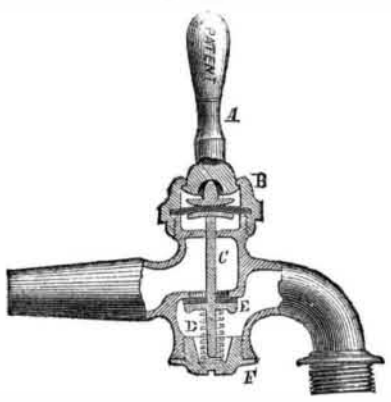
Science and Art.

Bartholemew's Improved Faucets.

Fig. 1 in the accompanying engravings represents an improved self-acting faucet, to avoid a waste of water, and to prevent the injuries which so frequently arise from faucets being left open by children or careless persons. This faucet is not susceptible of being fastened open except with much difficulty, and is, therefore, well adapted to the purposes of schools, factories, stores, tenant houses, and the like. The construction and design of this fancet is such, that while it shuts of itself when released by the hand, it never causes concussion and bursting of the pipe by too suddenly stopping the flow of water.

E is the valve, faced with leather or any ordinary material, C the valve stem, and D a strong brass spring, which urges the valve upward to its seat *against the pressure of the water*. The screw cap, B, confines the rubber diaphragm perfectly tight at its edges, as represented, and retains the upright handle, A, by its flange. There is a button (as shown) between the rubber and the lever, A, and the valve is opened by inclining the lever in either direction from a perpendicular position, which

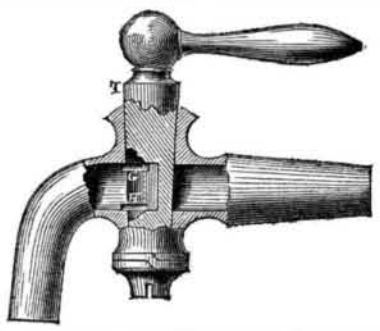
FIG. 1.



movement depresses the valve. Upon letting go the lever, the spring, D, forces the valve upward, but yielding to the force of the momemtum of the water, and overcoming and stopping it moderately without producing any jar or water ram.

Fig. 2 represents another form of faucet by the same inventor. It is an ordinary plug cock, except that provision is made for preventing the isolation of the water contained in the slot. In ordinary cocks of this char-

FIG. 2.



acter, the plug when turned contains a quantity of water, which is tightly confined, and when the same is frozen it expands the metal and ruins the cock.

The improvement consists in providing two grooves on the interior of the barrel, each extending about half way around the plug on the side from which the fluid is discharged. These are of no effect when the liquid is flowing, but so soon as the cock is shut, they serve to drain the cavity. The plug of the cock is represented by T, and the two grooves by G H. The lower groove, H, allows the water or other fluid in the slot to flow out, while the upper groove, G, allows air to enter and supply its place. The faucet represented in Fig. 2 was patented Nov. 11, 1856.

For further information concerning either of these cocks, address the inventor and manufacturer, F. H. Bartholemew, 84 Marion st., this city.

Artesian Wells.

Self-discharging deep wells are, according to a western exchange. becoming quite numerous in various sections of the West and South. In Iroquois county, Ill., there are some thirty wells of this sort, which emit cool water resembling that abounding in the highlands of Pennsylvania. In one instance, in consequence of imperfect tubing, a well owned by a Mr. Harper was rendered entirely useless, owing to a cause analogous to that which was exhibited in the Duane street well, in this city. It discharged with the water a great quantity of sand and stones, some of the stones about the size of a hen's egg. It could not be remedied; and in a few weeks several tuns of sand, stones, and gravel were vomited from the bottom of this water volcano. The ground was noticed to sink, and, from fear of being engulfed, Mr. H moved his house some sixty yards from the old site. The result has proved the wisdom of this, for the earth for twenty or thirty yards around. has since sunk, leaving a large pool of water.

ATKINSON & MANNING'S CARRIAGE GEAR.

Fig. 1

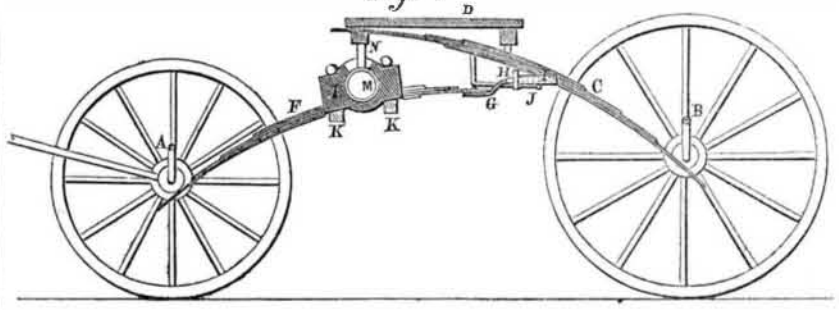
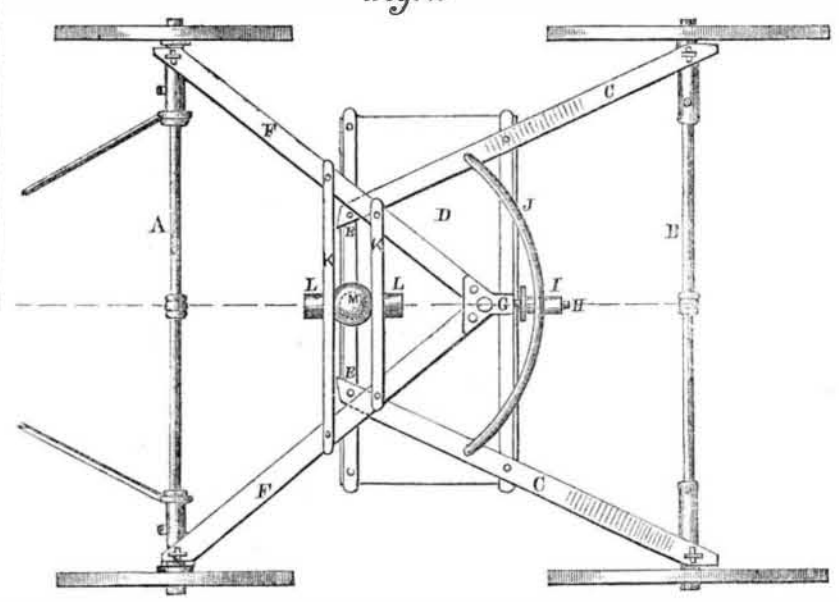


Fig. 2



The carriage represented in the accompanying figures is the invention of Charles Atkinson, of Danville, and Gilbert S. Manning, of Springfield, Ill., and combines lightness and convenience with great strength and elasticity. It is secured by patent dated the 26th of May last, and appears particularly adapted to the class of extremely light carriages known as "buggies," but can be adopted on many varieties of vehicles. The peculiarity consists in the method of arranging the parts so that the center on which the fore wheels swivel is brought into a point near the center of the carriage, and the weight supported entirely on springs, which extend to points on the axles immediately in juxtaposition with the wheels. The friction, which would prevent the easy turning of the carriage, is reduced by a friction roller to a very small amount. Fig. 1 is a vertical section, and Fig. 2 a plan view seen from below.

A and B represent respectively the two axles, A being the front. C C are the back springs, and D a light horizontal platform or flooring. The springs, C, are connected to D at the points, E E, as represented. F F are the front springs, attached at one end to the front axle, and united at the other to the iron, G. H is a stem, or cylindrical portion of G, extending backward in a horizontal line, and carrying a roller, I, which turns thereon. J is a segmental guide or curved rod, extending across the space between the springs, C C. K K are cross-pieces joining the front springs, F F. L is a casting, represented considerably larger than is employed in practice. M is a metallic globe, fitting into a corresponding cavity in L, and connected to the under side of the platform, D, by the upright end, Fig. 1. The neck or opening into the cavity in L is of sufficient size to allow all the necessary motion to the parts.

The axles, A and B, may be made extremely light, far more so than in the ordinary construction of carriages, as the weight on the springs induces but a very small transverse strain on the axles. The parts are all represented consideraly heavier than necessary, in order to show the peculiar construction and fastenings. The platform, D, carries a seat of any ordinary form, and all the parts may be so proportioned as to support the same at any desired hight.

It will be readily understood that in turning the carriage aro nd, the platform, D, the springs, C C, the curved bar, J, the upright, N, and the globe, M, correspond in position with the hinder axle, B, while the springs, F E, their cross-ties, K, the cup piece, L, and the iron, G, with its extension, H, and roller, I, all correspond in position with the front axle, A, the center of motion being the socket joint, M L. As the front axle, A, changes its position relatively to the hinder axle, B, the iron, G H, traverses across on the curved guide or support, J. The roller, I, by changing the sliding into the rolling friction, simply diminishes the resistance due to this movement. The thills and other parts may be in any ordinary form.

For further particulars the inventors may be addressed at the above-named localities.

The Lakes and the Sea.

The British schooner recently noticed as entering the lakes with hardware, direct from England, landed her freight at Chicago, and shipped her return cargo at Detroit. The *Kershaw*, which we noticed a few weeks since as the first launch in an attempt to form a regular line from the lakes to foreign ports, was constructed at Cleveland instead of Chicago, and at our latest advices was being taken to Detroit to load. Chicago enjoys a great and growing trade, but in writing from memory we have given her credit for too many enterprises, and this correction is due to the whole chain of thriving towns stretching from the rapids of Niagara to the newly opened mining ports of Lake Superior.

Literary Notices.

ILLUSTRATED COMMON SCHOOL ASTRONOMY; with Explanatory Notes and Questions for Examination. By John Brocklesby, A. M. Astronomy, as a science, is probably more neglected than any other branch of education usually taught in our common schools. There are obvious reasons for this, as undoubtedly it has not that bearing upon the practical affairs of life which belongs to some other sciences, such as chemistry, mechanics, and mathematics; yet it is a study not only highly interesting, but also very useful in its effects upon the human heart, as it prepares the mind for a higher appreciation of the Author of Creation and his glorious works. We have received from Farmer, Brace & Co., 4 Courtlandt street, this city, a copy of the above work, and after a very careful examination of the character of its contents, we cheerfully recommend it as a comprehensive and well prepared book, not only peculiarly adapted to the use of common schools, but also a convenient and useful book for the household, and one which will materially conduce to the profitable employment of a leisure hour.

HAND BOOK OF RAILROAD CONSTRUCTION—For the use of American Engineers. By Geo. L. Vose, C. E.; Jas. Monroe & Co., Boston, 1857, octavo, 480 pp This is by an extremely able man, one whose writings we always read with profit, and is a book much needed, as most works of the kind are not only antiquated, but relate to foreign materials. It treats quite thoroughly the location, construction, equipment, and management of American railroads, giving clear rules, tables and formula, and—a matter specially to be commended—giving the sources from which they are manufactured. It is profusely illustrated with outline engravings and will be valuable to all connected in any manner with either civil or mechanical engineering.

CHILE CON CARNE, or the Camp and the Field. By S. Compton Smith, M. D., acting surgeon with General Taylor's Division in Mexico. Miller & Curtis, New York, 1857, 8 vo., 404 pp. This is a life-like narrative of adventures in the Mexican war. It presents the bright side of all the internal jealousies and excitements incident to the life of a soldier, and daguerreotypes much of the history of the campaign which would otherwise remain unwritten. It is a very attractive and instructive volume.

HOW TO DO BUSINESS is the title of a neat pocket manual of practical affairs, embracing the principles of business and general advice upon such topics as belong to it. Fowlers & Wells, the publishers, have published a useful series of books upon subjects which concern our every-day affairs. They have been well received by the press, and no doubt the public have not failed to appreciate them.

RAILWAY GUIDE BOOKS for August have appeared from the press of Dinsmore & Co., and D. Appleton & Co., 346 Broadway. They are useful and convenient books for travellers.

YOUNG MEN'S MAGAZINE—Edited by Richard C. McCormick, 348 Broadway. It is a most excellent and highly instructive monthly, full of useful matter for the young man. It should have a wide circulation.