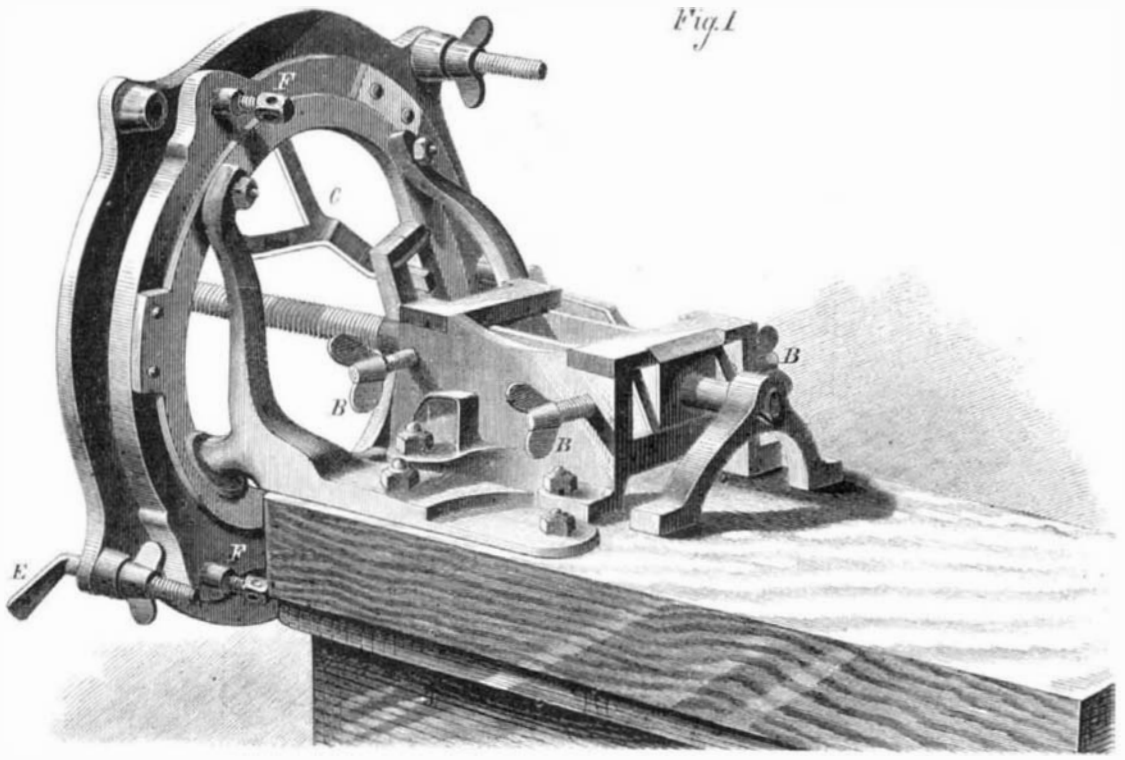
IMPROVED HUB BORER.

The greatest strain which a wagon is subjected to falls upon the wheels; hence it is at such portions that the best and nicest workmanship is required in order to insure the maximum of strength, close fit, and durability. The first boxes ever put into wagon hubs were placed in holes which fitted at one end, but which, at the other extremity, were large enough to admit being set over to one side, the intervening space being filled with wedges. This was and is, at best, but a clumsy operation, for the work is certainly inaccurate, and at a part just where accuracy is required; but despite the knowledge of the fact, carriage makers, in many cases, still cling to the antiquated method, though for what reason, while machinery, which accomplishes the labor far better, is extant, it is difficult to explain.

We present, in the annexed engravings, a rear view, Fig. 1, and a front view, Fig. 2, of new device for boring hubs, for which a large number of important advantages are claimed. The hole is made perfectly true with the rim of the wheel, and of the right size and shape for the box, it being possible to cut out deeper at the spokes or at any other part, so that the box can be caused to bind at any desired place. The machine requires no adjustment for different sized wheels. The knife is set the same for one sized hole as for another, the size and taper being regulated entirely by setting the shaft out of the center or on an angle. This obviates the trouble of setting the knife more than once for each wheel. The latter is handled but once, and does not leave the machine until the box is fitted. The hole for the nut is cut true with the box aperture, so that the nut will go on after the box is driven as well as it will before, while it cannot rub the wood, and so cause the axle to heat.

Fig. 1

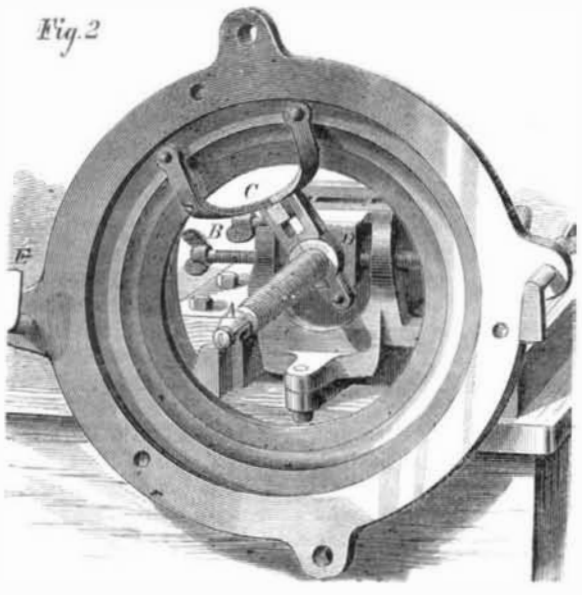


ABBOTT'S LITTLE GIANT HUB BORER.

From the engravings, it will be seen that the machine is of that class in which the wheel is turned while the cutting is done by a bit, A, Fig. 2, placed on the end of a mandrel. The latter can be quickly set at any angle or for any size desired, the size of hole and degree of taper being regulated by the thumbscrews, B, in the side of the box The bearing is placed near the spokes and within the limits of the hub, so that the weight of the wheel is carried without any cramping or sideways pressure.

The feed is actuated by an arm, C, which projects under the inner ring of the bearing, and which merely pushes the feed nut, D, around and does not cramp when put on a taper. The feed nut is closed over a projection on the end of the block in which the shaft runs; so that when placed on an angle, there is no tendency to cross the thread of the screw. The irregular motion, which is inseparable from a machine which makes a taper hole, occurs, it is stated, only at the point where the arm touches the feed nut, and is simply a sliding back and forth of the former as the wheel is turned.

Fig. 2



In operation, the wheel is fastened to the face plate by the gripes, E, and caused to run true by the set screws, F, which connect the face plate with the outside ring of the bearing. The hole for the taper part of the box is cut, then the hole for the shoulder at the back, and, lastly, the hole for the nut at the front. This completes the work with the exception of driving the box.

The machine is, in fact, a small and complete lathe, in which the wheel and tyre serve as a balance wheel. It is guaranteed to be capable of boring an ordinary set of wheels in less than one hour, and we are informed that it has performed that work inside of twenty minutes. Its weight is about 50 pounds. It is durable, one firm having bored some 2,000 sets of wheels with a single machine. The use of wedges it obviously dispenses with altogether, and thus insures the tight working of the wheel.

Patented January 5, 1874. For further particulars and machines, address H. W. Pell & Co., Rome, N. Y., or Wilcox, Bros. & Co., Adrian, Mich., or any dealer in carriage hardware.

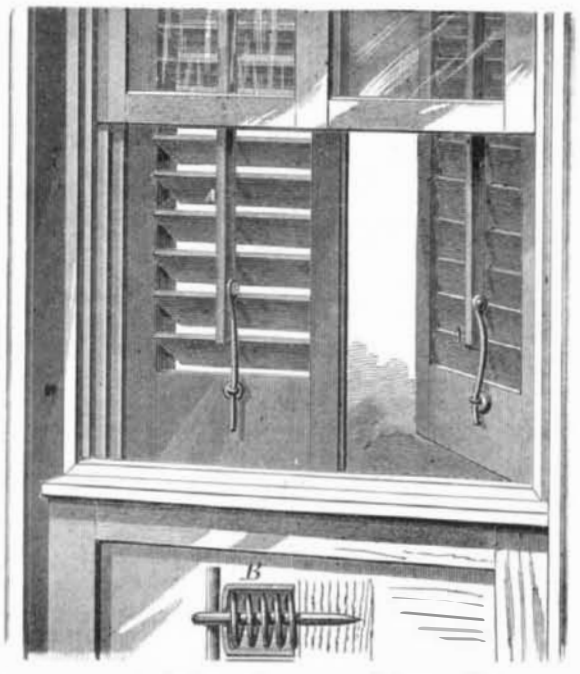
Cleaning Photo Plates.

Dissolve 1 lb. potash in 2 quarts water; pour it into an earthenware dish or tray. Introduce each glass separately into the liquid, taking care to prevent air bubbles. The plates are allowed to remain at least twenty-four hours in this solution; they are then taken out one by one, placed under a tap, and well scrubbed with a cocoanut fiber brush until all the old collodion and varnish disappear. They are then plunged into another dish containing a solution of three per cent of hydrochloric acid, well washed under a tap, and wiped dry with towels. On no account must they be left to dry spontaneously, or they will become stained. Before the plates are used they required to be cleaned with a solution of rottenstone into which a few drops of ammonia have been introduced.

SMITH'S BLIND SLAT HOLDER.

After a blind has been exposed to the weather for some little time, it is very rarely thereafter that the slats can be made to stay in any required position. They may be closed by turning them up, or partially opened by turning them down all the way; but they will not rest squarely across the opening so as to admit a breeze, or remain slightly tilted so as to ward off the sun's rays, unless adjusted and fastened in place by temporary wedges.

Mr. Ira H. Smith, of Topeka, Kansas, has devised a very simple little attachment, which anybody can affix to a blind, and which appears effectually to overcome the above difficulty. It consists of a piece of curved wire, pivoted to the shifting bar, at A, in the annexed engraving, and passing down through a staple on the frame of the blind. Around the shank of the staple is a coiled spring which is covered with a neat cap, the effect of the spring being to push the



latter outward, and so bind the wire between the cap and staple. A sectional view of this arrangement is shown at B. The blind slats may be set in any position, and are held by the wire.

Patented April 21, 1874. For further particulars regarding agencies for selling, etc., address the inventor as above.

Preservation of Wood by Lime.

M. Lostal, railway contractor, of Ferminy, has communicated to the Society of Mineral Industry, at St. Etienne, France, the results of his observations on the effect of lime in preserving wood, and his method of applying it. He piles the planks in a tank, and puts over all a layer of quicklime which is gradually slaked with water. Timber for mines requires about a week to become thoroughly impregnated, and other wood more or less time, according to its thickness. The wood acquires remarkable consistence and hardness, and it is said, will never rot. Wood has been prepared in this manner for several mines, so that the plan will shortly be tested on a considerable scale. Beechwood has been prepared in this way for hammers and other tools for several iron works, and it is said to become as hard as oak without losing its elasticity or toughness, and to last much longer than when unprepared. It has long been known that wood set in lime or mortar is preserved from decay, but no systematic plan for its preservation has until now been attempted.

A Million Dollar Hammer.

A German paper informs us that the famous steel works of Frederick Krupp, of Essen, are about to receive a very important addition to their machinery. The largest steam hammer in use at these works, at the present time, is one capable of working a mass of steel 50 tuns in weight, and erected at a cost of $560,000. It is now in contemplation to build a new steam hammer capable of beating up a mass of steel of double the weight, namely, 100 tuns. The new machine, it is estimated, will cost $1,000,000, and will be the most powerful in the world; and it may be expected that the size and weight of the German artillery will be enormously increased, as the new steam hammer will permit the working-up of larger masses of metal than, up to the present time, has been thought to be possible by scientific engineers.

SMITH'S IMPROVED SHEAVE.

The principal advantage in the improved sheave illustrated herewith lies in the pin having secured to it a cylindrical core, which is of sufficient size to bear against several of the friction rollers arranged within the disk. This distributes the strain over a larger surface, rendering the operation easier, and subjecting the parts to much less wear than is the case in the ordinary arrangement of a small pin, which may readily fall in between two of the rollers and so crush the same.

Fig. 1

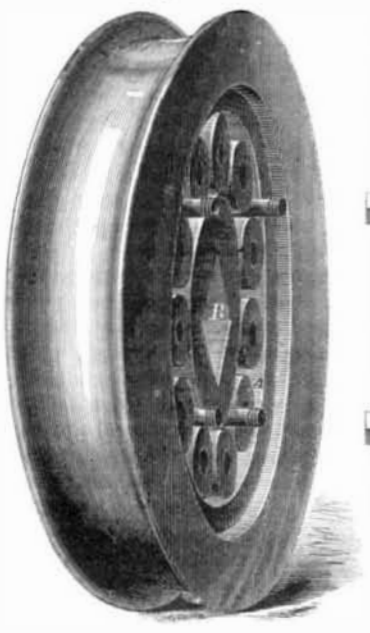
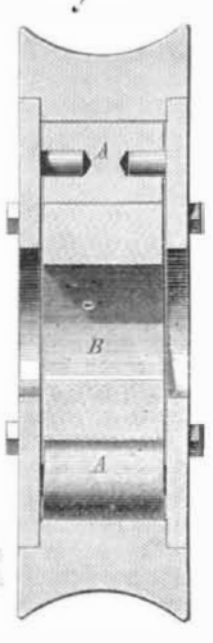


Fig. 2



The construction of the device is represented both in perspective, Fig. 1, and section, Fig. 2. At A are the friction rollers, and at B the cylindrical core above referred to. The pin which passes through the latter is square in section, and is thus prevented from turning in the block while it is confined in the strap, in such a manner as firmly to secure the ends. The sheave, we are informed, cannot run against the side of the block and wear away the same. It is a strong and durable device, one of considerable merit, and especially adapted for marine use

For further particulars address E. B. Smith & Co., Patchogue, N. Y.