

## New Inventions.

## Improvement in Carriage Axles.

W. D. Titus and J. Atkiss, of Brooklyn, N. Y., have invented an improvement in carriage axles and their bearings. The nature of the invention consists, first, in making the journals of carriage axles of two cones arranged in a horizontal position, their apexes placed against each other, each of them being provided with a collar or shoulder, which fits snugly in either end of the hub and serves as a washer to prevent the escape of the oil. The outer of said cones being made movable, is fitted snugly over the square end of the journal after the wheel has been placed on the axle, and is held in place by means of a screw cap and spring catch, said devices serving to lock the hub and axle together. It consists, second, in providing the double conical journal box with an oil chamber formed round the two cones, and made to supply oil at the point where the apexes of the cones meet. The inventors have applied for a patent.

## Rock Drill.

Anthony Frasier, of Sault Ste. Marie, Mich., has invented certain improvements in machines for drilling rocks, on which he has applied for a patent. The invention consists in placing the drill bar in a short sliding box, having one loose and three fixed sides—the loose side being so arranged and operated by a crank movement through a pitman, rocking pawl, and cam that its whole surface is caused to exert friction in a straight line upon the drill bar, which is thus firmly held between this and the remaining sides of the box, and is elevated until the upper end of the pawl coming in contact with an inclined plate, releases the bar, and it descends by its own weight. The box holding the bar is slightly turned during its upward movement by an eye-pin loosely inserted in its side, and the drill is thus rotated.

## Improved Miter Box.

Caleb Willis, of Mystic Bridge, Conn., has invented an improved cast-iron adjustable Miter Box, on which he has applied for a patent. The nature of the invention consists in making a cast-iron miter-box capable of turning in any desired direction, so that it may be set to saw any angle between one of 45°, and a right-angle and to guide the saw in a vertical or inclined direction. Each of the guide pieces or boxes is provided with a slotted vertical follower, which rests on the back of the saw and guides or facilitates its operation.

## Improvement in Printing Presses.

W. H. Street, of New York City, has invented a new device for attaching the blankets to the cylinders of printing presses. The present mode of attaching them is by sewing, and this method is liable to some objections. This invention consists in the employment, for the purpose specified, of a series of pins arranged within the cylinder, a toothed bar, and an outer and inner screw, by the action of which one end of the blanket is held while the other is attached to the cylinder, the screws being for the purpose of drawing the blanket to the required degree of tension. A patent has been applied for.

## Improved Car Coupling.

T. B. Stout, of Keyport, N. J., has made application for a patent upon an improved car coupling, the nature of which consists in securing the lower end of the bolt which passes through the link between springs, in such a manner that the springs, when a car is thrown from the track, will be acted upon by a lateral movement of the bolt, caused by the pressure of the link upon it, and release the link from the bolt. This may also be done by a lever operated by the brakeman while the cars are in motion.

## The Japanese as Inventors.

Bayard Taylor says "the peculiar talent of the Chinese is imitation. The Japanese do not content themselves with this, but are probably, next to the Yankees, the most inquiring race in the world, and would be inventors were it not for the restrictions of Government.

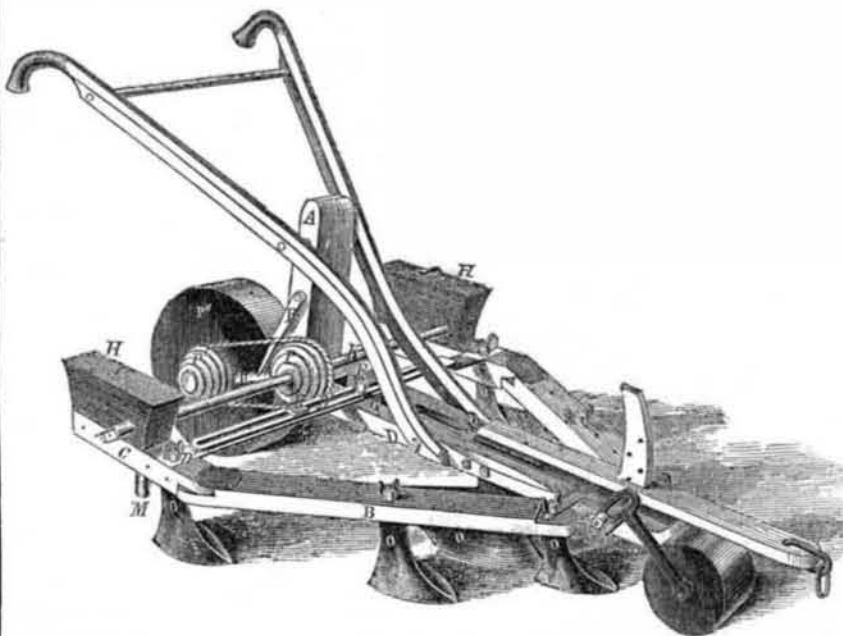
## SEED PLANTING CULTIVATOR

The above engraving is a perspective view of an improvement in Seed Planting Cultivators, patented on the 15th Nov., 1853, by Geo. Phillips, 636 South Front st., Philadelphia.

The nature of this invention consists in so constructing and arranging the several parts of the planter and cultivator as to enable them to be separated or attached at the will of the operator, and to perform either of the functions for which they are designed, in an effective manner, and also in attaching to the upright

post at the back part of the center or draught beam a graduating and driving wheel, capable of being either used for those purposes or as a pivot wheel on which to turn the machine when desired.

When the several parts of the machine are put together, so that it may form two furrows, thus planting two rows, the frame somewhat resembles in form the ordinary cultivator or an A-harrow, and consisting of a center draught beam, D, with jointed beams, B, connected with



the center-beam on either side of its front end by means of bolts upon which they move, and extending outward and backward from the same to near the rear, where they are jointed to additional beams, C, arranged parallel to the center-beam, and connected together by slotted bars, D' D', secured to the beams at right angles with them, one above the other, and kept thus by means of a stud, E, secured to the end of the lower bar, and passing through the slot in the upper one, and a bolt, F, passing through a longitudinal slot, G, in the center beam, D, and through the slots of both bars, D' D', and provided with a head below and a nut above, so as to enable the beams, C, to be moved to or from the center beam, according to the desired distance of the rows.

On top of the beams, C, are secured movable hoppers, H, for holding the grain, in which are placed rectangular blocks, forming the bottoms of the same and serving as rests for the ends of the horizontal tube, K. This tube is formed in two parts, one at each end, which are connected by an intermediate shaft. The ends

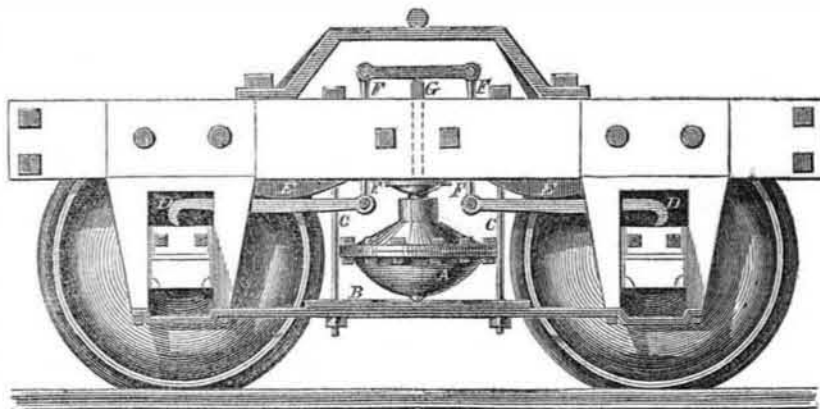
which enter into the hopper boxes have perforations or cavities for receiving the required quantity of grain from the hoppers, to be dropped into tubes immediately below. These tubes are actuated by the belt passing over the pulleys, P P'. Shovel plows or ordinary drill teeth, O O, are arranged to open the furrows and cover the grain.

The ratchet, R, working in the pawl, Q, attached to the shaft of the graduating roller, P', regulates the depth to which the rear plows will enter the ground, and the same purpose in front is accomplished by the similar wheel beneath the draught beam.

When it is desired to plant but one row at a time, the side beams, B, and one of the hopper boxes are detached, and the other is placed upon the center beam, D; or if it be desired to use it as a cultivator only, the hopper boxes and their adjuncts can be detached.

This is a very ingenious invention. Any further information can be obtained by addressing the inventor as above. One of these Cultivators is on Exhibition at the Crystal Palace.

## IMPROVEMENT IN PNEUMATIC SPRINGS.—Figure 1.



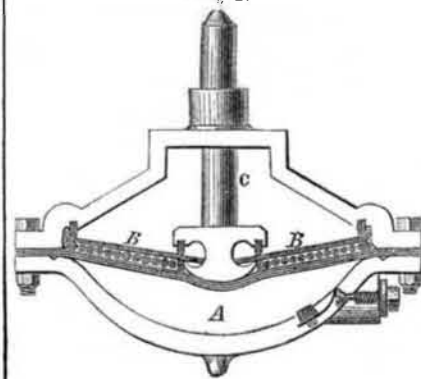
The engravings herewith presented represent an improvement in pneumatic springs, especially adapted to railway carriages, a patent for which was granted to Elijah Ware, of Roxbury, Mass. July 6, 1852. Fig. 1 is a side view of a car truck containing this improvement, and fig. 2 is a section of the spring.

This kind of car springs as previously constructed, consisted of a cylinder with a piston fitting very accurately within it, and working against the compressed air. The objection to this mode of construction has been that in order to render the spring air tight, it has been necessary to make the piston play very tightly

in the cylinder which occasioned so much friction as to cause rapid wear, and consequently, a rapid destruction. In this improvement, these objections are obviated, as the piston instead of wearing on the sides of the cylinder has fitted into it a moveable diaphragm, which presses against a disk of rubber or some similar substance, which is forced against the air in a chamber beyond, this diaphragm having concentric rings placed on it to prevent the rubber from being worn. In pneumatic springs where a similar disk has been used, the piston has acted directly upon the rubber, which was consequently soon destroyed by its action.

S, in fig. 1 is the spring resting upon its support, B, C C, are bolts passing through the

FIG. 2.



timbers of the truck, sustaining this support.—D D, are levers against which press the boxes of the car axles. These levers working over the fulcrums, E E, act upon the connecting rods, F F, which by means of the cross bar at their top, press upon the piston rod G, and consequently compress the air in the chamber, A, fig. 2 below the diaphragm, B B. C, is the piston rod, being the lower extremity of F, fig. 1. It will be seen that between the upper part of the diaphragm and the lower portion or the rubber, there is arranged as before said, a series of concentric rings which protect the rubber from the action of the piston. The claim of the patent is upon this described construction of the diaphragm.

## Locking Type Forms in Chases.

E. H. Sprague, of Zanesville, Ohio, has invented a new Chase Lock for locking up printer's forms. The form is locked by means of a combination of taper bars and wedges, with a compound lever or key, said bars being so arranged that the parallel side of one bears against the chase, and that of the other against the type, and their tapering sides against the wedge, by the action of which they are forced apart. Application has been made for a patent.

## Heliographic Engraving.

We have received from M. Niepce de St. Victor, the heliographic steel engravings transmitted to us by the kindness of M. Gardissal. These engravings are, as will be remembered, etched by the action of light, and are not at any time touched by the hand of the engraver. The plates are very perfect, it scarcely seems possible that such an effect can be produced, yet M. de St. Victor assures us that they have not been re-touched. This art may yet be to that of the engraver what photography is to the painter.

## Emery Sand Paper.

This kind of paper being made with glue, it is liable to be injured by moisture and water; a water-proof substance, as a substitute for glue, is therefore desirable. It has been proposed to use a solution of gum-copal in hot linseed oil, some turpentine, litharge, and dissolved india rubber. A cement made of these substances, we think, would answer a good purpose.

## Brilliant Varnish for Leather.

Take 4 oz. shellac, half an oz. of lamp-black, and place them in a stone-ware vessel, into which pour about 1½ lbs. of alcohol, and cover it with a moist bladder. Let them be frequently shaken for about 24 hours. After this puncture the bladder, and add half an ounce of turpentine and leave the whole for about 24 hours longer. Repeated applications of this will crack the leather, but for some purposes it is very useful.

## Improvement in Building.

In the construction of the new Pacific Mills in Lawrence, Mass., wooden pillars or supporters are used in the buildings. A hole is bored through the center of each of these supporters, about an inch in diameter, connecting at each end with the outer air, by means of a small perforation in the side of the post.—This admits a free circulation of air on the inside as well as on the outside of the wood; in this manner the wood is rendered much more durable, without any sacrifice of strength.