NEW INVENTIONS.

Improved Car Wheel and Brake.

This improved wheel is cast in two parts—the rim and centre. The parts are loosely fitted to each other by means of projections on the centre and corresponding recesses in the rim. Each projection is furnished with a spiral spring which bears against the bottom of its recess. The centre is secured properly in its place by means of plates bolted to the rim. The inventor is Lucius Paige, of Cavendish, Vt.

Mr. Paige is also the inventor of some improvements in Railroad Car Brakes. In this improved brake the lever attached to the shoe bar is forced out, and the shoe drawn against the wheel by a contrivance of friction rollers fitted upon the circumference of the wheel. When the force which operates the brake is taken away, the levers are restored to their original position, relieving the car wheel from the shoe by means of springs.—The shoes are placed in sockets attached to the end of the shoe bars for the purpose of allowing the shoes to be adjusted and their faces or bearing surface to be brought nearer the peripheries of the wheel as the shoe becomes worn and shattered by use. The inventor has taken the proper measures to secure a patent.

Cotton Seed Planter.

G. W. Cooper, of Palmyra, Ga., has invented a new machine for planting cotton seed, for which he has taken measures to secure a patent. The nature of the invention consists in the peculiar manner of distributing the seeds, or of discharging them from the hopper. This is effected by means of vertical saws, (one or more) having a reciprocating motion and working through slots or openings in the bottom of the hopper, and using in connection with the saws, feeders, which are placed vertically upon a circular disc at the bottom of the hopper, the disc having a reciprocating rotary motion. Cotton seeds being of irregular forms will not pass readily from a hopper without some mechanical device for drawing or forcing them out. This machine effects this object with certainty, and distributes the seed very evenly in the furrows.

New Kinds of Boots and Shoes.

Measures have been taken to secure a patent for a new kind of boots and shoes, invented by Albert L. Murdock, of Boston.—The soles, and the lower portions of boots and shoes are made of india rubber, or gutta percha, while the upper portions are formed of some textile fabric, such as woolen, cotton, &c. The lower portions of the boots and shoes protect the bottoms and sides of the feet from wet or moisture, while the upper portions form an elastic covering for the upper part of the feet or legs, and keep the lower portions properly adjusted to the feet, and at the same time allow the free perspiration to pass off.

Hose Protector.

David Demerest, of this city, has taken measures to secure a patent for protecting the *hose* of fire engines in cities from being injured while laid across streets and railroad tracks by cars and carriages passing over them. The invention consists in the employment of a portable section of a railroad track which section has a horizontal recess made in its bottom under which the hose is laid and carried to the place desired. This portable section of a railroad track is placed to cover and protect the hose from injury, and carts and cars will safely pass over the section track without touching the hose, and without being diverted from their line of passage, this is necessary for the free travel of railroad cars on tracks in the city. The invention is a useful and much needed one.

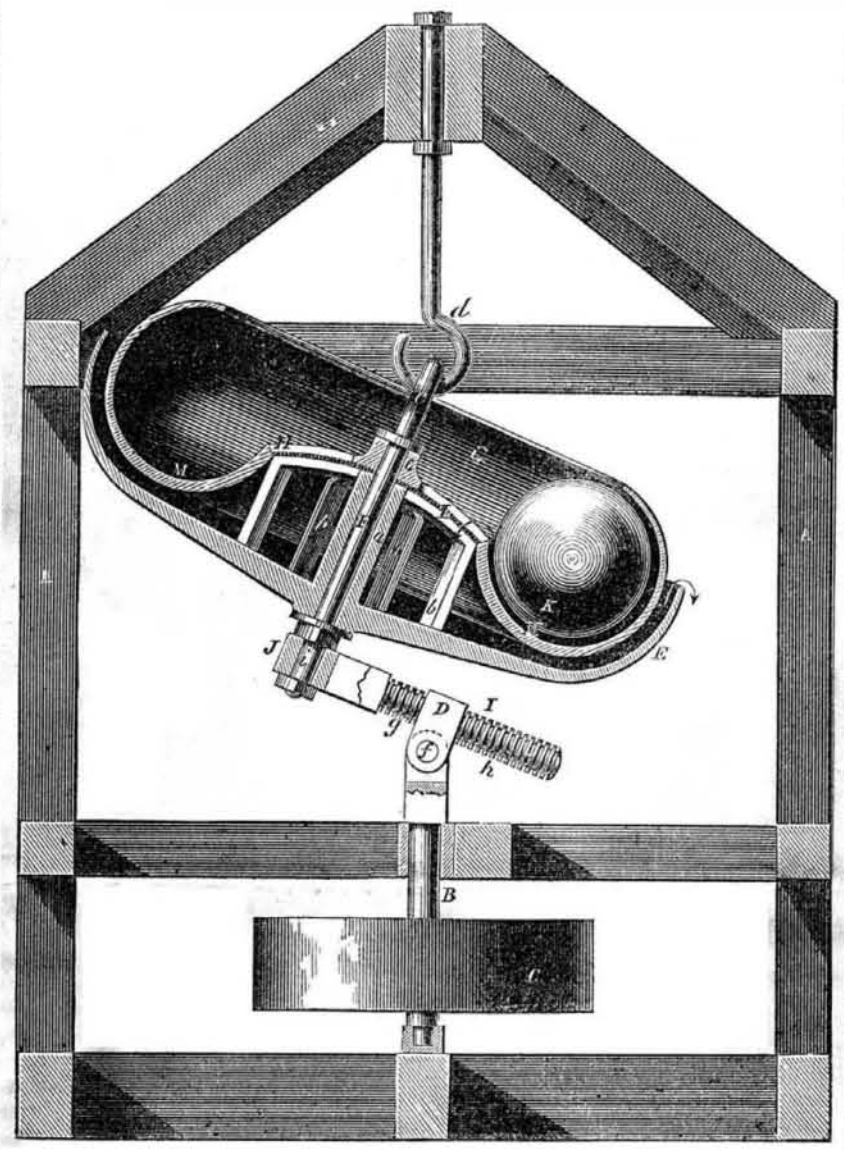
Hay Elevators.

Thomas F. Jarrett, of Horsham, Montgomery Co., Pa., has made some useful improvements in Hay Elevators, for which he has taken measures to secure a patent. In general character and appearance it resembles those in common use. But by means of a simple arrangement of a lever, catch, pulley, ropes, and weight, the elevator is brought under the control of the operator, so that it is guided to its destination freed from its load, and re-adjusted with great facility.

To Advertisers.

We intend, as usual, to devote a small portion of the new volume of the Scientific American to short advertisements. We are particular, and shall exercise unusual vigilance in admitting them—no quack medicines, or speculations of doubtful character, can be advertized at any price whatever. Wants of inventors, engineers, and mechanics, sales of machinery, manufacturing establishments, &c. will be admitted at the rate of 18 cents per line for each insertion,—owing to change in the kind of type which will be used, the same quantity of matter will cost no more than at present rates. We shall also require advertisements to be as brief as possible or they will be refused. No advertisements will be received which do not correspond with the general character of the subjects treated in the paper—no attention will be paid to any other

QUARTZ PULVERIZER, WASHER, AND AMALGAMATOR.



The annexed engraving is a vertical section of a machine for pulverizing and washing gold quartz; also for amalgamating and separating the gold. An American patent was granted to the inventor, P. G. Gardiner, of this city, on the 9th of June last, and a patent has also been issued in England. The nature of the invention consists in having suspended pulverizing and amalgamating basins, also their peculiar arrangement, both being attached to the same shaft with a screw interposed between them, and operating together with an oscillating motion.

A A is the frame of the machine, in the lower part of which is the driving shaft, B, which is vertical and receives motion from a steam engine or other motive power by a belt driving pulley, C. The upper end of the shaft is forked to receive a metallic block, D, which is attached and jointed to it by the pivot, *f*, passing transversely through the axis of the shaft; E is the lower or amalgamating basin; it is of cast-iron, of a circular form, and has a hub inside which receives the shaft, F, to which it is firmly secured; G is the crushing or pulverizing basin. It is formed with a channel, M, around its bottom to receive two balls (one, K, being shown); this basin has a hub, *c*, which fits on the shaft and rests on the hub, *a*. The part, H, of the basin rests upon a number of bearing pieces, *b b*, which stand up from the bottom of the basin. The raised circular part, H, has an opening around the shaft, F, which is covered with a wire gauze screen, L. The upper end of shaft F, has an eye, *e*, hung on a hook, *d*, of a strong vertical rod, screwed into the top of frame, A, which suspends the two basins with their contents. The lower end of shaft, F, is connected by a crank to the shaft, B. This crank consists of an arm, I, which is fitted to work freely in a slot or hole made in block, D, at right angles to the pivot, *f*; J is a metallic box which is bored to receive a journal, *i*, on the lower end of shaft, F. A spring, *g*, is applied between the block, D, and a shoulder near the end of the arm, I; another spring, *h*, is applied between said block and a shoulder at the opposite end of the rod; the tension of these springs is exerted in pushing from the block.

Operation.—The gold quartz to be operated on is first broken into pieces about the size of a man's hand or to egg size, and is fed in suitable quantities to basin, G, and is there subjected to the crushing and grinding action of the balls in the basin. A stream of water is allowed to flow into the basin, G; all the finely pulverized quartz is carried down through screen, L, passing into the amalgamating basin, E, which contains the mercury. In this basin a constant agitation is kept up by the peculiar motion imparted to it, which brings all the gold in the pulverized quartz into contact with the mercury. The light particles of the crushed quartz is washed away over the lip of the lower part of basin, E, by the constant overflow of the water at that part. The amalgam is withdrawn through a suitable valve in the bottom of the basin. The pulverizing and amalgamating basins have a peculiar oscillating motion, owing to the combination of the crank arm, I, connecting the axis of said basins, as represented, with the driving shaft. The lower side of the basins is continually changing, they having a swinging rotary motion. The balls travel round the channel of the basin and roll along with an easy motion owing to a continual shifting inclined plane being produced in said basin by the action of the crank, and the relation of the axis of the basins to that of the centre line of the suspension rod on which the basins are hung. The springs, *g* and *h*, admit of the crank arm, I, being lengthened and shortened in a measure, so as to balance the relative stroke of oscillation with the weight of balls employed; they also serve to prevent shocks and jarring in stopping and starting the machine.

We have been informed that the operations of this machine have been so satisfactory that a joint stock company has already been formed in this city with a capital of $1,000,000 to carry out the objects of the patent in constructing and working machines, selling rights, and granting licenses. A very large machine has been in operation for some time at the Phœnix Foundry, Vestry st., this city, where it can now be seen at certain periods grinding the quartz.

The claim of the patent is for "the arrangement of the vibrating pulverizing basin, and amalgamating basin attached thereto, with the screen interposed between them, said basins being attached to the same shaft." The working machine at the Phœnix Foundry has a longer shaft than the one shown in the above engraving; the amalgamating basin on it is also placed farther from the pulverizing one, and is not so large as the one represented above.

More information about the sale of rights machines or sale of the stock, &c., may be obtained by calling on Mr. Gardiner, Trinity Buildings, this city, or by letter addressed to him.

The Hillotype.

The "Troy Times" understands that Mr. Hill has perfected his discovery, so far as regards transferring all the color by a single operation. The only desideratum remaining is an aid in reducing the time required for making pictures from thirty minutes, to, if possible, less than as many seconds. A similar difficulty, but not so serious, occurred in the bringing out of the daguerrean discovery. Iodine, &c., were found to answer the purpose for the latter, but Mr. Hill has to deal with many colors, and a chemical that serves with one, may spoil or prove useless without the other. The stick is now on the yellow.—

[We saw the above in a great number of our daily papers last week. It certainly looks like the old story, as the "stick" has always been on the yellow.

A Mountain Borer.

An invention which promises to be one of the greatest utility is described in the "Hartford (Conn) Times. It is a machine for boring tunnels, the work of a Mr. E. Talbot, a practical mechanic, who states that in the rapidity and completeness of its execution, it will surpass every instrument of the kind yet conceived.

Worked into its own machinery is an engine of sixty horse-power, which drives four piston rods, horizontally, and these turn four halt circle plates, of stout proportions, furnished with circular revolving blades. These four plates are turned with exactness about one-fourth of a circle and back. and are all set upon a revolving plate of about ten feet in diameter, and as thus set, cut a circle of seventeen feet in diameter. The machine weighs about eighty tons. The motion obtained by this invention is novel—entirely new. By it the revolving knives, each running its quarter circle, cut completely from the centre to the circumference, and they do their work steadily and surely, cutting a round hole with astonishing celerity.

Massachusetts Mechanics' Association.

The Seventh Exhibition of this Association will be held in Fanueil Hall, Boston, next month. We understand that the Committee of Arrangements have made, and are now making proper efforts to have the exhibition in every respect worthy the high character of the mechanics of New England.

The receipts for the week ending August 6th, were $8,556,00; visiters, 24,979; daily, 4,163.

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