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## IMPROVED MACHINE FOR TURNING CARRIAGE AXLES.

There are few operations in the manufacture of wagons more trying and tedious than the setting of thimble skeins on the axles, since even the most skillful workman is unable to give to all of the latter the same "pitch and gather." Like very many other jobs, difficult to accomplish by hand labor, this it is now possible to do by the aid of ingenious machinery; and a novel apparatus for the purpose will be found represented in the annexed engraving. The device turns the axle to a pattern, making a perfect fit. Should the shell of the skein be of uneven thickness, the axle is turned to correspond, so that not only to one but to any number of sets of wheels will be imparted a precisely similar pitch and gather. The axle is made to fit the inner surface of the skein throughout its whole length, which cannot be done by hand labor, thus insuring a much more efficient support, while, in addition, the machine will bore the holes and screw in the skein bolts at the rate of forty wagons in ten hours.

A is the driving pulley, which rotates the mechanisms supporting the knife in the standard, G. B is a curved cutter bar, to the outer end of which is secured the knife, C, and which enters the sliding block, D, as a fulcrum. Block, D, travels in the ways, F, and is actuated therein by the feed gearing shown at E. At H is the clamp which holds the axle while it is operated upon, and at I is the pattern, just below which is shown the end of the bar, B, projecting, which, terminating in a friction roller, enters the skein, and is held against the inside surface of the same, thereby guiding the knife in its revolution, thus necessarily causing the axle to be turned to an accurate fit. In turning other forms, the pattern is of course changed and other requisite alterations made.

The invention, we are informed, is to be exhibited in operation at the Chicago Exposition. It was patented May 28, 1872, by J. G. Aram, and is manufactured by Messrs. Williams, White & Co., of Moline, Ill., of whom further information may be had.

## To Destroy Rose Slugs.

A correspondent of the *Country Gentleman* reports that nothing will so thoroughly destroy rose slugs as wood ashes. The ashes must be sifted on early in the morning while the leaves are damp, the branches being turned over carefully, so that the under sides of the leaves, to which the young slugs cling, may get their share of the siftings. If the night has been dewless, in order to make the work thorough, first sprinkle the bushes, and the ashes will then cling to the slugs, to their utter destruction. This may be repeated without injury to the roses as often as the pests make their appearance.

## School of Millwrights.

Professor Isham Walker, of Lexington, Tenn., suggests that various State organizations of millers and the National Association unite and subscribe funds for the building (at Chicago, Ill.) of a model school flouring mill, at a cost of \$150,000. He shows that such an institution, supplied with the best examples of modern machinery, and exhibiting the latest improvements and examples of practical science in milling, would be of immense instructive advantage to millwrights throughout the country, while the stockholders, he thinks, would realize handsome dividends every year.

RECENTLY on the Chicago & Northwestern road the engine Wabansia (No. 22) brought a train from Clinton, Iowa, to Chicago, 138 miles, in 153 minutes. Throwing out the time lost in three stops, the actual running time was 142 minutes—being a fraction less than a mile per minute.

## WHITFORD'S IMPROVED POTATO COVERER.

The object of the implement represented in the annexed engraving is first to form two parallel furrows into which the seed potatoes are dropped. Then, by reversing the apparatus and making suitable changes of the handles, etc., it is converted into a coverer, which, traveling over each furrow, molds thereon a uniform ridge of earth. Our illustration represents the device as adapted for cutting the furrows,

horse to assist in lifting the machine clear of the ground, so that it can be turned without difficulty.

Patented August 4, 1874. For further particulars address the inventor, Mr. Leroy Whitford, Harmony, Chautauqua county, N. Y.

## Cast Nickel Plates.

For some years back much attention has been drawn to the galvanized plating of metals, especially iron, with nickel, and larger plates of metallic nickel have been much wanted for the anodes of the galvanizing nickel salt baths. The extraordinary refractory nature of pure metallic nickel has been, till lately, a great hindrance to the casting of large plates. Borchert, however, has lately succeeded in casting nickel plates 18 inches long, 14 inches broad, and  $\frac{1}{8}$  thick. The nickel hitherto used, Saxon Würfelnickel of 98 to 99 per cent strength, is fused in crucibles in a simple brazier's furnace, by a coke fire. The fusion requires continual and laborious attention, the metal not becoming fluid till after at least six hours' firing. As soon as it becomes fluid, it must be cast without delay into the sand molds, for as soon as the fire drops a little, the nickel is liable to solidify again into a solid mass, in which case a renewed fusion in the same furnace is impossible.—C. A. Borchert.

## Pictou Coal.

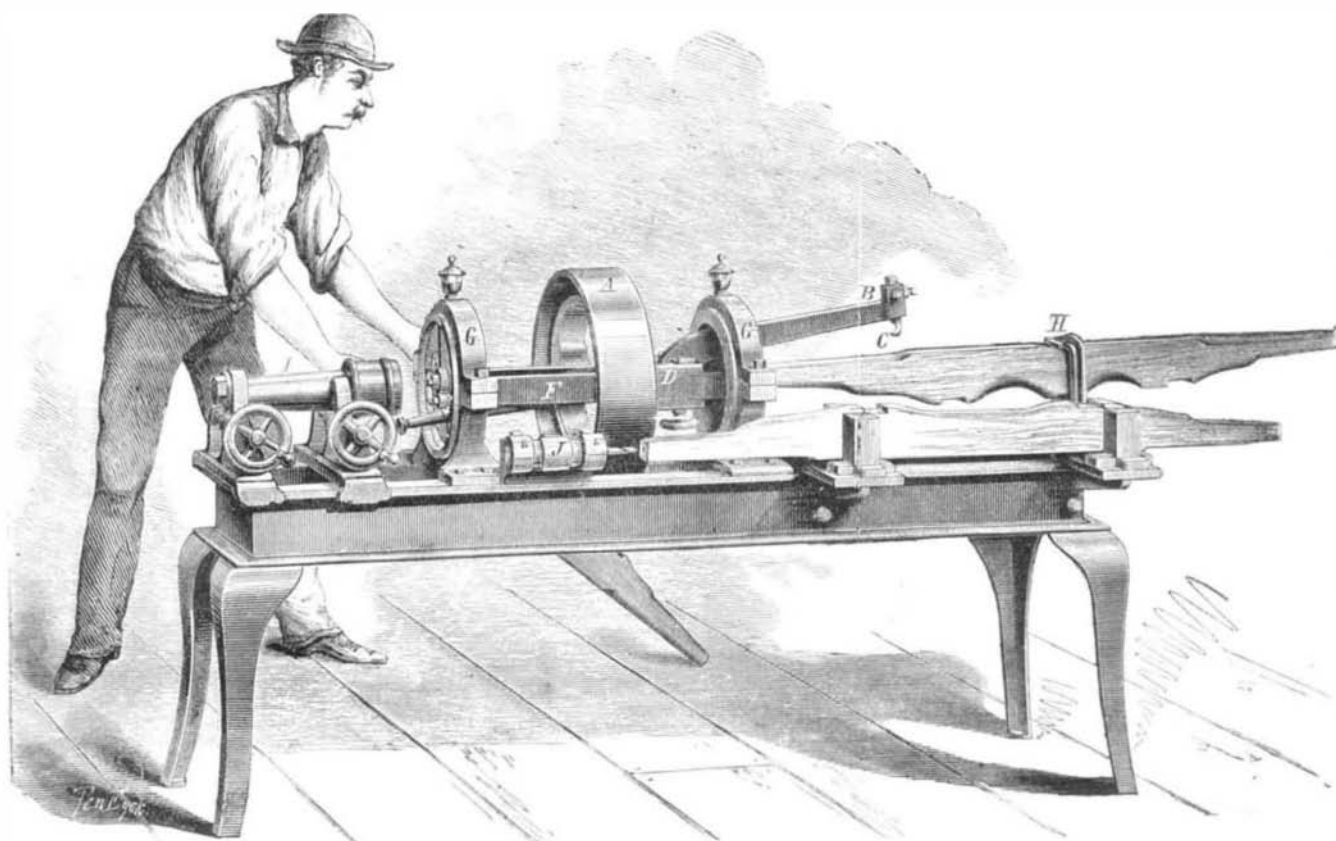
Mr. Edward Gilpin, F. G. S., communicates to *Saward's Coal Trade Journal* the following interesting details regarding the uses of the above named fuel as applied to steam and gas generation: In domestic grates, the coal burns readily, and remains lit for a long time; but the quantity of light, bulky ash left renders it undesirable for household employment. Coal from the works of the Acadia company gave a percentage of ash of 8.3, which was light, sandy, and with little clinker. The practical evaporative power of each pound of fuel, in pounds of water from 212° Fah., was equal to 7.34. Another trial gave 7.69 pounds. Under more favorable conditions, an evaporative power of 9.6 to 9.7 was obtained for coal from the Albion main seam. Comparing these figures with those denoting the evaporative power of Liverpool, Newcastle, and a Scotch coal, the latter show under the same circumstances 7.84, 8.66 and 6.95 pounds respectively. The steamers of the Allan mail service and the Grand Trunk Railway of Canada are large consumers of the Albion mines coal. The following table exhibits the relative values for gas purposes:

		Cubic feet	Candle power	Coke
Albion Mines	Main Seam	8,000	18	Good
	Deep Seam	7,800	17	"
Acadia	Stellar Oil Coal*	11,000	36	Worthless
	" " Shale"	8,000	30	"
Inter-Colonial	Acadia Seam†	7,000	13	Not good
	" "	7,700	15	Good
Nova Scotia	" "	7,000	16	Fair

\* Not worked at present.  
† Supposed westward extension of main seam.

Ordinary tests failed to show the presence of sulphur in some seams of the eastern groups, while the average present in the lower seam is not above 0.5, much of which can be removed by careful screening.

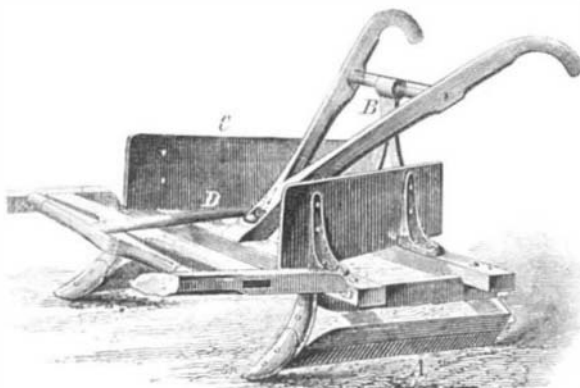
THE Chinese rebel against the sewing machine, because they say, it cheapens labor and deprives their tailors of work. At Hong Kong several Chinese tailors, who lately undertook to use machines, were assaulted and expelled from the native community. In America, Chinese cheap labor is opposed and ridiculed. In China, American cheap labor, by machinery, is equally repudiated.



ARAM'S MACHINE FOR TURNING CARRIAGE AXLES.

this operation being effected by means of the furrow guides, A, which are suitably shod on their forward ends. The handles are supported by means of a crotched bar, B, which is hinged to one transverse piece of the frame, and the upper end of which enters a socket on the handle brace, and is secured therein by a screw. The front portion of the handles is attached to the other transverse bar in any desirable way. Also secured to the frame, on the opposite side from the furrow guides are two steel plates, C.

After the furrows are made and the seed dropped, the handles are removed and the thills disengaged. The implement is then turned over, bringing the plates, C, down, and the handle and thills readjusted. The machine being drawn by the horse so as to bring each furrow midway between the ridging plates, the soil is gathered between the latter at their front ends, and delivered at their contracted rear extremities, thus forming a neat ridge.



The inventor informs us that the device is excellently adapted for hilling and hoeing, as it works over the row instead of in the space between the plants. It is also recommended for ridging for root crops, sweet potatoes, etc., and for depositing manure previously spread broadcast into the furrows. The guides and plates, being secured to the frame by set screws, may be adjusted so as to alter the width of ridge and space between the furrows. When it is desired to change the direction of the implement, as at the end of a furrow, it is simply necessary to lift slightly on the handles, when the tongue, D, will enter a recess formed in the front end of the handles, and, bearing against it, will enable the