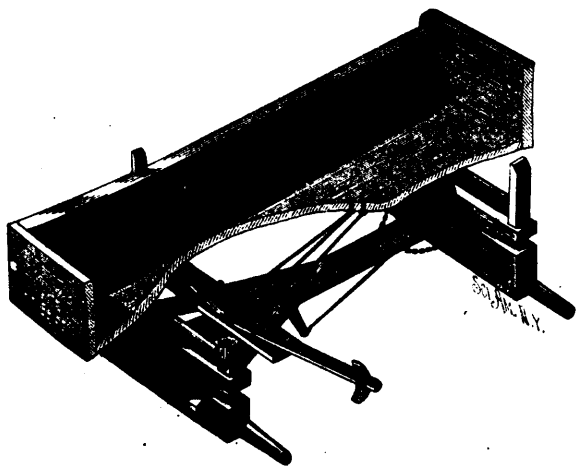


SIMPLE MAGIC LANTERN.

All that is required for this apparatus is an ordinary wooden packing box, A, a kerosene hand lamp, B, with an Argand burner, a small fish globe, and a burning glass or common double or plano-convex lens, C. In one end of the box, A, cut a round hole, D, large enough to admit a portion of the globe, E, suspended within the box, A, with the lamp, B, close to it. The globe is filled with water from which the air has been expelled by boiling.

Now moisten the surface of a common window glass with a strong solution of sulphate of soda, or even common table salt, dissolved in water, and place it vertically in a little stand or clip, as shown at F, so that the light from the lamp, B, will be focussed on it by the globe, which in this case answers as the condenser. The image of the glass will then be projected on the wall or screen of white cloth, W, providing the lens, C, is so placed in the path of the rays of light as to focus on the wall or screen. In a few minutes the salt solution on the surface of the glass, F, will begin to crystallize, and as each group of crystals takes beautiful forms, its image will be projected on the wall or screen, W, and as it is watched it will grow, as if by magic, into a beautiful forest of fern-like trees, and will continue to grow as long as there is any solution on the glass to crystallize. Then, by adding a few drops of any of the aniline colors to the water in the globe, the image on the screen will be illumined by shades of colored light.—*Scientific American.*

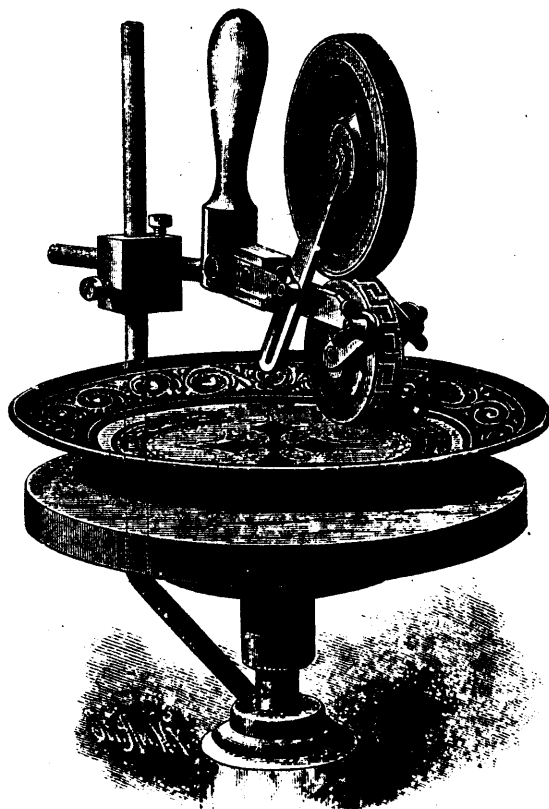
**IMPROVED WAGGON BRAKE.**

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 a 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 waggon.

**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, which ever came from the matrix of the type founder that cannot be produced upon china or any vitreous substance as perfectly 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, electrotypes, 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.