

**IMPROVED WAGON BRAKE.**

We give herewith an engraving of an improved automatic wagon brake recently patented by Mr. A. L. Withers, Jr., of Summit Point, W. Va., which is operated by a forward motion of the load on its roller supports on the bolsters. The connection of the rear hound with the reach is by means of a bolt or stud extending through a slot in the reach, and permitting the hound to move through a limited distance. A cross bar secured to the hound carries two brake levers, projecting in opposite directions, having at their outer ends shoes which are capable of pressing the peripheries of the rear wheels of the wagon. These brake levers are pivoted about centrally to the cross bar, and their inner ends are connected by rods or chains with the bottom of the platform or wagon body, so that should the body move forward more or less on its roller supports, as in going down hill, the brakes will be automatically applied to the wheels.

A short lever pivoted to the side of the hound has its shorter arm connected by a rod or chain with the wagon body, and the longer arm is connected with the king bolt of the wagon by a rod or chain.

When the wagon reaches a level, the reach being drawn forward, the chain or rod connecting the short lever with the king bolt is drawn upon, moving the lever and drawing the wagon body backward, releasing the brake shoes from the wheels. The forward and backward movements of the body are limited by suitable stops.

This simple apparatus is entirely automatic, and applies the brakes with more or less force according to the requirements of the case, and it may be readily adapted to any wagon.

**APPARATUS FOR DECORATING POTTERY.**

The decoration of china, until quite recently, has been done almost exclusively by hand, rendering it not only a slow but expensive operation. The engraving shows a simple machine, invented by Mr. S. J. Hoggson, of New Haven, Conn., for applying various styles of ornaments, but principally designed for borders.

The engraving shows the invention so clearly that a description is hardly necessary. The wheel which rolls upon the work to be ornamented carries the design and receives the color from the wheel above, and both wheels are sustained by a pivoted support provided with a handle, by which they may be raised or lowered or turned sidewise, as may be required to conform to various surfaces to be ornamented. The object to be ornamented is supported by a freely turning table, which is revolved as the impression roller is pressed upon the work. The inventor claims that there is no border or ornamentation, no matter how delicate or minute, ever came from the matrix of the type founder that cannot be produced upon china or any vitreous substance as perfect as if the impression had been taken by a master workman upon the finest paper, and with great rapidity.

The great advantage of this machine is in its applicability to plane, concave, convex, or any other surface, creeping over it as gently as a spider would, yet leaving its web-like tracings in enamel, which, when fired into the glaze of the ware in the usual manner, will last forever. It will work from ordinary type, electrotype, stereotype, wood-cut, or phototype patterns. The advantage of this over the transfer system used in old countries, on the cheaper kinds of ware, will be readily seen, and when we consider that, heretofore, all such decorations done in the United States were applications of the brush, in the same manner as an artist would paint a picture, we can begin to realize to what extent this little machine can be used.

**Progress of the Telephone.**

Lowell, Mass., is connected by telephone with over one hundred cities and towns in the States of Massachusetts, New Hampshire, and Rhode Island. The longest circuit is from Springfield, Mass., via Worcester, Fitchburg, Lowell, Lawrence, to Exeter, N. H., over 150 miles, which is worked successfully. The telephone business between Boston and Lowell, a distance of 26 miles, amounts to \$3,000 annually. The Lowell District Telephone Company, which owns and operates the systems of Worcester, Lowell, and Fitchburg, and the lines of the Northern Massachusetts Telephone Company use 2,500 telephones, and pay the American Bell Company a monthly royalty of over \$1,200.

The company controls over 1,500 miles of wire, and employs in all divisions about twenty-five ladies and seventy-five men and boys.

**MISCELLANEOUS INVENTIONS.**

Mrs. Frank J. Kellogg, of Flint, Mich., has patented an apparatus for draughting patterns, by which the waists of ladies' dresses may be cut from measurement accurately and conveniently. It is a combined rule and square made in the form of a triangle, by which the form of the pattern may be laid out, a curved scale being used in connection with the

Messrs. Egesippe D. Melançon and John H. Ayraud, Sr., of Paincourtville, La., have patented an improvement in plows, by which an adjustment for cutting deeper or shallower furrows, and of the handles to adapt them to taller or shorter plowmen, is easily made by simple devices.

Mr. Edward A. Pearse, of Downend, near Bristol, county of Gloucester, England, has patented a machine for aerial navigation. The invention consists in improved means for suspending an aerial car from a gas bag, and in a set of adjustable legs for propping up one end of the car before rising, in order that the propeller may act in the direction of an ascending plane.

Joseph E. Culver, M.D., of Jersey City, N. J., has patented a steam generator intended to abstract more of the heat from the gases of combustion and prevent loss of heat by waste from the smokestack. A very novel and interesting arrangement and construction of parts is employed. The gaseous products of combustion and the steam may be used either separately or mixed for motive purposes. In the latter case the mixture is accomplished in a mixing pipe, into which both the steam and the gases are introduced through separate entrances.

Mr. Charles R. Nelson, of Corinna, Me., has patented a sheet-metal notching machine, which makes both square and bevel notches, at the same time clipping the lower corners of the plates preparatory to seaming and wiring the same. A flat bed plate is supported on suitable standards, having secured upon it a fixed and an adjustable cutting jaw and adjustable guide plates. A rocking shaft is jour-

nalled in the standards parallel with the bed plate, having keyed upon it a stationary and an adjustable dog, each of which carries a cutting jaw corresponding and operating with the stationary jaws of the bed plate.

Mr. Thomas H. Davies, of Fairview, N. Y., has patented a harrow which consists of two or more series of longitudinal zigzag bars, connected together at their angles by short cross bars, the several series of bars so connected being hinged together. The zigzag bars carry sockets for the teeth, and each series has an eye at each, by which means the draught may be applied at either end of the harrow.

Mr. C. Gordon Buchanan, of Brooklyn, N. Y., has patented an improved stone breaker of that class having two movable jaws. One of the jaws is pivoted at the top and the other at the bottom. The jaws are connected at the top by rigid links, and at the bottom by tension rods or tie bolts in such manner that almost all the tensile strain due to crushing is imposed upon the links and rods, thus obviating the necessity of casting the frame in one piece and of great weight and strength as heretofore. By pivoting the two jaws so that the motion of one is from the top and the motion of the other is from the bottom, a uniform crushing motion may be obtained from the top to the bottom of the crushing plates, if desired, and the throw of the jaws may be made shorter, saving power and securing more uniform crushing.

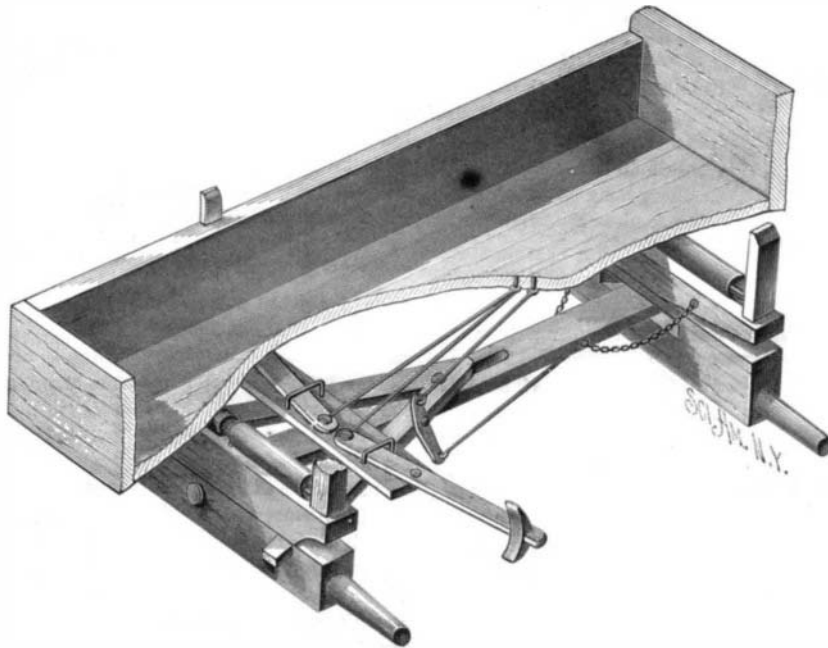
Mr. John P. Allen, of Dawson, Ga., has patented a seed planter and guano distributor, which will distribute cotton seed, corn, pease, and other seeds and grain, as well as guano, and other fine fertilizers, in drills, uniformly and in greater or less quantity, as may be desired, and which is simple in construction, strong, durable, and inexpensive in manufacture.

Mr. John W. McCorkle, of Freeport, Washington Territory, has patented an improved tuyere, which delivers either a single straight blast or a number of blasts radially inward toward the center. A sort of triple channel is formed in an annular casting, in such manner that two of these castings fitted together inclose one straight passage and two semicircular ones, each of which is controlled by a valve. From the two semicircular passages radial passages direct the flow of air toward the center.

Mr. Edward M. Richardson, of Laconia, N. H., has invented a car coupling so constructed that it is unnecessary for an attendant to enter between the cars for coupling or uncoupling. The coupler has a longitudinal perforation and side slots, a bar, sliding in the perforation, a crossbar attached to the sliding bar and working in the cross slots, pivoted horizontal bars, pivoted tri-

angular lever plates, pivoted upright bars, a cross bar carrying the coupling pin, and a push bar placed in the rear part of the longitudinal perforation. The cars couple automatically and are uncoupled by moving the sliding bar forward.

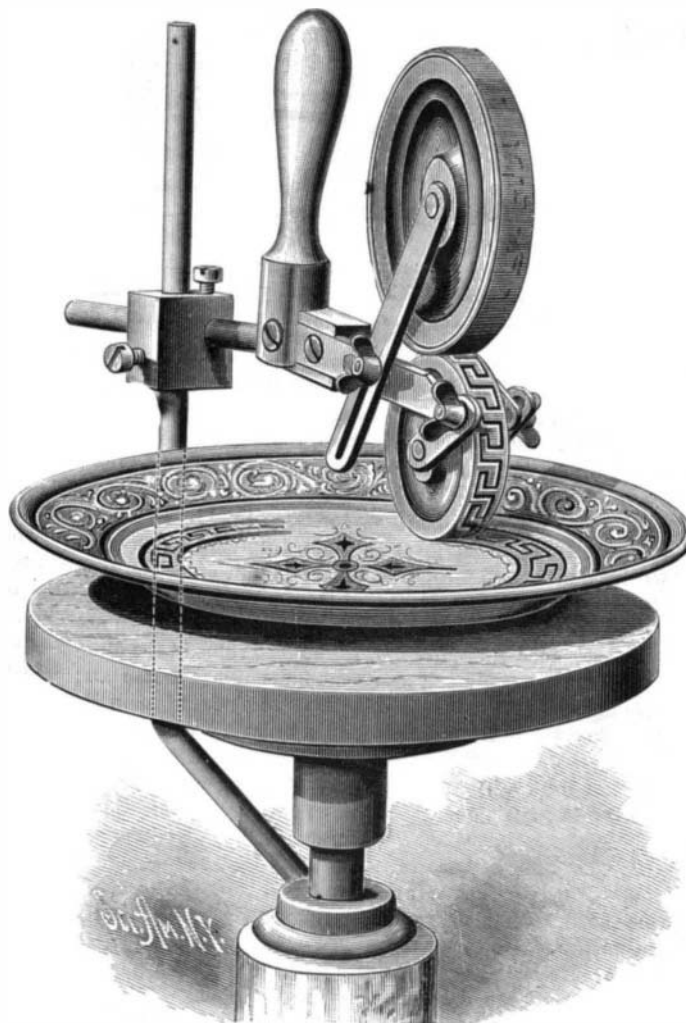
Mr. Robert Cartwright, of Rochester, N. Y., has patented a head rest which can readily be attached to the back of a chair or other seat, and which can be raised or lowered, or adjusted forward or backward, as circumstances may require.

**WITHERS' IMPROVED WAGON BRAKE.**

rule and square for obtaining the proper shapes for the neck and arm-holes.

Mr. John C. Banks, of Vincennes, Ind., has patented an iron railing and fence, more particularly relating to the tubular post and rail variety of iron railing. The rails are polygonal tubes, each composed of two longitudinally flanged parts, the flanges of one part overlapping those of the other part. The posts are analogously formed, and the parts are connected by solder.

Mr. James C. Bowen, of North Springfield, Vt., has patented an improved refrigerator for supplying cars with cold air. The refrigerator is stationary, consisting of an ice box

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having a valved opening near the top, with a pipe leading from such opening to connect the refrigerator with an opening in the top of the car, and a second pipe leading from another valved opening in the refrigerator to a pipe or flue in the car which delivers the cooled air at the bottom of the cars. By these means the cooled air is made to circulate several times through the car and among its contents before disconnecting the source of cold, and the contents are more thoroughly and uniformly cooled than heretofore.