—*London Engineer.*

Curiosities of French Restaurants.

The Paris correspondent of the London *Star* writes as follows:—

“Restaurants for the working classes in Paris have now-a-days recourse to every species of invention to attract attention. One has just been opened in the Faubourg Montmartre, which promises a dinner of two courses and a desert to whoever writes, in a legible hand, the answer to a rebus offered every morning for solution by the *dame de comptoir*. Another, in the Faubourg St. Antoine, hit on a still more strange expedient. He chose for his ensign a gigantic golden sausage, which he swung enticingly over the door of his restaurant, the words ‘*A la saucisse d’or*,’ in huge gold letters blazing beneath. His *salon* was large, its white walls decorated by festoons of the tempting edible so highly appreciated on the other side of the Rhine, and in every fiftieth sausage a five-franc piece in gold. His principle was, that as his customers called for sausages, they should be cut off in regular rotation from the string, so artistically arranged around the dining hall. The result may be better imagined than described. The eager anxiety depicted on the countenance of every *ouvrier* as he nervously examined and finally ate the sausage, would have supplied a physiognomist with many good subjects for study. The expedient proved most remunerative to the proprietor, but the quarrels that ensued were of so serious a nature that the police have interfered, and the master of the establishment has received orders either to shut up his shop or to proceed on a less exciting system.”

Free Lecture on Maryland.

By the proceedings of the Farmers’ Club, it will be seen that Mr. Bayard is to deliver an address at the next meeting on the advantages which Maryland offers to Northern farmers who are seeking a more genial climate. Mr. Bayard has devoted a great deal of time and labor to the investigation of the subject, and will doubtless give an instructive address. The meeting commences at 1½ o’clock, P. M., on Tuesday, Dec. 6th, at Room 24, Cooper Institute, and all who are interested are invited to attend.

Postal Money Orders.

The Post-Office Department has completed the system of using postal money orders; they can be had at a trifling expense at the principal post offices throughout the United States. This is one of the safest and most economical methods of remitting money. We therefore advise our correspondents, when remitting subscriptions and patent fees, to purchase these orders whenever they can conveniently do so, as it is impossible for the sender to lose his money. For the convenience of our readers we publish a list of offices where orders can be obtained. It will be a useful table of reference, and we hope our patrons will make free use of it in their correspondence with us.

Office.	State.	Office.	State.	Office.	State.
Albany	N. Y.	Honesdale	Penn.	Philadelphia	Penn.
Albion	N. Y.	Hudson	N. Y.	Pittsburgh	Penn.
Alexandria	Va.	Indianapolis	Ind.	Pittsfield	Mass.
Alton	Ill.	Jersey City	N. J.	Plattsburg	N. Y.
Annapolis	Md.	Johnstown	Penn.	Portland	Me.
Auburn	N. Y.	Kalamazoo	Mich.	Port Royal	S. C.
Bridgeport	Conn.	Keene	N. H.	Portsmouth	N. H.
Baltimore	Md.	Keokuk	Iowa	Portsmouth	Ohio
Bangor	Me.	La Crosse	Wis.	Pottsville	Penn.
Beloit	Wis.	Lafayette	Ind.	Poughkeepsie	N. Y.
Binghamton	N. Y.	Lansing	Mich.	Providence	R. I.
Bloomington	Ill.	Lewistown	Penn.	Quincy	Ill.
Boonville	Mo.	Lima	Ohio	Reading	Penn.
Brooklyn	N. Y.	Lockport	N. Y.	Red Wing	Minn.
Buffalo	N. Y.	Louisville	Ky.	Rochester	N. Y.
Burlington	Vt.	Lowell	Mass.	Rockford	Ill.
Burlington	Iowa	Lynn	Mass.	Rock Island	Ill.
Calro	Ill.	Madison	Ind.	Rutland	Vt.
Chattanooga	Tenn.	Madison	Ky.	Saboyan	Wis.
Chicago	Ill.	Manchester	N. H.	Saint Paul	Minn.
Chillicothe	Ohio	Marietta	Ohio	Salem	Mass.
Cincinnati	Ohio	Meadville	Penn.	Sandusky	Ohio
Cleveland	Ohio	Memphis	Tenn.	Saratoga Springs	N. Y.
Columbus	Ohio	Milwaukee	Wis.	Scranton	Penn.
Concord	N. H.	Montpelier	Vt.	Sheboygan	Wis.
Cumberland	Md.	Muscatine	Iowa	Springfield	Mass.
Davenport	Iowa	Nashua	N. H.	Springfield	Ill.
Dayton	Ohio	Nashville	Tenn.	Syracuse	N. Y.
Des Moines	Iowa	Newark	N. J.	Terre Haute	Ind.
Detroit	Mich.	New Bedford	Mass.	Toledo	Ohio
Dubuque	Iowa	Newbern	N. C.	Trenton	N. J.
Easton	Penn.	Newburgh	N. Y.	Troy	N. Y.
Eastport	Me.	New Castle	Penn.	Urbana	Ohio
Elgin	Ill.	New Haven	Conn.	Utica	N. Y.
Elmira	N. Y.	New London	Conn.	Vicksburg	Miss.
Erie	Penn.	New Orleans	La.	Vincennes	Ind.
Evansville	Ind.	Newport	R. I.	Washington	D. C.
Fort Wayne	Ind.	Newport	N. Y.	Watertown	N. Y.
Frederick	Md.	Norfolk	Va.	Wheeling	W. Va.
Freeport	Ill.	Norwich	N. Y.	Williamsport	Penn.
Galena	Ill.	Ogdensburgh	N. Y.	Wilmington	Del.
Grand Rapids	Mich.	Old Pt Comfort	Va.	Winona	Minn.
Harrisburg	Penn.	Oswego	N. Y.	Wooster	Ohio
Hartford	Conn.	Ottawa	Ill.	Worcester	Mass.
		Peoria	Ill.	Xenia	Ohio
		Zanesville	Ohio		

RATES OF COMMISSION CHARGED FOR MONEY ORDERS.—Orders not exceeding \$10, 10 cents; over \$10 and not exceeding \$20, 15 cents; over \$20 and up to \$50, 20 cents. No single order issued for less than \$1, nor more than \$20. Parties desiring to remit larger sums must obtain additional Money Orders. Coin, United States Treasury Notes or National Bank Notes only received or paid.

The Decay of Conversation.

The ancient art of talking is falling into decay. It is an ascertainable fact that, in proportion to an increased amount of population, the aggregate bulk of conversation is lessening. People now-a-days have something else to do than talk; not only do they live in such hurry that there is only leisure for just comparing ideas as to the weather, but they have each and all a gross quantity to do, which puts talking out of the question. If persons remain at home, they read; if they journey by rail, they read; if they go to the seaside, they read; we have met misguided individuals out in the open fields with books in hand; young folks have been seen stretched underneath trees, and upon the banks of rivers, pouring over pages; on the tops of mountains, in the desert, or within forests—everywhere men pull printed sheets from their pockets, and in the earliest, latest, highest occupations of life, they read. The fact is incontestably true, that modern men and women are reading themselves into a comparatively silent race. Reading is the great delusion of the present time; it has become a sort of lay piety; according to which, the perusal of volumes reckons as good works; it is, in a word, the superstition of the nineteenth century.—*Chambers’ Journal.*

A CANAL BOAT ARMED WITH A GATLING GUN.—Canal boats in North Carolina are armed with the Gatling gun as a protection against guerillas. The Gatling gun is a novel piece of ordnance; it consists of six chambers, which are made to revolve around a central barrel by means of a crank. The charges are poured into a hopper, and the gun is self-loading. It will throw from seventy-five to one hundred balls per minute, the number of discharges depending upon the speed with which the crank is turned. Officers here speak confidently of the success and effectiveness of this novel piece of ordnance; so that if the guerillas interfere with the *Gazelle*, they will be greeted with a continuous shower of bullets. All the boats that ply on the canal will hereafter be furnished with the Gatling, or, as the irreverent term it, the “coffee-mill” gun.

Foreign Patent—Motive Power.

This invention relates to a mode of relieving the ordinary slide valve employed in steam and other motive power engine cylinders from pressure to any practical extent without materially increasing the rubbing surface. And for this purpose it is proposed to apply two slide valves, placed back to back, working on double ports, each set of ports being only half the area required for any size of cylinder. Thus two valve faces, with two sets of ports merging into one port leading to each end of the cylinder, would be adopted, or the ports from the two faces may pass forward separately into each end of the cylinder; or, the two valves and ports from the same may be so arranged that a full-sized steam port may pass from one valve to one end of the cylinder, and another full-sized steam port from the other valve to the opposite end of the cylinder, each valve face having one steam port and one education port.

SPECIAL NOTICE.

JUNIUS JUDSON, of Rochester, N. Y., has petitioned for the extension of a patent granted to him on March 4, 1851, for an improved power governor.

It is ordered that the said petition be heard at the Patent Office, Washington, on Monday, Feb. 13, 1865.

All persons interested are required to appear and show cause why said petition should not be granted. Persons opposing the extension are required to file their testimony in writing at least twenty days before the final hearing.

The “Scientific American” a Religious Paper.

A writer in the *Oneida Circular* asks:—“Are not the honest mechanics, the practical men of science, who are the obedient servants of truth and principles, to become the real preachers of gospel truth? Are not such periodicals as the *SCIENTIFIC AMERICAN*, *Country Gentleman*, and kindred publications, more truly the organs of the gospel of Christ and the spirit of the Bible, than so-called religious papers in general?”

Our contemporary is one of those “who find sermons in stones, books in the running brooks, and good in everything.”

Crab-apple Cider.

In response to an article on the manufacture of cider which recently appeared in these columns, Mr. H. L. Physick, of Port Deposit, Maryland, has sent to this office a specimen of cider which he made this fall from the Hewes Virginia crab-apple. It is superior to anything in the cider line we have tasted this year.

THE IRON-CLADS “ETLAH” AND “SHILOH.”—The *Etlah* and *Shiloh* are light draft monitors with Ericsson turrets, built under the supervision of D. G. Wells, Esq., Engineer, at St. Louis, Mo., on behalf of Government. They each carry two guns, one 11-inch Dahlgren, and one 150 pounder rifle Parrott. Extreme length, 225 feet; breadth of beam, 45 feet; depth of hold, 11 feet; thickness side armor, 3 inches; thickness deck armor, 1 inch; internal diameter turret, 20 feet; thickness turret, 8 inches; internal diameter pilot house, 6 feet; thickness pilot house, 10 inches; number of motive engines, 2; diameter of cylinders, 22 inches; length of stroke, 30 inches; propellers, 2; diameter of propellers, 9 feet.

A \$50,000 MUSKRAT.—The late breach in the Erie Canal, near Rochester, which summarily closed the canal for the season and inflicted a damage of some \$50,000 on the State, is thought to have been caused by a muskrat. The canal runs through a swamp at that place, and the theory is that his muskratship bored the bank and let out a small stream, the water gradually enlarging the hole until the bank gave way, when the rush of waters set in. This shows that little things—even muskrats—are not to be despised.

HEAVY PATENT SUIT.—A suit is pending in the U. S. District Court for the Southern district of New York, between Professor Daniel Treadwell and Robert P. Parrott, in relation to the right of making the hooped cannon which are generally known as the Parrott gun.

THE ADAMS EXPRESS has carried 60 tons of Thanksgiving gifts to the soldiers from Boston.