

**ENGINEERING INVENTIONS.**

Mr. John L. Cole, of Williamstown, Mass., has patented improvements in apparatus for checking the momentum of railroad cars and storing power to be subsequently used in starting or impelling the car, which apparatus consists, generally, of springs, a cord or chain, a conical spirally-grooved winding drum, and gearing and clutches for connecting the drum with the car wheels or axle, whereby the cord is wound on the drum, the springs compressed and held for use in propelling the car by their expansion.

An improvement in rail joints, patented by Mr. William W. Fay, of Jefferson City, Mo., consists in connecting the ends of adjoining rails together by means of a metal plate inserted in slots in the adjacent ends, and also in fastening and tightening the connecting plate in its place by means of laterally-driven dovetailed wedges.

Mr. Samuel L. Skinner, of Independence, Iowa, has patented a device for automatically restoring to their proper position the car wheels that may chance to run off the track while the cars are running. The invention consists of eccentric wheels with V-shaped grooves in their treads, adjusted on a car truck, and operated in such a manner that when the car wheels leave the rails the eccentric wheels will at once drop upon the rails and operate to raise the truck in line again, so that the car wheels will be restored to their proper position.

**SCISSORS AND SCALE MEASURE.**

This device consists essentially of a round rod or tube having a slot, within which is secured one blade of a pair of scissors, the other blade being held in the open position by means of a spring.



In using this implement the operator grasps the rod in the right hand and inserts the fourth finger in the bow of the scissors. The goods to be cut are drawn over the rod with the left hand under the movable blade, when the scissors are closed, cutting the goods.

The inventor claims that this implement combines the usefulness of two instruments, while it offers no inconvenience in the use of either scissors or scale.

This improvement is the invention of Mr. Scott Stivers, of Liberty, Ind.

**A Primitive Nation.**

The new Mexican inter-oceanic railway across the Tehuantepec Isthmus is marked out to pass through the State of Chiapas, which probably contains the only population in the world which possesses no iron, nor anything in the shape of an iron industry even of the crudest form. For the distance of eighty miles around Palenque, the capital, not a single blacksmith can be found, and the only articles in the shape of iron are axes and machetas, imported from the United States. Nails are unknown, all the woodwork being held together by cords or the tendrils of the vines, and even the tortilla is prepared by grinding the maize between stones. The new railway, which will run through this territory, has clearly a well defined educational as well as a commercial development to undertake.

**Winter Fishing on Chautauqua Lake.**

The winter fishing on Chautauqua Lake is a good deal of a business. Being an inland lake it freezes over quicker than Lake Erie, and when the latter body is open Chautauqua Lake has ice enough to hold up an army of fishermen. There are now about twenty "coops," as they are called, out on the ice. A "coop" is a box about three feet square, with a hole in the bottom. A hole is cut in the ice and the box is placed over it, and it being perfectly dark in there he can see the bottom as plain as day if the water is clear. If it is not clear, a newspaper is sunk to the bottom under the coop, and fish passing over it are easily seen. Through this hole in the ice a wooden fish properly weighted is sunk to the proper depth, and with a cord attached to it, the bogus fish is made to fly around lively, and thereby attract other fish to its locality. The man in the coop keeping watch, seeing a fish in good position, lets drop his heavy spear, weighing from fifteen to twenty pounds, fastening him to the bottom. Some large fish are caught in that way. The Monday before New Year's there were caught three pickerel weighing respectively twenty-seven, thirty, and forty-two pounds. It is quite a business when the pond is frozen over, and those who follow it make money.—*Silver Creek (N. Y.) Local.*

**IMPROVEMENT IN JACKSCREWS.**

The engraving represents a marked improvement in a simple yet most important mechanical appliance which is indispensable to those engaged in building or repairing houses, ships, engines, bridges, or railroads. It is known as Ball's patent jackscrew, and is manufactured by Mr. Albert Bridges, 46 Cortlandt street, New York city.

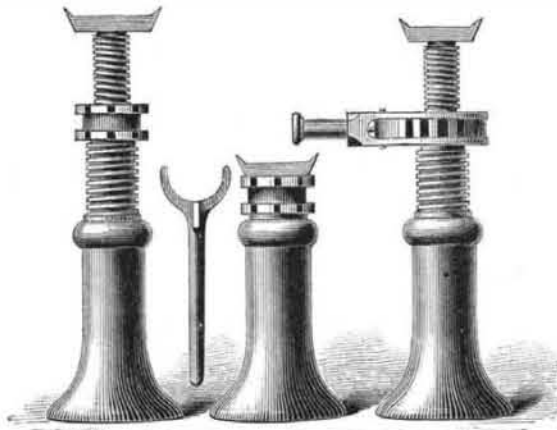


Fig. 1.

Fig. 2.

**BALL'S TELESCOPIC JACKSCREWS.**

The screw, as will be seen by reference to the engraving, is double, the lower part being made tubular and threaded both externally and internally; one screw to the right and one to the left. The two screws operate simultaneously. The internal thread receives a solid screw carrying at the top a cap which is applied to the object to be raised.

The upper end of the tubular screw is provided with a head adapted to a wrench, as shown in Fig. 1, or it is provided with a ratchet head, as shown in Fig. 2. With this construction, when the tubular screw is turned, it not only raises the solid screw, but the latter being stationary, it is evident that it must be projected from the tubular screw at the same rate of speed as the latter is projected from the base, providing all of the threads are of the same lead.

It is stated that this jack will raise a load in one half the time required by the ordinary jack without an increase of labor. The screws may be run out nearly double the height of the base.

The stands vary in height from ten to twenty-five inches; the screw from fourteen to forty inches; the rise varies from eleven to thirty-six inches; and the total length ranges from twenty to sixty-one inches.

It is stated that there are 5,000 of these jackscrews in use.

**Negatives on Paper.**

M. Londe lately exhibited some negatives upon thin paper (*dioptrique*). It appears that this gentleman prepares a plate with talc and pours over it a collodio-bromide emulsion. When the negative has been obtained he floats over its surface a solution of gelatine and gum, and then lays the thin paper upon it, passes a squeegee over it to drive out excess of liquid, and allows it to dry. When thoroughly desiccated a sharp knife is passed round the picture about an eighth of an inch from the edge of the plate. The film is now lifted from the glass, and can be used on either side for printing purposes.

**IMPROVED PLANT SPRINKLER.**

The invention shown in the annexed engraving will be appreciated by lovers of flowers and plants, as it affords a



**SCHRADER'S PLANT SPRINKLER.**

convenient means of showering, and is not limited as to its supply of water. It consists simply of a rose sprinkler connected with a flexible bulb provided with a couple of valves and a suction tube. The pail containing the water may be of any convenient size. To operate the sprinkler it is only necessary to alternately compress the bulb and allow it to expand. When it is compressed it expels the water through the rose sprinkler. When it is allowed to expand it draws a fresh supply of water from the pail.

This invention was recently patented by Mr. August Schrader, of New York city.

**Points about Welding.**

The *Blacksmith and Wheelwright*, a journal that ought to know, says that to obtain a good sound weld, the following points should be observed:

The scarf should be sufficiently larger than the finished size to permit the weld to be well drawn out after welding. The joint surface of the scarf should be slightly rounding, so that, when the two pieces are placed together to weld, there will be no air inclosed between them.

They should be heated in a clear fire of bright and not gaseous coal. Thick pieces should not be heated too quickly, or the interior metal will not be brought up to the required temperature. They should be frequently turned in the fire, to insure uniformity of temperature, and be made as hot as possible without burning them.

They should be withdrawn from the fire occasionally, and sprinkled with sand, which serves to exclude the air from the surface and prevent oxidation, and at the same time cools the outer surface and thin edges, giving the interior metal and thicker parts time to become heated all through.

When the pieces are placed upon the anvil to weld them, they should be quickly cleaned with either a wire brush or a piece of wood made ragged by having been hammered. The scarfs should be placed to well overlap each other, and should receive light and quickly succeeding blows at first, and heavier ones afterward.

As soon as the pieces are firmly joined, the hammer blows should be delivered with a view to close the edges of the scarf, so that the joint of the weld shall not show where the job is finished.

**IMPROVED PRUNING IMPLEMENT.**

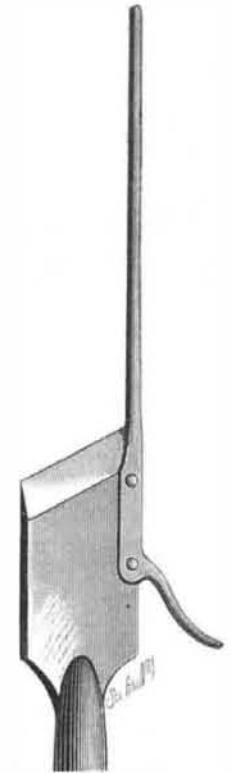
The principal object of the invention shown in the annexed engraving is to provide a guide for the pruning chisel, so that when the thrust is made to sever the limb the chisel will be properly guided so that the stroke will be effective. The invention consists of a long tine or finger attached to one of the edges of the chisel, and extending forward in the direction of the thrust of the chisel. The fixed end of this tine is bent outward, forming a hook, by means of which the limbs cut from the tree may be pulled out.

This simple yet useful invention has been patented by Mr. John W. Cogswell, of Erie, Mich.

**Pneumatic Clocks.**

The Paris correspondent of the New York *Herald* has thought the following of sufficient importance to transmit by cable to New York:

Paris clocks have long afforded a subject of ridicule to foreigners. In a few days there will be no room for derision. Within the last week handsome public, illuminated timepieces have been erected in the middle of the causeway of the leading thoroughfares. These are all in communication with the works of the new Pneumatic Clock Company, in the Rue St. Anne. By means of subterranean tubes this company receives the time direct from the Observatoire every morning, and regulates all the timepieces in connection simultaneously. In future it will be possible to have the correct time laid on in any house, like gas or water, at the trifling cost of from three to five centimes per clock per day. I was allowed to inspect the company's premises privately to day, and examined the whole arrangements. The air is compressed by steam engines and driven at intervals of a minute through the communicating tubes, so as to move the minute hands the requisite distance at each pulsation. It can be applied to any clock. The company undertakes to pay all the cost of the fittings. It supplies clocks gratuitously and charges only a subscription. By this new system all trouble of repairing and winding up is done away with. Over one thousand pneumatic clocks are ordered in Paris already, and will soon be tested at New York, where the patent for America has been purchased.



**COGSWELL'S PRUNING IMPLEMENT.**

**Another New Jersey Fossil Sea Serpent.**

The jaws and a portion of the vertebrae of a fossil sea serpent (*Pythonomorpha*) were found not long since in a marl pit at Marlborough, New Jersey. Professor Lockwood estimated the length of the living serpent to have been from 40 to 60 feet—considerably less than that of a previously discovered specimen. Tooth-marks on the bones indicate a grand feast of ancient fishes when the dead monster "lay like a great wreck on the old ocean bed." The teeth, though formidable, are about half the size of those of the 80 foot specimen previously discovered.