

### Improved Circular Re-Sawing Machine and Siding Saw.

Our engraving is a representation of a re-sawing machine, to which was awarded the first medal and diploma at the Exhibition of the American Institute for 1870. The award was made with discrimination and justice, as the machine is undoubtedly one of the best of its kind.

A prominent feature of the saw is that the feed rolls may be set inclined to the saw, so as to saw siding. This adjustment is made simultaneously for all the feed rolls by inclining the table to which they and their gearing are journaled, a set screw holding the table when set, and a simple adjustment compensating for what would otherwise be the increased tension of one of the belts when the table occupies this position.

The feed rolls have an adjustable speed motion through the use of a system of cone pulleys intermediate between the first pulley, from which motion is carried to the feed, and the last, which imparts motion to the gears of the rolls. They are also self-centering, so as to guide the stuff for uniform thickness through all inequalities on each side of the saw; or they may be made not self-centering, and may be held in a fixed position by the adjustment of a single screw.

The machine is constructed in a very substantial and workmanlike manner. It was patented February 2, 1870, and is manufactured by John B. Schenck's Sons, the manufacturers of the celebrated Schenck's planers, at Matteawan, N. Y. The salesrooms are at 118 Liberty street, New York, where the machine may be seen and the firm addressed.

### Museum of Natural History.

The Museum of Natural History in Central Park, New York, is rapidly becoming an attractive and important institution. It is open to the public free, and is daily visited by thousands.

Since its first opening and reception last year, many valuable acquisitions have been received; the more valuable being the collection of Prince Maximilian of Germany, which contains a vast number of fine specimens, accumulated by the labors of a lifetime. Beside this collection and the remarkable Verreaux cabinets, a fine specimen of ichthyosaurus has been added. This fossil is imbedded in a slab from the lias formation of Europe, and is one of the most perfect ever found; the plates of its enormous eyeballs are peculiarly distinct. Over 14,000 specimens of birds, besides several hundreds not mounted, are in course of rapid preparation for public inspection and study. A case recently received from Paris contains many finely mounted birds and mammals. Another valuable acquisition is a fossil elk from the bogs of Ireland. This is a perfect skeleton, the antlers being of enormous size. Two very fine specimens of quartz in crystals have lately been presented to the museum. One consists of a block about two feet in diameter, completely studded with prisms from half an inch to two inches in diameter, each prism being perfectly six-sided. A department of building stones has lately been introduced, the design of which is to afford builders and all interested an opportunity to examine at a glance the various building stones of this country and of the world. Other additions are constantly received. A list of the mammals has just been completed and put in the hands of the printer, and a full catalogue will be ultimately prepared.

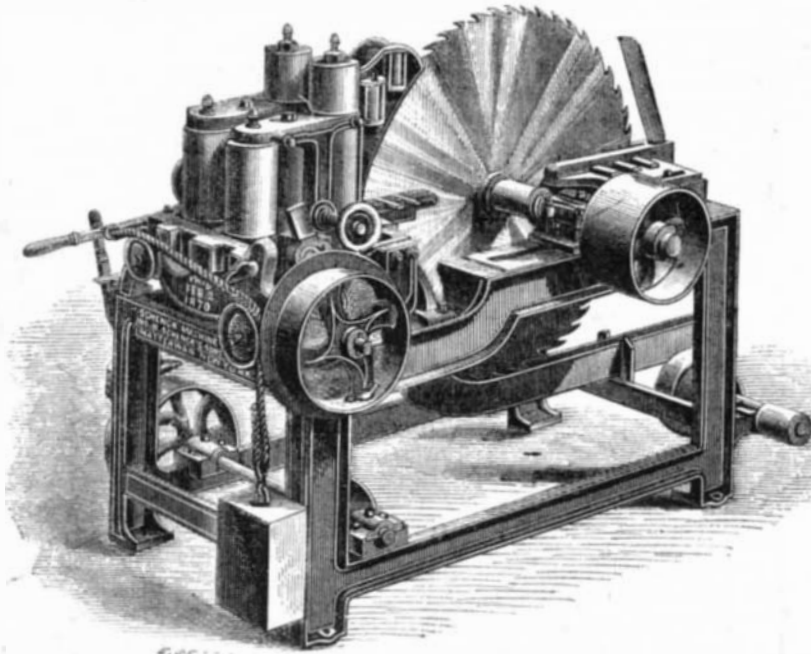
### Premiums to Locomotive Engineers.

The first duty of railway managers is to secure skilled and reliable employes in every department, and to do this they must pay them well. It may not in every case be possible to give the workmen in the different departments a direct portion of the savings made, due to extra care and skill, as is done in many manufactories and workshops; but it is possible to reward them for these requisites in some manner. When the Philadelphia, Wilmington and Baltimore Railway was operated under the "contract system," pecuniary inducements were held out to all the men to make them careful and skillful, they receiving a percentage of the savings made over a given standard of expense. The system worked favorably to the contractors and the men, the company getting a proportionate benefit from it by the men being better educated to better habits of care, greater skill, and a feeling of responsibility for success in their different spheres of labor. There can be no question that this system, by fostering competitive excellence, was conducive to greater safety in operation, and eventual economy in everything. We learn that the Leavenworth, Lawrence and Galveston railway managers have adopted this system with the most favorable results, by awarding annual premiums to the best performances of engineers for the services following:

- 1st. For general efficiency and care of engine.
- 2d. For lowest cost of repairs per mile run.
- 3d. For best performance per ton of coal and pint of oil.
- 4th. For least cattle killed in proportion to miles run.

The premium is to be given either in lots or lands of the company—to be located by those receiving them, on certificates to be used as cash for that purpose. Premiums have just been awarded of \$150, \$100 and \$75, under the first head; of \$100 and \$75 under the second; of \$100 and \$75 under the third; and \$100 and \$75 under the fourth; the total amount being \$500. In his circular to the Master Mechanic announcing the policy, Superintendent Chanute says:

"I have long entertained the opinion that more was exacted from locomotive engineers, in proportion to their pay, than from any other class of operatives on railways. Their post is one of dangers, and on their skill, judgement and fidelity, the safety of the public largely depends. As a class, they thoroughly appreciate the importance of the trusts that are confided to them, and not only do they uncomplainingly endure hardships, exposure and necessary overwork, but they have furnished many examples of self devotion, as noble as any in history. The past year, all our employees have worked well and faithfully to advance the company's interests. Not a passenger has been killed or injured on our



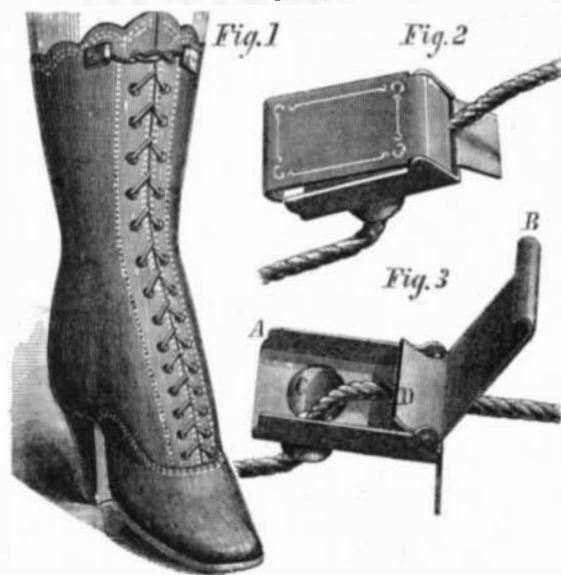
SCHENCK'S CIRCULAR RE-SAWING MACHINE.

trains, and it is the desire of the management to recognize the zeal with which the service of all has been rendered."—*Railway Times*.

### TRISCOTT AND WHEELER'S SHOE FASTENINGS.

This neat and seemingly very convenient device, for fastening the ends of shoe or boot laces, is claimed to hold them very firmly, and, at the same time, to be tasteful and comely in appearance, obviating both the trouble in tying the ordinary knot, and preventing the annoyance caused by the knots becoming untied.

Fig. 1 represents a shoe with laces fastened as when worn. Figs. 2 and 3 represent the fastenings in different positions. The device consists of two parts, A and B, which are hinged



together. The part, A, is fastened to the material of the shoe by means of the eyelet, C, and a tongue, which last is passed through the material of the shoe and bent down to hold the part, A, from turning on the eyelet. The lateral edges of A are turned up, as shown, so that the part B, shuts down to meet them, like a cover. The forward end of B is turned down at D to press upon and clamp the lace when this part is closed into the position shown in Fig. 1. The opposite end is bent so as to form a spring clasp, which engages the notched ends of the turned up edges of A.

In fastening the lace, the part, B, is turned up as shown in Fig. 3. The lace is then passed through under the pivot joint which unites the two parts, and is then passed through the eyelet, C. B being then pressed down and clasped, the shoe is permanently fastened in such a way that contact with the dress of the wearer cannot loosen it.

The fastening has the further advantage that, one end of the lace being thus secured, the other may be drawn up as tightly as required, a great convenience with some kinds of laces that slip easily.

Patented through the Scientific American Patent Agency, December 26, 1871. For further information address S. P. Triscott, 50 Thomas street, Worcester, Mass., to whom the patent has been assigned.

MR. J. H. COLT, of Oregon Territory, informs us that there is snow twenty feet deep on the Blue Mountains.

### Robertson's Telegraphic Insulators and Brackets.

This invention consists in the use of tubular slotted insulators provided with projecting lugs at the ends, and fitted into a bracket so as to be entirely held therein, the lugs entering recesses provided in the sides of the bracket. The insulator is made of glass or other non-conducting material. At its ends are projecting lugs or ears. The bracket, made of wood or other material, is as thick as the insulator is long between the lugs. It has one or more apertures through it for the insulators to be held in, one aperture for every insulator. To every such aperture in the bracket leads a slit, from front or back. The insulator is fitted through the bracket with its lugs in the slit, and when through is turned so as to bring a slot in line with the slit for the admission of the wire. When that has been applied, the insulator is once more turned to bring the slot out of line with the slit, so as to have the wire entirely inclosed. Staples may be driven over the ears into the countersunk parts or sockets of the bracket to prevent the insulator from turning spontaneously. The wire may be further fastened by a short wire drawn through a hole in the bracket, and twisted about the main wire.

Tubular insulators heretofore used were not slotted, and the wire could therefore only be introduced by being parted and then again united.

In actual work, the advantages and simplicity of this invention are that, the bracket being nailed or otherwise fastened to the post, the wire can be repaired, renewed, or removed without trouble, the slit in the bracket allowing the wire to drop into the insulator hole at once when the slit is in line.

The insulator can at any time be put on, without disturbing the wire, by means of the slot in it, and then pushed into the hole in the bracket, all that is necessary being to keep the lugs opposite the slit in the bracket,

and then pushing it in till the lugs clear the bracket; then, by turning the insulator slightly round and putting the small staples over the lugs, (which latter can be done with perfect ease,) the insulator is secured in its place, and the wire effectually prevented from getting out.

To retain the telegraph wire in its place, all that is necessary is to pass a wire through the small hole under the insulator, and fasten it by twisting it to the main wire at each side, and the main wire is effectually retained; the whole process being exceedingly simple and effective.

There is, it is claimed, no risk of the insulator being broken or disconnected, or of the wire becoming disconnected; and any unskilled workman could do all that is necessary in repairing and fixing the line.

Mr. John Robertson, of Carbondale, Pa., is the inventor.

### Noyes' Vacuum Tanks for Tanning Leather.

The object of this invention is to so construct tanks for tanning leather by the vacuum process, and for other purposes, that they will be sufficiently strong when made of wood, and tight enough to preserve the vacuum. It consists in one or more layers of pitch or cement of any suitable kind applied when in a fluid state, so that not only every crack and crevice in the walls and sides of the tank will be filled therewith, but so that the air shall be totally excluded from the tank.

These vacuum tanks have hitherto been made of iron, but it has been found that the tannic acid combines readily with and oxidizes the iron and colors the liquor, consequently coloring the leather, and making it to a certain degree unsalable. These tanks of wood overcome this difficulty, but the vacuum cannot be preserved in a wooden tank except by the use of pitch or cement applied according to this invention, or without one or more continuous and perfect partitions thereof surrounding the chamber on either side.

When the wooden partitions, boxes, or layers are placed, and the exhaust induction pipes are attached, the pitch or cement, in a fluid or semi-fluid state, is poured into the spaces, so as to entirely surround the chamber with one or more partitions, layers, or coats thereof. This hardens directly, excludes the air, and preserves the vacuum, while it preserves the wood from decay.

The inventor does not limit or confine himself to the precise form or arrangement described, as they may be varied in many ways without departing from the invention. Neither does he confine himself to vacuum tanks for tanning hides or leather, but designs to apply the invention to tanks for bleaching or extracting tannin from bark by the vacuum process, and for other purposes.

Mr. D. F. Noyes, of Lewiston, Me., is the inventor.

### Gratitude all Around.

We desire to thank all our good friends who have supplied us, with early numbers of this volume, for the alacrity with which they responded to our call. Hundreds of new subscribers have thus been furnished from the commencement of the year, by the courtesy of those who supplied the numbers, and the publishers are saved the necessity of reprinting.

THERE is a trinity in the communication of heat. It is conducted, circulated, and radiated. It passes through solids by conduction, through liquids by convection or circulation, and from hot bodies generally by radiation.