

The Longest Tramway Rope in America.

A tramway rope and fixtures are now being placed at Sewell, W. Va., near Gauley Bridge, from the cliffs on the other side of the river down to the Chesapeake and Ohio Railway. The original design is by Col. F. Warburton, R. E., of the British army, who by this means once transported an army with all its equipments across a New Zealand river.

The owner is G. M. Donaldson, of Richmond, Va., of Donaldson & Sons, Scotch timber merchants. He owns about 10,000,000 feet of oak and a smaller amount of other lumber. It lies on the rolling highlands which stretch back from the top of the New River canon. The mill is three-quarters of a mile back from the cliffs, and connected with the rope bridge by a tramway. Height of cliff, 475 feet above the rails; inclined distance, 1,504 feet and nine inches. This distance is being spanned by a two and three-eighths inch wire rope of best crucible steel. The towers supporting the rope stand a little forward of its ends, making 1,466 feet clear span, and the fall 465 feet. The sag of the rope is 62 feet. The towers are of wood, 28 feet high, and held in position by two eyebars 5x1½ inches. On each tower is a heavy cast iron saddle, transferring the tension of the rope to the anchorages. The ultimate strength of the rope is 190 tons. Maximum working strain under a load of five tons will be 42 tons. The loads will be from 1,000 to 1,200 feet of lumber. Twenty-five trips a day will be made until the lumber on storage is shipped, when the trips will be reduced to fifteen. The lumber is from 18 to 24 feet long, and the difficulty is to transport it without injuring the edges.

This is done by a cage invented by Mr. W. Hildenbrand, the engineer in charge, the bottom of which consists of two movable beams, which, when turned sideways, leave the cage without bottom, so that it can be placed over the timber, and after the bottom beams are turned back again the timber can be easily lifted from the truck. This will be done by a pair of differential pulleys, with which also the height of the cage can be regulated according to the weight to be transported.

The cage is suspended from a carriage 17 feet long, with five cast iron wheels. An endless ¾ inch steel rope over two 36 inch drums serves to pull the load over when gravity fails, and to pull the empty carriage back. This rope has a strength of 14 tons. The engine has two cylinders, and will carry about 65 pounds of steam. It was built specially, because none could be found answering the conditions.

John A. Roebing's Son's Company are putting up the affair for Mr. Donaldson.

Its importance consists not so much in the fact that it is the largest tramway rope in America, which is true, but because, if it is an economic success, similar constructions are almost certain to be used in all parts of this section, and not only for lumber, but for coal, and perhaps iron ore and limestone.—*N. W. Lumberman*

COMBINED PLOW AND SEEDER.

With the aid of the machine shown in the accompanying engraving, hitherto unbroken soil may be plowed and planted at the same time. The forward guide wheel can be held at any desired height to govern the depth of the furrow. The bar supporting the seed hopper and the mechanism for operating the dropping slide is secured at one end by a double hinge joint attached to a yoke on a standard connecting the beam and landside. The dropping slide is fitted in the floor of the hopper, and may be connected by a pitman with the drop wheel, which is journaled in bearings on the opposite end of the bar and runs on the land beside the plow. The double hinge joint permits the bar to swing sidewise and also to rock up and down, to allow the drop wheel to always run on the ground no matter how the plow may be shifted about, and leaving it free to rise and fall in passing over roots or clods of earth; hence the drop wheel will move the slide regularly to allow the seed to fall through a hole in the hopper bottom, through a flexible tube and funnel held to the handle by straps, to the ground. The slide is made with two plates (Fig. 2 is a plan, and Fig. 3 a sectional view) fitted to slide in slots made in the upper face of the slide, the slots being cut through at the inner ends to permit the passage of the seed. Both the holes can be made larger or smaller, to deliver a greater or less quantity of seed, by shifting the plates in the slide. A brush cut-off is fixed in the hopper over its discharge hole.

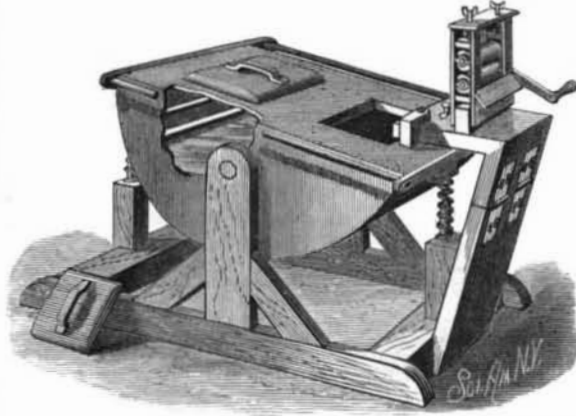
When the drop wheel, which is preferably 36 inches

in diameter, is connected by its rod to the slide, and when one of the seed apertures is closed, but one drop of seed will be made for each revolution, and when both holes are open two drops of seed will be made, allowing the seed to be planted in hills 36 and 18 inches apart respectively. To plant closer the rod is disconnected, the gear wheels shown in the engraving are set to mesh with each other, and a short rod connects a wrist pin on the small gear with the dropping slide; thus the seed will be planted in hills 12 and 6 inches apart, by properly setting the sliding plate, as will be easily understood.

This invention has been patented by Mr. Allen Glenn, of Seranton City, Iowa.

A NEW WASHING MACHINE.

An easily operated clothes washer, and one calculated to do its work with the least possible wear of

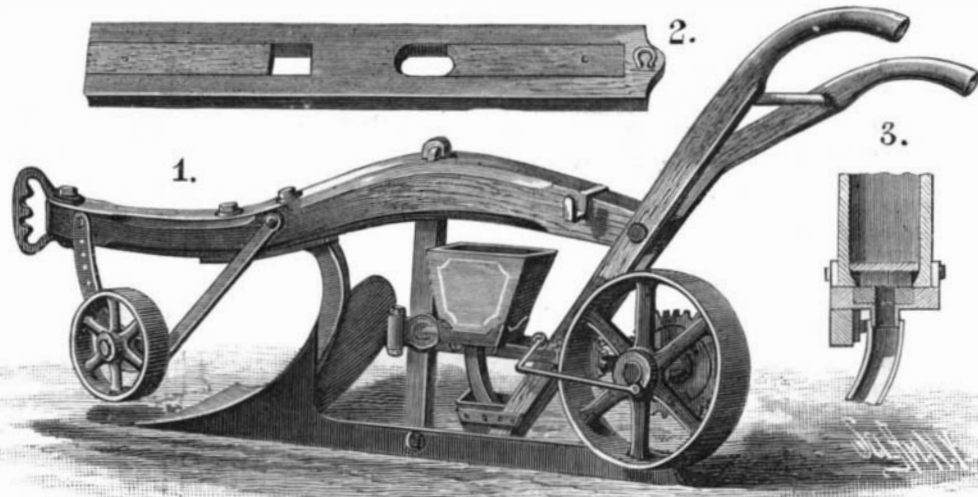
**FALKENTHAL'S WASHING MACHINE.**

the clothes, is shown in the accompanying illustration. The body is made semicircular in form, and pivoted between uprights of the frame, where it is adapted to swing, cross pieces at the top on each end of the body alternately striking springs supported by uprights to aid in continuing the motion. The cover has openings, fitted by smaller covers, and the sides of the body have rounds or small rails along the top edges, by which it may be conveniently rocked upon its pivots. The body has ridges or ribs on its bottom over which the clothing rubs as the machine is operated, the whole bottom being lined with zinc or other suitable material, and a wringer is so attached that it may be easily swung into or out of position for use.

This invention has been patented by Mr. Henry Falkenthal, of Bozeman, Montana Territory.

To Test the Quality of Leather Belts.

For testing the quality of the leather used for belting, Mr. Eitner proposes the following simple method: A small piece is cut out of the belt and placed in vinegar. If the leather has been perfectly tanned, and is therefore of good quality, it will remain immersed in the vinegar, even for several months, without any other change than becoming of a little darker color. If, on the contrary, it is not well impregnated with

**GLENN'S PATENT PLOW AND SEEDER.**

tannin, the fibers will promptly swell, and, after a short time, become converted into a gelatinous mass.—*Revue Industrielle.*

Hemp for Phylloxera.

They recommend, in South Russia, hemp as a means against the phylloxera. It is sufficient to plant the hemp around the vineyard, and place it near the infected vines. The insects are attracted by the strong odor of the hemp, the roots of which prove to be poisonous for them. The following experiment will show the efficiency of this means: Plant in the same barrel an infected vine and a hemp plant. In a few days the vine begins to revive, and if you pull the hemp carefully out, you will find its roots covered with phylloxera.

Hay Fever.

Careful observations fully bear out the germ theory, not only the presence of the germs, but an agitation or disturbance of the germs being a cause of the malady. For instance, upon a not very sultry day, three or four hours in the country have been spent without inconvenience; but on the same day, half an hour in an express train has sufficed to bring on the most aggravated symptoms; in the same way, in town, a week or two has been passed without trouble, but a couple of hours at an open air exhibition, in the same locality, with a moving crowd stirring up dust and pollen, have produced a violent attack.

The only check to hay fever appears to be, first, sleep; second, freedom from pollen; the so-called cures, such as snuff, or other application to the nostrils, being perfectly useless. The above conditions combined effect an almost miraculous cure, as has been proved by sleeping for a short period under the protection of carefully wetted cloths through which the air is, as it were, filtered, or more certain still, a night spent at sea. Experience shows that if the attack is once stopped, a moderate amount of exposure to germs may be risked without setting it up again. The conclusion to be drawn from this is, that it would be worth the while of some enterprising individual to establish a "hay fever cure."

The arrangement would be extremely simple, neither more nor less than a series of sleeping apartments into which nothing but air deprived by straining through wet flannel of all germs, and possibly cooled down to about 55° or 60°, could penetrate. Upon a large scale, such an establishment could be easily worked at a profit, in connection with any of the large Turkish baths or other similar establishments in town.

The beneficial effects of low temperature have been conclusively proved by subjecting a hay fever patient to the action of one of the preserving chambers in a cold store for meat. The remedy, however, was too violent to be generally adopted, but a temperature of 50° would, no doubt, suffice, and could be, of course, borne without inconvenience in the hottest summer.

A Wonderful Peruvian Railroad.

One of the most wonderful pieces of engineering in the world is the railroad stretching from Lima and Callao to the crest of the continent, where the famous mines of the Cerro del Pasco are, the source of the ancient riches of the country, from which tons upon tons of silver have been taken, and which still hold, if the testimony of the mineralogists can be relied upon, the richest deposits on the surface of the world. The railroad was never completed. Mr. Meiggs carried it from Lima to the crest of the Andes at a cost of \$27,000,000 and 7,000 human lives, and gained for himself a reputation for energy and ability surpassing any man that ever came to this continent, but he died with fifty miles of track yet to be laid. No one has been found with the courage to finish the work, until a few weeks ago Michael Grace, of New York, whose brother and partner in that enterprise is the mayor of that city, made

a contract with the government under the terms that he is to be given the road as it stands, with all its equipment, if he will complete it to its original destination. He agrees to complete the remaining fifty miles of railroad and pump out of the mines of Cerro del Pasco the water that has been accumulating in them for half a lazy century, in consideration for which the government gives him that portion of the road already completed, and all the silver he can get out of the mines during the next ninety-nine years, he paying the nominal rental of \$25,000 a year for the use of the property. The sensation of riding up this railroad, together with the rapid ascent

from the sea level to the mountain's crest, produces a sickness called "siroche," often fatal, and usually sending people to bed for several weeks. The symptoms are a terrible pressure upon the temples, nausea, bleeding of the nose and ears, and faintness, but the effects can be avoided by taking precautions and observing rules that experience has suggested, the chief ones being to take a glass of brandy and keep perfectly quiet, as the slightest degree of exercise will floor the strongest man. People who are compelled to make the ascent, if they have not become accustomed to it, usually take two or three days for the journey, stopping off at the stations along the line, and going to bed at once upon reaching the town of Chila, which stands at the summit.—*Philadelphia Times.*