NEW INVENTIONS.

Improvement in Power Looms.

Rennslaer Reynolds, of Valatie, Columbia Co., N. Y., has taken measures to secure a patent for valuable improvements in Power Looms. The first part of the improvements relates to the harness motion usually employed in plain weaving; he attaches the leaves, above and below, to straps, cords, or chains, which are connected to the peripheries of two rollers, whose axes are hung in suitable bearings one above and the other below the harness, in a plane which equally divides the space between the front and back leaves; the straps or cords, from the two leaves of the harness, pass in opposite directions around the rollers spoken of, hence, if a rocking motion be given to one roller, and the other be left free, one leaf will be raised and the other depressed alternately. It is a desideratum, in weaving at a high speed, that the warp be always opened to a certain width at the line where the shuttle passes through, and that the upper and lower threads of the shed always occupy the same position when the shed is open; if a suitable motion be given to keep the shed open, it only requires to be opened just wide enough for the shuttle to pass through; to do this the back leaf—that furthest from the filling or weft—must be moved further than the front leaf. The way to produce this difference in motion, consists in making that portion of the periphery of each of the rollers mentioned, to which the back leaf is attached, and which are termed compensating rollers, of a larger diameter than the portion to which the front leaf is attached; by properly regulating this difference in the parts of a roller, the required effect is produced. Another improvement relates to the stop motion of a loom; the fork of the common stop-motion, to arrest the action of the loom when a weft thread breaks, is made in one piece of steel or iron, and must really be made stronger than the work it has to perform, as the shuttle frequently strikes against them, if, by any accident, it is thrown from the raceway of the lay; when this happens, the tines are either bent or broken, and to repair this, the loom has to be stopped for a considerable time. The tines are detached by Mr. Reynold's plan, and they are inserted in an elastic socket, in which they can easily be placed; this allows of their being made of metal or wood, whalebone, or split rattan—the last material is preferable. The girl attending the loom keeps a number of spare tines on hand, and when one becomes bent or broken, she puts in another, and thus saves the labor of machinist and tenter in repairing the said stop-motion; the bent tines can be straightened again, and very slight interruptions are thus occasioned to repair such breakages.

The improvements of Mr. Reynolds enables power looms to be driven at a far higher velocity, than they now can be, and thus a most important impulse will be given to the art, as it respects economy in repairs, saving of time in stoppages, and the greater quantity of work done in a given time.

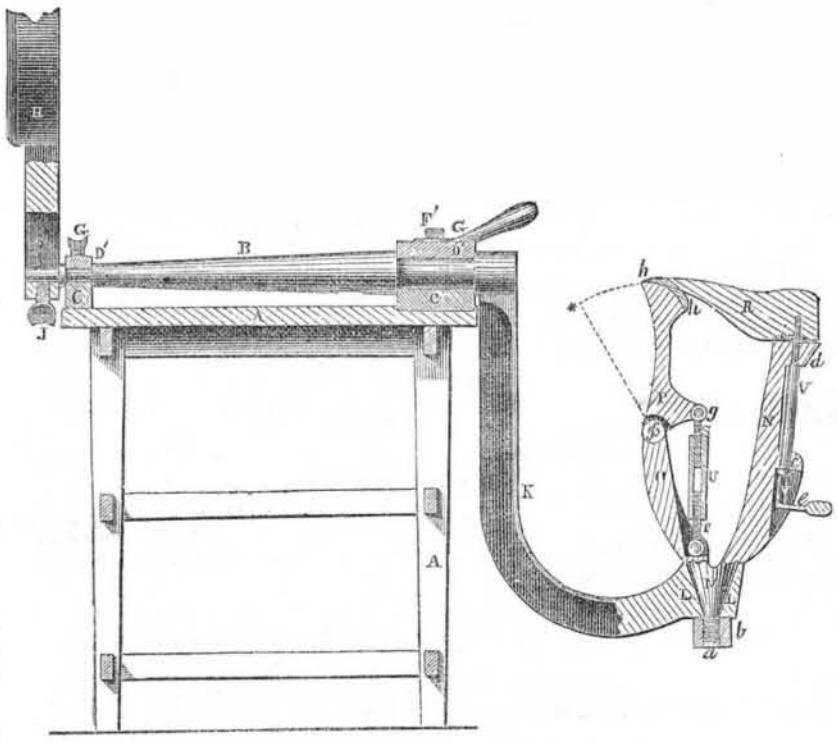
Metallic Packing for Stuffing Boxes and Pistons.

D. and C. W. Grannis, of Gowanda, Erie Co., N. Y., have taken measures to secure a patent for an improvement in metallic packings for stuffing boxes, &c. The nature of the improvement consists in the combination with two or more conical rings, which are compressed inwards or outwards by a hollow or solid cone of corresponding form, and of an interior or exterior metal ring, as the case may require, for the purpose of causing all the packing rings to expand or contract uniformly together. It also consists in a method of providing for the lateral vibration of the piston rod, caused by the irregularities of the engine; this has been attempted before, but the packing, though allowed to move laterally, has been compelled to do so in a line at right angles to the axis of the rod, and could not accommodate itself exactly to the deviation of it from its right line. To remedy this, Messrs. Grannis give the upper and lower ends of the packing a slightly curved form, for the purpose of allowing it to rock slightly, and thus adjust itself better to the rod, than where it has a confined lateral motion.

Improved Railroad Car Axles.

Robert M. Wade, of Wadesville, Clarke Co., Va., has taken measures to secure a patent for an improvement in railroad car axles. Instead of employing the ordinary solid single axle to unite two wheels together, he employs three axles bearing a relative proportion to the size of the axles now employed, and he sets them at a suitable distance apart, with a space between, and braces them together at the middle of their length, by a circular band. They are keyed to the wheels in the most suitable manner, and are like a sheaf of three small axles in place of a single one; they are set apart from the centre; in fact they perform the office of braces rather than axles. The axles to run in the journals of the truck, are short and stout, and do not extend but a few inches through the wheels; on the outside they serve, if cranked, for driving the wheels—if not, they serve the purpose of axles or journals to the wheels exclusively. The object of the inventor is prevention of accidents by the breaking of axles; it is contended that the three small axles or braces, are stronger than a single solid axle, also that if one breaks, there are two left to hold the wheels together. The main point, is, that a shorter and stouter journal or axle, can be used, and that there will be less strain upon it.

REVOLVING LAST HOLDER.



This engraving is a vertical longitudinal section of the Revolving Last Holder, invented by Henry G. Dewitt, of Napanock, Ulster Co., N. Y., and for which a patent was granted on the 9th of June last (1852).

A A is a platform or bench, upon which the horizontal shaft, B, is placed; C C are the bearing boxes of this shaft; they are composed of two parts, D D′, which are connected together by a screw, F. This screw has a handle, G, to unlock the boxes, D D′, of the shaft, to allow the shaft, B, to be revolved to move the last to any convenient position. H is a counterbalance attached to shaft B. K is the arm of said shaft; on the curved end of this arm there is a collar, L. In this collar the taper end, M, of the last holder fits snugly, and has a bearing. A screw, *a*, is cut on the end, M, of the supports, N O P, termed the holder. *b* is a nut on the screw; by this nut the position of the holder is regulated, and secured firmly to the arm, K, and collar, L. When it is desired to move the holder and last round to any position, it is only necessary for the nut to be turned and the holder revolved to the right position; the nut is then screwed up, for the purpose of making the holder stationary while the shoe is being finished. N O are two prongs or vertical standards of the holder; the prong, N, is designed as a rest for the heel portion of the last, and is made in one solid piece; through the projecting parts, *c d*, a vertical screw, V, passes up, and when a last is placed on the holder, this screw is turned to bind the last and retain it firmly in its position, until it is desired to alter the position of the boot or shoe which the shoemaker is stitching or pegging. The other prong, O, has a rest, P, secured to it by means of the fulcrum pin, *f*, on which it moves back and forth, when operated by means of the right and left screws, S T; the one, S, is secured to the projection, *g*, of the arm, P, and the other to the standard, O; a space is left between these screws, which is occupied by a link nut, U, which has right and left screws cut on its inner periphery. The screws, S T, work up and down in this nut, as desired; these screws adjust the rest, P, to allow a long or short boot or shoe being made in the holder. The top parts or rests, *h i*, of the standard, N, and arm, P, where the heel and toe of the last rest, are made of a proper shape to suit the form of the last. By bringing the holder in nearly a horizontal position, the screw which passes vertically up through the prong, N, may be secured into a pair of clamps, to hold them in an upright position, convenient for closing boots and shoes. This revolving last holder will surely be appreciated by all boot and shoemakers who are troubled with pains in the breast, dyspepsia, &c., and whose health would be greatly benefitted by standing in an upright position to their work. The boot or shoe can be turned and held in any position, to allow the operator to work upon it in the most proper and convenient manner.

More information may be obtained by letter addressed to Mr. Dewitt.

Improvement in Pumps.

Perhaps no class of inventions, if we except churns and washing machines, has received so much attention from the inventor as pumps and other apparatus for raising water. From the building of Jacob's Well, in the Holy Land, down to the present day, the genius of mankind has sought out many inventions to facilitate the supply of water necessary for all the purposes of life, luxury, and convenience. When we take into account that nearly three hundred patents have been issued in this country since 1800, for this branch alone, we would almost conclude that an end to improvement—if not already—must soon come; indeed, of late years, very few patents are issued for hydraulic apparatus.

In number 33, page 260, this volume of the Scientific American, we published an engraving of "Barker's Double Acting Force and Lifting Pump," and, since that time, we have learned something more about its working qualities; in our humble judgment, it is one of the best improvements in pumps which has been made in a great many years, and in saying this we also express the testimony of many who have used the pump and are now using it. We make these statements for the benefit of many of our readers who apply to us for information about such hydraulic machines. The pump was patented last February, and the claims are broad, strong, and reliable; they will be found on page 190.

For State or county rights, apply to A. Barker, Honesdale, Pa., or to J. A. Patmor, 239 Court street Brooklyn, N. Y.

Improved Spark Arrester.

V. P. & B. Kimball, of Watertown, Jefferson Co., N. Y., have invented an improvement on Spark Arresters. The improvement consists in the employment or use of a revolving screen, in combination with a chamber for creating a downward draught, said chamber being connected at its lower end with the smoke pipe at a point below the upper ends of the exhaust tubes. The screen allows the smoke to pass through, but it prevents the cinders, the most of which fall below when they touch the screen, some, however, adhere to it, these are removed as it revolves, and while the cinders are passing over the chamber spoken of, which has the downward draught.

A Submarine Rocket.

A mechanic of Charlestown, W. O. Stone, has invented what he calls a submarine rocket, or an infernal machine, for blowing up vessels of war. The rocket is made on the same general plan of a common air-rocket. It has a weight attached for sinking it, and a float to buoy it up. A fusee is placed on the extremity of the rocket, by means of which it is driven through the water, as the common rocket is through the air. The head of the rocket is furnished with a supply of gunpowder, in the centre of which is a bottle of sulphuric acid, and a quantity of chlorate of potassa and loaf sugar to explode the powder when it strikes the bottom of an enemy's ship.—[Boston Traveller.

[We suppose that the rocket must have a projecting pin, which, while the missle strikes a vessel, &c., will break the bottle containing vitriol and set it free among the chlorate of potass to ignite the said power. Unless their is an arrangement of this kind, there will be no certainty about the rocket; the idea is taken from another instrument.

To Cover Iron with a Coating of Copper.

It is well known that if a plate of iron be immersed in a solution of sulphate of copper, it speedily becomes coated with the copper in solution; but the copper thus deposited on the surface of the metal does not adhere firmly, and may readily be removed by friction. By means of the following process of M. Reinsch, the iron may be covered with a coating of copper as durable and firm as an electrotype deposit. The process is as follows:—Polish the iron by rubbing it well with cream of tartar, and afterwards with charcoal powder, and place the metal thus polished in hydrochloric acid, diluted with three times its volume of water, in which a few drops of solution of sulphate of copper have been poured; after a few minutes have expired, withdraw the iron and rub it with a piece of cloth, then replace it in the solution, to which add another portion of sulphate of copper. By following on this plan, and adding at each immersion a new supply of sulphate of copper, the layer of copper may be increased at pleasure. Lastly, introduce the iron thus coated with copper into a solution of soda, then wipe, clean, and polish with chalk.

Rosin Oil.

We have seen a number of accounts in cotemporary papers, about the good qualities of this oil for lubricating purposes; along with these accounts, we see the name of Louis S. Robinson coupled as the discoverer. Wm. L. Clough, of Jersey City, obtained a patent for making oil, in 1845, and to him, we believe, belongs the credit of making this oil by the distillation of resin at a very high heat. There may be other claimants, but Clough has a patent. Lubricating grease is made with rosin oil, into which has been stirred some dry warm lime in powder.

The art of hardening copper was long considered as lost; Monnet believed the ancients used arsenic for this purpose; Geoffry, iron; Morgez and Dize, tin. The last opinion was strengthened by the experiment of Hjelm, who found the proportions to be 83 7-8 copper, and 16½ tin.

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